

Technische Universität Dortmund
Faculty of Spatial Planning

The Potential of Customary Spatial Unit Administration for Sustainable Development

The Case of Ambon Lease Region,
Province of Maluku, Indonesia

Rizqi Abdulharis
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Preface

Land management and issues pertaining to land tenure are important components of sound spatial planning. In the developing world, planners have tended to focus primarily on land tenure regulations and practices based on the colonial model; more often than not they have paid less attention to the relevant customary practices. Customary land management practices have rather been a field of interest for anthropologists. However, a dualism of statutory land tenure based on colonial legislation and customary practices is in evidence in many former colonies, which are as diverse as Ghana, Malawi or Indonesia. Unfortunately many scholars have viewed this dualism as an obstacle towards rational planning and good rural development. Not many writers have attempted to investigate into the specific potentials of this dualism, especially the potentials of the customary sector.

In this regard Rizqi Abdulharis' thesis fills a knowledge gap, certainly for Indonesia, but also for the more general discourse on how best customary institutions can be integrated into "modern" systems of land management and administration. Moreover, with the choice of his thesis topic he has addressed one of the most important challenges for contemporary rural development, namely the search for sustainability. So his interest is not the customary sector with its institutions for its own sake, but rather the potentials for sustainability emanating from a better integration of the customary sector into modern governance institutions.

Another innovative aspect of his thesis is his notion of "Spatial Unit Administration" as 3D Spatial Unit Administration, encompassing both land and marine resources. I consider this idea of a unified 3D Spatial Unit Administration as the most outstanding innovative feature of his thesis.

On the basis of a convincing theoretical framework Rizqi Abdulharis has conducted in-depth empirical studies in four case study regions in Ambon province, which shed some light on different variants of the articulation between statutory and customary land governance.

It is my sincere hope that his book will find its readers not only within the academic realm, but as well among policy makers and practitioners in the field of land management and rural development in Indonesia.

27.6.2014

Einhard Schmidt-Kallert

Professor of Spatial Planning in Developing Countries at TU Dortmund, Dortmund, Germany

Preface

Linking the way customary systems handle resources -like land and water- to the official, national goals and systems has been and is an important area of study. This applies to the global scale, as well as to specific countries, Indonesia being one of the more prominent ones among them. Many studies and authors take a rather strong stand; either supporting the customary systems or the statutory systems, and highlighting the weaknesses of the other one. Rizqi Abdulharis' thesis, however, adds to that debate by taking an integration lens, seeing what the customary experience can do to enhance the formal system (by picking some words from his hypothesis).

This fits well with the topics of earlier cooperation that Rizqi and I had. Although in the completely different setting of post-tsunami Aceh, he also looked for the mutually beneficial links of the statutory and customary systems of land tenure and land administration during his MSc thesis work, with me as daily supervisor, in 2005-2006 at TU Delft. After his return to Indonesia he continued this line of studies as a junior staff member of ITB Bandung in more stable traditional settings like Banten and Yogyakarta. Especially in Indonesia this remains very topical, since the Agrarian Principles Act of 1960 intended to incorporate the customary systems (Adat) with the former colonial system into one system for the whole country, but the centralized land administration structure for decades undervalued the customary systems in actual implementation. The more recent wave of decentralization has brought this again to the forefront, even though land administration remains largely centralized.

It was great that Rizqi got the chance to work more systematically and fundamentally on the topic as a PhD candidate at TU Dortmund. With the field work sites placed on the smaller islands of Maluku, this also offered an extra dimension of linking land administration to the field of 'marine cadastres'. Not only land tenures, but also access to and use of marine resources are added. Most existing literature deals either with the 'dry' or with the 'wet' tenures and their administration. But once again Rizqi does not focus on the differences, but on the similarities; both with regard to studying the strength and roles of the customary system on land and at sea, as well as by creating a clear and fundamental conceptual base that encompasses both. He dubs this 'Spatial Unit Administration', and applies the concept both to the customary and statutory systems.

With many interesting and balanced conclusions and recommendations the thesis should also inform and influence policy making and implementation. However, with some many different stakeholders (including different government departments) needing to adapt to really make it all work, we might see less change than we would wish for. In that respect we can say that trying to bridge two divides (customary vs. statutory and land vs. marine tenure administration) has been a 'Rizqi', but rewarding, approach.

2.7.2014

Jaap Zevenbergen

Professor of Land Administration and Management at ITC, University of Twente, the Netherlands

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I thank God for the strength and support from my beloved wife and children, parents and parents in law, family and friends, my supervisors Prof. Dr. Einhard Schmidt-Kallert and Prof. Dr. Jaap Zevenbergen, my examiner Dr. Christoph Woiwode and Frau Eva Gehrman. I also appreciate the support from the Directorate of Higher Education of the Ministry of National Education of Indonesia, as well der Martin-Schmeißer-Stiftung.

Abstract

The achievement of the goal of sustainable development is affected by the administration of Land and Marine Units. The Land Administration System has played an important role in leading to the fulfilment of the goal of sustainable development. On the other hand, the Marine Administration System has not yet been well-developed.

The centre of attention of the Land and Marine Administration should be on the development of not only new technologies but also the people's tools in order to contribute to poverty eradication, wealth distribution, the management of cities and sustainable development in the broadest context. It has been proven that the indigenous community- and knowledge-based Land and Marine Administration Systems have been able to flexibly cope with the latest circumstances and promote good land and marine governance, as well as to maintain people's identity and sustainability of resources.

The Formal Land and Marine Administration System of Indonesia has not yet been able to provide the people with the full benefit from the administration of Land and Marine Units. The people's accessibility to the Land and Marine Units is low, while the contribution of the marine sector to Indonesia's GDP is insufficient compared to the extent of its marine territory. Additionally, the Customary Land and Marine Administration Systems in Indonesia have been considered to be obstacles to development.

This study focuses on the exploration of the potential of an integrated Customary Land and Marine Administration towards the fulfilment of the goal of sustainable development in Indonesia. Having examined the existing concepts and practices on Land and Marine Administration, the Spatial Unit Administration is proposed to be a means for integrating the administration of Land and Marine Units towards the fulfilment of the goal of sustainable development. Additionally, several indicators are also proposed in order to directly measure the role of the Spatial Unit Administration on sustainable development.

The main contribution of the Customary Spatial Unit Administration to the enhancement of the Spatial Unit Administration concept in the scope of fulfilling the goal of sustainable development is to establish a concept to design a communalistic and indigenous knowledge-based Spatial Unit Administration System. This had been able to promote good Spatial Unit governance in the selected case study areas together with the specialised Customary Spatial Unit Administration feature and the application of the adverse possession principle. This had also facilitated the establishment of the integrated Customary Spatial Unit Administration institutions, which had also been supported by the application of the hybrid Spatial Unit notion. These features had also provided a good basis for the establishment of the technical and financial framework of the systems mentioned.

Having learned from the contribution of the Customary Spatial Unit Administration in the selected case study areas, the entry points for enhancing the role of the Formal Spatial Unit Administration System of Indonesia towards the achievement of the goal of sustainable development in Indonesia are proposed. These entry points are the integrated sectoral Spatial Unit Administration, decentralisation of the Spatial Unit Administration in Indonesia and development of a concept to implement good Spatial Unit governance in Indonesia.

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List of Acronyms

CIAB	Coal Industry Advisory Board
CSD	Commission on Sustainable Development
DEFRA	Department of Environment, Food and Rural Affairs of United Kingdom
FIG	Fédération Internationale des Géomètres/International Federation of Surveyors
GIS	Geographic Information System
GPS	Global Positioning System
GPS CORS	Global Positioning System Continuously Operating Reference Station
IMF	International Monetary Fund
NOAA	National Oceanic and Atmospheric Administration of United States of America
NRC	National Research Council of United States of America
ODI	Overseas Development Institute
OECD	Organisation for Economic Co-operation and Development
TCLF	The Cultural Landscape Foundation
UN	United Nations
UNESCO	United Nations Educational, Scientific and Cultural Organization
UN-ECE	United Nations Economic Commission for Europe
UN-Habitat	United Nations Human Settlement Programme
WCED	World Commission on Environment and Development

List of Terms

<i>Dati Association</i>	An association of a group of people, used to be related to the performance of <i>dati</i> task
<i>Ewang</i>	Primary forest in Saparua Island or watershed buffer zone in Negeri Tulehu
<i>Kewang</i>	Customary government official responsible for maintaining orderliness and monitoring the Spatial Unit Administration
<i>Labuan</i>	Customary marine protected area
<i>Negeri Lama</i>	The location of the settlement of the ancestor of indigenous communities in Ambon Lease region
<i>Parusa</i>	Cleared land
<i>Register Dati</i>	<i>Tanah dati</i> register
<i>Sasi</i>	Permanent or temporary restriction to access or harvest specific resources
<i>Tanah Dati</i>	Land belonging to <i>dati</i> association
<i>Tanah Dati Pusaka</i>	Land belonging to a person and her/his descendant
<i>Tanitar</i>	Preserved forest in Saparua Island
<i>Wasi Amang</i>	Preserved forest in Ambon Island

1 Introduction

Sustainable development is defined as a process of fulfilling the needs of recent and future generations by creating a balance among the economic achievement and social advancement, as well as social values and environmental conservation. The concept of sustainable development was developed due to the destructive impact of economic growth on social setting and environmental quality (Perdan 2004: 4). The term sustainable development has evolved from the harvesting regimes for specific stocks of natural resources that could be sustained over time to challenges of balancing the economic and ecological perspective of development and acknowledging the collective responsibility of stewardship of recent generations to future generations (Dale and McLaughlin, 1999: 20). Such a concept was initially developed within the environmental movement (Perdan *op. cit.*), which called the maintenance of ecological processes, sustainable use of resources and maintenance of genetic diversity (*ibid.*: 5).

Moreover, the centre of attention of the sustainable development itself is not solely on economic and environmental aspects, but also on social aspect. The social aspect started being considered as one of the aspects of sustainable development from the publication of the 1987's Brundtland Report (*ibid.*). Further, the Universal Declaration on Cultural Diversity, which states that cultural diversity is considered as the common heritage of humanity and one of the important factors in development, reveals the importance of the social aspect on sustainable development, particularly due to the prominent role of culture in the construction of social structures (Bada 2003).

Based on the above concept, the achievement of the goal of sustainable development is greatly affected by the administration of resources. Within the scope of Land Management paradigm, Land Administration is considered as one of the tools to implement land policy on the management of land and resources (Williamson *et. al.* 2010: 115). Due to the increasing amount of pressures on the environment caused by the growing population; use and misuse of resources; re-organisation of nation, state and local agencies and technological advancements (*ibid.*: 84), Land Administration System has started to play an important role in leading to the fulfilment of the the goal of sustainable development (*ibid.*: 86).

Furthermore, in future the Land Administration System should not only focus on the administration of land and resources but also on the provision of benefits from such an administration for its beneficiaries namely the people. The technological advancement on Land Administration has been and will always be crucial to establish a sound Land Administration System (*ibid.*: 440). Nonetheless, as the Land Administration is basically one of the ways to organise the relationship between people and land (*ibid.*: 36), its attention should be on the development of not only new technologies but also on people's tools in order to contribute to poverty eradication, wealth distribution, management of cities and sustainable development in the broadest context (*ibid.*: 440). Consequently, it should further be developed based on the needs of the people. This statement is also supported by Zevenbergen *et. al.* (2012: 12) who mention that a pro-poor land recordation system should be developed based on the description of the community in question, on the tenure system and on the types of evidence currently used.

Sustainable development does not only concern the administration of the Land Unit but also the administration of the Marine Unit and resources contained therein. This is particularly due to the coverage of the ocean in the world, which is as much as 71% of the Earth's surface (NOAA 2012). Moreover, the ocean contains 97% of the water of

the Earth (*ibid.*). Nonetheless, not more than 95% of underwater world has been explored (*ibid.*).

Unfortunately, by considering the previously mentioned facts on the ocean of the World, the Marine Administration System has not yet been able to act in a similar way as the Land Administration System on the administration of the associated resources. Land Administration System was initially developed based on the Western concept of land (Williamson *et. al. op. cit.*: 38), which limits the territory to the coastal line (Mulrennan and Scott 2000: 681). Accordingly, a Marine Administration concept should also be developed in order to meet the economic, environmental and social goals of sustainable development (Williamson *et. al. op. cit.*: 206). Additionally, as the Marine Administration has mostly been done sectorally, the Marine Administration System should be integratively developed, not only by integrating the existing, sectoral Marine Administration Systems but also by integrating these sectoral systems with the existing Land Administration System (*ibid.*).

On the other hand, the Customary Land and Marine Administration System have been to some extent well-developed, particularly within the scope of the fulfilment of the goal of sustainable development. The indigenous community- and knowledge-based Land Administration System in peri-urban areas in Ghana has been able to cope with the latest, local circumstances and promote good land governance (Arko-Adjei 2011: 180). Furthermore, the indigenous communities in Northern Québec (Mulrennan and Scott 2000: 683-684) and Pacific Islands region (*ibid.*, Ruddle 1998: 107, Barker 1998: 89) have been able to sustain themselves by maintaining the sustainability of coastal and marine resources, as well as their identity.

In the Indonesian context, the Formal Land Administration System of Indonesia has not yet been able to provide the security of access to land. Among 85 million land parcels in Indonesia, there were only 39 million land parcels that were already registered in 2008 (Arsyad 2011). Furthermore, in 2011, 56% of the national assets, 87% of which were in the form of land, were possessed by 0.2% of the citizens of Indonesia (*ibid.*).

While the Formal Marine Administration System of Indonesia has only been developed since 2007, the management of marine resources has not yet been able to contribute much to the Gross Domestic Product (GDP) of Indonesia. According to Poernomo (2009), the contribution of this sector to 2008's GDP of non oil and gas of Indonesia was as little as IDR 92.22 trillion, which is equal to EUR 7.38 billion, or 2.50% of the total GDP of non oil and gas sector of Indonesia. This figure is insufficient compared to the extent of Indonesia's marine territory, which covers 3.1 million square km or 62% of Indonesia's territory.

Furthermore, even though the filtered, existing customary laws in Indonesia were employed as the basis for the establishment of the Formal Land and Marine Administration System of Indonesia, the Customary Land and Marine Administration Systems have not yet been integrated into this system. The existence of Customary Spatial Unit Administration Systems in Indonesia, has, to some extent, been identified such as in West Java (see Abdulharis *et. al.* 2007), Yogyakarta (see Abdulharis *et. al.* 2008b) and West Sumatera (see Abdulharis *et. al.* 2008a). Moreover, the right of the indigenous communities in Indonesia on accessing the Land and Marine Units, as well as the resources attached to the mentioned units, has not been guaranteed by the State (Marzali 2002: 98-100). Even the customary law has been considered as one of the obstacles within the scope of the development of Indonesia as stated in Paragraph 3 or Article 3 of Section A.II of General Elucidation of Act No. 5 of 1960 regarding the Agrarian Principles, also known as the Agrarian Principles Act or *Undang-Undang Pokok Agraria* in Indonesian. Accordingly, the indigenous communities in Indonesia, which

are the beneficiaries of the Formal Land and Marine Administration, have not been able to fully benefit from the Formal Land and Marine Administration in Indonesia.

Having identified the lack of conformity of the existing Land and Marine Administration to integratively address the fulfilment of the goal of sustainable development, either conceptually or in the Indonesian context, the course of this study, which is to deal with the above mentioned issues, is explained. The objective of this study is subsequently described in Section 1.1, while the hypothesis employed in this study is depicted in Section 1.2. Furthermore, the questions that led to the resolutions on the above issues are highlighted in Section 1.3. Finally, the structure of the report of this study is depicted in Section 1.4.

1.1 Study Objective

The main purpose of this study is to explore the potential of an integrated Customary Land and Marine Administration towards the fulfilment of the the goal of sustainable development in Indonesia. As mentioned earlier, it is expected that the focus of Land and Marine Administration would be on the development of not only the technological tools but also the people's tools, as well as the community-based Land and Marine Administration System. Consequently, the centre of attention of this study is on the Land and Marine Administration System maintained by indigenous community. This is particularly due to the outcomes of the previous studies, which reveal that the Customary Land and Marine Administration System was developed based on prevailing indigenous knowledge to fulfil the needs of the indigenous community in question. The previous studies have also uncovered that the indigenous communities in Ghana, Northern Québec and Pacific Islands region have over time also been able to enjoy the outcome of the sustainable development by means of the Customary Land and Marine Administration.

This study has been made within the scope of sustainable development in Indonesia. Indonesia has a solid basis for further developing its Formal Land and Marine Administration System as the basic infrastructure leading to the achievement of sustainable development. The people's tools have already existed prior to the establishment of the Formal Land and Marine Administration System, particularly due to the existence of the Customary Land and Marine Administration Systems. Nonetheless, even though the Formal Land and Marine Administration System of Indonesia was developed based on the filtered customary law, it has not been able to provide equitable access to Land and Marine Units for the beneficiaries of the Land and Marine Administration namely the people. The economic outcomes of the Formal Land and Marine Management in Indonesia have not been sufficient, particularly compared to the territorial potential of Indonesia. Even worse, the customary law has been considered as one of the obstacles of the development in Indonesia. By focusing on the exploration of the potential of an integrated Customary Land and Marine Administration in Indonesia, it is expected that the entry points to achieve the goal of sustainable development through the Formal Land and Marine Administration in Indonesia could be identified.

Nonetheless, this study is based on the existing concepts and practices on Land and Marine Administration. By utilising existing concepts and practices on Land and Marine Administration, it is expected that this concept of an integrated Land and Marine Administration could be developed. It is also expected that the role of the integrated Land and Marine Administration on leading to the fulfilment of the goal of sustainable development could be directly measured. Furthermore, this study expects to fulfil the knowledge gap to achieve the goal of sustainable development through an integrated Land and Marine Administration.

1.2 Hypothesis

Having considered these facts, this study is based on the hypothesis that *the Customary Spatial Unit Administration System acts as the basis for the enhancement of the Formal Spatial Unit Administration System of Indonesia to lead to the fulfilment of the goal of sustainable development in Indonesia*. The Spatial Unit Administration is proposed as the framework for integratively administering the land and marine unit.

1.3 Study Question

Several study questions are posted for validating the previously mentioned hypothesis. Those questions are:

- *How could the concept of Land and Marine Administration be integrated?*
- *How could the Spatial Unit Administration be linked to sustainable development?*
- *What is the role of the Formal Spatial Unit Administration on the fulfilment of the objective of the goal of sustainable development in Indonesia?*
- *What is the role of the Customary Spatial Unit Administration on leading to the achievement of sustainable development in the selected case study areas?*
- *How could the Customary Spatial Unit Administration in the selected case study areas contribute to the enhancement of the Spatial Unit Administration concept on leading to the fulfilment of the the goal of sustainable development?*
- *How could the Formal Spatial Unit Administration System be enhanced in order to facilitate the fulfilment of the the goal of sustainable development in Indonesia?*

1.4 Structure of Report

In this section, the structure of the report of this study is portrayed. This report comprises nine chapters, based on the questions posted in this study. See Figure 1.1 for the link between the study questions and the chapters of this report.

Chapter 1 starts with the description on the background of this study. Having identified the issues concerning the role of Spatial Unit Administration System on facilitating the achievement of sustainable development, the necessity to include the people's tools in the Spatial Unit Administration System in the future and integrated Spatial Unit Administration, both conceptually and in the Indonesian context, the objective and the hypothesis of this study are subsequently depicted in Section 1.1 and Section 1.2. Based on the objective and hypothesis, the questions guiding the performance of this study are highlighted in Section 1.3. Furthermore, the structure of the report of this study is portrayed in Section 1.4.

Chapter 2 highlights the development of the conceptual framework of this study. This has been developed by responding to the first and second question of this study. In Section 2.1, the development of the framework for the integration of the Land and Marine Administration System, also known as the Spatial Unit Administration System, is portrayed. Furthermore, the link between Spatial Unit Administration and sustainable development is described in Section 2.2. Finally, the conceptual framework developed based on the knowledge gap on the role of Spatial Unit Administration System in facilitating the achievement of the sustainable development is depicted in Section 2.3.

Chapter 3 portrays the design of this study. Based on the fundamentals of this study highlighted in Chapter 1 and 2, the strategy employed in this study is explained in Section 3.1. In order to fulfil its objective, the extent of this study is limited by the case se-

lection parameters and unit of analysis, which are described in Section 3.2 and 3.3. The flow of this study is further described in Section 3.4. Finally, the discussion regarding the issues on the validity and the reliability of this study is highlighted in Section 3.5.

Chapter 4 basically describes the Formal Spatial Unit Administration System of Indonesia and its role in leading to the achievement of the objective of sustainable development. In Section 4.1, the general information on the Formal Spatial Unit Administration in Indonesia is first introduced, followed by the depiction of the relationship between the Formal and Customary Spatial Unit Administration System of Indonesia in Section 4.2. The assessment of the role of the Formal Spatial Unit Administration System of Indonesia in facilitating the fulfilment of the goal of sustainable development is highlighted in Section 4.3.

Chapter 5, 6 and 7 illustrate the Customary Spatial Unit Administration Systems in the selected case study areas and their role in facilitating the fulfilment of the goal of sustainable development. Chapter 5 describes the indigenous community structure and the link between the customary and formal government in the selected case study areas. Section 5.1 portrays the selected case study areas from a social, geographical, political and legal perspective. The concept of customary governance in the selected case study areas is given in Section 5.2, while the external influences from the higher hierarchical administrative level on the customary governance are described in Section 5.3.

Chapter 6 reveals the applicability of the Spatial Unit Administration concept within the scope of the Customary Spatial Unit Administration in the selected case study areas. The Customary Land Administration System in the selected case study areas is firstly portrayed in the Section 6.1, while the Customary Marine Administration System in the selected case study areas is further illustrated in Section 6.2.

Chapter 7 provides the description of the role of the Customary Spatial Unit Administration in achieving the objective of sustainable development. The ecological, economic and social impacts of the Customary Spatial Unit Administration are consecutively depicted in Section 7.1, 7.2 and 7.3.

Chapter 8 highlights the contribution of the Customary Spatial Unit Administration on the enhancement of the Spatial Unit Administration, both conceptually and in the Indonesian context. The role of the indigenous communities in maintaining the sustainability of the Customary Spatial Unit Administration Systems, considered as one of the important factors of the Customary Spatial Unit Administration Systems in facilitating the fulfilment of the goal of sustainable development, is depicted in Section 8.1. Furthermore, the entry points for the Spatial Unit Administration to facilitate the fulfilment of the achievement of sustainable development are described in Section 8.2, while the applicability of the findings of this study are further portrayed in Section 8.3. Finally, the outcome of the SWOT analysis within the scope of the enhancement of the Formal Spatial Unit Administration System of Indonesia by considering the given entry points from Section 8.2 is highlighted in Section 8.4.

Chapter 9 highlights the conclusions and the recommendations of this study. In Section 9.1, the conclusions are given by addressing the study questions stated in Section 1.3. Furthermore, the recommendations on the enhancement of the role of Formal Spatial Unit Administration System of Indonesia in facilitating the fulfilment of the goal of sustainable development are given in Section 9.2.

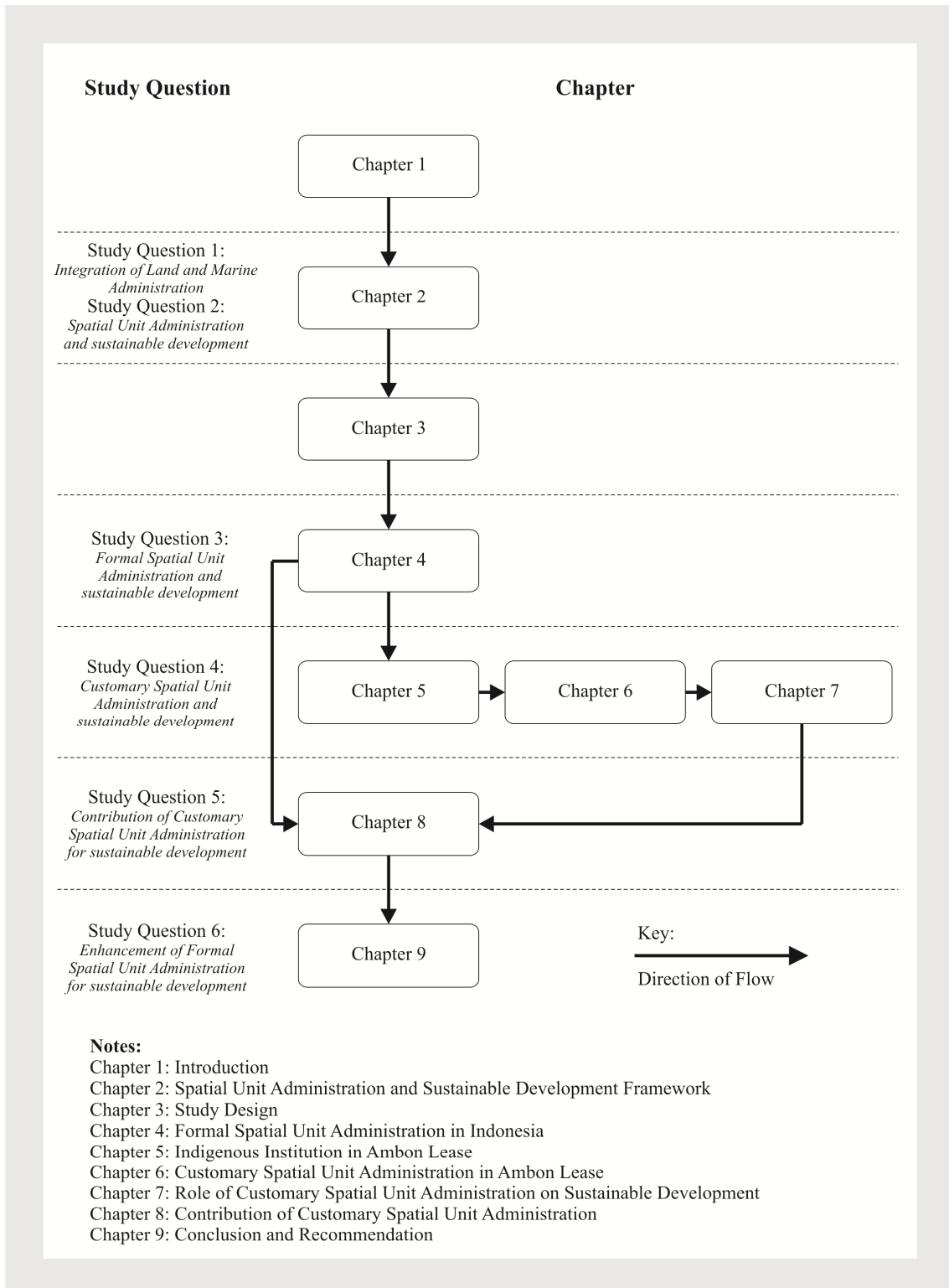


Figure 1.1 Relationship between study question and chapters of this study report

2 Spatial Unit Administration and Sustainable Development Framework

The administration of Land and Marine Units has mostly been done separately mainly due to the application of the western concept that limits territory to coastal line (Mulrennan and Scott 2000: 681). Additionally, the concept of *mare liberum* has basically disregarded the right of coastal indigenous communities to their marine territories, which is seen as one of the obstacles to achieve the sustainability of marine environment (*ibid.*: 682).

The Land Administration concept is acknowledged as the most established concept among other concepts of resources administration. It has been implemented in most, if not all, countries in the world. There are even countries experiencing Land Administration System dualism, or even pluralism, especially due to the existence of Customary and Formal Land Administration Systems at the same time, which, to some extent, reveals the degree of its maturity, as well as the degree of its complexity.

On the other hand, the concept of Marine Unit Administration has only been developed recently. The development of the Marine Unit Administration concept was initially performed by duplicating the scheme from Land Administration System (Williamson *et. al.* 2010: 206). However, due to the complexity of marine environment, which to some extent is more complex than the land environment, the Marine Unit Administration System should be developed beyond the scope of the Land Administration System (see for instance in Rajabifard *et. al.* 2006, Ng'ang'a *et. al.* 2001 and 2004 and Strain *et. al.* 2006).

In order to successfully manage and administer the Marine Unit, a unified management approach should be employed (Williamson *et. al. op. cit.*: 206). This is because of the necessity not only to extend the Land Management paradigm but also to lead to the fulfilment of the goal of sustainable development in the nation context (*ibid.*).

Through this study, the concept of Spatial Unit Administration is proposed in order to provide the fundamental basis for integratively administering Land and Marine Units and resources attached to the Land and Marine Units, as well as to understand the link between the Land and Marine Administration and sustainable development, from the point of view of indigenous communities in the Ambon Lease region.

Here the development of the notion of sustainable Spatial Unit Administration towards the achievement of the objective of sustainable development is also highlighted. In Section 2.1, the existing concepts of Land and Marine Unit Administration that constitute the Spatial Unit Administration are highlighted, while, in Section 2.2, the various concepts and practices for linking the Spatial Unit Administration to the sustainable development are portrayed. Furthermore, the conceptual framework developed based on the notion of Spatial Unit Administration and the link between the Spatial Unit Administration and sustainable development is explained in Section 2.3 while the concluding remarks are given in Section 2.4

2.1 Spatial Unit Administration System

The Spatial Unit Administration concept is developed based on the existing concepts on the management and administration of Land and Marine Units. To join the administration of Land and Marine Units, it is argued that 3D Spatial Unit could act as the basis. 3D Spatial Unit, also known as the Spatial Unit, is the 3D unit that is wholly enclosed

by either physical or imaginary surface(s), located partly or completely on, above and/or beneath the surface of the Earth and/or sea. Basically, the notion of the Spatial Unit has been at least partially applied within the existing resources administration systems. Dale and McLaughlin (*ibid.*: 1) define land as a physical thing that encompasses the surface of the Earth and all things attached to it both above and beneath. This definition reflects the direct relationship between land and space, even though the space itself is not restricted by its volume. Furthermore, the employment of the Spatial Unit concept at sea is even more obvious as, to some extent, the 3D representation of rights is enormously important for controlling and regulating marine activities, as well as facilitating ocean governance (Ng'ang'a *et. al.* 2004: 447).

Similarly the Spatial Unit term, the concept of Spatial Unit Administration is developed based on the existing concepts of Land and Marine Administration, which is employed to extend the notion of Land Administration of Dale and McLaughlin (*op. cit.*). As summarised in Abdulharis (2006: 29) from Dale and McLaughlin (*ibid.*), Enemark (2005), Mulolwa (2002) and Barry (1999), the Land Administration is defined as the execution tool of land policy and comprises public sector activities on tenure, use and value of the land. Based on this definition, it is clear that the Land Administration comprises three groups of public activities, namely Land Tenure, Land Use and Land Value, which, according to Enemark (*op. cit.*: 4), interact with each other within the scope of the Cadastral System and facilitate the operational of Land Administration. Further, Enemark (*ibid.*: 3) proposes the fourth component of Land Administration System, namely Land Development, to ensure its sustainability. Enemark (*ibid.*: 2) further explains that, from the point of view of (Land) Cadastral System, Land Development, resource management and environmental sustainability aspects are maintained under Land Use component. Moreover, the establishment and maintenance of a (Land) Cadastral System also require the organisational, legal, financial and technical arrangement (Mulolwa *op. cit.*: 8), as well as the human resources capacity development (Barry *op. cit.*: 64).

Furthermore, the Land Administration System is defined as the infrastructure to implement land policies and land management strategies in support of sustainable development (Williamson *et. al. op. cit.*: 453). Williamson *et. al. (ibid.)* also pinpoint that Land Administration comprises the institutional arrangements, legal framework, processes, standards, land information, management and dissemination systems, and technologies required to support allocation, land markets, valuation, control of use and development of interests in land.

Within the scope of this study, the concept of Spatial Unit Administration should be able to cope with the arrangements on Land and Marine Use, Tenure and Value in an integrated way. By adopting these concepts, the proposed definition of Spatial Unit Administration within the scope of this study is the execution tool of the policy regarding unique 3D Spatial Units that comprise space and resources on, in and below land and sea. The Spatial Unit Administration encompasses public sector activities applied to the 3D Spatial Units within the scope of Spatial Unit Tenure, Use and Value. The public sector activities within the scope of Spatial Unit Administration interact with each other within the scope of Spatial Unit Cadastral System and facilitate the operation of Spatial Unit Administration. Additionally, the Spatial Unit Administration System in this study is defined as the fundamental infrastructure for facilitating Spatial Unit Administration, backed mainly by its institutional, technical and financial arrangement. The Spatial Unit Administration System also functions as the facilitator of the interaction among the components of Spatial Unit Administration System by means of the Spatial Unit Cadastral System, which further assists the operational of Spatial Unit Administration, as the

core of Spatial Unit Administration System. See Figure 2.1 for the hierarchy of the Spatial Unit Administration System.

The scope of the term of public employed in this study is expected to be wider than in formal governance, while, on the other hand, it is also expected to be able to deal with a small group of people. The coverage of Spatial Unit Administration System is expected to cover Spatial Unit Administration in an area ranging from a jurisdiction inhabited by a small group of people up to, when possible or necessary, the universe. This is particularly due to existing evidence on the employment of the Spatial Unit Administration concept in the family as the smallest unit of community, such as in the case of the Spatial Unit inheritance, while the similar concept has also been applied within the administration of multilateral jurisdiction, for instance on the definition of the boundary of each jurisdiction. Therefore, the public in this study is simply defined as pertaining to a group of people.

In this section, the development of the concept of Spatial Unit Administration System is highlighted. The description on the components of Spatial Unit Administration System is firstly portrayed in this section. Moreover, the concept of Spatial Unit Cadastral System, which acts as the core of Spatial Unit Administration System, is highlighted. Last but not least, the fundamental frameworks of Spatial Unit Administration System are depicted.

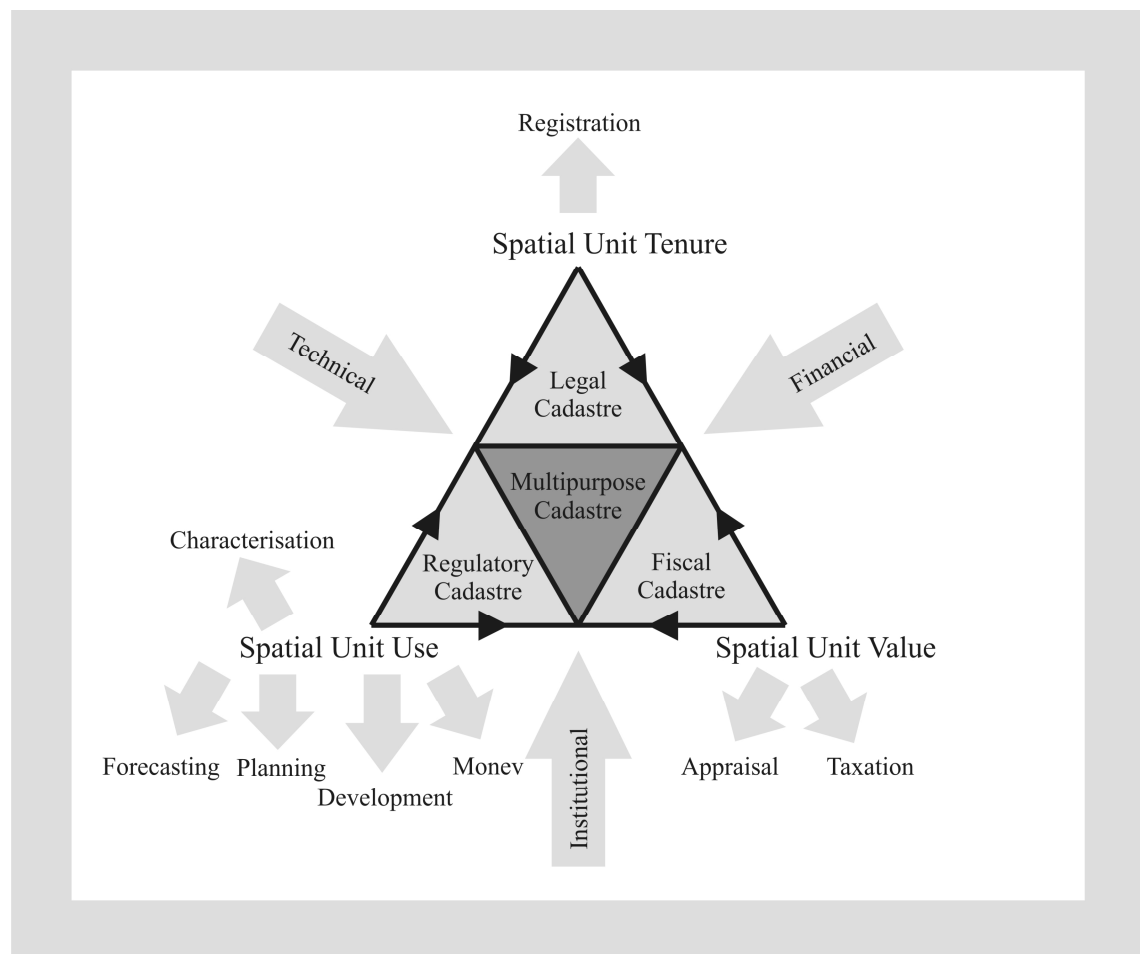


Figure 2.1 Hierarchy of Spatial Unit Administration System

Spatial Unit Administration System Components

The concept of Spatial Unit Administration has been developed to cope with the issues of tenureship, use and value of Spatial Units. Due to the arguments stated earlier in the introductory part of this chapter, the proposed concept of Spatial Unit Administration is developed based on the definition of Land Administration as summarised in Abdulharis (*ibid.*: 29). Accordingly, the Spatial Unit Administration comprises public sector activities on the tenure, use and value of Spatial Unit.

The Spatial Unit Tenure in this study is defined as the description of the conduct in which rights, restrictions and responsibilities in Spatial Unit are organised. Dale and McLaughlin (1999: 17) define Land Tenure as the manner in which rights in land are held. Furthermore, besides defining the rights of the subject of Spatial Unit Administration over the Spatial Unit, the Spatial Unit Tenure is also employed as a means to define the restrictions to and the responsibility of the subject of Spatial Unit Administration on the utilisation of Spatial Unit, which is also suggested by Dale and McLaughlin (*ibid.*: 18). By the application of the proposed definition of Spatial Unit Tenure in this study, it is expected that the activities regarding the Spatial Unit Tenure could act as the tools for not only identifying the right attached to Spatial Unit but also legally binding the subject of Spatial Unit to be restricted on and responsible for conducting certain activities on Spatial Unit.

Here the Spatial Unit Use is defined as the economic and cultural activities practised upon the Spatial Unit. This definition is developed by adopting the notion of Land Use proposed by Dale and McLaughlin (1999: 73). The concept of Spatial Unit Use in this study is formulated based on the latter mentioned definition particularly due to the employed argument on the development of the latter mentioned definition, which is the necessity to achieve economic and social objective, as well as environmental sustainability at the same time, within the scope of the sustainable development.

Finally, the Spatial Unit Value in the scope of Spatial Unit Administration includes activities not only on the valuation of Spatial Unit, but also on the taxation of Spatial Unit (Williamson *et. al. op. cit.*: 210). Moreover, the Spatial Unit Value activities are interrelated with Spatial Unit Use activities as they act as of the effective means for managing the Spatial Unit (Dale and McLaughlin *op. cit.*: 61), while, in some country, they have been employed as one of the basic evidence for titling the Spatial Unit. It should be noted that such activities have, in spite of a huge amount of investment and expenses, been able to generate revenues that could be employed for financing the Spatial Unit Administration in general. In turn, the Spatial Unit Administration System is expected to be able to sustain itself.

In this section, the more detailed description on Spatial Unit Administration System components is explained. The discussion on Spatial Unit Administration System components in this section is initiated by the description of the sub-components of Spatial Unit Use System, which is followed by the explanation on the sub-components of Spatial Unit Tenure and Value System.

Spatial Unit Use System

In order to achieve the objective of sustainable development, the Spatial Unit Use should be planned to control the utilisation of Spatial Unit (Williamson *et. al. ibid.*: 171). Nonetheless, by referring to Banfield (1959: 387) and Lindblom (1959: 83), Spatial Unit Use planning is not an end but a means to achieve the desired Spatial Unit Use. Other means that initiate the Spatial Unit Use Planning should therefore be defined as well.

In this section, the means to achieve the desired Spatial Unit Use and the goal of sustainable development are depicted. Those means are characterisation, forecasting, planning and development, as well as monitoring and evaluation.

Characterisation has been acknowledged as of important parts of Spatial Unit Administration particularly within special spatial planning project such as the Belvedere Project in the Netherlands and the Historic Landscape Characterisation and Landscape Character Assessment in United Kingdom. Belvedere Project, which was initially performed based on the Belvedere Memorandum, has been emphasising the importance of cultural-historic identity on the future spatial design of the Netherlands (Belvedere 1999: 5). In order to maintain the Netherlands' cultural-historic identity, in spite of its limited space, the Belvedere Projects was initiated to seek a new balance between retention and development (*ibid.*). The cultural landscape map was first established during the implementation of this project. Having had all spatial and non-spatial information regarding its cultural-history, the next phase of the project was pursued by classifying the Netherlands's cultural-historic landscape into two groups, which are sectoral and combined cultural-historic area. Moreover, another classification was made in relation to the area's low or high spatial dynamics.

Furthermore, as described in Clark *et. al.* (2004: 24), the Historic Landscape Characterisation acted as the basis for the performance of Landscape Character Assessment in Lancashire County. The Historic Landscape Characterisation was initiated ahead of Land Character Assessment, which was executed in 2000, and provided the Landscape Character Assessment with the depth insight on historic human dimension in Upland Moor (*ibid.*). Within the development of the structure plan policy and supplementary planning guidance of the Lancashire County, the Landscape Character Assessment acted as the initial process (*ibid.*: 26).

Mirroring the Belvedere Project, characterisation is highly critical to define the spatial design of the future. Based on the character of the Netherlands' cultural-historic landscape, the Belvedere Project set desired approaches as following (Belvedere *op. cit.*: 20-21):

- The maintenance of cultural-historic values through careful use, design and management of space in question.
- The incorporation of new spatial functions into the historic spatial setting.
- The employment of cultural-historic quality as a stimulus for new spatial development.

Furthermore, based on the experience of United Kingdom on the Historic Landscape Characterisation, characterisation is imperative for the development of a spatial plan that is based not only on cultural-historic values but also on environmental carrying capacity. The term character itself was adopted from the 1967 Conservation Area legislation of United Kingdom (Clark *et. al. op. cit.*: 1). Moreover, the outcome of the Historic Landscape Characterisation was the thematic map containing zones that were classified by means of specific set of rules previously defined (*ibid.*: 10)

The activities regarding the characterisation of the Spatial Unit within the scope of the Spatial Unit Use should therefore be able to identify its natural and cultural characteristics. Within the scope of the characterisation of Spatial Unit, the volume of a Spatial Unit could range from a single Spatial Unit to a jurisdiction that comprises more than one Spatial Unit. Such a framework was defined particularly in order to be able to comprehensively cover jurisdiction in question as proposed by Clark *et. al.* (*ibid.*: 6).

In this study, the operational definition of characterisation is developed based on the previously mentioned concepts and synthesis, which is the identification of the features

of an area, which either exist naturally or have been influenced by human activities, over a defined period of time based on a specific set of rules. These rules are developed in accordance with the purpose of the performance of the characterisation itself. By employing this definition, it is expected that the development of Spatial Unit plan can be made based on the time-depth character of the environment and the people, as well as the interaction between the environment and people.

According to Dunn (1998: 291), forecasting is a procedure to produce factual information about future states of society on the basis of prior information about policy problems. Dunn (*ibid.*: 291-292) mentions that there are three principal forms of forecasting as follows:

- *Projection*: a forecast based on extrapolation of current and historical trends into the future
- *Prediction*: a forecast based on explicit theoretical assumptions
- *Conjecture*: a forecast based on informed or expert judgements about future states of society.

When projecting near future Land Use trajectories by means of the understanding of Land Use dynamics, it is imperative to target management decisions (Schoonenboom 1995; as cited in Verburg *et. al.* 2002: 391). Land Use change is central to environmental management through its influence on biodiversity, water and radiation budgets, trace gas emissions, carbon cycling and livelihoods (Lambin *et. al.* 2000 and Turner 1994; as cited in Verburg *et. al. op. cit.*). Moreover, Verburg *et. al. (ibid.)* state, within the scope of development of Conversion of Land Use and Its Effects at Small region extent (CLUE-S), that Land Use planning attempts to influence Land Use change dynamics so that Land Use configurations that are achieved could provide balance between environmental and stakeholder needs.

In the scope of Land Administration, Land Use planning has been utilised for thousand of years, especially in old Mesopotamia, Egypt and India (Dale and McLaughlin *op. cit.*: 74). Dale and McLaughlin (*ibid.*: 75) further mention that the modern concepts of Land Use planning mainly date back to the middle of the 19th century due to the rapid growth of urban populations resulting from industrialisation in Europe. During the early 20th century, city planning was already acknowledged as a discipline, especially when the Germans provided intellectual and technical foundation of Land Use planning.

According to Enemark (*op. cit.*: 3), within the scope of Land Administration, Land Development comprises several activities. These are the establishment of new physical infrastructure, the implementation of construction planning and change of Land Use through planning permission and granting of permits.

As mentioned earlier, it is necessary to understand Land Use dynamics. This understanding can be achieved by the monitoring of Land Use change (Dale and McLaughlin *op. cit.*: 83). Dale and McLaughlin (*ibid.*: 83-84) further highlight the importance of monitoring process within the scope of Land Administration as the fundamental objective of Land Administration performance is to ensure the fulfilment of the goal of sustainable development.

Moreover, Steudler *et. al.* (2004: 372) mention that a Land Administration evaluation framework becomes one of the important factors in improving it, which in turn becomes a means to maintain its sustainability. Within the scope of (Land) Cadastral System, Barry (1999: 343) also highlights the importance of the evaluation on the effectiveness of Cadastral System performance as effective administrative mechanisms are considerably vital in all societies and economies.

Spatial Unit Tenure System

In the development of Spatial Unit Administration System concept, it is proposed that the Spatial Unit Tenure System includes the Spatial Unit Registration System as its sub-component. Within the scope of Land Administration and (Land) Cadastral System, Registration System has been acting as a means of recognising legal interests, which include ownership and/or use, of land (McLaughlin and Nichols 1989, as cited in Zevenbergen 2002: 2). Additionally, Henssen and Williamson (1990), as also cited in Zevenbergen (*op. cit.*: 29), explain the interconnection among Land Registration, Land Tenure and (Land) Cadastre. Within Land Tenure extent, the land registration concept is used to answer the questions on who the land owner is and how land owners can be connected to the land, while a Cadastral System concept answers the questions regarding the land itself (Henssen and Williamson *op. cit.*, as cited in Zevenbergen *op. cit.*). Furthermore, the outcome of the Spatial Unit registration is a legal document, which is expected to legally record not only the right of the subject of the Spatial Unit over the Spatial Unit but also the restriction applied in the extent and utilisation of the Spatial Unit in question and the responsibility of the subject of Spatial Unit over the Spatial Unit itself.

Particularly in the alienation of land, the adverse possession is considered as one of the important principles. Adverse possession is the bar against the pursuit of stale claims through the legal system (Park 2003: 1). Under traditional Anglo-Saxon real property law, land title was defined based upon the possession of land, which further acted as the main evidence on the registration of land under the new system (*ibid.*: 119). Adverse possession has further been re-introduced into Anglo-Saxon law by the enactment of the Land Registration Act 2002 (*ibid.*: 62). The acquisition of land title by adverse possession is also permitted in a number of jurisdictions such as New Zealand, South Australia and Queensland (*ibid.*).

Spatial Unit Value System

In this section, the sub-components Spatial Unit Value of Spatial Unit Administration System are described. These are appraisal and taxation.

Up to the late 1700s, land was acknowledged as the primary source of wealth and power (Ting and Williamson, 1999: 47). Due to the (Land) Cadastre functioned as both a juridical and fiscal tool. Therefore, Land Valuation was performed for wealth appraisal, as well as for the purpose of taxation. Moreover, Dale and McLaughlin (1999) mention that Land Valuation and Assessment are also necessarily to be made during land or property transaction.

Nevertheless, it is expected that the appraisal of the value of the Spatial Unit should not only be made from an economic point of view but also from a social and ecological point of view. As described earlier in the section on the Spatial Unit Use System, the awareness of the maintenance of social values attached to Spatial Unit was developed chiefly in the United Kingdom and the Netherlands. Furthermore, one of the Millenium Development Goals is to ensure the sustainability of the environment, which makes clear that the ecological values of Spatial Unit should be maintained.

Besides acting as a means of financing the performance of land governance in general, property and land taxes have been employed as a tool to regulate the management of land. Dale and McLaughlin (1999) mention that the property and land tax could be either served social or regulatory objective.

Spatial Unit Cadastral System

As summarised in Abdulharis (2006: 29), The (Land) Cadastral System has been acting as the core of the Land Administration System. Basically, (Land) Cadastre is a record that stores the interests on the individual land parcel or property (FIG 1995, as cited in Enemark 2005: 4). However, most (Land) Cadastral Systems nowadays are linked to land value and security of right to land, as well as Land Use planning (*ibid.*).

Moreover, within the scope of marine governance, the concept of Marine Cadastre has been developed. In spite of the different nature of the marine environment compared to that of the land environment, the Marine Cadastre has been similarly defined as its counterpart in land, which is the information system that maintains information regarding the rights, restrictions and responsibilities that could be applied to Marine Unit (Robertson *et. al.* 1999 and Nichols *et. al.* 2000; as cited in Williamson *et. al.* 2010: 211-212).

It is also important to define cadastre based on its evolution. As explained in Ting and Williamson (1999: 46-47), (Land) Cadastre was considered as the basic record of Land Administration, which was also employed as a fiscal tool, up to the late 1700's. Between the late 1700's and WWII cadastre was viewed as an important land market tool, while during post WWII reconstruction it was regarded as a planning tool. Between the 1980s and the end of 20th century, the (Land) Cadastre concept was further established and it was considered as one of the important Land Management tools, which comprises various activities that were related to Land Valuation and Land Registration System, as well as to the establishment of the link between the two. NRC (1983, as cited in Ting and Williamson 1999: 48), entitles the latter as multipurpose cadastre. Moreover, Dale and McLaughlin (1999: 10-11) provide another important principle of (Land) Cadastre, which contains legal, fiscal and regulatory component.

Additionally, Enemark (2005: 4) identifies that, in spite of the difference of the purposes of the establishment of Cadastral Systems, most cadastral registers have presented the link between Land Valuation and Taxation and Land Tenure. Consequently, Enemark (*ibid.*) states that it is more sensible to employ Cadastral System rather than Cadastre.

As the core of Spatial Unit Administration System, Spatial Unit Cadastral System should therefore be able to maintain the Spatial Unit information regarding the use, tenure and value thereof, as well as to facilitate the interaction among the components of the Spatial Unit Administration System. Consequently, Spatial Unit Cadastral System should comprise the legal, fiscal and regulatory components in order to maintain the information regarding Spatial Unit within the scope of Spatial Unit Administration. Furthermore, to facilitate the interaction among the components of Spatial Unit Administration System, the multipurpose component is expected to exist on the Spatial Unit Cadastral System. Based on these considerations, the operational definition of Spatial Unit Cadastral System within the scope of this study is the Spatial Unit Information System that comprises the legal, fiscal and regulatory components for maintaining the information regarding tenure, value and use of the Spatial Unit, as well as the multipurpose component to facilitate the interaction among the components of the Spatial Unit Administration System.

Fundamental Framework of Spatial Unit Administration System

The fundamental framework of Spatial Unit Administration System is defined as a prerequisite for performing activities in the scope of Spatial Unit Administration. Organisa-

tional, legal, financial and technical aspects of cadastral infrastructure are the basic requirements on the development, operation and maintenance of Land Administration (Mulolwa 2002: 8). Additionally, human resources are also acknowledged as one of the basic foundations of the Cadastral System (Barry 1999: 64). Considering that the proposed Spatial Unit Administration was developed based on the notion of the Spatial Unit Cadastre, the above mentioned aspects are treated as the incorporated feature of the Spatial Unit Administration System. This section therefore focuses on the description of institutional, technical and financial framework of Spatial Unit Administration System.

Institutional Framework

For the purpose of the establishment of an analytical framework of the study on customary Spatial Unit Administration, the definition of institution employed in this research is complexes of norms and behaviours that persist over time by serving collectively valued purposes (Uphoff 1986: 614). It is therefore argued that the institutional framework does not only comprise organisational arrangement but also the norms applied in an institution, which mainly embraces the policies on the management of Spatial Unit, as well as legal arrangement as the implementation of the above mentioned policies. Moreover, Lise (2007: 16) further notes that, based on Eggertsson's (1993) work on economics of institutions, institution in general also includes the human resources development as it has an important role in controlling human behaviour.

In this section, three components of institutional framework of Spatial Unit Administration System are introduced. These are policy and legal arrangement, organisational arrangement and human resources development.

Within the context of Land Administration institution, land policy is defined as consisting of a whole complex of socio-economic and legal prescriptions that dictate how the land and the benefits from the land are to be allocated (UN-ECE 1996: 59). UN-ECE (*ibid.*) further states that political ideologies give significant effect on land policy and the Land Administration process.

Clear definition on Spatial Unit Administration policy consequently takes an important role in good governance of land and marine unit. Barry (1999: 58) mentions that (land) policy should express the view of the governance within the canons of its social, political and economic philosophy. This is basically based on GTZ's Willi Zimmermann's experience in countries without a formal, explicit land policy (*ibid.*). In Barry (*ibid.*: 61), Willi Zimmermann states that, within the context of above countries, it is assumed that an informal policy exists and that formulation may take place on an *ad hoc* basis. This has created an environment that formal policies related to land may not be integrated (*ibid.*).

In relation to the policy implementation of Spatial Unit Administration, Legal Arrangement is argued to be one of the important factors on maintaining the sustainability of Spatial Unit Administration System. The Legal Arrangement on Spatial Unit Administration basically functions to formally define the relationship between people and land. This statement is fully supported by Dale and McLaughlin's (1999: 1) statement in the importance of relationship between people and land in every society and evident in the form of property rights. Dale and McLaughlin (*ibid.*) reveal that the level of the state's control of the land could also be comprehended from this relationship as the world has seen the different ways of transferring the right to land to the people, such as full state control, communal forms of tenure, individual property rights and so forth. Dale and McLaughlin (1988; as cited in Zevenbergen 2002: 2) express that the Legal Arrangement of Land Administration intrinsically comprises clear definitions of rights, restrictions and responsibilities of people to their land.

Organisational arrangement is also considered as one of the fundamental supporting schemes to maintain the sustainability of Spatial Unit Administration, as well as to ensuring good governance of the Land and Marine Unit. A number of major issues are highlighted by UN-ECE (*op. cit.*: 61) that directly affect the performance of Land Administration and Cadastral System such as inter-governmental coordination, centralisation and decentralisation, the role of the public and private sectors and management of Land Administration and Cadastral System organisations.

According to UN-ECE (*ibid.*: 9), it is important to coordinate activities within the scope of Land Administration. This is mainly due to the fact that, in most countries in transition, an integrated policy with regard to land or land information management is rarely found (*ibid.*: 8). Strain *et. al.* (2006: 4) also states that there are many different organisations, activities, legislative frameworks, international agreements and conventions, stakeholders and industries taking part within marine management and administration of marine resources.

UN-ECE (*op. cit.*: 63) argues that Land Administration should ideally be under the supervision of a single authority referred to as the lead agency. However, within the detailed administrative operation, Land Administration may be centralised or decentralised depending on the size of the country and the nature of communication (*ibid.*).

Within the European context, there have been discussions on the utilisation of the terms “agency” and “authority” on Land Administration and Cadastral System organisation (*ibid.*: 64). UN-ECE (*ibid.*) contrasts the employment of the term “agency” term with the term “authority” and reveals that an agency normally can take advantage of potential for developing value-added services on top of the basic Land Administration, which mostly could not be done by an authority due to the political ideology restriction such as application of Freedom of Information scheme. Moreover, UN-ECE (*ibid.*) also mentions that governments should define the rules under which such organisations operate and determine which activities should belong to the agency and which should be handled by the private sector. This is mainly due to the difficulties of governmental agency or authority to maintain their neutrality and objective role, especially if it is greatly involved in competing with the private sector (*ibid.*).

It is also argued that the management of Land Administration and Cadastral System takes an important role for supporting the good governance on land and marine unit. Land administration and Cadastral System is considerably too large to be handled by a governmental institution, while, on the other hand, the distribution of tasks to several governmental institutions could lead to the overlapping of jurisdiction.

Barry (*op. cit.*: 68) states that human resources comprise of the set of people who possess the required knowledge and skills to sustain the system. The education and training systems and institutions therefore need to be in place to ensure that the base of human resources remains adequate over time (*ibid.*). Moreover, UN-ECE (*op. cit.*: 69) states that, due to rapid technological developments, the creation of good conditions in which staff can develop their skills is considered as another aspect of institutional arrangement within the scope management of Land Administration System. Consequently, within the scope of Spatial Unit Administration, it is necessary to provide the means to educate and train the administrator of the Spatial Unit Administration System in order to supply the system with the adequate human resources.

Technical Framework

The development of the Marine and 3D Cadastre concept could mainly mirror the necessity to expand the scope of Land Administration’s technical framework within the context of elaboration of land and marine unit administration into Spatial Unit Admini-

stration, while the existing Land Administration System itself has been addressing several technical aspects to ensure its sustainability. The recent progress on development of National Spatial Data Infrastructure also adds useful technical hints to support its performance.

Within the context of sound Land Administration, UN-ECE (*ibid.*: 73) highlights the importance of the establishment of geodetic control framework and the performance of cadastral surveying and mapping. According to UN-ECE (*ibid.*), geodetic control measurement contributes to an efficient and effective performance of cadastral surveying and land registration. Moreover, UN-ECE (*ibid.*: 75) also mentions that the relative accuracy is more important than the absolute accuracy. This is particularly due to the performance of cadastral surveys, which are mainly related to the setting out and recording of turning-points or corners along property boundaries, for various purposes (*ibid.*: 76).

Marine Cadastre is mainly defined for handling 3D or even 4D unit, the need to represent water and space unit has gone beyond the technical framework of Land Administration System. Ng'ang'a *et. al.* (2001: 2) describe the necessity of the use of sidescan sonar, single beam echosounders, multibeam sonar, seismic surveys, as well as visualisation software to systematically explore and describe not only the water column but also the seabed surface and geological structure beneath the surface.

Financial Framework

According to Barry (*op. cit.*), financial management is necessary to correlated to the performance of cadastral sub-systems and human resources development. UN-ECE (*op. cit.*: 47) also mentions that Land Administration System itself is needed to be financed, particularly by means of tax, fees or commission. Moreover, UN-ECE (*ibid.*: 48) highlights the progress on marketing land registry and cadastral data as a means to reduce general government expenditure through the application for acquiring land registry and cadastral data.

2.2 Spatial Unit Administration and Sustainable Development

As mentioned earlier in Chapter 1, sustainable development is defined as a process to fulfil the needs of recent and future generations by creating a balance between economic achievement and social advancement, as well as social values and environmental conservation. The concept of sustainable development thus combines almost all aspects of humanity. Consequently, this concept comprises various thematic points of views. Moreover, due to its extensive coverage, this concept has been interlocking the world globally (WCED 1987: 21), while, on the other hand, strengthening the local nodes (Ostrom 1990: 190).

Unfortunately, the impacts of the performance of Spatial Unit Administration on sustainable development could not yet be fully explained by the recent theories and practices on Spatial Unit Administration. It is therefore necessary to address the concepts that provide the frameworks for linking Spatial Unit Administration and sustainable development.

In this section, the role of Land Administration System, which is historically and politically developed (Williamson *et. al.* 2010: 210), particularly from its institutional aspect for leading to sustainable development is described. Furthermore, several cases that link the Spatial Unit Administration, indigenous communities and sustainable development are also highlighted. These cases were selected because of the focus of this study on the potential of Customary Spatial Unit Administration for sustainable development.

Additionally, as the development of the concept of modern Marine Administration is still on going at the moment (*ibid.* 206-207), the customary administration of marine territory of indigenous communities that are depicted further in this section has been made integratively and sustained over time.

In order to understand the concept of institutional sustainability, Ostrom's institutional approach is also illustrated as it provides a framework for assessing institutionalisation of management of common-pool resources for maintaining its sustainability. Most, if not all, common-pool resources are located on, in and/or beneath the land and sea surface, while land (Williamson 2000: 8) and marine resources (Barry *et. al.* 2006: 64) have been considered as the scarce resources. Moreover, the framework for measuring the performance of sustainable development governance initiated by UN and UNESCO is further described in this section. Additionally, lacking background for addressing the contribution of cultural aspect to sustainable development, the concepts and practices regarding cultural landscape are also set out in this section.

Institutional Aspect of Land Administration for Sustainable Development

As infrastructure to implement policies and management strategies on of the scarcest resources on the Earth namely land (Williamson *et. al.* 2010: 453), some of the existing Land Administration Systems have proven to be able to sustain themselves since 100, and even 200, years ago (*ibid.*: 439). Most of these systems have fulfilled the requirements of the well-functioned Land Administration System to be justly simple, accurate, timeless, secure, clear, fair, accessible, cost-effective and acceptable, which in turn promote good land governance and the sustainable Land Administration System (Simpson 1976, FIG 1995, UN-ECE 1996, Dale and McLaughlin 1999 and Williamson *et. al.* 2010; as cited in Arko-Adjei 2011: 86).

Besides the above, it is argued that the Land Administration System is always related to the formalisation of tenure (Williamson *et. al.* 2010: 438). The Land Administration comprises public activities on the sector of Land Tenure, Land Value, Land Use and Land Development (*ibid.*: 453). Consequently, a coherent, formal Land Administration System is essential to be operational (*ibid.*: 438).

Unfortunately, the direct link between Land Administration System and sustainable development has rarely been addressed. Even though, by only relying on cadastral and Land Administration System, some of Land Administration Systems have been able to sustain themselves for centuries, there are only few systems that have been focusing on supporting sustainable development (*ibid.*: 439).

It is therefore necessary to shift the paradigm on the administration of land. Instead of focusing on the technical aspect, the institutional empowerment would indeed define the future of Land Administration System (*ibid.*). The flexibility of Formal Land Administration System has been relatively low to adapt to the dynamics of the development (*ibid.*). In turn, humanitarian concerns, which are supposed to be fulfilled by the development, are neglected (*ibid.*). By focusing on people more than land, Land Administration should further be developed to lead to good land governance by deploying institutional tools that aim to enhance the competencies of the people through capacity building, as well as social tools to encourage engagement and participation (*ibid.*: 440).

Moreover, to enable the implementation of sustainable development, good land policies are needed (*ibid.*: 86). Particularly to implement and sustain Land Administration in developing countries, GTZ (ILC 2004, as cited in Williamson *et. al. op. cit.*) the following policies:

- Enhancement of allotment of resources by minimising the land issue.
- Provision of access to land for groups living below the poverty line.
- Towards higher legal security in the transfer and use of land.
- Devising sustainable Land Use patterns.
- Promoting education and training in the field of land tenure systems and land management.

Customary Spatial Unit Administration

As previously mentioned, it is essential that the Formal Spatial Administration System is operational in order to sustain the welfare of the people (*ibid.*: 438). On the other hand, the importance of the informal system in shaping society is also acknowledged (*ibid.*). In fact, some informal systems have been able to sustain themselves within the longer period compared to the formal ones. Considering the focus of this study, as well as the proposed focal point of the Spatial Unit Administration System on its institutional and social aspect, this section describes the role of customary Land and Marine Administration System on supporting the sustainable development. The conceptual framework to adapt the Land Administration System to an institutional framework of customary land tenure institution in Ghana is portrayed, while the cases on Customary Coastal and Marine Administration in Pacific Islands Region and Northern Québec are further illustrated.

Enhancement of Land Administration to Suit Customary Tenure Institution in Ghana

The case of Ghana provides an important example on the formalisation of an extralegal customary land tenure institution to ensure an equal access to land and tenure security. Ghana had been experiencing land tenure dualism due to the existence of statutory and customary land tenure institutions at the same time (Arko-Adjei 2011: 56). This however is not considering the existence of different customary land tenure institutions that are spreading all over the country (*ibid.*: 58). Most importantly, the Constitution of Ghana acknowledges the role of indigenous communities' institution on leading to sustainable development (*ibid.*: 55). This is particularly due to the management of its highly-priced but limited natural land resources that has been mostly done by the customary institutions, particularly considering that 80% of land parcels in Ghana are managed by these institutions (*ibid.*: 56).

In this section, the conceptual framework for devising Land Administration System that suits the institutional setting of the Customary Land Tenure System in Ghana is highlighted. It is argued that it is necessary to establish such a framework due to the inability of the formal Land Administration System that could not be employed for coping with the tenure security problems particularly in peri-urban areas (*ibid.*: 182). This section firstly reveals the characteristics of customary land tenure systems in peri-urban areas of Ghana, which were employed as the main consideration for devising institutional framework of Land Administration that is further explained in this section. Additionally, the replicability of the framework for devising Land Administration System within the context of indigenous community living in peri-urban area is also depicted in this section.

The Land Management and Administration in the pre-colonial era in Africa in general was considered as an integrated element of social and religious setting (*ibid.*: 26). In this era, the customary tenure system in particular was basically developed over time through continuous observation and practices (*ibid.*: 23). In spite of the employment of

natural boundaries such as stream, shrub and tree for delineating the customary land (*ibid.*) and the absence of written record on the alienation and transfer of customary land (Agbosu 2000, as cited in Arko-Adjei *op. cit.*: 24), the indigenous communities in Africa in general and particularly in Ghana could rely on the customary conflict resolution mechanism to address land-related problems (Kasanga and Kotey 2001, as cited in Arko-Adjei *op. cit.*) through consensus-building, mediation and arbitration (*ibid.*).

The European concept of Land Management and Administration was introduced during the commencement of the colonial period in Africa (Berry 1993, Pottier 2005; as cited in Arko-Adjei *op. cit.*: 25). Such a concept was initially applied within the land transferral mechanism between the local and the settler (*ibid.*: 26), which eventually led to the europeanisation of Land Management and Administration System that was initiated in the late 19th century (*ibid.*: 63). The Europeanised System was maintained during the post-independence period (*ibid.*: 25). Within these periods, such a system has limited the role of customary land tenure institutions and has been employed as a means for the government to accumulate the land for itself (*ibid.*: 62-63).

Even though the previous circumstances also occurred in pre-colonial, colonial and post-independence period in Ghana, the customary tenure institutions in Ghana have been able to maintain their role in the administration of the customary land (*ibid.*: 26). The indigenous communities particularly in the southern part of Ghana have been contesting such a policy since its introduction by the British in the late 19th century, while the weaker communities particularly in the northern part of Ghana had almost, if not completely, lost control over their land (*ibid.*: 64). The Land Tenure System dualism has unfortunately led to tenure insecurity from both formal and customary system point of view (*ibid.*: 1). In particular within the scope of the dynamic peri-urban areas in which the jurisdictions of formal and customary system have overlapped, the modernisation and improvement of Land Administration has mainly focused on the improvement of the operational processes but failed to deal with the issues regarding tenure insecurity and other tenurial problems (*ibid.*: 8). This has acted as the entry point of the research on the adjustment of Land Administration System to suit the institutional framework of Customary Land Tenure System in peri-urban Ghana.

Customary institutions were basically designed to suit the local circumstances. It is therefore not surprising that the customary land tenure systems in peri-urban areas in Ghana were very flexible to cope with the latest, local circumstances (*ibid.*: 180). Such flexibility had allowed the customary land tenure system to promote innovative, self-devised mechanisms, which could not be deployed in the conventional Land Administration Systems (*ibid.*). The establishment of land committees within the customary land tenure institutions for controlling land management activities (*ibid.*: 138) is one of the innovations promoted by these customary institutions (*ibid.*: 180).

The customary land tenure institutions also promote good land governance (*ibid.*). This is particularly due to the nature of some customary land tenure institutions that included feedback sessions, as well as regular and *ad hoc* meetings (*ibid.*). These built-in activities had allowed transparency and accountability to be applied within the decision-making processes through participation and provision of equal access to land (*ibid.*). Moreover, due to their roles in sustaining customary values over time particularly within the customary land tenure arrangement, these customary institutions were considerably legitimate and credible to perform good land governance (*ibid.*). One of the advantages of the existence of such systems is the ability to offer low-cost and effective conflict resolution mechanism (*ibid.*).

On the other hand, some other customary land tenure institutions had not been providing inequal access to land and less accountability and efficiency compared to those

institutions above (*ibid.*). Having learned from the above mentioned examples, the careful selection of land committee member, the reporting of stewardship, financial accountability and community participation in decision-making processes were expected to promote the good land governance (*ibid.*).

Another characteristic of most Customary Land Tenure institutions was inadequate human and financial resources to collect and maintain customary land tenure data (*ibid.*: 180-181). Generally, these institutions do not have sufficient financial resources to hire professionals, while there were only few land committee members who were capable of collecting ground rents and maintaining land information (*ibid.*: 181).

To cope with these limitations, participatory mapping could be an alternative (*ibid.*). Such an approach provided a cost-effective data collection (*ibid.*). Nevertheless, the implementation of the participatory mapping is still inadequate without the involvement of formal land tenure institution in providing a strategic plan, guidelines and professional services to improve the efficiency and effectiveness of land delivery (*ibid.*).

In spite of reshaping customary land tenure institutions to fit formal land tenure institution, it is suggested to empower the customary land tenure institutions and to design the Land Administration System to suit the customary land tenure institutions. This is mostly due to the fact that the conventional Land Administration System could not cope with the characteristic of customary land tenure systems explained in above (*ibid.*: 182). Moreover, it is possible that a Land Administration System is designed in a simple manner, while the outcome of the performance of such a system could still satisfy the objectives of the performance of Land Administration System (*ibid.*: 181).

Special conditions should be promoted to empower the customary land tenure institutions in the scope of good land governance. Those special conditions are the natural evolution of customary land tenure institution, enhancement of indigenous knowledge and capacity and improvement for leading to good land governance (*ibid.*: 182). Allowing the customary land tenure institution to be naturally evolved would provide a means for this institution to adapt to the latest circumstances by being flexible and upgradeable. A Land Administration System should ensure the accuracy, timelessness and clarity of any information managed under the system, as well as the advance of land delivery, thus enhancement of knowledge and capacity of the customary land tenure institution is inevitable. Moreover, by ensuring good land governance being implemented in this circumstance, the legitimate and credible land tenure institution would fulfil the requirements of well-functioning Land Administration System on the fairness and the acceptability of the land delivery process, the security of land tenure and the accessibility of land managed under such a system. Good customary land governance would also enhance the simplicity, cost-effectiveness and affordability of the land delivery process. With such features of Land Administration System, it is expected that the system would be sustained over time.

Even though the conceptual models on the adaptation of Land Administration System to institutional framework of customary tenure in peri-urban Ghana could not entirely be applied beyond the case study areas, the lessons learned from this study are theoretically relevant to be employed in other areas particularly in the Africa continent (*ibid.*: 209). Customary tenure dynamics especially in Sub-Saharan Africa have been taken into consideration within this study (*ibid.*). Most importantly, case protocols were also employed (*ibid.*: 105), which make it easy to replicate this study elsewhere (Zevenbergen *op. cit.*: 123).

Customary Coastal and Marine Management

The Customary Coastal and Marine Administration Systems mostly share the same role in leading to sustainable development, as well as the more-or-less same legal status, with the Customary Land Administration Systems. The Customary Coastal and Marine Administration Systems have mostly been able to act as the fundamental infrastructure to manage the customary marine territories, which, in turn, lead to the maintenance of balance among economic achievement, social advancement and social value, as well as environmental preservation.

On the other hand, the social contest between the Customary and Formal, or specifically Westernised, Coastal and Marine Administration Systems have mostly discredited the former systems. It is unfortunate that the indigenous communities have been blamed for causing the degradation of the quality of the coastal and marine environments (see Barker 1998: 89; McCay 1995, Palsson and Helgasin 1995, Schreiber 2001 as cited in Aswani 2005: 286), as well as for hampering the execution of national fisheries strategies (Ruddle 1998: 108).

In this section, the framework to develop an integrated Coastal and Marine Administration System, as well as to facilitate the bridging between the Customary and Formal Coastal and Marine Administration System, for leading to the achievement of sustainable development is depicted from the cases of the Pacific Islands Region and Northern Québec. The evidence on the capacity of the Customary Coastal and Marine Administration System for sustaining the social values and the surrounding environment in the Pacific Islands Region and Northern Québec are firstly described, while, secondly, the social contest between the Customary and Formal Coastal and Marine Administration System is further depicted. Finally, the recommendations brought forward from studies for avoiding the dualism of Coastal and Marine Administration System in these regions towards the achievement of goal of sustainable development are also highlighted.

In fact, the Customary Coastal and Marine Administration Systems have been taking an important role in sustaining the coastal and marine environment, as well as the indigenous communities themselves. The Meriam people of Murray Islands have depended on their surrounding coastal and marine environment since time immemorial (Mulrennan and Scott 2000: 685), while the Northern Queensland's Torres Strait Islanders and Northern Québec's Cree and Inuit have continually depended on coastal and marine resources, not only for their livelihood but also as the means for maintaining their identity (*ibid.*: 683-684). Mulrennan and Scott (*ibid.*: 682) further reveal that failure to employ local knowledge within the use and management of the coastal and marine areas has led to an inability to sustain these resources.

In other countries in the Pacific Islands Region, a similar association between customary coastal and marine management and sustainable development can also be found. Ruddle (1998: 107) concludes that, even though it has rarely been highlighted, the customary inshore fisheries management in this region has been proven to be able to guarantee the equal access to the fishing grounds and, most importantly, to ensure the sustainability of coastal and marine resources. This is mainly due to the application of customary rules regarding operational behaviour, in particular involving the specific assignments of time and place within the space in question and the eligible group for accessing the resources (*ibid.*: 106). Additionally, the Whitsunday Islanders have also played an important role in the sustainable management of the Great Barrier Reef (Barker 1998: 89) for more than 9,000 years (*ibid.*: 91).

However, even though it has only been in place during the last couple decades, while some resources have been sustained for centuries, the degradation of the quality of

coastal and marine areas could also be identified in some areas in Pacific Islands. Malm (2001: 5) reveals that, in the Pacific Islands particularly in Tonga, over-exploitation of coastal and marine resources and the devastation of coastal and marine resources could commonly be identified. Barker (1998: 92) also finds that the population of turtle and dugong in the Whitsunday Islands has been declining, which had also been taken into consideration by the people of the Whitsunday region.

The existence and application of customary coastal and marine resources management has also led to vertical and horizontal conflicts. The recognition of the State government of Queensland and Québec on the customary terrestrial territory of the Northern Queensland's Torres Strait Islanders and Northern Québec's Cree and Inuit had not been followed by the acknowledgment on the right of these indigenous communities to their marine territory (Mulrennan and Scott 2000: 682). In Papua New Guinea, conflicts between national or provincial government and indigenous communities in the 1990s had basically arisen due to the application of the centralised fisheries management by the government, which forced the indigenous communities with their traditional fisheries management to comply with the centralised, formal regulation (Ruddle 1998: 109). Due to the declining of the turtle and dugong population in the surroundings of Whitsunday Islands, the Great Barrier Reef Marine Park prohibited their hunting in the early 1990s (Barker 1998: 92), while, on the other hand, turtle and dugong had been sustained over thousands of years by the Whitsunday people (Barker 1995, as cited in Barker *op. cit.*).

Conflicts due to the implementation of traditional fisheries management among indigenous communities are also identified. The Ware and Brooker Islanders in Milne Bay Province, Papua New Guinea, have for long been disagreeing about the management of Bramble Haven/Long Reefs and the Nabaina and Nagobi Island (Kinch 1999 and 2000, as cited in Kinch 2003: 4).

In some cases, the activities of indigenous communities have been less responsible for the degradation of quality of coastal and marine environment. In Torres Strait, the non-members of these communities have been treating the sea under the principle of *mare liberum*, which, for more than a century, has conflicted with the *mare nullius* principle adopted by Torres Strait Islanders within the management of this area (Ganter 1994, Haddin 1912 and Mullins 1995; as cited in Mulrennan and Scott 2000: 688). Even though James and Hudson Bay were still considered as the "backwater" of Québec Province, the industrial pressures on the terrestrial and marine territory of Northern Québec's Cree and Inuit had led the area to be polluted by heavy metals, particularly due to mining activities and hydroelectric operations (*ibid.*: 684).

The same pressures have also changed the way indigenous communities manages their marine territory. In Roviana Lagoon of the Western Solomon Islands, commercialisation, modernisation and globalisation have completely undermined the capability of indigenous communities to control the impact of fisheries activities over the sustainability of their marine territory (Aswani 2005: 304). Besides these factors, Ruddle (1998: 108) also highlights the urbanisation and technological change as one of the causes of the indigenous communities' institutional change and, subsequently, the degradation of marine environmental quality in the Pacific Islands. Additionally, Malm (2001: 3) argues that, in Tonga, the expansion of the West European culture and the emergent world system were responsible for the alteration, deterioration or destruction of the customary system institutional roles on regulation access to resources.

The vertical conflicts between the formal government and indigenous communities have mostly arisen due to the existence of dualism, or even pluralism, of the marine management system. Besides the contradictive principle applied by indigenous commu-

nities and the outsiders, including the formal government, the European culture to clearly delineate land boundary has influenced the government of Queensland and Québec to reject the claim of indigenous communities in Torres Strait and James and Hudson Bay on their marine territories, which have been an integral part of their customary territories for centuries (Mulrennan and Scott 2000: 684-685). The acknowledgement of the rights of indigenous communities over their customary marine territory indeed acts as the basis for these communities to enforce the customary rules (Kinch 2003: 5; Mulrennan and Scott 2000: 704), which have been proven to be able to sustain the resources over time (Aswani 1999, as cited in Kinch *op. cit.*).

Such a dualism has mostly led to high level intervention from the formal government to the performance of the customary marine management system and, in turn, the deterioration of marine environmental sustainability. In most countries in the Pacific Islands, the customary marine management systems had been diluted or damaged by the centralised marine management systems (Ruddle 1993, as cited in Ruddle 1998: 106; Mulrennan and Scott 2000: 682; Aswani 2005: 304; Kinch 2003: 5; Aswani 2005: 304-305; Barker 1998: 95). Ruddle (1998: 108) further argues that the replacement of traditional local authority, the policies of external assistance agencies and the national economic policies in general are responsible for the diminishing roles of the customary marine management on the maintenance of the sustainability of marine resources.

Having learned from the above, the combination of a top-down and bottom-up marine resources management approach is mostly suggested. Mulrennan and Scott (2000: 704), Aswani (2005: 304) and Kinch (2003: 5) argue that, through the decentralisation of marine resources management, cultural sustainability could be achieved, which in turn endorse the achievement of environmental sustainability. Ruddle (1998: 120) further realises that the policy of the formal government and indigenous communities should complement each other in order to ensure the balance among economic achievement, environmental quality maintenance and cultural preservation.

Considering the importance of the customary marine management system on maintaining the sustainability of the resources, the acknowledgement of rights of indigenous communities to their marine territory on sustaining the resources should therefore be promoted. Mulrennan and Scott (2000: 704-705) state that the recognition of the rights of customary institutions on managing the marine territories and resources in their surroundings is the best alternative to avoid dualism or pluralism on marine management to take place in any territory. By applying such an approach, the monitoring of the use of marine spaces, as well as the enforcement of the agreed rules on the employment of marine territory, could be carried out by local institutions (*ibid.*: 174). Particularly in Whitsunday Islands and in coastal areas in Australia in general, the customary marine tenure has been proven to be an important means for ensuring the continuity of sustainable use of marine areas and resources (Barker 1998: 95).

To achieve this, the congruences among the formal and customary systems should be ensured. Ruddle (1998: 117) proposes the codification of customary marine tenure to restore the authority of the indigenous communities to protect their territories, as well as to enhance the statutory law by the customary rules. As customary marine tenure and modern rights-based fishery management share some fundamental similarities on resolving problems related to the allocation and geographical distribution of and the competition for common-pool resources in coastal marine environment (Bromley 1992, as cited in Aswani 2005: 304), hybridisation of the formal and customary systems is indeed possible (Aswani 2005: 304).

Spatial Unit Administration Indicators for Sustainable Development

The above mentioned concepts and practices have unfortunately not been able to clearly link the Spatial Unit Administration and sustainable development. Indeed, the Land Administration concept, as well as the adaptation of Land Administration System to suit the framework of customary land tenure institution in Ghana, introduces the concept of institutional sustainability by putting more focus on people than the Spatial Unit itself and its technical aspects. However, the impact of the performance of Spatial Unit Administration to sustainable development has not yet been addressed.

This section highlights indicators of sustainable development that are greatly influenced by the performance of the Spatial Unit Administration system. In this study, the indicators developed by UN regarding the sustainable development governance and Belfiore *et. al.* (2006) on the ICOM toward sustainable development were reviewed and further analysed in order to attain the correlation between the sustainable development indicators and the performance of Spatial Unit Administration.

Sustainable Development Governance Framework

The establishment of a framework to govern sustainable development was basically initiated due to the fear of not being able to maintain a balance among the economic achievement, ecological sustainability and social development's objectives. Driven by the failures of development and in the management of human environment (WCED 1987: 19), the framework has been developed for guiding national governments on coordinating a sustainable development mechanism (UN 2001: 13). WCED (*op. cit.*: 20) further lays the foundation for assessing the attainment of sustainable development by deploying three pillars of sustainability, namely economic and social development, as well as environmental sustainability. Moreover, UN (*op. cit.*: 19) and UN (2007: 10) state that the institutional aspect should also be considered as another pillar of sustainability. After establishing a set of indicators of sustainable development between 1992 and 1995 by the Commission on Sustainable Development (CSD), with the above mentioned pillars as their foundation, the work of WCED and CSD was further tested in 22 countries around the world, the outcome of which was published in 2001 (*ibid.*: 6). In 2007, the latest revision of sustainable development indicators were published, which comprise of 14 themes (*ibid.*: 9). Under the above mentioned themes, there are 96 indicators of sustainable development, which also includes a subset of 50 core indicators (*ibid.*: 47-85). The latest sustainable development indicators can no longer be explicitly classified under the four pillars of sustainable development but rather be organised as the cross-cutting theme. Besides providing the guidance for helping countries around the world to promulgate sound decisions concerning sustainable development (*ibid.*: 3), the above mentioned indicators could also be a means to link the performance of Spatial Unit Administration to sustainable development.

In this section the selected indicators within the scope of the governance of sustainable development are described. Moreover, the interrelationship between these indicators and Spatial Unit Administration is also addressed. There are seven sustainable development indicators among 96 indicators that are directly linked to the outcome of the Spatial Unit Administration. These indicators are classified under land environment sub-theme namely proportion of land that is covered by forests, coverage of arable and permanent cropland area, area of forest under sustainable forest management, the rate of Land Use change and land degradation; and marine environment sub-theme specifically proportion of marine protected area and coverage of coral reef ecosystem. Additionally, besides the above mentioned indicators that are valuable for measuring the environ-

mental carrying capacity within the scope of fulfilment of the goal of sustainable development, the poverty level was also employed to measure the economic impact of customary Spatial Unit governance.

The proportion of land area covered by forest basically reveals the perception of the community living in the area in question on the function of forest to maintain the environmental carrying capacity and the economic potential of the area over time. The high deforestation rate could be a means for identifying unsustainable practices in the forestry and agricultural sector (*ibid.*: 65). Most importantly, this indicator could also be utilised as a means for measuring the soundness of local institution within the scope of the sustainable management of the forest and its surrounding (Ostrom 1990: 186).

The coverage of the arable and permanent cropland area acts mainly as the measure on the pressure on cultivating new lands (UN *op. cit.*: 63). Within the scope of land planning decision making, this indicator provides an important input regarding the demand on land from an economic perspective (*ibid.*).

The proportion of forest under sustainable forest management is mainly employed as a means to measure the understanding of the community on the capacity of the forest to maintain the balance among environmental protection, economic achievement and social advancement and social value preservation in more detail. This indicator acts as a complementary indicator of the proportion of land area covered by forest. The latter indicator only measures the proportion of forest in area in question, while the former focuses on the identification of sustainable practices applied in the forest management (*ibid.*: 66).

The Land Use change is proposed to be employed to measure the likelihood of the development, which is mainly driven by the policy development, to provide the greatest benefit of the development for the people (*ibid.*: 62). The Land Use change would mainly alter the economic circumstances, while it would also have consequences in the environmental quality adjustment (*ibid.*). Most importantly, as Land Use incorporates cultural activities as well (Dale and McLaughlin 1999: 73), this indicator also acts as the measure of social advancement within the scope of Spatial Unit Administration.

Land degradation is utilised as an indicator for measuring the environmental carrying capacity on leading to the achievement of the goal of sustainable development (UN *op. cit.*). The degraded land, either due to natural processes or human activity, would have less possibility to sustain the economic and/or ecological function of the area (*ibid.*). This indicator is a measure of the reduction in quality of land resources due to soil erosion; deterioration of physical, chemical and biological or economic properties of soil; and/or long-term loss of natural vegetation (*ibid.*)

According to UN (*ibid.*: 68), the proportion of marine protected area represented the area in which the biodiversity, cultural heritage and the function of the marine area could be protected from inappropriate uses. The marine protected area could therefore function as a means for protecting marine ecosystem diversity from adverse human influences (*ibid.*). In relation to this study, this indicator was employed to measure the level and the extent of customary marine environment protection.

The coral reef ecosystem has been acting as the key to measuring the marine biological diversity (*ibid.*: 69). According to UN (*ibid.*), the coral reef ecosystem includes rare or locally endemic or threatened species.

The indicators under the land environment sub-theme are related to the outcome of the performance of Land Use and Tenure policy, while Land Value tools is considered to provide a means for regulating the Land Use and tenure. Good governance on Land Use and its changes is traditionally acknowledged as one of the ways leading to the achievement of sustainable development (Dale and McLaughlin 1999: 73). This is par-

ticularly due to the tight interrelation between Land Use and human actions, which in turn alters the physical environment (*ibid.*: 74). Moreover, agricultural land and forest area are considered as one of the common Land Use classes (UN-ECE 1989: 1, 3, 4). As land tenure component of Land Administration regulates not only the rights to land but also restrictions and responsibilities of the land subject to her/his land (Dale and McLaughlin *op. cit.*: 18), it has been regarded to be an effective means for modulating the interaction between human and their environment (Hanna and Munasinghe 1995: 4). Moreover, besides acting as an instrument to affect land development and Land Use patterns, Land Value tools have been able to provide incentive strategies to preserve prime agricultural lands (Dale and McLaughlin *op. cit.*: 78). Especially within the forestry sector, even though it is still being debated (Melhado 2007: 3), forestry taxation has been employed as one of the means for creating an equilibrium between the attainment of objectives of economic development such as on acquiring optimal benefit for the State (*ibid.*: 3) and the community (Fomété 2001: 18) from the forestry sector, stimulating private commercial investment in forest exploitation (Gillis and Repetto 1988: 387); and ecological preservation particularly for ensuring the availability of raw material for the forest industry (Ylitalo 1998: 2).

Furthermore, two indicators under marine environment sub-theme, namely proportion of marine protected area and area of coral reef ecosystems and percentage live cover, are considered to be linked to the performance of the marine use system, while the application of marine tenure and value system provides supporting tools for implementing a marine use policy. As described by Douvere (2008: 765), marine spatial planning is a process that can guide human activities practised in marine spaces. It therefore acts not only as a means for delineating marine protected areas but also as a practical tool for implementing a sound ecosystem-based marine management (*ibid.*). Regarding the role of marine tenure system on supporting the implementation of marine spatial planning, Ng'ang'a (2006) argues that the application of the previously mentioned system affects rights to resources enjoyed by individual or group property holders. Moreover, as described earlier, a marine taxation scheme has not been applied within the environmental protection sector. In spite of the narrowed coverage of marine taxation, another component of marine value component, which is marine valuation, has been exercised to provide a detailed overview of direct benefit from running marine protected areas such as suggested by IUCN (2004: E6-1), besides maintaining marine environment sustainability.

Lastly, the poverty level provides a solid basis for measuring the economic achievement within the scope of Spatial Unit Administration. Six indicators are proposed by UN (2007: 47-50). Nonetheless, other indicators could also be employed in order to adapt to local conditions.

Integrated Coastal and Ocean Management for Sustainable Development

The development of indicators for measuring the progress and outcomes of Integrated Coastal and Ocean Management (ICOM) was basically initiated due to the existence of environmental and social problems within the scope of coastal and marine management. Almost everywhere in the world, fish stocks have been steadily diminishing, which is mostly caused by the degradation of coastal and marine environmental quality and conflicts on the management of coastal and marine areas (Belfiore *et. al.* 2006: 1). Even though there were hundreds of initiatives in more than 140 countries in the 1960s to foster the ICOM (Sorensen 2001, as cited in Belfiore *et. al. op. cit.*), most of these initiatives have not been recently implemented (*ibid.*). Moreover, the improvement on the monitoring and evaluation of the performance of ICOM still has to be done (*ibid.*).

With the objective of promoting sustainable development through the careful, integrated management of coastal and marine areas, indicators were developed regarding the measurement, evaluation and reporting of the progress on the governance of coastal and marine areas, as well as the achievements on enhancement of environmental quality and development of socio-economic sector (*ibid.*). This publication also acts as a guide for the managers, decision-makers, practitioners, evaluators, donors and researchers to reach the objectives of sustainable development through the ICOM (*ibid.*: 2).

Among the above mentioned indicators, there are several that are directly related to the performance of Spatial Unit Administration. From the economic development point of view, those indicators are total employment and sectoral diversification. Moreover, access to Spatial Units and cultural integrity act as one of the important indicators for measuring the social impact of the performance of Spatial Unit Administration.

The total employment and sectoral diversification in Spatial Unit management and administration could be employed to measure people's dependency on this sector. The total employment defines the total direct employment associated with coastal and ocean-related in the management area (*ibid.*: 199), while the sectoral diversification indicator reveals the significance of this sector compared to other sectors (*ibid.*: 201). These indicators are actually intertwined. The more diverse the Spatial Unit Administration System is, the more employment opportunities there are for the people.

As previously mentioned, the degree of access to Spatial Unit reveals the level of good Spatial Unit governance in the area in question. This indicator is basically adapted from the indicator of public access to Spatial Unit of Belfiore *et. al.* (*ibid.*: 210). Public access in the scope of ICOM is defined as the degree to which the public have access to the coast itself and to the resources of the coastal and marine environment (*ibid.*). As Spatial Unit Administration is not only related to public Spatial Unit and resources attached to it but also the private Spatial Unit and the resources contained therein, the accessibility of the Spatial Unit could act as an indicator for measuring the fairness and transparency of the Spatial Unit governance. The fairness on Spatial Unit delivery would, to some extent, provide the same opportunity for individuals or a group of people to access the Spatial Unit (as adapted from Arko-Adjei 2011: 97), while the transparency on Spatial Unit delivery would promote the right to access full, reliable and timely Spatial Unit-related information for everyone (as adapted from Fraser and Ellis 2009, Kolstad and Wiig 2009; as cited in Arko-Adjei *op. cit.*). The fairness and transparency of land delivery are acknowledged as one of the important parameters of good land governance (*ibid.*: 95), which is also agreed upon in the scope of Spatial Unit governance.

Most importantly, this publication provides guidance on combining top-down and bottom-up approach on designing the program on management of the environment. See Figure 2.2 for details. However, the proportion of such a combination is still weighted to the top-down approach as Belfiore *et. al.* (*ibid.*: 31) states that the bottom-up approach incorporates the establishment of an ecosystem-based approach to management by considering the human activities that may have significantly impacted the ecosystem, as well as the identification of the properties of ecosystem that may be impacted by such activities.

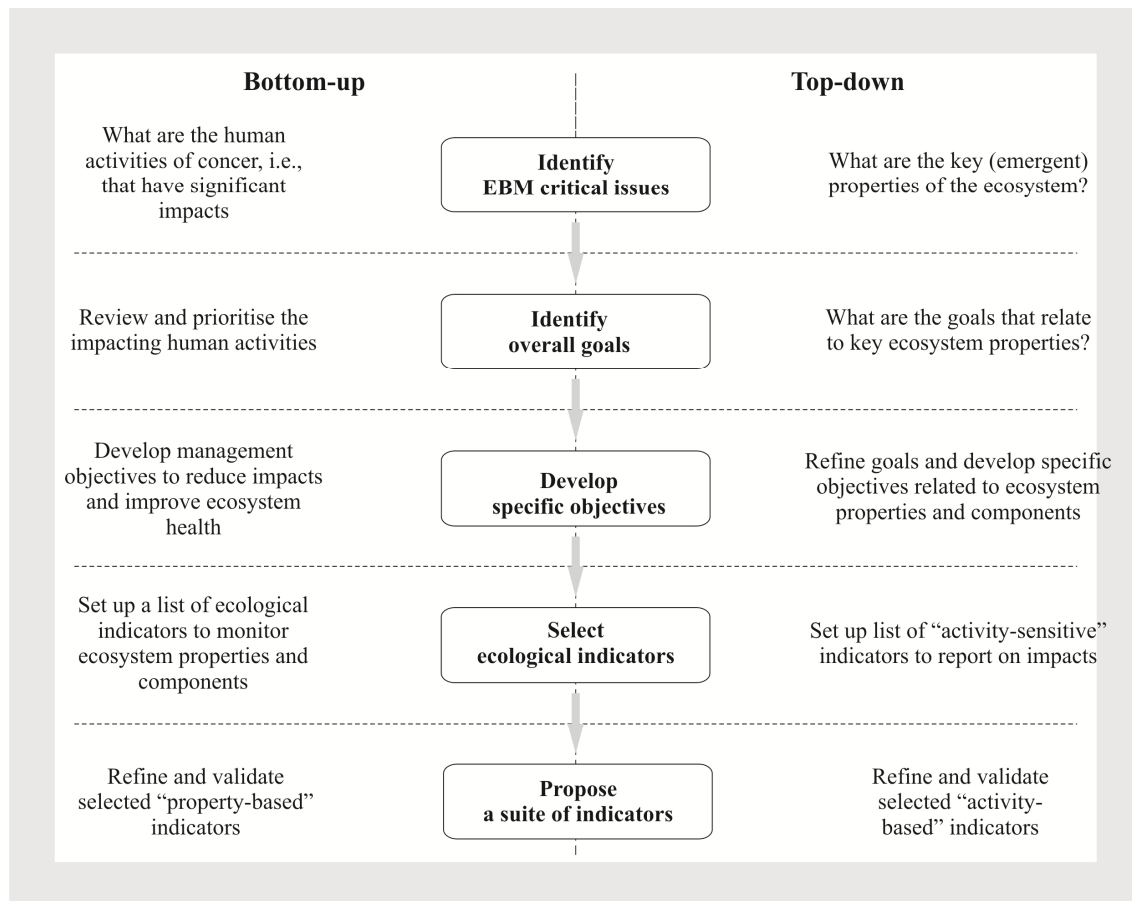


Figure 2.2 Combination of bottom-up and top-down approach on designing a program within the scope of integrated coastal and ocean management (Source: Belfiore et. al. 2006: 36)

Institutional Aspect of Collective Action on Common-Pool Resources Management

In spite of the ability of the previously mentioned practises and strategies to cover the affairs in relation to the Customary Land and Marine Administration, as well as the interrelationship between land and marine governance and sustainable development, the issues on collective governance and, most importantly, to which the collective governance have been developed and shaping the communities's attitude on the management and administration of Spatial Unit have not yet been addressed. As suggested by Dale and McLaughlin (1999: 1), the Spatial Unit Administration involves public sector activities. Nevertheless, UN (2001:25 and 2007: 11) provides no indicator on the collective governance at all, while Belfiore *et. al.* (2006: 18, 40) only incorporates stakeholder and community-based organisation participation, as well as local knowledge, innovations and practices, as only a part of the integrated coastal and ocean management program of the formal government.

Furthermore, the studies on Customary Spatial Unit Administration System Customary Spatial Unit Administration System have indeed provided the guidance to formalise the customary Spatial Unit institution, which, in turn, is expected to promote the sustainability of this institution, as well as the Spatial Unit and resources it administers. The research on the adaptation of Land Administration to the customary tenure institutional framework in peri-urban areas in Ghana offers a good alternative for ensuring the application of good land governance, as well as for empowering local knowledge, to-

wards sustainable development. Moreover, the more general suggestions on the decentralisation of marine resource management (Mulrennan and Scott 2000: 704, Aswani 2005: 304 and Kinch 2003: 5) and the combination of a top-down and bottom-up approach on marine resources management (Ruddle 1998: 120) are the most important outcomes from the case studies on customary marine management institutions. Unfortunately, these researches have not yet been able to explain the customary institutional change process in the past that leads to the sustainability of this institution and, consequently, the sustainability of the surrounding environment.

In order to bridge the gap between the existing, formal and community-based Spatial Unit Administration concept, the concept of institutional aspect on the management of common-pool resources developed mainly by Elinor Ostrom was employed. In spite of its nature to contain natural resources, the Spatial Unit is in fact classified as natural resources. Even land (Williamson 2000: 8) and marine resources (Barry *et. al.* 2006: 64) have been considered as scarce resources, while the employment of space units has been steadily increasing (Stoter 2004: 3).

Moreover, Ostrom's concept of institutional aspect on the management of common-pool resources addresses the possibility to perform self-governance of common-pool resources by both small and large groups of people. This concept was developed in an endeavour to enhance the comprehension of the potentials and constraints of institutions on management of natural resources. This was done by evaluating the basis for the development of policy and strategy on the management of natural resources that previously existed, as well as by presenting cases on the self-governance of natural resources (Ostrom 1990: 2).

Within this section, the basis for the establishment of sustainable common-pool resources management institution is described. Moreover, the contributions and limitations of this concept of addressing the potential of customary Spatial Unit Administration System for sustainable development are explained.

Sustainable Common-pool Resources Management Institution

The concept of an institutional aspect of management of common-pool resources was developed by Ostrom in order to overcome the inability of the classical models to push the individuals in either a small or large group to successfully self-govern the management of common-pool resources. The arguments for putting forward such a concept on resolving problems on smaller-scale management of common-pool resources by either a small or large group of people without solely relying on the external authorities posted by Ostrom were the necessity to mirror the incremental, self-transforming nature of institutional change, the significance of the characteristics of external authorities to analyse the effects of internal variables to collective provision of rules and the requirement to include information and transaction costs (*ibid.*: 191).

Having investigated both the successes and failures of self-organised organisations founded in 13 different areas to manage different types of common-pool resources, Ostrom (*ibid.*: 42) argues that the sustainability of a self-organised institution for managing the small-scaled common-pool resources could be achieved by resolving the problems on the institutional supply, credible commitments and mutual monitoring. Moreover, based on her above statement, Ostrom (*ibid.*: 90) points out eight principles for designing such an institution that is able to promote the high-quality institutional supply, encourage the foundation of credible commitments and enhance the likelihood of mutual monitoring.

The institutional supply is an endless process, which should be continuously maintained to ensure the sustainability of the institution itself. Bates (1988; as cited in Os-

from *op. cit.*: 42) states that even though the preferences to push forward to the institutionalisation of collective action, it is prone to lead to a disagreement on which institution to choose, which is termed as second-order dilemma. From the case of Californian's groundwater pumpers, Ostrom (*ibid.*: 137-139) suggests that a sustainable institution could be achieved as long as the institution provides a means to incrementally, sequentially and independently transform itself.

Having the ability to perform an incremental, sequential and self-transforming institutional change is not yet adequate to sustain this type of institution over time. Ostrom (*ibid.*: 90) proposes the credible commitment as another important factor for ensuring the sustainability of common-pool resources institution. This is arguedly due to the high temptation to free-ride the institution by breaching the previously agreed rules for generating individual return, which is theoretically considered as a short-term return only (*ibid.*: 44). Unless there is a strong commitment among the individuals within this institution for conforming the rule, the improvement on joint, long-term return would never be achieved (*ibid.*: 44-45).

Finally, the common-pool resources institution could only be sustained in the case of the existence of mutual monitoring on the implementation of the rules by the incorporated members of this institution. Mutual monitoring could ensure the enhancement of credible commitment (*ibid.*: 187), which, in the end, affects the institutional supply as well (*ibid.*: 45).

In order to ensure the continuation of institutional supply, the presence of credible commitment and the performance of mutual monitoring, Ostrom (*ibid.*: 90) proposes eight principles for designing a sustainable institution on the management of common-pool resources. Those principles are:

- *Principle 1*: Clear definition of boundaries, not only the physical boundaries of common-pool resource but also its stakeholders.
- *Principle 2*: Localised rules, which are developed based on local conditions.
- *Principle 3*: Locally arranged, which involves individuals affected by the operational rules.
- *Principle 4*: Monitoring of the implementation of management of common-pool resources by individuals accountable to local appropriators.
- *Principle 5*: Application of graduated sanctions, which is depending on the seriousness, context and the frequency of the offense, by appropriators, accountable officials or by both.
- *Principle 6*: Promoting low-cost, localised conflict resolution mechanism.
- *Principle 7*: Freedom to devise appropriators' own institutions, particularly from the influences of external authorities.
- *Principle 8*: Establishment of small-community-based multiple layer of nested enterprise for common-pool resources that are parts of larger systems.

Based on her empirical findings, Ostrom (*ibid.*: 193) proposes a framework for analysing institutional choice. The proposed framework basically comprises of three main parts, which are the internal world, the external world and the institutional transformation process. See Figure 2.3 for the variables affecting institutional choice.

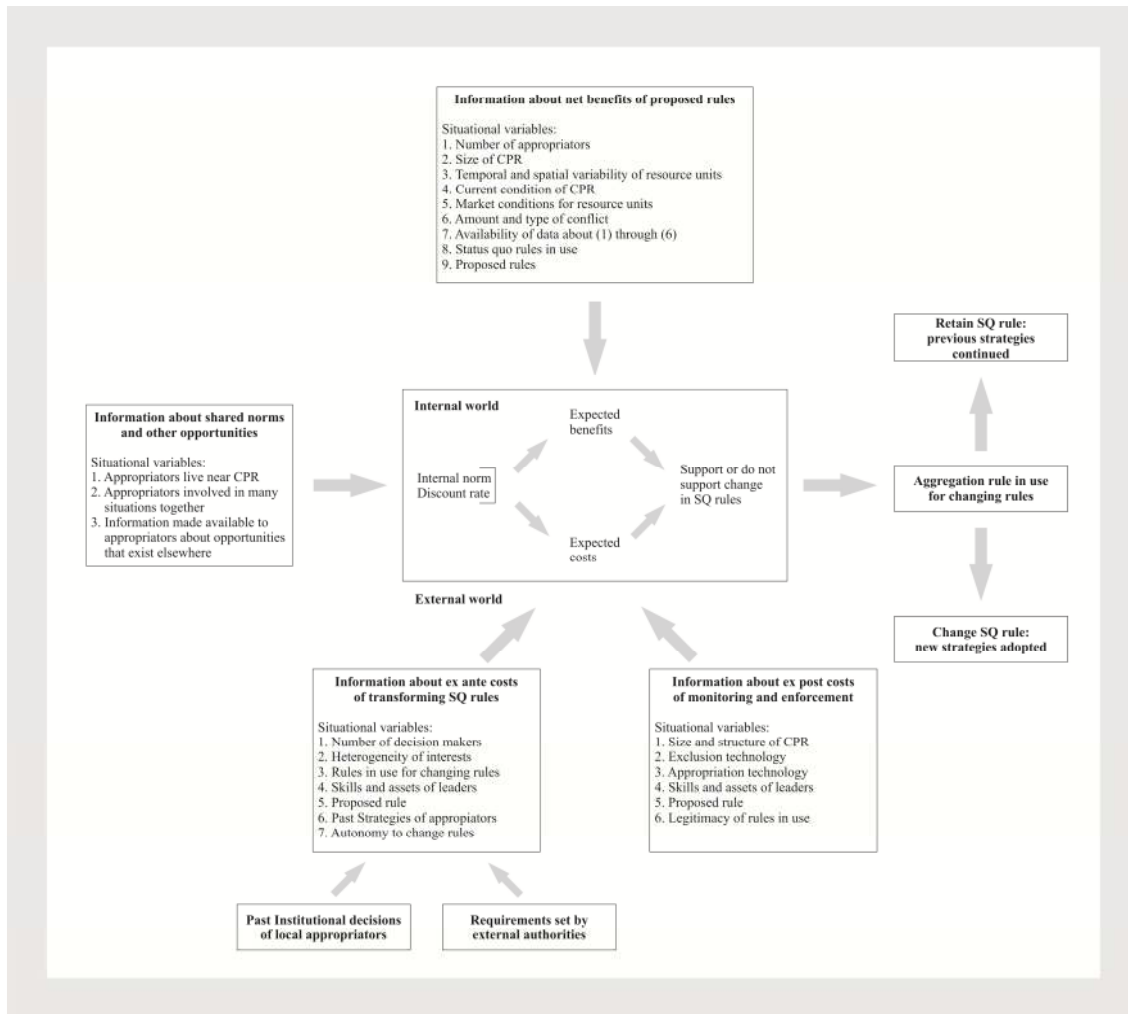


Figure 2.3 Variables affecting institutional choice (Source: Ostrom 1990: 193, 197, 199, 203, 206)

Institutional Aspect of Collective Action and Sustainable Development

Through her conception on collective action on the management of common-pool resources, Ostrom provides a clear explanation that the collective action could be another alternative for resolving multi-level dilemma on the management of common-pool resources besides the employment of the socialistic or capitalistic approach proposed by the previous theories. In spite of the broad range of variables, as well as the limitation of human capability to predict the outcome of the institutional change process, there is empirical evidence that the appropriators could supply their institutions with self-devised rules to resolve common-pool resources problems (*ibid.*: 210). These variables are beneficial to assess the characteristic on institutions for managing common-pool resources.

Despite considering socialistic or capitalistic governance of common-pool resources as the only available solutions, the cooperative, individualistic approach is preferred in order to sustain the institution on the management of common-pool resources. The concept of collective action is founded based on the choice of rational individuals (*ibid.*: 33), who cooperate with each other to achieve greater long-term expected net benefits compared to the long-term expected net benefits from the short-term, dominant strategies. This concept offers a detailed guidance for devising the individual-based institutions

on the management of common-pool resources, which provides a means to sustain not only the institutions themselves but also the common-pool resources.

However, this concept also takes into account the important roles of external authorities on maintaining the sustainability of the institutions regarding the management of common-pool resources. As mentioned earlier, the level of autonomy given by the external, mostly formal, authorities for devising appropriators' own institutions for managing the common-pool resources, as well as to change them, greatly influences the rate of institutional transformation. The acknowledgement from higher hierarchical authorities on the autonomy of appropriators on the self-management of common-pool resources also contributes to the amount of monitoring and enforcement costs. Most importantly, the successfulness of the adoption of new rules might be ensured by the external authorities that promote a combination of bottom-up and top-down governance approaches by means of allowing substantial local economy, investment in enforcement agencies and provision of generalised institutional choice and conflict resolution areas, even in such a case that the appropriators are unable to supply the institutions with high-quality rules and, if necessary, new rules (*ibid.*: 212).

Social Ecology and Communalism

As the basic infrastructure on the implementation of policies and strategies regarding the Spatial Unit management (Williamson *et. al.* 2010: 2), which comprises public sector activities on the alienation, development, use, valuation and transfer of Spatial Unit (Dale and McLaughlin 1999: 1), most of the existing Spatial Unit Administration systems have been utilised as a means for implementing the political ideology in the territory in question. During the period of the Socialist Federative Republic of Yugoslavia between 1945 and 1991, all lands in Slovenia were socially owned or, frankly speaking, owned by the State (Brajnik 2004: 3). Moreover, the management of Spatial Unit and resources attached to it mostly utilised either a capitalistic or socialistic approach.

In order to provide the balance between the more institutionalised external ruling power and indigenous knowledge, the concept of collective action proposes the establishment of rational-individual-based institution on the management of Spatial Unit and resources attached to it. Despite fully applying a capitalistic or socialistic approach on the governance of Spatial Unit, this concept recommends a mixture of collectivistic-individualistic and either capitalistic or socialistic approach for devising a sustainable institution, which, in turn, tends to promote the sustainability of the Spatial Unit and resources attached to it.

Nonetheless, the gap in knowledge on the utilisation of the communalistic approach on the governance of Spatial Unit and resources attached to it still exists. These concepts and practices have mostly been able to address the issues on the management and administration of Spatial Unit either by formal or self-devised institutions, which mirror the leviathan, socialistic, capitalistic or collectivistic-individualistic approach. While leviathan, socialistic and capitalistic approaches are considered as the external world of most localised institutions, the collectivistic-individualistic approach has a considerably different view compared to communalistic approach, particularly regarding cultural issues (Jagers and Mock 1995: 154). On one hand, the communalism represents an emic approach, which seeks to describe and interpret phenomena in terms of the life experiences of a specific cultural group (Azibo 1992, Berry *et. al.* 1992; as cited in Jagers and Mock *op. cit.*: 155). On the other hand, collectivism-individualism represents an etic approach, which assumes the universal applicability of Western psychological constructs (Azibo *op. cit.*, Berry *et. al. op. cit.*; as cited in Jagers and Mock *op. cit.*). Furthermore,

Boykin (1983; as cited in Boykin *et. al.* 1997: 411) define the Afrocultural concept of communalism as an awareness of the fundamental interdependence of people. In the communalistic groups, the groups' interest is more important than individual rights and privileges and the identity of the members of the group is tied to group membership rather than to individual status and possessions (Boykin *op. cit.*; as cited in Boykin *et. al. op. cit.*).

In the light of this study, the communalism was viewed from its perspective on the governance of natural resources for the sake of economic and social development, as well as environmental and social values conservation. The social ecology concept proposed by Murray Bookchin was reviewed, as well as its contribution to the communalistic approach on the governance of Spatial Units and resources attached to them.

The Needs on Social Ecology Concept Development

The concept of social ecology was proposed by Bookchin as an effort to resolve the ecological problems, which are arguedly caused by an ill society (Bookchin 2007d: 19). This concept was developed based on Bookchin's experiences during his involvement in the libertarian socialist movement (Eiglad 2007: 9-10) in a capitalist environment (*ibid.*: 9). Bookchin mostly blames the domination of human (Bookchin *op. cit.*: 40), which he calls as second nature, on the first nature that is defined as biological evolutionary history (*ibid.*: 27). The de-natured human (*ibid.*) with its social hierarchy, which had been developing from its traditional form into either Marxism or capitalism, had mostly converted fertile land with concrete, poisoned air and water, and produced sweeping climatic and atmospheric changes (*ibid.*: 22).

Capitalism, with its "grow or die" principle, pushes for a limitless expansion (*ibid.*: 42). In the late 18th and early 19th century, the limitless expansion existed in the form of colonialisation (*ibid.*), which swept aside any cultural and social barriers for the sake of market growth (*ibid.*: 41). In the modern capitalist world, such an expansion appears in the form of industrial expansion and commercial power (*ibid.*: 42). Before it is realised, the market growth has already disrupted the ecological cycles and violated the first nature (*ibid.*: 44).

The green revolution in the modern capitalist world is even viewed by Bookchin (*ibid.*: 43-44) as a skilful way of corporations to manipulate their "green" images. Bookchin (*ibid.*: 44) considers this as the way to give excuses to the corporations for performing more destructions by providing small incentives on social development and environmental preservation.

Bookchin also argues that Marxism provides no better means than capitalism for resolving the recently existing ecological problems. The ideas on the overthrowing of class structures has practically turned into authoritarianism, which, in this case, classifies the citizens into the same proletarian class that could freely be exploited by the small number of high-level proletarians (Bookchin 1993). This type of human-to-human domination would even provide more harm to the first nature (Bookchin 2007d: 40).

Social Ecology and the Construction of Communalism

To resolve the ecological problems, which are arguedly caused by deep-seated social problems, Bookchin (2007a: 57) suggests restoring the definitions of social, politics and state to their initial definitions. This is particularly due to the absorption of politics by the State, as well as the absorption of social by economy (*ibid.*).

Politics is recently defined in its relation to statecraft, structured around staffing the State apparatus with parliamentarians, judges, bureaucrats, police, military (*ibid.*: 58).

On the other hand, Bookchin's idea on politics originated from the Greek and etymologically referred to public arena peopled by conscious citizens who felt competent to directly manage their own communities or *polis* (*ibid.*). Moreover, the term of economy, which originated from a Greek word *oikos*, was initially utilised for addressing the management of the family (*ibid.*), while the society itself has become "economised" (*ibid.*: 53).

In order to have a healthy society that has the capability to resolve or at least lessen the ecological problem, social ecology proposes to re-define the society as it was initially defined by the Greeks, which acts as the private arena mainly taking care of family relationship, friendship, personal development, production and reproduction (*ibid.*: 58). This genealogical relationship leads to the establishment of strong centripetal forces that join the prominent social communities together (*ibid.*). The politics and the State emerged from the above defined society (*ibid.*: 59). Bookchin provides the example of the Egyptian and Persian kingdom as one of the domestic domains of monarchs (*ibid.*). The above mentioned facts reveal the importance of society in shaping politics and the State.

From the domestic arena, the issues on public domain have further arisen (*ibid.*: 60). To cope with these issues, the Greeks set up an institution for self-management of the city or *polis* (*ibid.*). This institution was very important as it provided the recognition of civic rights of non-members of genealogical institutions in public domains (*ibid.*). This political institution allows people to democratically and directly manage their community affairs (Bookchin 2007c: 93).

From the notion of politics from above, the city or town, or municipality in general, as well as the confederation of municipalities, could be expected to form a dual social-political power to confront capitalism, social hierarchy and the nation-state in the light of resolving the ecological problems (Biehl 1995). Bookchin (1993) agrees that it might take a long time to foster such a direct democracy in such a political dimension. However, this would by no means potentially eliminate the domination of human by human, which, in turn, would be able to deal with the ecological problems (*ibid.*).

In spite of his critics on the failure of Marxism, as well as anarchism, on addressing the ecological problems (Bookchin 2007c: 87-97), communalism, which encompasses the fully thought out and systematic views of social ecology (*ibid.*: 98), draws on the best of Marxism and anarchism, while, on the other hand, offers a wider and more relevant scope on dealing with the social-ecological problems (*ibid.*: 97-98). Communalism derives the basis for formulating a rationally systematic and coherent socialism that integrates philosophy, history, economics and politics, or dialectically attempts to infuse theory with practice (*ibid.*: 98). Moreover, communalism draws the commitment to antistatism and confederalism from anarchism, as well as its recognition that hierarchy is a basic problem that can be overcome only by a libertarian socialist society (*ibid.*).

Moreover, Bookchin (*ibid.*: 101) argues that communalism would encourage the application of the genuine democracy. The genuine democracy institution, which is far from its definition at the present time, comprises of people's assemblies at neighborhood, town and village level (*ibid.*: 105). In these assemblies, citizens deal with community affairs on a face-to-face basis, making policy decisions in a direct democracy and giving reality to the ideal of a humanistic, rational society (*ibid.*).

In the way it views economics, communalism promotes ethics. Furthermore, the concern of communalism is to replace conventional economics, which focus on prices and scarce resources, with the fulfilment of human needs and the achievement of a good life (*ibid.*: 104). Municipal assemblies would also function on opening the scrutiny and participation of the population as a whole (*ibid.*)

Communalism as the Ideology of Sustainable Development

Communalism, as the ideology of sustainable development, is structured based on the civic society as its smallest unit. The society, which by the communalist is defined as the domestic arena, is interlinked to nature by evolution into one type that consists of two differentiations, which are biotic and human nature (Bookchin 2007d: 29). The society is to be found as the nearest unit of a human being to nature. It is therefore necessary to directly include society in the management of its surroundings.

Communalism, in its efforts to address the ecological crisis through social and political reform (Biehl 1995), indirectly promotes the indigenous knowledge through the empowerment of the people and their assemblies as the political entities for leading to sustainable development. The norms and values of domestic arenas, which are being raised into public domains, face each other in order to formulate the best strategy to not only regulate the human-to-human relationship but also human-to-nature relationship. As the public domain institution supposes to be able to deal with all issues in its territory, it is expected that the size of the municipality should allow the citizens to handle their affairs on a face-to-face basis, which increases the degree of familiarity among the citizens (Bookchin 2007a: 61-62). While the ecological issues could not be bound by administrative boundaries, the confederation of municipalities should therefore be established.

Moreover, in communalistic municipalities and confederations, the same form of nation-state could be found at local level (*ibid.*: 65). Besides the above, the issues on representativeness have also been addressed by the communalist. In communalistic confederation, shared responsibilities, full accountability of representatives to their communities, the right to recall and firmly mandated representative are guaranteed (*ibid.*: 64-65). Due to its nature, this confederation could be a means for aggregating indigenous knowledge to address ecological crisis, which, in turn, promotes sustainable development.

As a political ideology, communalism promotes equity among the citizens. In the public domain, everybody has the same right to contribute to popular assembly, no matter their occupation (Bookchin 2007b: 103-104). By its notion of politics, the civic rights of the outsiders are also recognised in the public domain (Bookchin 2007a: 60). Through its political ideology, communalism could eliminate or at least lessen the human-to-human exploitation, which is expected to lessen the pressure on the environment.

Through the employment of ethics to keep people in their civic societies, the communalistic way of life could be regarded as an ideal way of life. The human needs and the good life would be the targets of the communalist rather than the prices and the exploitation of scarce resources, while human solidarity would replace material gain and egoism (Bookchin 2007b: 104). It is expected that the over-exploitation of scarce resources would be avoided by considering their sustainable yield. Furthermore, the exploitation of resources in general should not be for money-oriented purposes but for material pleasure and ease (*ibid.*: 97). The vastly enjoyable and leisure life would encourage citizens to engage in intellectual and cultural self-cultivation on the foundation of civilisation and a vibrant political life, which resulted in the utilisation of science and technology in accordance with the visions on human happiness and leisure (*ibid.*).

As the visions of the people takes an important role in fostering such an ideal society, which is further supported by the adoption of libertarian municipalism, education of the people is imperative for the construction of such visions. Due to the nature of the communalistic society with its highly guaranteed representativeness and participation, the

leadership should be raised among the other important issues on the education of young communalists (*ibid.*: 111). Even though, to some extents, the formal and religious educational institutions could take part in the education of the people in general and young communalists in particular, Bookchin (*ibid.*: 104) prefers to rely on the municipal life to encourage such a mentality.

Cultural Landscape Development

The administration of Spatial Units for either directly or indirectly providing the basic infrastructure of sustainable development certainly includes the administration of spatial information regarding the Spatial Unit as well. Most of, if not all, the objects above, on, in and below the surface of the Earth have spatial information attached to them. Furthermore, the spatially enabled spatial unit administration is expected to be able to facilitate the interaction within the Spatial Unit policy framework; institutional arrangements, capacity building, education and research; provision of services to business and citizens and facilitation of sustainable development (Williamson *et. al.* 2010: 130).

The spatial arrangements of the Spatial Unit Administration, as well as the policies and the strategies of Spatial Unit management, for leading to sustainable development have not yet been fully addressed by the above concepts and practises. Indeed, the Spatial Unit Administration also includes the administration of spatial information. Arko-Adjei (2011: 181) reveals that the employment of participatory Geographic Information System could enhance the capacity of customary and/or local institution on the administration of Spatial Unit in area in question. Moreover, the vertical and horizontal conflicts in marine territories of Pacific Islanders and Northern Québec's Cree and Inuit originated from the disagreement on legal and physical boundary of each side's territory. However, the spatial policy has not yet been an integrated part of the solutions proposed by the above mentioned studies.

In relation to the indicators of sustainable development, many indicators are measured by their spatial attribute such as the coverage of forest (UN 2007: 65, 66), arable and permanent cropland (*ibid.*: 63), marine (*ibid.*: 68) and land protected area (*ibid.*: 72-73), coral reef ecosystem (*ibid.*: 69), as well as their spatial dynamics such as Land Use change (*ibid.*: 62), land degradation (*ibid.*) and land desertification (*ibid.*: 63). The spatial policies and strategies for leading to the sustainable development are therefore encouraged to be developed by the above mentioned indicators. However, those indicators are considered as sectoral indicators, while the establishment of the integrated, multi-sectoral policies and strategies have not yet been addressed.

While social ecology and communalism mostly address the institutional aspect of governance in general and management of scarce resources in particular, the concept of collective action considers the spatial extent of common-pool resources (Ostrom 1990: 196, 203-204), as well as the discount rate that mostly arose due to the adjacency of common-pool resources extraction areas to the centre of governance (*ibid.*: 205) and appropriators' settlements (*ibid.*: 206), as of main variables that affect the institutional change process. Nevertheless, guidance on spatial enabled, sustainable management of resources has not yet been delivered.

In order to enable the management and administration of Spatial Unit by spatially linking the components of sustainable development, the cultural landscape concept is reviewed in this study. Cultural landscape examines the relationship among culture, natural resources, historical events, human's activities and even God in various degrees (TCLF 2009).

Besides providing the basis for the development of a Spatial Unit Administration framework, the cultural landscape concept contributes an indicator to measure the achievement of the goal of sustainable development within the scope of the Spatial Unit Administration namely the function of Spatial Unit, as well as an entry point for incorporating cultural values within the spatial planning decision making.

The function of the Spatial Unit could, on one hand, have existed naturally and, on the other hand, have been fashioned by the interaction between the people and the Spatial Unit. The institutionalisation of the interaction between the people and the Spatial Unit has resulted in the establishment of a Spatial Unit administration system. This indicator measures the ability of the system to define the function of each Spatial Unit in order to establish the balance among economic development, environmental quality preservation and perpetuation of socio-cultural values on particularly the customary management and administration of Spatial Units. The employment of this indicator was inspired by the implementation of the Belvedere Memorandum for conserving the archaeological, historical-geographical and historical value of the space in the Netherlands through development (Bloemers *et al.* 2010: 679).

Most importantly, the cultural landscape concept provides an entry point for integrating the cultural values within the spatial planning. Having learned from the implementation of the Belvedere Memorandum, the meeting point between cultural-historic and spatial planning approach within its development is the development itself, which is expected to be based on the conservation of cultural-historic elements. By means of its motto of Conservation through Development, the Netherlands' cultural heritages are being utilised in an economical and responsible manner in order to develop and strengthen people and country's identity, knowledge, comfort, business climate and potential for tourism (Belvedere 1999: 12). In practice, there are desired approaches such as (*ibid.*: 20-21):

- Maintaining cultural-historic values through careful use, design and management of space concerned.
- Incorporating new spatial functions into the historic spatial setting.
- Using cultural-historic quality as a stimulus for new spatial development.

The initial phase of implementation of the Belvedere Memorandum was the establishment of the Cultural-Historic Values Map of the Netherlands. The map integrated sectoral knowledge on cultural-history namely archaeology, historic architecture and urban design, and historic geography (*ibid.*: 22). Moreover, to maintain the currentness of the map, new information, acquired either through latest discovery of cultural-historic elements or newly emerged values has been added to the map (*ibid.*: 22-23). As the integrated three sectoral knowledge, areas with cultural-historic elements are further classified under high combined and high sectoral cultural-historic values (*ibid.*: 23).

For the purpose of linking cultural-historic values and spatial development, the latter is classified under low and high spatial dynamic area and further linked to the classification of cultural-historic values (*ibid.*: 27). The classified links between cultural-historic values and spatial dynamics are further pursued by promulgation of specific policy strategies designated for each link (*ibid.*). The links between cultural-historic values and spatial dynamics and their designated policy strategies are as follows (*ibid.*: 27-28):

- *In areas with sectoral cultural-historic values and a low spatial dynamic:* policy strategies that have been employed are maintaining recognisability of the situation as developed over time and retaining elements which are valuable from the cultural history point of view, such as applied in small-scale urbanisation, disuse of agricultural buildings and the disappearance of the ditches.

- *In areas with combined cultural-historic values and a low spatial dynamic:* policy strategy that has been employed is maintaining and strengthening cultural-historic quality.
- *In areas with sectoral cultural-historic values and a high spatial dynamic:* the cultural-historic values were considered as extremely important inputs for the development of policy strategy, even though the direction of the development itself is to re-create new cultural-historic values in the future.
- *In areas with combined cultural-historic values and a high spatial dynamic:* the strategy was to raise the spatial planning issues to national and international level and involve various stakeholders in order to set up the comprehensive spatial plans and to put various emphasises on different projects.

The practices regarding cultural landscape concept highlighted in this section are characterised by their top-down approach. In the wider extent, indigenous knowledge has indeed been considered as one of the important cultural values of spatial planning. Indeed these cultural landscape programs act as important examples on the employment of the indigenous knowledge on spatial planning. Nonetheless, such practices have not been able to provide the entry point for employing the communalistic approach on spatial planning.

2.3 Conceptual Framework

Having learned from the above concepts and practices, the conceptual framework of this study is developed to facilitate the analysis on the performance of the Customary Spatial Unit Administration leading to sustainable development, as well as the framework to empower the Customary Spatial Unit Administration within the scope of sustainable development. This mentioned framework elaborates the notion of Spatial Unit Administration and the concepts and practices that link the Spatial Unit Administration System and sustainable development. The elaboration of the existing concepts and practices made an effort to fill the gap in knowledge presented by each concept or practice to cope with the issues highlighted in this study.

In this section, the development of the conceptual framework is explained. The existing gap in knowledge is first presented and is followed by the description of the conceptual framework itself.

Knowledge Gap

This section summarises the knowledge gap incorporated within each described concept or practice in the scope of customary Spatial Unit Administration and linking the Spatial Unit Administration to sustainable development. The gap is basically identified on framework on the unified administration of land, marine and space unit, the impact of Spatial Unit Administration to sustainable development, as well as the community-based Spatial Unit Administration. See Figure 2.4 for the existing knowledge gap in the scope of the Spatial Unit Administration for sustainable development.

Unified Administration of Land, Marine and Space Unit

In Section 2.1, it is revealed that there is a need to integratively manage and administer Land, Marine and Space Units. As explained, the integration of Land, Marine and Space Unit management and administration should be done both conceptually and technically. Conceptually, the application of the land management paradigm on the management of

sea and space unit is urged, particularly due to the maturity of this paradigm. Moreover, a seamless land, marine and space unit data management is suggested, especially within the scope of the Spatial Data Infrastructure.

The above approaches are both related to each other. The concept is commonly developed based on the empirical findings, while, on the other hand, the technical aspect is certainly affected by the conceptualisation of a system. Through this study, it is proposed that the Spatial Unit be employed as the common unit, while the adaptation of Land Administration to cope with its extended coverage, also known as Spatial Unit Administration, is suggested in order to satisfy the needs of having the land, marine and space unit administration unified.

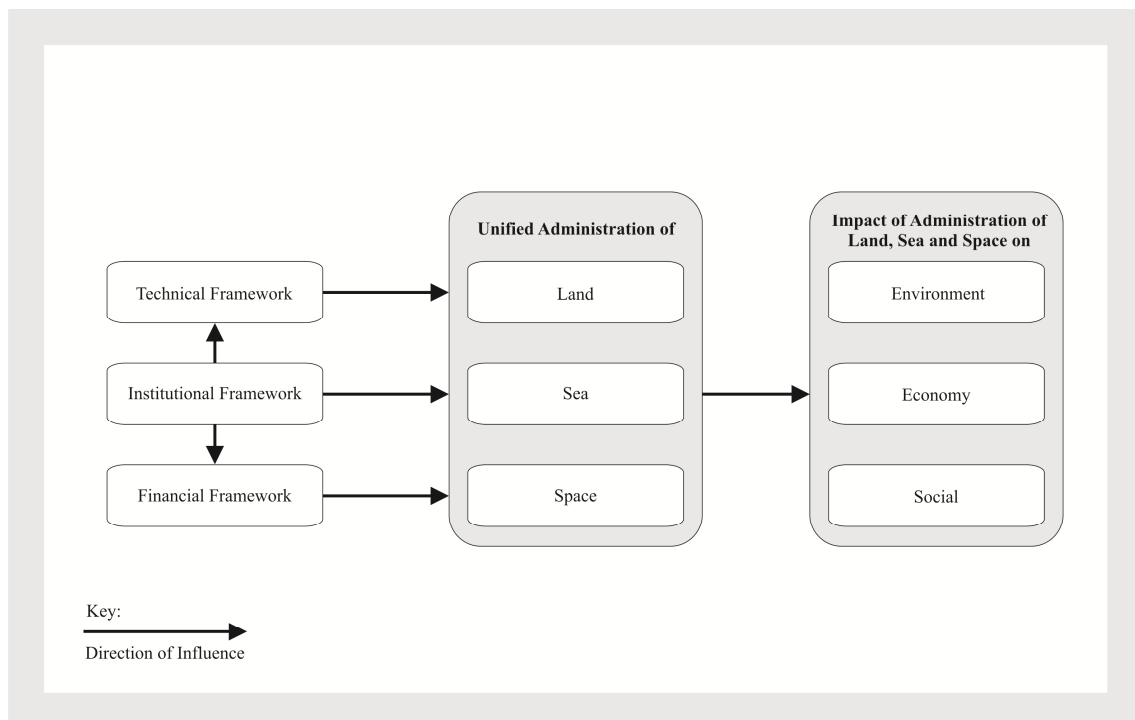


Figure 2.4 Existing knowledge gap (Source: Author's construct)

Impact of Spatial Unit Administration to Sustainable Development

As mentioned in the previous section, the Spatial Unit Administration System should in future put more focus on the people rather than on land and its technical aspect. While the technical aspect of this system still needs to be improved, particularly due to the challenge to administer Land, Marine and Space Unit in an integrated way, changing the focus to the people should be done by considering the objectives of the performance of Spatial Unit Administration System. This should guarantee the ownership, security of tenure and credit, facilitation of efficient Spatial Unit transfers and Spatial Unit markets, support of management of assets and provision of basic information and efficient administrative process in valuation, Spatial Unit Use planning, Spatial Unit development and environmental protection (Williamson *et. al.* 2011: 121).

The question of the impact of the Spatial Unit Administration on sustainable development is however still unanswered. The proposed role of Spatial Unit Administration System to lead to sustainable development in the future indeed provides guidance for achieving institutional sustainability. It is revealed in the previous section that institutional sustainability provides the fundamental basis for achieving the goals of sustain-

able development. Nonetheless, this notion has not yet substantially addressed the impacts of the Spatial Unit Administration to sustainable development. As mentioned in the previous section, the outcome of the institutional change can only be measured in the future. There is still a need for indicators to measure the achievement of the goal of sustainable developments through Spatial Unit Administration.

For acquiring the indicators of sustainable development achievement, the indicators published in UN (2001: 24-25), UN (2007: 10-14) and Belfiore *et. al.* (2006: 8, 30, 40) were reviewed. Among those indicators, spatial-related indicators, which are proportion of land covered by forests, coverage of arable and permanent cropland area, coverage of forest under sustainable forest management, Land Use change rate, land degradation, proportion of marine protected area and coverage of coral reef ecosystem are directly linked to the performance of Spatial Unit Administration. Moreover, the productivity of the Spatial Unit, employment rate and sectoral diversification, as well as the poverty level of people in area in question are valuable to measure the economic advancement within the scope of the Spatial Unit Administration. Last but not least, the social indicators proposed by the above mentioned publications are access to Spatial Unit, function of Spatial Unit and preservation of customary values.

There is still however a lack of guidance for the Spatial Unit Administration to spatially and integratively lead to sustainable development. UN (2001: 12-17), UN (2007: 29-38) and Belfiore *et. al.* (2006: 53-96) provide the guidance for selecting the appropriate indicators for measuring the achievement of the goal of sustainable developments in the country context. Indeed, the Spatial Unit Administration-related ecological indicators are spatial in nature, while the rest of the related indicators are the measure of the outcome of Spatial Unit Administration. Nevertheless, spatial policies that not only consider the achievement of every sector in the scope of sustainable development but also take into account the spatial relationship among sectors have not yet been presented.

In order to address the issues of a spatial sustainable development policy in the scope of Spatial Unit Administration, the Belvedere Projects were reviewed. These projects were initiated as the result of the establishment of the Belvedere Memorandum. In these projects, the spatial dynamics of, and the cultural-historic values inherited by the projects' centre of attention are considered as the inputs in devising the spatial plans that would maintain the balance between the achievements on economic advancement, environmental protection and cultural-historic values preservation.

Community-based Spatial Unit Administration

The gap in knowledge on the community-based Spatial Unit Administration exists due to the view that Spatial Unit Administration should be undertaken within the formal, or formalised, framework. In most countries, this formality has led to the implementation of top-down Spatial Unit Administration approaches. This has unfortunately led to the formalisation of other systems beyond the formal Spatial Unit Administration System, which is mainly developed based on the western concept. It is in fact contradictory to the statement that the focus on the further enhancement of Spatial Unit Administration is on the people rather than its technical aspect.

Indeed, the previous section provides statements on the competency of indigenous institutions to sustain the Customary Spatial Unit Administration institutions and, consequently, to support the achievement of sustainable development. In Ghana, the customary land tenure institutions have been able to sustain themselves, which has hindered the efforts of the formalisation of a land tenure system since the colonial era in the late 19th century. It has even been suggested to customise Land Administration System to suit the framework of customary land tenure institution in order to ensure the ful-

fulfilment of Land Administration objectives. Moreover, the incongruity between the indigenous communities and the formal governments on the management and administration of marine unit has led to prolonged vertical conflicts between the legal and extralegal institutions. Unfortunately, these conflicts have contributed to the degradation of both the land and marine environmental quality, and have hindered the achievement of the objectives of sustainable development.

In spite of the framework for sustaining the indigenous institutions offered by researches regarding the Customary Spatial Unit Administration, there was still a huge knowledge gap in explaining the milestones of the establishment of these indigenous institutions. As suggested, these milestones could be employed as an important consideration in the decision-making process.

To address the Community-based Spatial Unit Administration, the concept of collective action within the management of common-pool resources was reviewed. This concept was helpful in assessing the milestone of Customary Spatial Unit Administration institution from its initial establishment to its recent state. The principles on sustainable institution within the scope of common-pool resources management are also proposed by this concept.

Furthermore, even though the collective action concept suggests that the local institution should be able to stand on its own feet, the role of external authorities is still indispensable to maintain the sustainability of common-pool resources. Such a declaration is certainly not mistaken as it is undeniable that there are mostly existing higher hierarchical administrative structures above either the legal or extralegal local institution. However, the degree of independence of local institutions should be explained in more detail.

The application of Bookchin's communalism, which acts as the basic foundation of the democracy, in the scope of Spatial Unit Administration could eliminate the gap between the bottom-up and top-down approach. In fact, it promotes the municipality federation to substitute the national and regional government. By the utilisation of this concept, the role of local institutions on Spatial Unit Administration could be enormously enhanced, which would allow the federations to focus on inter-municipality matters. Finally, the cultural landscape concept also provides the guidance on spatially incorporating the cultural values and advancement within the scope of sustainable development, particularly from the perspective of institutional aspect of Spatial Unit Administration.

Framework on Spatial Unit Administration for Sustainable Development

In this section, the conceptual framework of this study is explained. First of all, the logic on the fulfilment of the knowledge gap on the unified administration of land, marine and space unit by means of Spatial Unit Administration concept is given. Moreover, the framework for linking the Spatial Unit Administration to sustainable development, as well as for leading the Spatial Unit Administration to the fulfilment of the goal of sustainable developments is also described. See Figure 2.5 for the conceptual framework of this study.

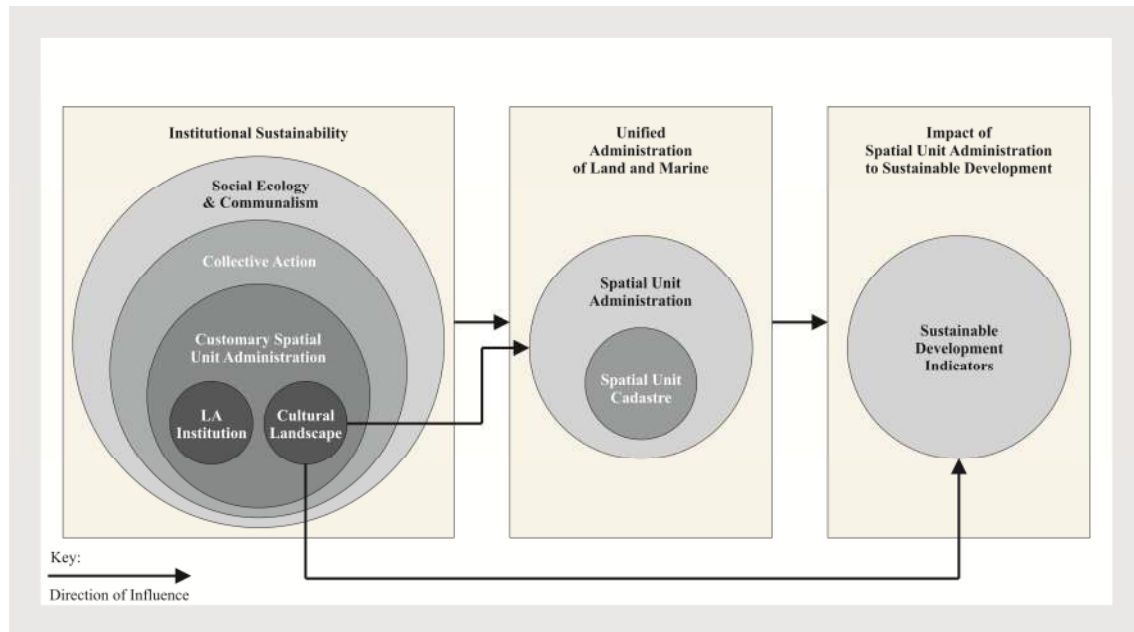


Figure 2.5 Conceptual framework of this study (Source: Author's construct)

The rectangle titled unified administration of land and marine shown in Figure 2.5 explains that the knowledge gap on the unified administration of Land and Marine Units could be overcome by elaborating the existing concepts and practices into the proposed concept of Spatial Unit Administration. As described in Section 2.1, with Spatial Unit Cadastral System as its core, Spatial Unit Administration System is expected to act as the vehicle for executing the policy on the management of Land and Marine Units by coordinating the public activities in the Spatial Unit Use, Tenure and Value domain. The proposed concept was devised particularly to enable the achievement of the goal of sustainable development. In spite of their limited coverage, these concepts and practices complement each other in the scope of the Spatial Unit Administration, which leads to the reduction of the gap mentioned in the previous section. Especially within the development of Spatial Unit Use and Value concept, the cultural landscape concept was employed on the identification of the activities under Spatial Unit Use and Value System.

Furthermore, the rectangle titled impact of Spatial Unit Administration on sustainable development shown in Figure 2.5 indicates that the knowledge gap on the direct measure on impact of Spatial Unit Administration on the fulfilment of the goal of sustainable development could be filled by employing the Spatial Unit Administration-related sustainable development indicators. These associated indicators were derived from guidelines for measuring sustainable development (UN 2001: 12-17, UN 2007: 29-38), as well as the progress and outcomes of Integrated Coastal and Ocean Management (Belfiore *et. al.* 2006: 53-96). Additionally, the cultural landscape concept was attached to the link between Spatial Unit Administration and sustainable development in order to add the spatial dimension of this link.

As depicted in the section on the institutional aspect of Land Administration for sustainable development, the sound Spatial Unit Administration is expected to be able to promote good Spatial Unit governance and, in turn, the fulfilment of the goal of sustainable development through the sustainable Spatial Unit Administration System. Such a statement is represented in Figure 2.5 by the arrow that links the rectangle titled unified administration of land and marine to the rectangle titled impact of Spatial Unit Administration on sustainable development.

Nonetheless, it is the institutional aspect of Spatial Unit Administration System that drives the Spatial Unit Administration System to act as the basic infrastructure to facilitate the fulfilment of the goal of sustainable development, which in Figure 2.5 is represented by the arrow linking the rectangle titled institutional sustainability and the rectangle titled unified administration of Land and Marine Units. While the existing concepts on Land Administration institution and cultural landscape have only represented the top-down approach on Spatial Unit Administration, the above mentioned concepts were employed as the subset of the Customary Spatial Unit Administration concept within the development of the notion of institutional sustainability of Spatial Unit Administration System. As portrayed in the section on Customary Spatial Unit Administration in Section 2.2, the highlighted Customary Spatial Unit Administration Systems in the latter mentioned section have been able to maintain the balance between the application of a top-down and bottom-up approach on Spatial Unit Administration. Moreover, the notions on Land Administration System sustainability, as well as the cases on the Customary Spatial Unit Administration, were employed to acquire a better understanding for designing the Formal Spatial Unit Administration System and empowering the Customary Spatial Unit Administration System, which could sustain themselves and lead to the achievement of the goal of sustainable developments. Nevertheless, the knowledge gap between the existing formal and community-based Spatial Unit Administration concept could still not be fulfilled by the above mentioned concepts as they were not able to explain the milestones on the establishment of self-Spatial Unit government. It was the collective action concept that could explain the milestones on the establishment of the Customary Spatial Unit Administration System. However, as the concept of collective action is focusing on the establishment of rational-individual-based institution of Spatial Unit Administration, the knowledge gap on the employment of communalistic approach on the governance of Spatial Unit still existed. In order to fill such a gap, the concept of social ecology and communalism was also employed. Having considered the role of concepts on Customary Spatial Unit Administration and collective action on sustaining the Spatial Unit Administration institution, these concepts were further treated as the subset of the concept of social ecology and communalism within the development of the concept of sustainable community-based Spatial Unit Administration institution.

2.4 Concluding Remarks

In this chapter, the development of framework for exploring the potential of Spatial Unit Administration towards the fulfilment of the goal of sustainable development is described. The entry point of the establishment of this framework was the development of the notion of Spatial Unit, which is defined as a 3D unit that is wholly enclosed by either physical or imaginary surface(s), located partly or completely on, above and/or beneath the surface of the Earth and sea. Such a notion was proposed as the basis of the administration of Land and Marine Units.

Moreover, based on the existing theories and practices, the concept of Spatial Unit Administration was developed. Spatial Unit Administration is an execution tool of policy regarding unique 3D Spatial Unit that comprises of space and resources on, in and below the land and marine, which encompasses public sector activities applied to the 3D Spatial Unit within the scope of Spatial Unit Tenure, Use and Value. The public sector activities within the scope of Spatial Unit Administration interact with each other within the scope of Spatial Unit Cadastral System and facilitate the operation of Spatial Unit Administration. Additionally, Spatial Unit Administration System in this study is

defined as a fundamental infrastructure for facilitating Spatial Unit Administration, which is backed mainly by its institutional, technical and financial arrangement. Spatial Unit Administration System also functions as the facilitator of the interaction of the components of Spatial Unit Administration by means of Spatial Unit Cadastral System, which further assists the operation of Spatial Unit Administration, as the core of Spatial Unit Administration System. The establishment of these concepts is portrayed in Section 2.1.

Lacking the theories and concepts to link the Spatial Unit Administration and sustainable development, the framework for assessing the role of Spatial Unit Administration on leading to the achievement of sustainable development was also developed as depicted in Section 2.2. The existing concept that links Land Administration and sustainable development was reviewed. Unfortunately, the previously mentioned gap could not yet be filled by the latter mentioned concept. By considering the focus of this study, as well as the maturity of the existing Customary Marine Administration System, the existing practices on Customary Spatial Unit Administration were reviewed.

Nonetheless, this gap could not yet be filled. This is particularly due to the inability of the previously mentioned concepts and practices to provide the measure for examining the direct role of Spatial Unit Administration on achieving sustainable development. Furthermore, the concepts and practices that link the Spatial Unit Administration, indigenous knowledge and sustainable development reveal that community-based Spatial Unit Administration institution has been taking an important role in sustaining the Spatial Unit Administration System, as well as guiding the system to act as the basic infrastructure to achieve the goal of sustainable development.

In order to create the framework for measuring the direct impact of Spatial Unit Administration on the fulfilment of the goal of sustainable development, the concepts on the sustainable development governance and integrated coastal and ocean management for sustainable development were reviewed. Through the examination of these concepts, the indicators of sustainable development that are directly linked to Spatial Unit Administration are proposed. Furthermore, for defining the framework on institutional sustainability of Spatial Unit Administration System, the concepts on common-pool resources management and social ecology and communalism were also reviewed. Additionally, the cultural landscape concept was also reviewed for spatially linking Spatial Unit Administration and sustainable development.

Having identified the concepts and practices that could bridge the knowledge gap on the exploration of the potential of Spatial Unit Administration towards the achievement of the goal of sustainable development, the conceptual framework of this study was developed as portrayed in Section 2.3.

In Chapter 3, the design of this study will be explained. This study was designed based on the conceptual framework depicted in this chapter. The strategy, case selection indicators and unit of analysis of this study is firstly highlighted. Moreover, the phases of this study are further explained, while the validity and reliability of this study is also depicted.

3 Study Design

The fundamentals of this study are described in the previous chapters. In Chapter 1, the background, objective and questions of this study are explained. Based on the background, objective and scope of this study, a framework for exploring the potential of Customary Spatial Unit Administration for sustainable development was developed, as depicted in Chapter 2.

In this chapter, the design of this study is highlighted. The strategy employed in this study is firstly described in Section 3.1. The more detailed description regarding the strategy of this study, particularly on the parameters employed for case study selection, are highlighted in Section 3.2, while the unit of analysis of this study is depicted in Section 3.3. Having illustrated the strategy of this study in detail, the complete process is portrayed in Section 3.4. Furthermore, Section 3.5 addresses the issues regarding the validity and reliability of this study. Finally, concluding remarks are given in Section 3.6.

3.1 Strategy of the Study

This study could be characterised as a multiple case study. While the explanation regarding the employment of multiple case studies is explained in more detail in Section 3.2 and 3.3 consecutively, this section highlights the nature of this study as a case study.

As mentioned earlier in the introductory part of this chapter, the objective of this study is to explore the potential of Customary Spatial Unit Administration towards the fulfilment of the goal of sustainable development. It was therefore not necessary to control the behaviour of the Customary Spatial Unit Administration System. Even, the Customary Spatial Unit Administration System provides the entry points for building an integrated framework to administer the Land and Marine Units, as well as to ensure the sustainability of the Spatial Unit Administration System, which is described mainly in Chapter 8. This suits the basic considerations on the employment of case study research strategy, which are an explanatory study (Yin 2003: 6) and an unmanipulatable behaviour of the event (*ibid.*: 7).

As defined in the introductory part of Chapter 1, the working definition of sustainable development in this study includes the time factor as such a development should be able to fulfil the needs of not only the present generation but also future generations. Consequently, within the scope of sustainable development, the ability of the present generation to fulfil its needs is likely to be influenced by the deeds of the previous generation. Indeed, the Customary Spatial Unit Administration System has been repeatedly enhanced over time in order to cope with the latest progress of each period, which led this study to explore the state of the Customary Spatial Unit Administration System in the past. Moreover, the primary evidence collected during the performance of this study are not only related to the past events but mainly present events. Most importantly, as described in the section regarding cultural landscape development in Section 2.2, the important entry point of the assimilation of cultural-historic and spatial planning approach is indeed the development itself. The institutional framework, mainly the policy and legal framework, of Spatial Unit Administration System therefore takes an important role in deciding the future of the system. These facts match another consideration for implementing the case study strategy, which focuses on contemporary events (*ibid.*). Additionally, as the histories cover contemporary events (*ibid.*), the past of the

Customary Spatial Unit Administration System overlaps to the present of the Customary Spatial Unit Administration System. The employment of this historical evidence is still considered to be made within the scope of the contemporary event of Customary Spatial Unit Administration.

3.2 Case Selection

In order to facilitate the exploration of the potential of the Customary Spatial Unit Administration towards the fulfilment of the goal of sustainable development, several criteria were posted. In this section, the mentioned criteria are described, while the detailed portrayal of the selected cases based on these criteria is further described in Chapter 5.

The criteria for selecting the case for this study are classified into two groups. The first group consists of criteria for exploring the potential of the Customary Spatial Unit Administration towards the achievement of the goal of sustainable development in general, while the second group comprises of criteria for mainly addressing the issues on the scaling up of the Spatial Unit Administration System in Indonesia from the perspective of the indigenous community within the scope of sustainable development of Indonesia. See Figure 3.1 for the case selection criteria and the relationship among the criteria.

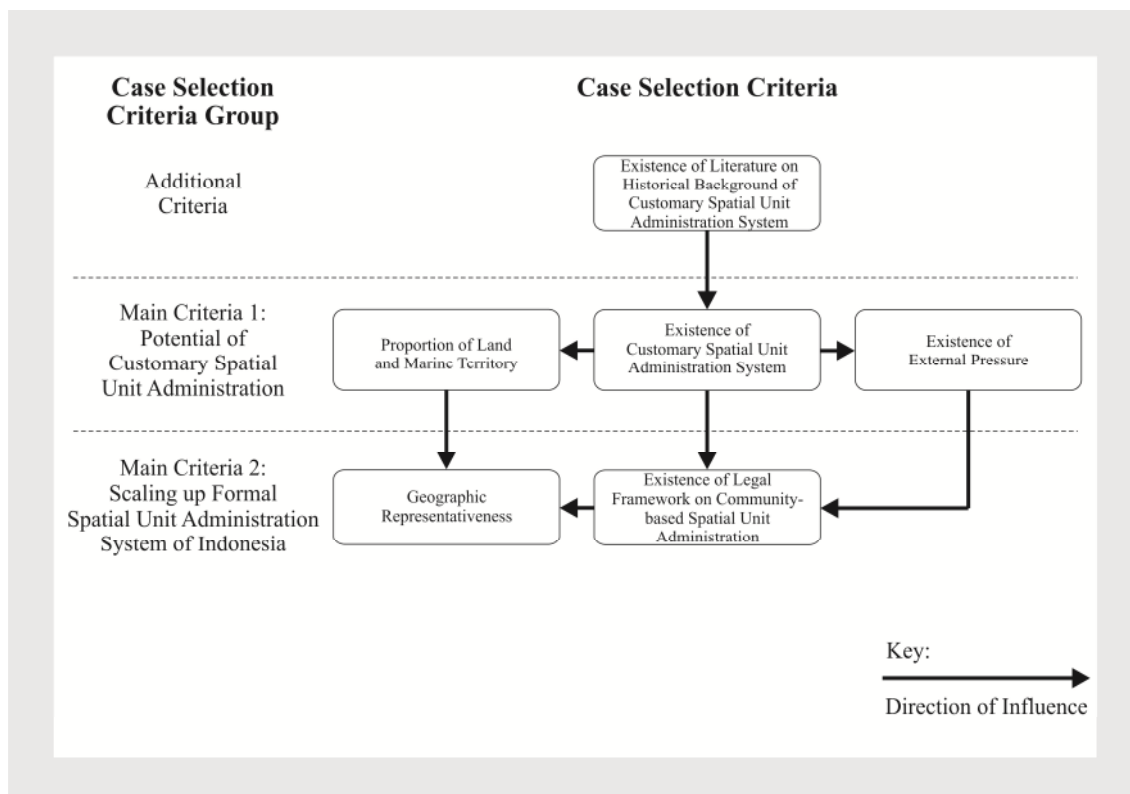


Figure 3.1 Case selection criteria and the relationship among the criteria (Source: Author's construct)

By referring to the objective of this study depicted in Chapter 1 and the framework for the exploration of the potential of Spatial Unit Administration on leading to the accomplishment of the goal of sustainable development in general, there were three main criteria and an additional criterion assigned in this group. Those main criteria were the existence of the Customary Spatial Unit Administration System, the proportion of the land

and marine territory and the existence of the external pressure to the Customary Spatial Unit Administration System, while the additional criterion was the existence of literature on the historical background of the mainly indigenous community and expectedly the Customary Spatial Unit Administration System.

The first criterion is the existence of the Customary Spatial Unit Administration System. The exploration of the potential of the Customary Spatial Unit Administration for leading to accomplishment of the goal of sustainable development was initiated from the examination of the Customary Spatial Unit Administration. The Customary Spatial Unit Administration System should therefore be presented and well-implemented in the selected cases study area. Nonetheless, the counter case was also selected in order to assess the quality of the findings of the selected cases.

The second criterion is the proportion of land and marine territory. This criterion was selected due to the necessity to develop the Spatial Unit Administration System based on the lessons learned from the selected cases. In order to facilitate the development of the Spatial Unit Administration System as described in Section 2.1, the selected cases should at least have an equal proportion of land and marine jurisdiction. Within the scope of the administration of marine unit, it was even expected that the proportion of marine jurisdiction went beyond land territory of the selected cases.

The third criterion is the existence of external pressure on the Customary Spatial Unit Administration System. From the section on the enhancement of land administration to suit Customary Land Tenure institution and the Customary Coastal and Marine Administration in Section 2.2, it is revealed that existence of the external pressure on the Customary Land and Marine Administration had lead to vertical conflicts and even the system dualism. As described in the former section, such dualism has unfortunately led to tenure insecurity from the perspective of both formal and customary system. Moreover, as described in the section on institutional aspect of collective action and common-pool resources management in Section 2.2, the external pressure has still been acting as one of the main drivers to sustain the common-pool resources management institution. Additionally, the employment of communalism as the ideology of sustainable development could theoretically lessen the external pressure on the local system, which is explained in the section communalism as the ideology of sustainable development in Section 2.2. The latter concept also strengthens the importance of this criterion for selecting the case for this study. The counter case within the scope of this criterion was also taken due to the application of the same consideration of it of the first criterion.

Furthermore, the existence of the literature on the historical background of mainly the indigenous community and expectedly the Customary Spatial Unit Administration System was employed as a secondary criterion. As described in Section 3.1, the exploration of the Customary Spatial Unit Administration towards the fulfilment of the goal of sustainable development required the employment of the historical evidence regarding the advancement of the indigenous community and the Customary Spatial Unit Administration System. While this study was focusing on linking the Customary Spatial Unit Administration and sustainable development, the historical evidence on the advancement of the indigenous community in the selected cases study area was expected to be pre-existed in order to avoid the exploration of such evidence, which basically would require a separate, time-depth social study. Additionally, the existence of literature on the advancement of the Customary Spatial Unit Administration System in the selected cases study area was also expected for particularly acquiring the complete description on this issue due to the possibility of acquiring incomplete primary data from the data collection processes.

Especially to address the issues regarding the scaling up of Spatial Unit Administration in Indonesia, two criteria were applied in the case selection process. The first criterion was the geographic representativeness of the selected cases in the context of Indonesia, while the second criterion was the existence of the legal framework on the community-based Spatial Unit Administration.

The geographic representativeness of the selected cases in the context of Indonesia was considered as one of the important criteria due to the nature of Indonesia as the largest archipelago in the World. Indonesia comprises 5 main islands and 17,502 smaller islands. Indonesia's marine territory covers up to 3.1 million square kilometre or 62% of Indonesia's territory. This criterion is basically derived from the first criterion from the previous group.

The second criterion in the second group of criteria applied for selecting the case in this study is derived from the the first and third criterion from the first group of criteria. The modified criterion was valuable in selecting the most suitable case for this study as the existence of the community-based Spatial Unit Administration System might not be accompanied by the subsistence of the legal framework to legalise activities performed under this system, which has been described in Section 2.2.

Due to the employment of the above mentioned criteria, several sub-cases were chosen in order to represent the various degrees of fulfilment of the criteria of each sub-case. This acted as the rationale on the utilisation of a multiple case study strategy, particularly as these sub-cases were within the same unit of analysis, which is further explained in the subsequent section.

3.3 Unit of Analysis

Basically three types of analysis units employed in this study. These were the focus of the study, the time scale and the spatial extent as suggested by Hubermann and Miles (1994: 25).

As generally addressed in Chapter 1 and Chapter 2, as well as depicted in Section 3.2, this study was focusing on exploration of the potential of the administration of Spatial Units towards the achievement of the the goal of sustainable development in general and particularly in the Indonesian context from the perspective of indigenous community in the selected cases study area. The exploration of the potential of the Spatial Unit Administration on the fulfilment of sustainable development was therefore made from the perspective of an indigenous community in the selected cases study area.

The focus of this study, particularly from the perspective of sustainable development, acted as the main consideration in defining the time dimension of this study. As defined in Section 3.1, the time dimension of sustainable development ranged from the past to the present. Within the context of this study, the section on Customary Spatial Unit Administration in Section 2.2 reveals that the Customary Spatial Unit Administration System highlighted in the mentioned section had been enhanced to cope with recent development over time.

In accordance with these facts, the time unit analysis of this study is defined as ranging from the initial phase of the establishment of the Customary Spatial Unit Administration System to the actual status of the Customary Spatial Unit Administration System during the final primary data collection. The initial phase of the establishment of the Customary Spatial Unit Administration System acted as the preliminary point at which the system started to be repetitively enhanced as depicted in Section 2.2. Moreover, the final primary data collection acted as the closing point of this study in order to

maintain its validity, particularly by ensuring that the currentness of primary and other type of data was at the same level.

The spatial extent analysis unit employed was the jurisdiction of the Customary Spatial Unit Administration System. This was mainly due to the focus of this study, which required a detailed exploration of a Customary Spatial Unit Administration System.

3.4 Phase of Study

The research process plan and its implementation are portrayed in this section. The performance of this study comprised four main phases, namely problem structuring, data collection, data analysis and recommendation making. The methodology applied within each study phase is described further in this section. See Figure 3.2 for the phases of this study.

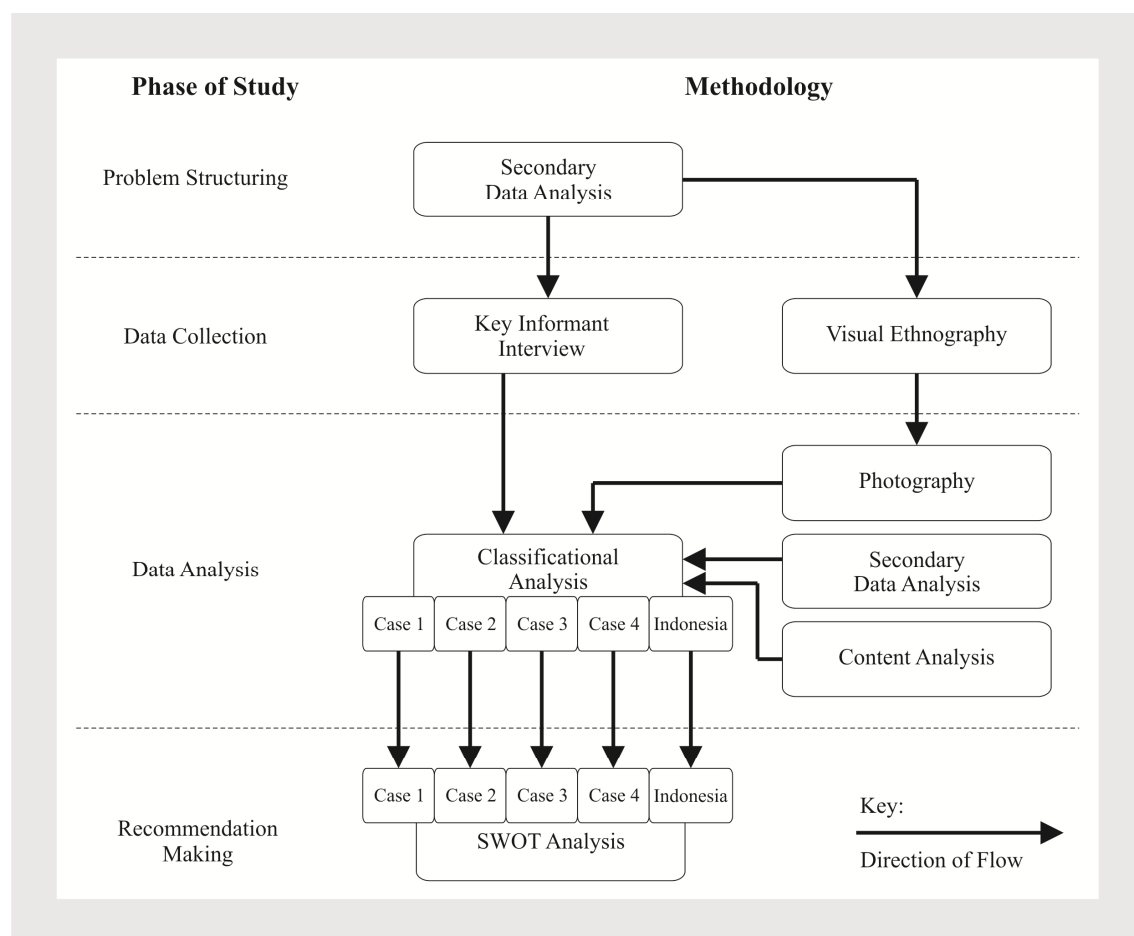


Figure 3.2 Phase of study

Problem Structuring

According to Woolley and Pidd (1981: 197), problem structuring is defined as the process by which the initially presented set of conditions is translated into a set of problems, issues and questions sufficiently well defined to allow specific research action. Besides the outcome of problem structuring, mainly described in Chapter 1, the development of the framework of this study, which is portrayed in Chapter 2, was also carried out in this phase.

During the performance of this study phase, secondary analysis was mainly employed. The literature regarding Spatial Unit Administration including those that presented the indigenous community's point of view, sustainable development and the impact of Spatial Unit Administration on the the sustainable development was re-analysed.

Data Collection

In this phase, the key informant interview was mainly utilised, while visual ethnography was also employed to acquire primary data. In its initial design, the main key informants of this study were the chiefs and/or the head of customary institutions of the selected sub-case study areas. They were chosen acquire valid, official statements regarding customary governance, Customary Spatial Unit Administration and its impact on the achievement of the goal of sustainable development. The knowledge on the Customary Spatial Unit Administration was also comprehended by members of the indigenous community in the selected cases study area. Even though the knowledge depth of members of the community in the selected case study areas was not as deep as that of the chief, several ordinary members of the indigenous community were interviewed to acquire information regarding the implementation of Customary Spatial Unit Administration at grassroot level. Additionally, the officials of several governmental bodies that are related to the Spatial Unit Administration from both formal and customary system point of view were interviewed to obtain the valid and official perspective of the government in relation to the Customary Spatial Unit Administration. The interviews were mostly carried out during the performance of the data collection processes in 2009 and 2011, except for a telephone interview that was held in June 2010. See Table 3.1 for the number and types of interviews carried out during data collection processes in 2009 and 2011.

Table 3.1: Number of Key Informant and Types of Interview Performed in 2009 and 2011

Case Study	Number of Key Informant		Number of Type of Interview		
	Official	Non-Official	Direct Personal Interview	Direct Group Interview	Telephone Personal Interview
Latuhalat	1	-	2	-	1
Tulehu	1	6	7	1	-
Siri Sori Islam	1	1	-	1	-
Paperu	3	2	1	2	-
Cross-case	2	1	3	1	-
Total	8	10	13	5	1

Source: Authors' construct

Photos were taken during the performance of both data collection processes in 2009 and 2011, within the scope of the application of visual ethnography, the photographs on the events or phenomena regarding the Customary Spatial Unit Administration were taken. Such photographs were considered as visual field notes, as well as sources of data in their own right, particularly because the photographs provided an unproblematic depiction of reality (Bryman 2012: 458).

Data Analysis

During the data analysis phase, the explanation based on a chain of evidence on the status of Customary and Formal Spatial Unit Administration System, as well as its impact on the achievement of the goal of sustainable development, was developed for each sub-case study area under the guidance of the framework developed in the problem structuring phase. These also act as the theoretical proposition in its own right. Such an explanation was developed as the basis of the recommendation making, which matches the suggestion of Yin (2003: 120) regarding the explanatory element of exploratory case study.

In order to analyse the collected information, classificational analysis was mainly utilised, while secondary analysis, content analysis and photographs analysis were made in parallel with the performance of the classification analysis. The classificational analysis is basically a method for problem structuring to clarify concepts used to define and classify problem situations (O'Shaughnessy 1973, as cited in Dunn 1998: 252). Instead of utilising this method on the problem structuring phase, this method was employed in this study phase to classify the collected information regarding the Spatial Unit Administration from both a governmental and indigenous community point of view and sustainable development. Furthermore, this method was also valuable in defining the interrelation between both of the mentioned information, based on the framework developed during problem structuring phase of this study. This was nevertheless still relevant to the implementation procedure of this method as, by means of the classificational analysis method, the information acquired from the data collection process is classified based on its hierarchical distinctiveness (*ibid.*), as described in Section 2.1. Hierarchical distinctiveness is considered as one of the important parameters to classify the collected data (*ibid.*). The outcomes of applying this method are given in Chapter 4, 5, 6 and 7.

Along the performance of classificational analysis, the secondary analysis was also made in this study phase. The secondary analysis was made due to the inability of the key informants to address several issues particularly regarding the historical dimension of Customary Spatial Unit Administration. It was therefore necessary to employ this method to bridge the information gap during the performance of the classificational analysis.

Furthermore, the content analysis was also employed in this study phase. Differing from the rationale behind the application of secondary analysis in this study phase, the content analysis was carried out due to the necessity of making inference by objectively and systematically identifying specified characteristics of messages (Holsti 1969, as cited in Bryman 2012: 289). The messages that were analysed by this method were in the form of Formal and Customary Spatial Unit Administration regulation applied in the selected cases study area, as well as the official statistical data. The result of employing this method to analyse the status of the Formal Spatial Unit Administration System and its impact on attaining the goal of sustainable development in Indonesia is mainly set out in Chapter 4. The result of the content analysis on the status of the Customary Spatial Unit Administration System is set out in Chapter 5, while the result of the content analysis on the impact of the Customary Spatial Unit Administration on achieving the goal of sustainable development in the selected cases study area is described in Chapter 7.

Finally, photographic analysis was used to analyse the photographs taken during the first and final primary data collection by the employment of the visual ethnography method. Photographic analysis focuses on the visual content of the photographs and the

context in which they are interpreted and made meaningful (Pink 2006: 222). Photographs can act as both visual records and information sources (*ibid.*). Most importantly, the photographs could be contextualised by examining the social relationships and cultural conventions that were involved in their production and the subjectivities of a photograph by which it is interpreted (*ibid.*). In this study, these photographs were treated as visual field notes, taken to bridge the information gap or validate the primary data from the author's perspective.

Recommendation Making

Having developed the framework of this study, which was done by means of the secondary analysis on the literature addressing the theories and practices on Spatial Unit Administration, as well as analysed the collected primary and secondary information by means of classificational analysis on the interrelationship between Formal and Customary Spatial Unit Administration and sustainable development in the selected cases study area, a SWOT analysis was employed. By these means, the strengths, weaknesses, opportunities and threats of theories and practices, formal and customary system of Spatial Unit Administration on addressing the issues on sustainable development were analysed. This method was mainly employed to define the entry points to scale up the Spatial Unit Administration concept in general and particularly in the Indonesian context, as suggested by Jekel (1998, as cited in Gályász *et. al.* 2007: 2), within the scope of the fulfilment of the the goal of sustainable development. The result of the SWOT analysis on the theories and practices of Spatial Unit Administration was further employed to define the entry points on the enhancement of the Spatial Unit Administration concept in relation to the fulfilment of sustainable development objective, which is the main focus of this study. The outcome of the SWOT analysis on the Formal Spatial Unit Administration and its impact on the fulfilment of sustainable development in Indonesia is explained in Section 4.3, while the result of employing this method within the scope of the Customary Spatial Unit Administration and its impact on the achievement of sustainable development in the selected cases study area is given in Section 7.

It should be noted that SWOT analyses performed within this study contained a subjective element. First of all, the SWOT analyses were done solely by the author based on the empirical findings and the author's experiences on the Customary and Formal Spatial Unit Administration in Indonesia in general and particularly in the selected case study areas. Secondly, the subjectivity of the SWOT analyses was also influenced by the hypothesis of this study, which led to making the SWOT analyses from the perspective of the indigenous communities in the selected case study areas.

3.5 Quality of the Study

The quality of this study has been carefully maintained to its highest. This was particularly due to the application of strategies that construct validity, external validity and reliability measure, as suggested by Kidder and Judd (1986, as cited in Yin 2003: 34). In this section, the employment of the mentioned measures is explained.

Construct Validity

Construct validity basically concerns the establishment of correct operational measures for the concepts being studied (Kidder and Judd *op. cit.*, as cited in Yin *op. cit.*). In this

study, the construct validity was maintained by collecting the evidence from multiple sources establishing a chain of evidence, as suggested by Yin (*ibid.*: 36).

As described in the section on data collection in Section 3.4, multiple sources of evidence were used. These were from key informants; existing literature, regulation and statistical data; existing regulations and visual field notes in the form of photograph of events or phenomena. Among the selected key informants, different points of view were represented, namely those of the customary government officials, ordinary members of indigenous community and formal government officials. Moreover, as described in the section on data analysis in Section 3.4, the literature, regulation and statistical data on the current status of both Formal and Customary Spatial Unit Administration System and their impact on the fulfilment of the goal of sustainable development in the selected cases study area was also collected. Finally, visual evidence regarding the Formal and Customary Spatial Unit Administration and its impact on the fulfilment of the goal of sustainable development was also collected.

Having collected this information, a complete chain of evidence was developed for each sub-case study area. As portrayed in the section on data analysis in Section 3.4, the information collected from multiple sources completed the chain of evidence of each sub-case study area.

External Validity

External validity concerns the establishment of the domain to which a study's findings can be generalised (Kidder and Judd *op. cit.*, as cited in Yin *op. cit.*: 34). As this study employed multiple case study strategy, the replication logic is expected to be employed to construct external validity (*ibid.*: 36). This is mainly developed by employing a rich theoretical framework (*ibid.*: 47), which is valuable for generalising to new cases (*ibid.*: 48). Furthermore, such a framework should clearly define the conditions under which a particular phenomenon is likely to be found, classified as literal replication, and that not to be found classified as theoretical replication (*ibid.*: 47-48).

The framework for assessing the status of Spatial Unit Administration and its impact on sustainable development as depicted in Chapter 2 had already been developed during the problem structuring phase. Such a framework was both literally and theoretically replicable in all four sub-case study areas. Moreover, this framework was also replicable in the Indonesian context. This study could therefore be replicated beyond the context of the case study area and Indonesia; as long as the same framework, case selection criteria and unit of analysis are applied. The replicability of this study is further explained in Section 8.3.

Reliability

The reliability of a study demonstrates that the operations of the study in question can be repeated and result in the same outcome (Kidder and Judd *op. cit.*, as cited in Yin *op. cit.*: 34). There are two alternatives to increase the reliability of a study, namely by the employment of case study protocol and the development of case study database (*ibid.*: 38). Case study protocol acts a guide to carry out data collection (*ibid.*: 67) and comprises the background of the case, the procedures employed in this study and the case study questions (*ibid.*: 69). On the other hand, the case study database, which is defined as the way of organising and documenting the data collected for case studies (*ibid.*: 101), comprises of case study notes, case study documents and tabular materials (*ibid.*: 102-103).

In this study, the above mentioned components of case study protocol can be found. In this report, the background of the case is found in Section 1.1, while the phases of this study, as well as methodology employed, is given in Section 3.1, 3.2, 3.3 and 3.4. Finally, the case study hypothesis and questions are documented in Section 1.1 and 1.2.

Moreover, the case study database was also developed along the performance of data collection phase of this study. The case study notes comprise personal notes in analogue and digital forms, key informants interview records in digital form, key informants interview transcription in digital form and digital photographs. The case study documents stored in the database are relevant literature, official statistical data, spatial planning documents and relevant regulations. Furthermore, tabular materials presented in this report consist mainly tables representing specific themes, either in the body of the report or in appendixes.

3.6 Concluding Remarks

This chapter highlights the design of this study. As set out in Section 3.1, the strategy employed in this study was that of multiple case study. Several sub-case studies were chosen based on their different degree of fulfilment to the criteria defined in Section 3.2, while the same units of analysis were applied for each sub-case study area. Those criteria were the existence of the Customary Spatial Unit Administration System, the proportion of the land and marine territory and the existence of the external pressure to the Customary Spatial Unit Administration System. Moreover, units of analysis applied in this study, namely the focus of the study, the time scale and the spatial extent, were depicted in Section 3.3.

Furthermore, Section 3.4 explains the phases of this study, which were problem structuring, data collection, data analysis and recommendation making consecutively. In the problem structuring phase, the framework of this study was developed through secondary analysis tools, while the tools employed on the data collection phase were interviews with key informants and visual ethnography. The key informants ranged from customary and formal government officials to ordinary members of the indigenous community in selected cases study areas. The valid and official statements regarding the customary governance, Customary and Formal Spatial Unit Administration and its impact to the achievement of the goal of sustainable development were expected and acquired from the interviews of customary and formal government officials, while the same information from grassroot levels was acquired from interviews with ordinary members of the indigenous community in selected cases study area. Additionally, photographs were taken within the scope of the application of visual ethnography tools in order to fill the information gap or validate the primary data from the perspective of the author. Based on the above mentioned collected information, the explanation based on a chain of evidence on the status of Customary and Formal Spatial Unit Administration System, as well as its impact on the achievement of the goal of sustainable development, was developed for each sub-case study area under the guidance of the framework developed in the problem structuring phase, which also acts as the theoretical proposition in its own right. Tools employed in this phase were classificational analysis, as well as secondary analysis, content analysis and photography. Having had the explanation of each sub-case study area, SWOT analysis was performed in order to facilitate the making of the recommendation.

Throughout the performance of this study, the quality of this study has been carefully maintained. It was done by implementing strategies that led to develop construct and external validity, as well as the reliability, of the research.

The outcome of the data analysis process is given in the next chapters. Chapter 4 describes the status of Formal Spatial Unit Administration System and its role in sustainable development in Indonesia. Chapter 5 provides the description of the the selected cases, which acted as the basis for developing the explanation regarding the status of the Customary Spatial Unit Administration that is described in Chapter 6 and assessing the impact of Customary Spatial Unit Administration that is depicted in Chapter 7.

4 Formal Spatial Unit Administration in Indonesia

Having developed the framework to explore the potential of Spatial Unit Administration towards the fulfilment of the goal of sustainable development in Chapter 2, the formal administration of land, water and natural resources within the scope of the Customary Spatial Unit Administration for sustainable development is described in this chapter. The general information regarding the formal Spatial Unit Administration in Indonesia is firstly introduced in Section 4.1. The pluralism of the Spatial Unit Administration System in Indonesia due to the existence of Customary Spatial Unit Administration Systems, as well as the formal one, is depicted in Section 4.2. Section 4.3 further portrays the role of Spatial Unit Administration towards the achievement of the goal of sustainable development. Finally, the concluding remarks are given in Section 4.4.

4.1 General Information

Spatial Unit Administration in Indonesia has been acting as one of the main means of maintaining the sovereignty of Indonesia as a nation, as well as the role of Government of Indonesia, abbreviated as GoI, on the management of Spatial Unit and the resources contained therein for the prosperity of the people of Indonesia. This is explained in this section. First the principles of Spatial Unit Administration in Indonesia are set out in this section. Moreover, the Land and Marine Administration within the scope of Spatial Unit Administration in Indonesia is also portrayed in this section.

Spatial Unit Administration Principles

Shortly after the independence of Indonesia, the foundation of the Spatial Unit Administration set out along with the promulgation of the constitution of Indonesia. Article 33.3 of the Constitution of 1945, *Undang-Undang Dasar 1945* in Indonesian, states that the land, waters and the natural resources contained therein are to be controlled by the State in order to be exploited to the greatest benefit for the people. Moreover, the enactment of the Agrarian Principles Act marked the establishment of the sole Spatial Unit Administration System in Indonesia.

In this section, the principles of Spatial Unit Administration in Indonesia are explained. These principles are the sole Spatial Unit Administration System, the relationship among the State, the people and the Spatial Unit; and the Horizontal Separation.

Sole Spatial Unit Administration

Before the promulgation of the Agrarian Principles Act, Indonesia was experiencing the dualism of the Spatial Unit Administration System. This is highlighted in Article C of Consideration of Agrarian Principles Act due to the administration of Spatial Unit based on the Dutch Colonial Agrarian Act and, on the other hand, the customary Spatial Unit laws. In turn, as stated in Article D of Consideration of Agrarian Principles Act, the right of the people of Indonesia to Spatial Unit was not protected.

According to Article A of Opinion of Agrarian Principles Act, the purpose of this act was to establish a simple, single Spatial Unit Administration in Indonesia, which was expected to be able to ensure the security of access to the Spatial Unit for the people of Indonesia. This article states that, in order to achieve the mentioned objectives, the Spatial Unit Administration System in Indonesia should be established based on Customary

Spatial Unit Administration Systems, as well as religious principles. Moreover, in order to promote a simple, single Spatial Unit Administration System in Indonesia, through the promulgation of the Agrarian Principles Act, the previous Spatial Unit Administration regulations in Indonesia including the Dutch Colonial Agrarian Acts and the articles regarding the administration of Spatial Unit were revoked, with the exception that on the mortgage, on the 2nd Book of Civil Code.

Even though the purpose of the promulgation of the Agrarian Principles Act was to eliminate the Spatial Unit Administration Systems' dualism in Indonesia, practically the dualism, and even pluralism, of the Spatial Unit Administration System which had existed since the promulgation of this act. As an umbrella regulation, in spite of its detailed description on the Spatial Unit Tenure arrangement, the Agrarian Principles Act provides only the authority to the State to regulate the Spatial Unit Use, without specifying further details regarding the Spatial Unit Use arrangement. Yet, the Spatial Unit Value is only mentioned in Article 17.3 and 18 of the Agrarian Principles Act, which regulate the provision of compensation on the revocation of the Spatial Unit Tenure due to the violation of the maximum extent, or volume, of Spatial Unit possessed by an individual or a corporate body. Consequently, each sector related to the management and administration of Spatial Unit and the resources attached to it should promulgate its own regulation, and unfortunately establish another system. This does not consider the fact that, even though the conversion of the known Spatial Unit Tenures is already regulated by Agrarian Principles Act, Customary Spatial Unit Administration Systems were still in existence in Indonesia. Moreover, the possibility to consign the right of state to possess the land to autonomous regional and local government, as well as to the indigenous community, as stated in Article 2.4 of Agrarian Principles Act opens the likelihood of the establishment of other Spatial Unit Administration Systems within the territory of Indonesia. A more detailed description of this type of Spatial Unit Administration System is given in the section on Land and Marine Administration, as well as in Section 4.2 on the Spatial Unit Administration in relation to the existence of the indigenous community and in Section 4.3 regarding the Spatial Unit Administration and decentralisation.

Relationship among State, People and Spatial Unit

Several concepts regarding the relationship among the State, the people and the Spatial Unit are defined by Article 33.3 of the Constitution of 1945 and Agrarian Principles Act. Those concepts are the definition of Spatial Unit, the authority of the State on the administration of Spatial Unit and the relationship between people and Spatial Unit.

Article 33.3 of the Constitution of 1945 and Article 1.2 of Agrarian Principles Act identify the object of Spatial Unit Administration in Indonesia. As mentioned earlier, land, waters and the natural resources therein are the lawful Spatial Unit in Indonesia. Additionally, Article 1.2 of the Agrarian Principles Act adds airspace as the legitimate Spatial Unit in Indonesia. Moreover, Article 1.4 of the Agrarian Principles Act states that land comprises not only the Earth's surface but also the mass under the surface of the Earth and the water column, while Article 1.5 provides the description of a water unit that includes the inland waters and seas within the territory of Indonesia. The entire territory of Indonesia therefore comprises of land units. Additionally, the airspace unit is defined by Article 1.6 of Agrarian Principles Act as the space above the surface of the Earth and the water.

The concept of the authority of the State over the Spatial Unit has arisen due to the responsibility of the State for managing and administering the Spatial Unit for the great-

est benefit of the people. Conceptually, as stated by Article 1.2 of the Agrarian Principles Act, the Spatial Unit within the territory of Indonesia is acknowledged as the gift from God and, therefore, considered as the national treasure. Consequently, none of Spatial Unit within the territory of Indonesia can be owned but only be possessed, not even by the State. However, as the representative of the power of the people, according to Article 33.3 of the Constitution of 1945 and Article 2.1, 2.2 and 2.3 of the Agrarian Principles Act, the State has the right to control the Spatial Unit and the natural resources therein, which, according to Article 2.3 of Agrarian Principles Act, is devoted to achieve the prosperity of the people.

Based on these concepts, the relationship between people and Spatial Unit in Indonesia is conceptualised. In essence, the State regulates this relationship for promoting the equity on accessing Spatial Unit. As the objective of the administration of the Spatial Unit in Indonesia is to achieve the prosperity of its people, according to Article 2.2 and 4.1 of the Agrarian Principles Act, the right to Spatial Unit could be delivered to the people in order to, according to Article 10.1 of Agrarian Principles Act, be utilised responsibly. In order to ensure the accessibility of the Spatial Unit by the people of Indonesia, the subject of Spatial Unit Tenure, except for usufructuary right, should be an Indonesian citizen or a corporate body that is established based on Indonesian law and located in Indonesia. Furthermore, to ensure equitable access to the Spatial Unit within the territory of Indonesia, Article 9.2 of Agrarian Principles Act states that male and female citizens of Indonesia have an equal opportunity to be the subject of any type of Spatial Unit Tenure and to benefit from the utilisation of the Spatial Unit. Article 11.2 of the Agrarian Principles Act also, when necessary, guarantees the right of a poor citizen to access the land. Article 10.1 of Agrarian Principles Act also ensures that the poor would not be exploited in the scope of the utilisation of the Spatial Unit. The maximum extent of the Spatial Unit is also regulated by Article 7 and 28.2 of the Agrarian Principles Act and the possessor of the Spatial Unit should actively utilise the Spatial Unit in question. According to Article 17.3 of Agrarian Principles Act, the violation of the latter mentioned principle would lead to the nullification of the Spatial Unit Tenure and the Spatial Unit in question would be re-distributed to people in need. Most importantly, as stated in Article 6 of Agrarian Principles Act, all Spatial Units are embedded with a social function.

Horizontal Separation

The Horizontal Separation Principle is basically fashioned by the latter mentioned concept, as well as the Spatial Unit Tenures defined in the Agrarian Principles Act. By applying the Horizontal Separation Principle, it is possible to overlay Spatial Unit Tenure on other Spatial Unit Tenure within the same Spatial Unit, either on entire or a part of Spatial Unit. Consequently, any Spatial Unit could have more than one tenure attached to it.

It is previously mentioned that, due to its nature as a national treasure, the Spatial Unit is controlled by the State and, therefore, all lawful Spatial Unit Tenure within the territory of Indonesia could only be overlaid over the Right of State to Possess the Land, *Hak Menguasai Tanah oleh Negara* in Indonesian, and the Spatial Unit in general. Subsequently, in accordance with Article 4.1 and 18 of the Agrarian Principles Act, the State could deliver the tenure to the people, maintain the possession of Spatial Unit to be undistributed or revoke the delivered tenure for the public, the nation and the State's interest.

Within its further implementation, the Right of State to Possess the Land has been maintained as the abstract basis for the Spatial Unit Administration in Indonesia. None

of Spatial Unit Tenures defined in the Agrarian Principles Act contain completely the Right of State to Possess the Land. As the only tenure that is devoted to be delivered to the organisations that form the State such as provincial and municipal government, as well as state-owned enterprise, the Right of Management, *Hak Pengelolaan* in Indonesian, only consists of a part of the right of state to possess the land.

Moreover, the Horizontal Separation Principle is also shaped by the Spatial Unit Tenures defined by Agrarian Principles Act. The Spatial Unit Tenures in Indonesia are classified into primary and secondary tenures. The primary tenures are the tenures that could be directly overlaid on the right of state to possess the Spatial Unit, while the secondary tenures could only be overlaid on top of a primary tenure. The primary tenures are the Right of Management and Right to Possess Land, *Hak Milik* in Indonesian. On the other hand, the tenures classified as secondary tenures are Right to Cultivate the Land, *Hak Guna Usaha* in Indonesian; Usufructuary Right of Land, *Hak Pakai* in Indonesian; Right to Use Structure, *Hak Guna Bangunan* in Indonesian; Leasehold, *Hak Sewa* in Indonesian; Right to Clear the Land, *Hak Membuka Tanah* in Indonesian; Right to Collect Forest Products, *Hak Memungut Hasil Hutan* in Indonesian; Right to Use Water, *Hak Guna Air* in Indonesian; Right to Cultivate and Catch Fish, *Hak Pemeliharaan dan Penangkapan Ikan* in Indonesian; Right of Use of Airspace, *Hak Guna Ruang Angkasa* in Indonesian and other temporary tenures that are associated with the Right to Possess the Spatial Unit. See Figure 4.1 for the illustration of the Horizontal Separation Principle within the Spatial Unit Administration in Indonesia.

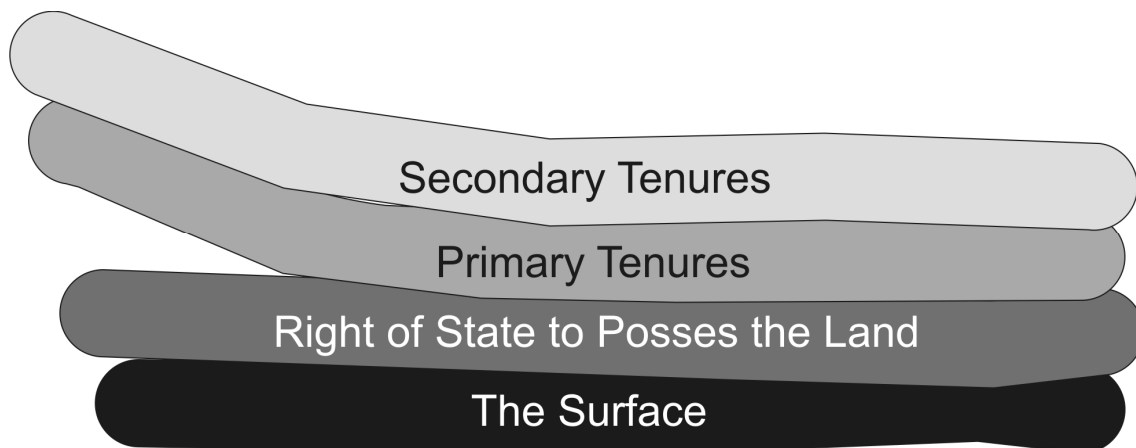


Figure 4.1 Horizontal separation principle

Land Administration System

Land Administration System is considered as the most mature system among the systems that assemble the Spatial Unit Administration System in Indonesia. The Land Administration System in Indonesia already existed before 1815 (Raffles 1817: 136-162). However, even though the land registration was already finalised in Ambon Island in 1814, the first formal Land Administration System in modern Indonesia was only established by the Dutch in 1870 by the promulgation of the Agrarian Act.

After its independence, the fundamental of the Land Administration System of Indonesia was basically laid down by the promulgation of the Agrarian Principles Act. As mentioned in the section on the relationship among the State, the people and the Spatial Unit; the Agrarian Principles Act considers Indonesia as completely covered by land.

Moreover, the detailed description on the Land Tenure System of Indonesia could also be found in the Agrarian Principles Act.

As mentioned earlier in the section on the establishment of sole Spatial Unit Administration System in Indonesia, the pluralism of Spatial Unit Administration System is basically still exists in Indonesia. Within the scope of the Land Administration System, the Agrarian Principles Act provides a considerably detailed description regarding Land Tenures for the settlement area. On the other hand, it only acts as an umbrella regulation on the Land Use and Value arrangement, as well as the administration of other agrarian resources, which, according to Sitorus (2002; 34-35), includes forest and mineral resources. Subsequently, each of the latter mentioned sectors has been regulated by sectoral act (Soemardjono 2002: 86).

This section describes further details of the Land Administration System in Indonesia, particularly regarding its pluralism. The Land Use system of Indonesia is firstly portrayed, followed by the depiction of the land tenure and value system in Indonesia. Then the land Cadastral System of Indonesia is described. Lastly, the institutional, technical and financial arrangement of the Land Administration System in Indonesia is illustrated.

Land Use System

The Land Use System acts as an integrated part of the Spatial Planning System of Indonesia, which is regulated by the 2007 Spatial Planning Act, *Undang-Undang Penataan Ruang* in Indonesian. The 2007 Spatial Planning Act provides GoI with the authority to regulate, establish, implement and monitor the implementation of the spatial plan as stated in Article 1.6 of the Spatial Planning Act of 2007. Spatial planning in Indonesia includes the planning of the structure and the pattern of the utilisation of space as according to Article 1.2 of Spatial Planning Act of 2007. Moreover, the Spatial Planning Act of 2007 classifies the spatial plan based on the system, the main function of the region, administrative jurisdiction, the activity of the region and the strategic value of the region as stated in Article 4 and 5 of this act. See Figure 4.2 for the hierarchy of spatial plans according to its classification.

As stated in Article 3 of 2007's Spatial Planning Act, the spatial plan in Indonesia was developed in order to create a harmony between the natural and man-made environment, to lead to a synergy between the utilisation of natural and man-made resources by considering the human resources, and to protect the function of the space and prevent a negative impact due to the employment of the space to the environment. In order to achieve these objectives, the spatial plan should consider the nature of the disaster-prone territory; natural, human and man-made resources; economic, social, cultural, political, legal, national security, environmental and science and technological state; and geo-strategy, geo-politic and geo-economy of Indonesia as stated by Article 6 of Spatial Planning Act of 2007.

The Spatial Planning Act of 2007 provides several means to monitor the use of space. According to Article 35, the monitoring of employment of space can be made by means of tools such as zoning regulations, issuing permit, insentive and disinsentive provision and application of penalties.

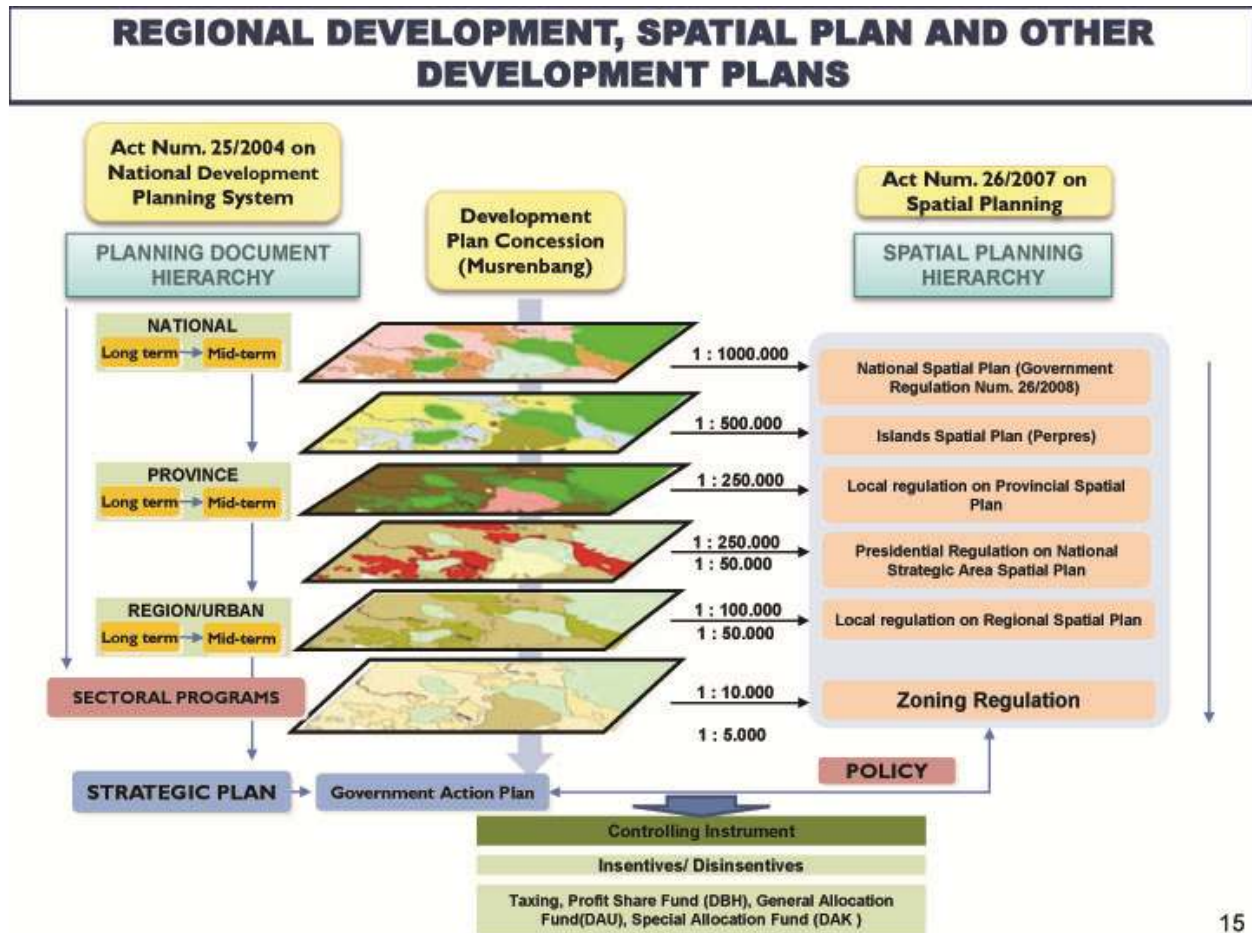


Figure 4.2 Spatial plan hierarchy (Source: Martini 2009: 4)

Considering its vast coverage, the Spatial Planning Act of 2007 acts as the umbrella regulation for sectoral spatial planning. Spatial planning for the forestry area includes the conservation and production forest area, is delegated to the Ministry of Forestry and regulated by the Forestry Act, Undang-Undang Kehutanan in Indonesian, of 1999, while the mining area's spatial planning is regulated mainly by the Mineral and Coal Mining Act, Undang-Undang Pertambangan Mineral dan Batubara in Indonesian, and Oil and Natural Gas Act, Undang-Undang Minyak dan Gas Bumi in Indonesian. Ministries responsible for agricultural areas, fisheries areas, industrial areas, tourism areas, religious zones, educational zones and defense zones are also entitled to establish spatial plans for their respective jurisdictions. Particularly regarding the spatial planning of the agricultural and forestry area, the spatial plan drafts at all levels should be reviewed respectively by Ministry of Agriculture and Ministry of Forestry in order to achieve the synergy on the fulfilment of goals of sustainable development.

Land Tenure System

The Land Tenure System in Indonesia comprises three sub-systems, being the system for the settlement, forestry and mining areas. Besides the tenures mentioned in the section regarding the horizontal separation, the forestry and mining tenures are managed by the different systems. Furthermore, the registration of tenures has also been made separately.

The administration of tenures in settlement area such as those mentioned in the section on horizontal separation, except for the Right to Clear the Land and the Right to Collect Forest Product, are managed by the National Land Agency. Such tenures basi-

cally act as the containers for all tenures that existed before the promulgation of the Agrarian Principles Act, except for the Right to Cultivate the Land and Right to Use Structure. Consequently, according to Article A.III.3 of General Elucidation of the Agrarian Principles Act, there would be no new tenure established over the land and, therefore, the registration of the land should be accompanied by the certificate of the basis of ownership such as the title under the previous system or the transfer deeds.

Due to the previously mentioned requirements, the Land Registration System of Indonesia is arguably classified as a German-Swiss type of land title registration. The preparation of the documents on the basis of ownership should mostly involve a notary. However, the register in Indonesia's land title registration is called land book and the delivered right is not protected by the State as counter-claims could be lodged at any-time after the delivery of the tenure to the Civil Court.

Furthermore, Land Registration System of Indonesia does not yet pay attention to details of object of land registration. The principles of Land Registration in Indonesia are simplicity, security, affordability, currentness and openness as stated in Article 2 of Governmental Decree No. 24 of 1997 regarding Land Registration. The mirror principle, which leads to the accurate and complete documentation of land attached to any right, is not considered as the basis of land registration. In the case of an apartment unit, which is considered as of land registration objects besides land itself, such an object is represented in land book only by 2D description of land in which such a unit is attached to and the blueprint of the building that contains the previously mentioned unit. Furthermore, as most land attached to any type of right is recorded in a land book under a local coordinate system, problems have arisen during the integration of land records into the land registration map such as incorrect distribution of land parcels or a land record that does not correspond with the same object in a different map when both maps are overlaid.

Moreover, as stated in Article 14.1.k of the 2004 Regional Governance Act, *Undang-Undang Pemerintahan Daerah* in Indonesian, municipal government is authorised to administer the tenures in a settlement area, except for inter-municipal administration of tenures that is delegated to the provincial government as stated in Article 13.1.k of the 2004 Regional Governance Act. As regulated by Presidential Decree No. 10 of 2006 regarding National Land Agency, *Peraturan Presiden tentang Badan Pertanahan Nasional* in Indonesian, however, such authority is also given to the land office that acts as the vertical agency of National Land Agency in municipality in question or to the regional office, which is also a vertical agency of National Land Agency, in the province under discussion in the case of the inter-municipal administration of settlement area tenure. The National Land Agency is therefore the only public agency in Indonesia that has been responsible for the administration of tenures for a settlement area.

In the forestry sector, according to the 1999 Forestry Act there are basically two types of forest tenures, which are the State and private forest. These forestry tenures act as the primary tenures on the Forestry Tenure System. Moreover, according to Paragraph 7 of General Elucidation of the Forestry Act, these forestry tenures are distinguished based on the existence of land tenures stated in the Agrarian Principles Act on the parcel in which the forest is located. The GoI could revoke the land tenure attached to private forest, with compensation, in case it is necessary to convert the private forest to a certain function of forest stated in the 1999 Forestry Act. Once the land is included within the Forestry System, permission from the Minister of Forestry would be required to perform the conversion of the forestry unit into the non-forestry unit as stated by Article 19 of the Forestry Act of 1999.

Furthermore, secondary tenures exist in the Forestry Tenure System, which are defined based on the function of the State's forest in question and the activities that are permitted to be performed in the State's forest in question. As regulated by Governmental Decree No. 6 of 2007 regarding Forest Arrangement and Preparation of Forest Management Plan and Utilisation, these secondary tenures are delivered as the permits to occupy, exploit and/or benefit from the forest. These secondary tenures can only be overlaid over the State forest. These tenures are Business Permit for Utilisation of Forestry Area, *Izin Usaha Pemanfaatan Kawasan* in Indonesian; Business Permit for Utilisation of Environmental Services, *Izin Usaha Pemanfaatan Jasa Lingkungan* in Indonesian; Business Permit for Utilisation of Forestry Product, *Izin Usaha Pemanfaatan Hasil Hutan Kayu dan/atau Bukan Kayu* in Indonesian and Permit for Collecting Forestry Product, *Izin Pemungutan Hasil Hutan Kayu dan/atau Bukan Kayu* in Indonesian.

Depending on its administrative jurisdiction and the nature of the tenure, the title registration of the initially well-defined forestry unit has been taken care of by the municipal government, the provincial government and the Ministry of Forestry. The registry is kept in the centralised Forestry Cadastral-like System, which comprises mainly spatial and attributal information of the forestry unit. The right holder also enjoys the exclusive protection from the State as stated in Article 71 of Governmental Decree No. 6 of 2007, which is practically uncontested. Nonetheless, the registration of Forestry Tenure cannot yet be considered as a full registration system as the primary forestry tenures are embedded to the tenures defined by the Agrarian Principles Act, while the secondary tenures exist in the form of permits.

The Mining Area Tenure System comprises two sub-systems. The first is the Mineral and Coal Mining Tenure System, while the second is the Oil and Natural Gas Mining Tenure System. Both sub-systems receive the primary tenures from the Right of State to Possess the Spatial Unit. In the former sub-system, the Mineral and Coal Mining Area is embedded with the Right of State to Possess the Spatial Unit, while, in the latter sub-system, all Oil and Natural Gas Mining Working Areas within the Jurisdiction of Mining of Indonesia, which comprises all land, waters and continental shelf, have the Right of State to Possess the Spatial Unit attached to them as well. Moreover, the Right of State to Possess the Spatial Unit within both systems could be overlaid by secondary tenures, which are differently defined for each sub-system and based on the function of the area and the activities that can be exercised within the area in question. The Mining Area Secondary Tenure does not include the right to land defined in the Agrarian Principles Act as stated by Article 134.1 of Mineral and Coal Mining Act and Article 33.2 of Oil and Natural Gas Act. Additionally, before initiating any activities regarding the mining of mineral, coal, oil and natural gas, the eligible subject of the tenure under the Mining Area Tenure System should ensure that the tenure previously attached to the mining area, either the primary or the secondary one, belongs to the subject of Mining Area Tenure.

Alike the Forestry Unit Registration, the Mineral and Coal Mining Area Registration is also considered only as a partial registration of title. The eligible subject of secondary tenures on the mineral and coal mining, except for radioactive mineral, could either apply for a Non-Metal Mineral and Rock Mining Concession Permit, additional Mineral Mining Concession Permit within the existing Mineral Concession Permit, the extension of any Mining Concession Permit and the Community's Mineral Mining Permit; or follow the auction of Metal Mineral and Coal Mining Concession Permit, as well as the Special Mining Concession Permit. Depending on the administrative jurisdiction in which the Mining Concession Area is located, the application of the former permits could be filed to the municipal government, provincial government or the Ministry of

Energy and Mineral Resources. The auction could also be carried out by the municipal government, provincial government or the Ministry of Energy and Mineral Resources according to the jurisdiction of the previously mentioned authorities. According to Article 94 of Mineral and Coal Mining Act, the permit holder enjoys the full protection from the permit giver as long as he does not violate the regulations on the mining of mineral and coal. The information regarding the Working Areas and the Mineral and Coal Mining Concession Areas, as well as the permits attached to them, is maintained in a centralised Mineral and Coal Mining Area Cadastral-like System by the Ministry of Energy and Natural Resources as stated in Article 167 of Mineral and Coal Mining Act. Differing from the Forest Unit Registration, the applicant of the concession permit is required to gain full control of the mineral and coal mining area by the acquisition of the tenures defined by Agrarian Principles Act as the basis of the establishment of mineral and coal mining area, while the secondary tenures are in the form of permits.

Contrary to the Forestry Unit and Mineral and Coal Mining Area Registration, the registration of Working Area for facilitating the upstream and downstream activities regarding the oil and natural gas mining could not be defined as a type of registration of title. The Cooperation Agreement acts as the only legal basis that binds the GoI and the eligible subject of Oil and Natural Gas Working Area as stated in Article 6 of Oil and Natural Gas Act. Moreover, the Oil and Natural Gas Mining Area Secondary Tenures is offered by the Minister of Energy and Natural Resources as the representative of GoI to the eligible subject of the Oil and Natural Gas Mining Area Secondary Tenure as stated in Article 12.2 of Oil and Natural Gas Act. Consequently, the delivery of such tenures is executed as an isolated transaction between the Minister of Energy and Natural Resources and the eligible subject of these tenures. Moreover, the Oil and Natural Gas Mining Working Area is established on top of the Right of the State to Possess the Spatial Unit, which is considered as an abstract tenure. Additionally, the execution of the utilisation of the Spatial Unit is made based on the permit to perform the specific activities over the working area, which is not considered as the Spatial Unit Tenure.

Land Value System

A sole Land Value System in Indonesia exists under the name of Land and Building Tax System. This system was devised to completely cover the valuation and the taxation of land and building within the territory of Indonesia. The Land Value System of Indonesia was initially established by means of the promulgation of Act No. 12 of 1985 regarding Land and Building Tax, *Undang-Undang Pajak Bumi dan Bangunan* in Indonesian by Act No. 12 of 1994. Moreover, due to the promulgation of Act No. 32 of 2004 regarding Regional Governance and Act No. 33 of 2004 regarding Fiscal Balancing between Central and Regional Government, *Undang-Undang Perimbangan Keuangan antara Pemerintah Pusat dan Pemerintah Daerah* in Indonesian, Act No. 28 of 2009 regarding Regional Tax and Retribution, *Undang-Undang Pajak Daerah dan Retribusi Daerah* in Indonesian, provides the municipal government with the authority to collect land and building tax in urban and rural areas, which was initially performed by the Ministry of Treasury. Additionally, the valuation and assessment on the acquisition of right to land and building was embedded to the Land Value System of Indonesia by means of the promulgation of Act No. 21 of 1997 regarding Fee on Acquisition of Right to Land and Building, *Undang-Undang Bea Perolehan Hak Atas Tanah dan Bangunan* in Indonesian, which was amended by Act No. 20 of 2000.

Notwithstanding the tenure attached to its object, Land and Building Tax is levied on the Earth surface and the mass below it, as well as any technical construction attached to land and/or waters as stated in Article 2.1 of Act No. 12 of 1985 regarding Land and

Building Tax. The exception is applied for the object that is utilised for non-profit purposes, cemetery and archaeological remains, conservation area, herding area possessed by a village, state land that has no right to land attached to it, diplomatic purposes and the international organisation and its representative purposes as stated in Article 3.1 of Land and Building Tax Act.

The valuation system of land and building in Indonesia was established through the enactment of the Land and Building Tax. The calculation of Land and Building Tax is based on the Levied Object Sales Value, the Non-levied Object Sales Value, the Levied Sales Value and the Land and Building Tax Rate. The former value is calculated every three years, except for several areas in which the value should be updated annually. This value is defined based on the proper, mean value of land and building transfer as stated in Article 1.3 of Land and Building Tax Act. The same article also regulates the employment of Sales Comparison, Developmental Analysis or Rent Capitalisation Method in the case of the none existence of the proper, mean value of land and building transfer. The Non-levied Object Sales Value and the Land and Building Tax Rate are defined regionally, while the Levied Sales Value is defined by the Governmental Decree No. 25 of 2002 regarding Determination of the Levied Sales Value for the Calculation of Land and Building Tax.

The assessment Fee on Acquisition of Right to Land and Building has also been an integrated part of the Land Value System of Indonesia since the promulgation of Act No. 21 of 1997. This act regulates the fee for various types of transfers of right to land and building as stated in Article 2.2 of Act No. 21 of 1997 amended by Article 1.2 of Act No. 20 of 2000. The transfer that is levied includes the transfer of Right to Possess the Land; Right to Cultivate the Land; Right to Use Structure; Usufructuary Right; Strata Title, *Hak Milik atas Satuan Rumah Susun* in Indonesian and Right of Management as stated in Article 2.3 of Act No. 21 of 1997. The mentioned has been assessed by the municipal government since 1 January 2011.

At the moment, the transition of the assessment of the Land and Building Tax for urban and rural area from the central to the municipal government is still on going. It is expected that on 1 January 2014 the municipal government will fully perform the assessment of the mentioned tax.

Land Cadastral System

Along with the sectoral administration of land in Indonesia, the legal, regulatory and fiscal cadastre has been maintained separately by different institutions. Each Cadastral System can be considered as a multipurpose cadastre in its own right.

A single regulatory Cadastral System exists in Indonesia, which in essence comprises several sectoral sub-systems. As described in the section on the Land Use System of Indonesia, the Land Use of Indonesia is mainly regulated by the 2007 Spatial Planning Act. The Land Use plans, which are the integrated parts of any Spatial Plans developed in Indonesia, exist mostly in the form of a presidential decree for the plan at national level, a provincial decree for the plan at provincial level and a municipal decree for the plan at the municipal level. The Spatial Plan document is attached as the appendix of the decree of the administrative level in question. Moreover, the spatial information of the Spatial Plan is published as a paper-based Spatial Plan Map.

Due to its vast jurisdiction, the authority to regulate the use of several sectoral activities over the land has been delegated to the minister responsible for administering the sector in question. Consequently, the sectoral regulatory cadastral sub-systems have been managed separately. The maintenance of the Forestry and Mining Area Regulatory

Land Cadastral Sub-system has been carried out centrally by consecutively the Ministry of Forestry and the Ministry of Energy and Mineral Resources.

Due to the existence of several Land Tenure Systems, which are maintained by different public institutions, the Legal Land Cadastral System of Indonesia comprises of systems maintained by three public institutions, as well as numerous customary land Cadastral Systems, which mostly existed in the initial form of the Cadastral System. The formerly mentioned systems are the Settlement Area, Forestry and Mining Area Legal Cadastral System that are maintained consecutively by the National Land Agency, Ministry of Forestry and the Ministry of Energy and Mineral Resources, while the latter mentioned systems have been maintained by indigenous communities, each with its own characteristic. The Settlement Area Legal Cadastral System comprises of land books, mostly still in the analog form, while the Forestry and Mining Area Legal Cadastral Systems have been digitally maintained.

The Fiscal Land Cadastral System of Indonesia used to be a centralised system maintained by the Ministry of Treasury. Since the enactment of Act No. 28 of 2009 regarding Regional Tax and Retribution the assessment of Land and Building Tax, as well as the Fee on Acquisition of Right to Land and Building, is delegated to the municipal government. While the assessment of Fee on Acquisition of Right to Land and Building has been performed by the municipal governments since 1 January 2011, the assessment of Land and Building Tax by the municipal government is still being conceptualised. It is expected that the municipal administrations will be able to fully perform the assessment of Land and Building Tax on 1 January 2014. Such a change would affect the Fiscal Land Cadastral System as well. Accordingly, the Fiscal Land Cadastral System is still being revised.

Additionally, each agrarian sub-sector also assesses fee in relation to the administration of the land within the scope of sub-sector in question. The subject of tenure under the Forestry and Mining Area Administration System is obliged to pay additional fees besides the Land and Building Tax as regulated by the 1999 Forestry Act, Mineral and Coal Mining Act and Oil and Natural Gas Act.

Fundamental Framework of Land Administration System

From the legal point of view, the administration of land in Indonesia has been regulated by several acts. Even though the Agrarian Principles Act was promulgated in order to provide the basis for the administration of Spatial Unit in Indonesia, the connectivity between the Agrarian Principles Act and other sectoral acts is weak or even not existent.

Due to the aftermath of WWII, the City Forming Ordinance of 1948 and the City Forming Statue of 1949 were promulgated to guide the reconstruction of the main cities in Indonesia (Soefaat 2004: II.2-3). However, not until 1992 did the GoI promulgate Act No. 24 of 1992 regarding Spatial Planning. The 1992 Spatial Planning Act was codified by considering the Agrarian Principles Act, while, Act No. 26 of 2007 regarding Spatial Planning Act, which revoked the 1992 Spatial Planning Act, was not. This is due to the fact that the Agrarian Principle Act is not included among the existing regulations in Remembrance of the 2007 Spatial Planning Act.

Moreover, the administration system of forestry, without any reference to the Agrarian Principles Act, was established in 1967 by the promulgation of Act No. 5 of 1967 regarding Forestry. The 1967 Forestry Act was revoked by means of the promulgation of Act No. 41 of 1999 regarding Forestry, which the Agrarian Principles Act as the consideration during its codification. The 1999 Forestry Act is further refined by the Governmental Decree in Lieu of Act No. 1 of 2004. The Forestry Administration System was established in order to facilitate the performance of agrarian tasks on the forestry

sector as regulated by the Presidential Directive No. 1 of 1976 regarding the Guidelines on the Synchronisation of the Implementation of Agrarian Task on Forestry, Mining, Transmigration and Public Work, *Instruksi Presiden tentang Sinkronisasi Pelaksanaan Tugas Bidang Keagrariaan dengan Bidang Kehutanan, Pertambangan, Transmigrasi dan Pekerjaan Umum* in Indonesian, particularly on the more detailed implementation of the delivery of Right to Clear the Land and Right to Collect Forest Product.

The mining sector was initially administered by Act No. 11 of 1967 regarding Mining, *Undang-Undang Pokok Pertambangan* in Indonesian, and Act No. 8 of 1971 regarding State's Corporate on Oil and Natural Gas Mining, *Undang-Undang Perusahaan Pertambangan Minyak dan Gas Bumi Negara*, which were codified also without referring to the Agrarian Principles Act as the latter is not included in the Remembrance of the formerly mentioned acts. The latest acts regarding the administration of mining sector are Act No. 4 of 2009 regarding the Mineral and Coal Mining and Act No. 22 of 2001 regarding Oil and Natural Gas which also do not include the Agrarian Principles Act in the remembrance of these acts, while, Article 8 of Agrarian Principles Act clearly states that the exploitation of natural resources is regulated by the State.

The legal framework Land Administration System of Indonesia also provides a means for the sectors within this system to interact with each other. As regulated by Article 38.3 of the 1999 Forestry Act, the forestry area could be converted for the purpose of mining through the promulgation of a permit to use the area in question by the Minister of Forestry. The conversion of the forestry area into settlement area and agricultural land could also be done by excluding the area in question from the forestry area through the promulgation of Ministerial Decree. The conversion of sustainable agricultural land to other type of Land Use and otherwise is regulated by Act No. 41 of 2009 regarding Protection of Sustainable Agricultural Land, *Undang-Undang Perlindungan Lahan Pertanian Pangan Berkelanjutan* in Indonesian. Additionally, the plan on conversion of a forestry area within the establishment of the Spatial Plan should firstly be consulted to the special task force as regulated by the Decree of Minister of Forestry No. 36 of 2010 regarding the Task Force on the Study of the Conversion of Use and Function of Forestry Area, *Peraturan Menteri Kehutanan tentang Tim Terpadu dalam Rangka Penelitian Perubahan Peruntukan dan Fungsi Kawasan Hutan* in Indonesian.

From the organisational point of view, the Land Administration System of Indonesia comprises several sub-systems, which are maintained by several public organisations. The Directorate General of Spatial Planning of Ministry of Public Works, *Direktorat Jenderal Penataan Ruang Kementerian Pekerjaan Umum* in Indonesian, is responsible for the establishment the National Spatial Plan, as well as for facilitating the establishment and monitoring the implementation of the Provincial and Municipal General and Detailed Spatial Plan. On the other hand, the Land Tenure System of Indonesia is chiefly maintained by the National Land Agency, while, in spite of the latest progress on the decentralisation of the Land and Building Taxation, the Land Value System of Indonesia is still centrally maintained by the Ministry of Treasury. Moreover, the administration of land for sectoral purposes has been carried out by the ministry in question. The Forestry and Mining Area Administration Systems have been maintained consecutively by the Ministry of Forestry and Ministry of Energy and Natural Resources, while the use of agricultural land has been regulated by the Ministry of Agriculture.

The number of qualified human resources for performing land administration tasks in Indonesia is still inadequate. At the moment, there are only four public universities and three private universities that offer the bachelor programme on geodesy and/or geomatics. Moreover, there are only a few universities in Indonesia that offer the vocational programme on surveying and mapping. On the other hand, the demand for qualified

human resources on land administration is considerably higher, particularly considering that there are 476 land offices of National Land Agency in Indonesia in 2010 (Manurung 2011: 6). Moreover, Steudler *et. al.* (1997, as cited in Williamson 2000: 5) estimates that Indonesia would require 40,000 professional surveyors and more than 30 tertiary programs to educate professional surveyors.

As mentioned in the section on technical framework in Section 2.1, the technical aspect of Spatial Unit Administration System comprises of technological support on the collection, storage, management and dissemination of Spatial Unit information (Williamson *et. al.* 2010: 35). Principally, the basic infrastructure for land information collection is still inadequate. Even though the National Land Agency has started the establishment of a cadastral control network using Global Positioning System (GPS) technology since 1994 (Abidin *et. al.* 1998, as cited in Abidin *et. al.* 2010: 2) and, according to Adiyanto and Wibisono (2009, as cited in Abidin *et. al. op. cit.*: 2), has already had 36 GPS Continuously Operating Reference Stations (GPS CORSS) in Java, Bali and other strategic areas outside Java and Bali, there were only 6,699 2nd order geodetic network benchmarks out of 8,990 required benchmarks and 14,085 3rd order geodetic network benchmarks out of 900,000 required benchmark (Badan Pertanahan Nasional Republik Indonesia 2010, as cited in Mudita *et. al.* 2011: 9). With the speed of establishment of the 2nd order geodetic network benchmark as much as 100 benchmarks per year, the establishment of 2nd order geodetic network could only be completed within the next 23 years (Badan Pertanahan Nasional Republik Indonesia *op. cit.*, as cited in Mudita *et. al. op. cit.*). Moreover, with the speed of the establishment of the 3rd order geodetic network benchmark as much as 3,300 benchmarks per year, the 3rd order geodetic network could only be fully established within the next 268 years (Badan Pertanahan Nasional Republik Indonesia *op. cit.*, as cited in Mudita *et. al. op. cit.*). Especially for the Forestry Administration, the Ministry of Forestry has started to establish the control network since 1993 (Soetardjo 1999, as cited in Abidin *et. al. op. cit.*: 2), which is linked to the national geodetic control network (*ibid.*). The land information collected for the Forestry Administration System is mainly satellite images to acquire land cover information and field survey data for gathering information regarding the boundary of the forestry area. Additionally, several mining companies have also developed GPS-based local geodetic networks (*ibid.*), while the land information collected for Mining Area Administration System is mainly acquired from the field survey.

Even though the spatial information is mostly stored in Geographic Information System (GIS) format, the storage and management of land information within the Regulatory Cadastral System is mainly done in analogue form. At the national level, the general and strategic spatial plans are published in the form of a governmental decree and spatial planning document as the appendix of the previously mentioned regulation. Moreover, at the provincial and municipal level, the spatial plan is enacted as a provincial and municipal decree. The spatial planning document is attached to the latter mentioned regulation.

Furthermore, the storage and management of settlement area information also lacks technological support. The information concerning Land Tenureship in settlement area is mostly still maintained in analogue form as, in 2010, there were only 156 regional and land offices of National Land Agency that had had a computerised system installed to support the performance of their tasks.

On the other hand, the Forestry and Mining Area Cadastral System, as well as the Land Fiscal Cadastral System, have been maintained using GIS. Each cadastral-like system is centrally and digitally maintained respectively by the Ministry of Forestry, Ministry of Energy and Natural Resources and Ministry of Treasury. However, the future of

the Settlement Area Fiscal Cadastral System is still uncertain, particularly due to the decentralisation of the settlement of Land and Building Tax for the settlement area.

Most, if not all, of Cadastral Systems of Indonesia deliver land information, as well as other legal documents regarding the use, possession and value of land parcel, in analogue form. The official output of the Regulatory Cadastral System is the spatial planning document, which is attached to the regulation for enacting the spatial plan in question, while the outputs of the Settlement Area Legal Cadastral System are mainly land book and land certificate. Even though the Forestry and Mining Area Cadastral System, as well as Land Fiscal Cadastral System, are maintained using GIS, the output of the latter mentioned systems is in the form of land book-like form, which includes the printed map of the parcel in question.

As of the obligations of the State to fulfil its objectives, the administration of land in Indonesia is solely financed by the State. The budget of every public institution that performs the administration of land is fulfilled by the State. Even though most of them also apply fees for the services offered, which are supposed to be public services, the fees are directly or indirectly transferred to the treasury of the State.

Even though each sectoral land administration system was devised to cover a specific jurisdiction within the territory of Indonesia, the overlapping of the jurisdiction system mentioned has practically led to inconsistencies within the land administration in Indonesia in general and, in turn, the insecurity of access to land in Indonesia. Within the area of the National Park of Mt. Halimun-Mt. Salak, there were villages in which land parcels were registered by the National Land Agency and attached to the tenures defined in the Agrarian Principles Act, which is legally impossible within the area of a national park. Moreover, the total extent of Forestry and Mining Concession Area in 2002 was 200 million hectares, which exceeded the total land territory of Indonesia of 191 million hectares (Saraswati and Musthofid, 2002).

Marine Administration System

The promulgation of Agrarian Principles Act basically acted as well as one of the important milestones on the establishment of Marine Administration System of Indonesia. However, not until 2007 was the first Act on the Administration of Coastal and Small Islands promulgated. While the Act No. 27 of 2007 regarding Management of Coastal Zone and Small Islands, *Undang-Undang Pengelolaan Pesisir dan Pulau-Pulau Kecil* in Indonesian, is still considered as the land-based management and administration system, the term of water in the Agrarian Principles Act has been semantically narrowed, particularly by the promulgation of Act No. 7 of 2004 regarding Water Resources, *Undang-Undang Sumber Daya Air* in Indonesian. The Water Resources Act promotes the Right to Use Water, *Hak Guna Air* in Indonesian; the Usufructuary Right of Water, *Hak Guna Pakai Air* in Indonesian and the Right to Exploit Water, *Hak Guna Usaha Air* in Indonesian; which are defined as the right to acquire, use and/or benefit from the water in its physical form. On the other hand, Article 1.5 of the Agrarian Principle Act clearly states that the water in this act includes territorial waters and sea within the jurisdiction of Indonesia.

This section describes the Marine Administration System of Indonesia. The Marine Use System is firstly depicted, followed by the illustration of the Marine Tenure and Value System of Indonesia. The Marine Cadastral System of Indonesia is described consecutively. Last of all, the fundamental framework of Marine Administration System of Indonesia, which includes the institutional, technical and financial framework, is portrayed.

Marine Use System

In spite of its vast coverage compared to the land territory of Indonesia, the use of the marine territory of Indonesia has not been entirely managed and administered yet. Within the administration of the marine use, 2007's Spatial Planning Act acts as the umbrella regulation as the Article 1.1 of the mentioned act states that the space in this act is defined as comprising of Land, Marine and Space Unit, as well as the space within the mass located under the Earth's surface. Article 6.5 of the 2007 Spatial Planning Act further states that the management of marine and space are managed by separate acts.

Furthermore, due to the decentralisation of governance, as stated in Article 6.4 of 2007's Spatial Planning Act, the administration of the use of the marine unit situated within the area between coastal baseline and up to a third of marine territory of Indonesia should be performed by municipal government, while the administration of marine unit outside the municipal jurisdiction within the marine territory of Indonesia should be done by the provincial government. The central government itself is responsible for the administration of the marine unit within the Economic Exclusive Zone of Indonesia.

Respectively, GoI enacted the Management of Coastal Zone and Small Islands Act in 2007 to fulfil the above mentioned requirement. However, the Management of Coastal Zone and Small Islands Act of 2007 only regulates the planning and the employment of the coastal area and small islands, as well as their surrounding environment that is directly linked to them. The marine spatial plan hardly exists yet in Indonesia as most, if not all, spatial plans are land-based plans.

Even though the umbrella regulation on the administration of the use of the sea has not yet been fully implemented, the sectoral administration of the use of the sea has long been implemented. As mentioned earlier in the section on Land Administration System, the establishment of the Forestry Administration System that includes the administration of the use of a marine conservation area was already initiated in 1967, while the Mining Area Administration that incorporates the administration of offshore oil and natural gas mining area has only been in use since 1971.

Additionally, the enactment of several other regulations regarding the administration of the use of the sea of Indonesia also shapes the sectoral-based Marine Use System of Indonesia. By the promulgation of Act No. 31 of 2004 regarding Fisheries, *Undang-Undang Perikanan* in Indonesian, GoI regulates the utilisation of Indonesia's land waters and marine territory within the scope of the fisheries sector. The Governmental Decree in Lieu of Act No. 1 of 2000 regarding Free Trade Zone and Free Port, *Peraturan Pemerintah Pengganti Undang-Undang tentang Kawasan Perdagangan Bebas dan Pelabuhan Bebas* in Indonesian, provides GoI with the authority to define a free trade zone and free port and employ the mentioned areas in accordance with the Free-trade Agreement signed by GoI. As mentioned in Article 9.1 of the Governmental Decree in Lieu of Act on Free Trade Zone and Free Port, the Free Trade Zone and Free Port are designated to develop businesses on trading, services, industries, mining and energy, transportation, maritime and fisheries, postal and telecommunication, banking, insurance, tourism and so forth. The activities within these areas are regulated and monitored by the Free Trade Zone and Free Port Board, as stated in Article 8.3 of the Governmental Decree in Lieu of Act on Free Trade Zone and Free Port. Additionally, the Archipelagic Sea Lanes to facilitate the movement of foreign ships and the flight of foreign airlines as regulated by the Act No. 8 of 1996 regarding Indonesian Waters, *Undang-Undang Perairan Indonesia* in Indonesian, acts as an integrated part of the Marine Use System of Indonesia.

The characterisation has unfortunately not yet been included as one of the processes within the scope of the Marine Use System of Indonesia. Even though Article 4 of the Management of Coastal Zone and Small Islands Act provides the objective of the management of coastal areas, small islands and their surroundings, which is to achieve the goal of the sustainable development of the area mentioned, the mentioned act does not provide entry points for the establishment of a spatial plan of these areas. In spite of the requirement on encouraging the people's participation in the development of a spatial plan for the coastal area and small islands as stated in Article 7.4 of the Management of Coastal Zone and Small Islands Act, the norm, standard and guidance on the establishment of spatial plan of coastal area and small islands could only be regulated by ministerial decree as stated in Article 7.2 of the aforementioned act and further enacted by regional government as stated in Article 7.4 of the Management of Coastal Zone and Small Islands Act. Therefore, the possibility to employ indigenous knowledge within the management of the jurisdiction of the Marine Use System is considerably limited.

On the other hand, the physical characterisation of the sectoral Marine Use System has mostly been an integrated part of the mentioned system. While the offshore exploration of oil and natural gas is already included within the administration of the use of Oil and Natural Gas Mining Area, the type of marine conservation area is defined based on its characteristic by GoI and enacted by a series of regulation from governmental decree to municipal decree. Moreover, the administration of the use of fishing ground and shipping lanes is made based on the physical characteristic of the area in question. Finally, the characteristic of Free Trade Zone and Free Port is defined by GoI in order to suit the requirements of the areas mentioned that are defined based on the Free-trade Agreement signed by GoI.

The Marine Use System of Indonesia has already had a reasonable basis for implementing the forecasting activities. As stated in Article 3.a of Management of Coastal Zone and Small Islands Act, sustainability acts as one of the principles of the spatial planning of coastal area and small islands, which is further explained in detail by Article 4 of the same act. Except for the shipping and free trade zone and free port sector, of the objectives of the administration of the sectoral Marine Use is also to maintain the sustainability as stated in Article 3.i of the Fisheries Act, Article 3 of the Forestry Act and Article 3.a of the Oil and Natural Gas Act. However, the sustainable yield should not be employed as the only consideration on the implementation of forecasting activities as the sustainability could only be achieved by also bearing in mind possible physical, legal and social changes in the future.

The planning and its implementation are considered as the core activities within the administration of the marine use in Indonesia. Except for the fisheries and shipping sector, the acts on the general and sectoral Marine Use System include the development of a spatial plan and the guidance on the implementation of the mentioned plan. However, except for specific sectors such as shipping, marine conservation and oil and natural gas mining, the marine unit use plan and the detailed guidance on the implementation of the plan have not yet been established at all administrative levels.

Additionally, the guidelines on the monitoring of the employment of the marine unit in Indonesia are also included within the acts regarding the administration of the use of the marine area in general, coastal area and small islands, forestry, oil and natural gas mining, Indonesia's waters, shipping and free trade zone and free port. Unfortunately, the guidance on activities regarding the evaluation of the performance of the administration of the marine unit use and the marine unit use itself, particularly which leads to the enhancement of the performance of Marine Unit Use System, is not regulated by both general and sectoral acts mentioned above.

Marine Tenure System

At the moment, the administration of Marine Tenure in Indonesia is basically performed only by the marine conservation sector under the Forestry Act, as well as oil and natural gas mining sector as regulated by the Oil and Natural Gas Act. The approach on the administration of the Forestry Land Tenure is also applied for the formerly mentioned sector, while the latter mentioned sector employs the same scheme as the inland Oil and Natural Gas Mining Area Administration.

In fact, a new type of tenure was published along with the promulgation of the Management of Coastal Zone and Small Islands Act. As stated in Article 1.18 of the Management of Coastal Zone and Small Islands Act, the Right of Management of Coastal Waters, *Hak Pengusahaan Perairan Pesisir* in Indonesian, is the right over specific area within the coastal waters to benefit from the sea and fisheries sector, as well as from the management of coastal and small islands resources above the sea surface and within the water column. However, after the judicial review of the mentioned tenure, it was abolished and might be revised as a form of permits on the management of coastal waters (Mustakim 2011).

Most importantly, the Regional Governance Act of 2004 conveys the right of state to possess the marine unit within the jurisdiction of Indonesia to the provincial and municipal government. Accordingly, the regional government is authorised to deliver permits, which could be considered as secondary tenures, to any legal person for performing her/his activity within the jurisdiction of the regional government in question as regulated by the Governmental Decree No. 25 of 2000 regarding the Authority of Government and the Authority of the Province as an Autonomous Jurisdiction, *Peraturan Pemerintah tentang Kewenangan Pemerintah dan Kewenangan Provinsi sebagai Daerah Otonom* in Indonesian.

Marine Value System

The Marine Value System of Indonesia is in essence an integrated part of the Land and Building Tax System. According to Article 1.38 of the Regional Tax and Retribution Act, land is defined as the Earth's surface that comprises land, land waters and sea. Consequently, the valuation and taxation of the marine unit and the structure attached to it is under the jurisdiction of the mentioned act.

Marine Cadastral System

Due to the late enactment of the umbrella regulation on the administration of the marine unit, the development of Marine Cadastral System has been done sectorally, particularly on the forestry and oil and natural gas mining sector. As mentioned earlier, the administration of a marine unit within the forestry sector was initiated in 1967, while the Oil and Natural Gas Mining Area Administration has been in place since 1971. On the other hand, not until 2007 was the Management of Coastal Zone and Small Island enacted. Consequently, the Forestry and Oil and Natural Gas Mining Area Cadastral System, which include the administrative information on associated objects inland and at sea, are in an advanced state of development. While the Fiscal Cadastral Systems on forestry and oil and natural gas mining are mainly maintained by the Ministry of Treasury, the Forestry and Oil and Natural Gas Mining Area Cadastral System have included the regulatory and legal aspect of cadastre. Moreover, the Ministry of Forestry and the Ministry of Energy and Natural Resources are also authorised to levy fees in relation to the performance of the administration of the forest, oil and natural gas mining area, which is also considered as an integrated part of the Fiscal Cadastral System of Indonesia.

On the other hand, the Marine Legal Cadastral System of Indonesia for the non-forestry and oil and natural gas mining sector is not well developed. However, the conveyance of the Right of State to Possess the Marine Unit to the provincial and municipal government has considerably upgrade the Marine Legal Cadastral System as the provincial and municipal marine jurisdictions have mostly been spatially well-defined.

Due to the absence of the Marine Use System at most of administrative level in Indonesia, the Marine Regulatory Cadastral System for non-forestry, shipping and oil and natural gas mining sector is still not yet developed. As mentioned earlier in section on Marine Use System of Indonesia, the information regarding the Marine Use exists mostly in analogue form. While the regulation that enacted the spatial plan is easily accessible, the spatial plan document is mostly only distributed internally. This applies not only to the sectoral spatial plan but also to the general spatial plan.

Fundamental Framework of Marine Administration System

The discussion on the basis of the performance of the Marine Administration System of Indonesia in this section comprises of the description of the institutional, technical and financial framework. Moreover, the description of the institutional framework of Marine Unit Administration System is further divided into legal, organisational and human resources aspects.

As mentioned earlier, from the legal and organisational point of view, the Marine Administration in Indonesia has in essence been set up sectorally. The enactment of the most comprehensive umbrella regulation on the administration of the marine unit was only made in 2007, while the administration of the marine unit for several sectoral purposes was initiated much earlier. The administration of the marine unit in some sectors, particularly in the forestry and oil and natural gas mining sector, is therefore more advanced compared to that regulated by the Management of Coastal Zone and Small Islands Act. Accordingly, the administration of the marine unit would in future be expected to be sectorally done in the future in the case that the recent legal and organisational arrangement is maintained.

Moreover, the Management of Coastal Zone and Small Islands Act had also raised disputes particularly regarding the spatial planning of coastal zone and small islands, as well as the administration of Right of Management of Coastal Waters. First of all, the spatial plans on the management of coastal zone and small islands have been developed by the regional government and private sector as stated in Article 14.1 of the Management of Coastal Zone and Small Islands Act. Even though community involvement is encouraged by Article 14.2 of this act, the conveyance of the authority to compose the spatial plans of the management of coastal zone and small islands to the regional government and private sector tends to marginalise the community itself as the community is not considered as one of the stakeholders of the spatial plan in question, as clearly stated in Article 14.1 of Management of Coastal Zone and Small Islands Act. This has acted as one of the basic considerations on the filing of the judicial review on several articles of the Management of Coastal Zone and Small Islands Act, particularly regarding the administration of tenure in coastal zone and small islands (Damanik 2011: 7). As previously mentioned, the judicial review of the mentioned act in the Constitutional Court resulted in the abolition of the articles regarding the Right of Management of Coastal Waters within the Management of Coastal Zone and Small Islands Act. Accordingly, the authority on the administration of tenure of coastal waters was returned to National Land Agency.

Secondly, while this act requires the administration of Right of Management of Coastal Waters to further be regulated by governmental decree, the regulation on the

details of the delivery of the mentioned tenure has not yet been enacted. The only existing derivative regulation regarding the mentioned tenure is the Decree of the Minister of Marine Affairs and Fisheries No. 16 of 2008 regarding Planning of Management of Coastal Zone and Small Islands, *Peraturan Menteri Kelautan dan Perikanan tentang Perencanaan Pengelolaan Wilayah Pesisir dan Pulau-Pulau Kecil* in Indonesian. According to Article 37.2 of the latter mentioned decree, the Plan on the Management of Coastal Zone and Small Islands is enacted as the decree of governor or mayor, while Article 38.1.d of the same decree states that the mentioned plan includes the recommendations regarding the issuance of permit and/or the Right of Management of Coastal Waters. Consequently, there was no legal basis at all on the delivery of the Right of Management of Coastal Waters.

Thirdly, the Management of Coastal Zone and Small Islands Act triggered the jurisdictional overlapping between National Land Agency and Ministry of Marine Affairs and Fisheries. According to Article 3.g of Presidential Decree No. 10 of 2006 regarding National Land Agency, National Land Agency is responsible for the administration of land tenure, which includes the tenure within the coastal zone and small island. Additionally, in spite of the fact that the National Land Agency is the only governmental institution that has ever performed the administration of tenure in Indonesia, National Land Agency has also been delivering the Right to Use Structure for port, coastal waters, fisher settlements and other structures in coastal waters; as well as the Right to Cultivate the Land for coastal fisheries, nearshore fish plantation and sea grass and pearl field. On the other hand, the Ministry of Marine Affairs and Fisheries is responsible for the management of coastal zone and small islands as stated in Article 1.44 of the Management of Coastal Zone and Small Islands Act.

4.2 Spatial Unit Administration and Custom

Custom is acknowledged as one of the important components of Indonesia as a nation. In spite of its long historical development and its function as one of the main foundations of Indonesia, custom is protected by the legal infrastructure of Indonesia along the acknowledgement of the existence of the indigenous communities in Indonesia (Soemardjono 2002: 90-91). On the other hand, custom has also been considered as one of the obstacles to the development of Indonesia as stated in Paragraph 3 of Article 3 of Section A.II of General Elucidation of Agrarian Principles Act. Moreover, custom has not been practically protected by the legal infrastructure of Indonesia (Marzali 2002: 98-100).

This section portrays custom within the scope of Spatial Unit Administration in Indonesia. The first section describes the position of custom from the legal aspect of Spatial Unit Administration in Indonesia, while the second section illustrates the implementation of the previously mentioned aspect within the scope of Spatial Unit Administration in Indonesia.

Legal Aspect of Custom in Spatial Unit Administration

In this section, legal evidence on the position of custom within the scope of Spatial Unit Administration in Indonesia is given. Considering that the Spatial Unit Administration in Indonesia has been set up sectorally, it is necessary to highlight such evidence from the sectoral point of view.

As the umbrella regulation on the Spatial Unit Administration in Indonesia, the Agrarian Principles Act was argued to be composed based on custom. As stated in Article D of Consideration of the Agrarian Principles Act, the colonial agrarian law could not provide Indonesian with the legal assurance for accessing the Spatial Unit. In order to provide such an assurance, the principle of the Spatial Unit Administration should therefore be based on the existing values of the people of Indonesia, as stated in Paragraph 5 of Section A.I of the General Elucidation of Agrarian Principles Act. According to Article 5 of the Agrarian Principles Act, customary law is the valid agrarian law in Indonesia. Additionally, Paragraph 4 of Article 1 of Section A.II of the General Elucidation of Agrarian Principles Act further states that the principles on the right to customary Spatial Unit were employed on the composition of the Agrarian Principles Act as the mentioned principles suit the legal framework of the management of Land, Marine and Space Unit, as well as natural resources therein stated in Article 33.3 of the Constitution of 1945.

Nonetheless, some restrictions are applied in the employment of the custom within the composition of the Agrarian Principles Act, as well as on the implementation of the Agrarian Principles Act. Due to its flawed nature (Harsono 1975: 47-48), unwritten form (Parlindungan 1980: 13), colonial-like structure (Sadjarwo 1960, as cited in Harsono *op. cit.*: 48), liberal-individualistic and feudalism philosophy (*ibid.*: 47- 48) and inflexibility (*ibid.*: 165), the Agrarian Principles Act was founded based on filtered customary values. Furthermore, the application of custom on the Spatial Unit Administration could only be carried out as long as it is in accordance with the national and state's interest, as well as the land administration laws and regulations themselves, in order to provide a legal assurance within the administration of relationship between Indonesians and their land (*ibid.*: 50). To date the national and state's interest itself has not been defined yet up to date, while the definition of public interest was only enacted in 2010 by means of Presidential Decree No. 36 of 2005 regarding Land Acquisition on the Development for Public Interest and its derivative regulations.

In spite of its effort to alter the attitude of the 1967 Forestry Act that neglected the rights of indigenous communities to their land (Marzali 2002: 101), the status of customary law within the Forestry Administration System is not clear yet (*ibid.*: 116). As stated in Article 4.3 of the 1999 Forestry Act, the possession of forest by the State should take into consideration the rights of the indigenous community. However, the same article further states that such a consideration should be taken where the existence of the indigenous community is formally acknowledged. Such a consideration should also be taken as long as the implementation of this article is in accordance with national interest. Moreover, the custom was still blamed as one of the main drivers of the deforestation in Indonesia up to 2010 (Lestari 2010).

Within the scope of the Mineral and Coal Mining Administration System, the customary right has rarely been discussed. The right of the indigenous community in particular and local community in general to employ its own land, waters and space for mining purposes has not been automatically acknowledged. This is particularly due to the authority of the State to possess the land, waters, space and natural resources therein conveyed by the Article 33.3 of the Constitution of 1945. Consequently, the local community is similarly treated as a mining company but with more restrictions and should apply to the mayor for the Community's Mining Permit. The only acknowledgement to the existence of the indigenous community in Mineral and Coal Mining Act is stated in Elucidation of Article 67.3, which requires all the Community's Mining Permit applications to include the recommendation from the head of village, head of sub-district or head of the indigenous community.

On the other hand, the Oil and Natural Gas Act of 2001 provides the basis for the acknowledgement of custom within the scope of oil and natural gas mining and processing. As mentioned in Article 11.3 of the Oil and Natural Gas Act, the Cooperation Agreement should include the plan on the empowerment of the community in the surrounding of the oil and natural gas mining Working Area. In the same article, it is also mentioned that the oil and natural gas mining activities should respect the rights of the indigenous community. Furthermore, Article 33.3.a of Oil and Natural Gas Act forbids the oil and natural gas mining and processing activities to be carried out in the indigenous community territory. Nevertheless, such a prohibition could be waived in the case where the local community has permitted these activities to be carried out within its territory, as stated in Elucidation of Article 33.4 of Oil and Natural Gas Act. Last but not least, the acquisition of the Spatial Unit should be done in accordance with Article 34.1 and 34.2 of Oil and Natural Gas Act by respecting the rights of the local and/or indigenous community. Particularly on the employment of the customary Spatial Unit law on the negotiation between the company and the indigenous community, it should be carried out in accordance with the valid customary law in the customary jurisdiction in question.

Unfortunately, as briefly mentioned earlier, all above arrangements could only be made as long as the custom exists. The following prerequisites should be fulfilled to acquire such an acknowledgement, as stated in Article 2.2 of the Decree of Agrarian State Minister/ Head of National Land Agency No. 5 of 1999 regarding the Guidelines on the Resolution of Predication regarding the Customary Right of Indigenous Community, *Peraturan Menteri Negara Agraria/Kepala Badan Pertanahan Nasional tentang Pedoman Penyelesaian Masalah Hak Ulayat Masyarakat Hukum Adat* in Indonesian:

- Such a community should be bonded by its custom and implement the custom on its daily life.
- Such a community should have been living in its customary jurisdiction and depending very much on it.
- Such a community should have and have been implementing the customary law on the administration of its customary jurisdiction.

Such an acknowledgement should be enacted by regional governmental decree based on the research performed by the regional government, which should also involve experts on customary law, and the indigenous community in the jurisdiction in question, as well as Non-governmental Organisations and other institutions that are responsible for the management of natural resources. Additionally, this decree could only be implemented as long as the customary land has not yet been attached to any right to Spatial Unit regulated by Agrarian Principles Act or expropriated by governmental institution, corporate or individual in accordance with the valid procedure of Spatial Unit expropriation at the time of the enactment of the regional governmental decree, as stated in Article 5.1 of the Decree of Agrarian State Minister/ Head of National Land Agency No. 5 of 1999 regarding the Guidelines on the Resolution of Predication regarding the Customary Right of Indigenous Community, *Hak Ulayat Masyarakat Adat* in Indonesian. According to Article 5.2 of the latter mentioned decree, the customary land should also be represented on the Land Registration Basemap and land parcel list.

Custom in the Performance of Spatial Unit Administration

In spite of the promising statements regarding the position of the custom in the above mentioned acts, the custom is practically neglected within the performance of Spatial

Unit Administration in Indonesia. In essence, the above mentioned statements only provide the indigenous community with the acknowledgement of the existence of the community in question and their customary law. Unfortunately, such an acknowledgement is not yet followed by the establishment of the legal infrastructure to sustain the customary law in general and within the scope of Spatial Unit Administration in particular. According to Article 4.1.a of the Decree of Agrarian State Minister/ Head of National Land Agency No. 5 of 1999 regarding the Guidelines on the Resolution of Predication regarding the Customary Right of Indigenous Community, the acknowledgement of the existence of the indigenous community and the customary law of the community in question might be followed by the registration of customary Spatial Unit within the scope of the Agrarian Principles Act.

The above mentioned scheme in fact clearly represents the negligence of the formal Spatial Unit Administration System to the customary law and indigenous community as, except for the required term on the Cooperation Agreement regarding the performance of customary law stated in Article 11.3 of Oil and Natural Gas Act, the Spatial Unit Administration System of Indonesia provides no assurance that the Customary Spatial Unit Administration could further be pursued after the formal registration of the customary Spatial Unit. Moreover, the customary Spatial Unit Tenure arrangement would not be included within the formal registration of the customary Spatial Unit. Consequently, the registered customary Spatial Unit would indeed be legally alienated but the customary Spatial Unit Administration System would only receive an acknowledgement.

Furthermore, such an acknowledgement could not be easily obtained, particularly due to the existence of another restriction namely national, state or public interest. Even though the prerequisites mentioned in the previous section have been fulfilled, the expropriation of customary Spatial Unit by the State could still be pursued in the case of such an expropriation being in accordance with national, state or public interest, such as stated in Paragraph 3 of Article 3 of Section A.II of Agrarian Principles Act (Marzali 2002: 105). As mentioned earlier, it is only public interest that has already been well-defined, while the national and the State's interest have not yet been clearly defined.

4.3 Spatial Unit Administration and Sustainable Development

The role of Spatial Unit Administration on leading to sustainable development is portrayed in this section. First, ecological impact of Spatial Unit Administration is given. The economic and social impacts of Spatial Unit Administration are also given.

Ecological Impact

Ecological impact of Spatial Unit Administration is highlighted in this section. This comprises of its impact to proportion of land covered by forest, coverage of arable and permanent cropland, land use change, land degradation, area under sustainable forest management, proportion of marine protected area and coverage of coral reef ecosystem.

Proportion of Land Covered by Forest

As mentioned earlier in the section on Land Administration System, the forestry sector of Indonesia is considered as an integrated part of the Land Administration. Respectively, the coverage of the forest in Indonesia has been affected very much by the administration of land in general and particularly forestry administration.

In this section, coverage of the forest in Indonesia from 1950 is portrayed. Moreover, the influence of the performance of the Land Administration on the coverage of the forest is further explained.

After the independence of Indonesia, a forest inventory was only undertaken in 1950. In 1950, the coverage of forest, which also includes coverage of plantation considered as secondary forest, is 162 million hectares, or 84% of the total land coverage of Indonesia that was 194 million hectares (Hannibal 1950, as cited in FWI/GFW 2001: 9). Even though this data included the extent of the secondary forest as well, it did however not significantly affect the extent of the forest in Indonesia (*ibid.*: 8).

Since the early 1970s, the rate of deforestation has been sharply increasing (*ibid.*). The rate of deforestation between the 1970s and 1990s was between 0.6 and 1.2 million hectares per year (Sunderlin and Resosudarmo 1996, as cited in FWI/GFW *op. cit.*). Moreover, the coverage of forest in Indonesia in 1985 was 119 million hectares, which was 27% less than that of 1950 (RePPPProt 1990, as cited in FWI/GFW *op. cit.*). The rate of deforestation between 1985 and 1997 was even higher, being 1.7 million hectares per year (PI/World Bank 2000, as cited in FWI/GFW *op. cit.*). Altogether, Indonesia lost 20 million hectares of its forests between 1985 and 1997 (WCMC 1996 and PI/World Bank 2000, as cited in FWI/GFW *op. cit.*: 10).

The forest inventory in 2005 reveals that Indonesia lost another 2 million hectares of forest leaving the forest coverage as much as 94 million hectares in 2005, or 50% of the land coverage of Indonesia (Kementerian Kehutanan 2006). Fortunately, the coverage of forest increased up to 99 million hectares in 2010, or 52% of Indonesia's land territory (Kementerian Kehutanan 2011: 6). However, the debate regarding the validity of the latter mentioned data is still on going while the coverage of the primary forest itself in 2010 was only 43 million hectares, or 33% of the total forest coverage of Indonesia (*ibid.*).

FWI/GFW (2001:8) states that the significant deforestation in Indonesia began in early the 1970s. Up to 1950, forest conversion was mainly done due to the need of agricultural land (*ibid.*). Nevertheless, the development of a long-term timber production system since the enactment of the 1967 Forestry Act had led to the opening of the land, which was mostly followed by the conversion of forest into other Land Use types and the degradation of the environmental quality (*ibid.*: 9). Even though at the implementation level the performance of the Forestry Administration System has not changed significantly, the revocation of the 1967 Forestry Act by the enactment of the 1999 Forestry Act has slightly lessened the rate of deforestation. Particularly between 1999 and 2010, deforestation took place due to the illegal conversion of forest into agricultural land and mining area, illegal logging, forest fire and, particularly in Kalimantan Island, the proliferation of municipal jurisdiction (Lestari 2010).

Coverage of Arable and Permanent Cropland

Indonesia's characteristic as the land-based State could be seen from the proportion of agricultural land coverage. In 2006, the agricultural land covered 37% of the total land territory of Indonesia or 70 million hectares (Badan Pusat Statistik 2007, as cited in Mulyani and Las 2008: 32). This also included the total coverage of plantations of 19 million hectares, arable land of 15 million hectares and rice fields of as much as 8 million hectares (Badan Pusat Statistik *op. cit.*, as cited in Mulyani and Las *op. cit.*).

Among the above mentioned Land Use types, the total extent of plantation in Indonesia increased steeply from 9 million hectares in 1986 to 19 million hectares in 2006 (Badan Pusat Statistik *op. cit.*, as cited in Mulyani and Las *op. cit.*: 33). Such figures were in place due to the increase of export commodities plantations such as oil palm,

rubber, coconut, cacao, coffee and pepper (*ibid.*). Especially for oil palm plantation, its extent in 2006, which was 6 million hectares, was no less than 10 times higher than it of 1986 (*ibid.*).

On the other hand, the total extent of arable land in Indonesia between 1986 and 2006 was considerably stable (*ibid.*). Nevertheless, the total coverage of rice fields between 1986 and 2006 decreased slightly, particularly due to the conversion of rice field into non-agricultural Land Use types, in particular the settlement area (*ibid.*).

Land Use Change

The two previous sections reveal that forest and permanent cropland are the most changing Land Use types in Indonesia. Additionally, proliferation of municipal jurisdiction and urbanisation had also contributed to the change of Land Use from non-settlement, particularly the productive agricultural land, into settlement area (Adam 2010: 9).

The Land Use change in Indonesia has been in place by design. As described earlier in the section regarding the coverage of forest in Indonesia, the need for agricultural land, was the reason for the initiation of massive forest clearance in 1950, and was followed by the intention of GoI to commercialise the forest within Indonesia's territory since the promulgation of the 1967 Forestry Act. The conversion of primary forest into secondary forest, permanent cropland particularly oil palm plantation and mining area has also been taking place due to the policy of GoI on the administration of forest, permanent cropland and mining area.

Land Degradation

By considering the enormous rate of deforestation in Indonesia, as well as the recent extent of primary forest and agricultural land, it can be estimated that the coverage of the degraded land in Indonesia is quite high. In 2006, the extent of the critical land; which is defined as the land that is severely damaged due to the loss of vegetation cover and in turn is unable to function as water retention, erosion control, nutrient cycling, micro climate regulator and carbon retention; was 77 million hectares (Kementerian Kehutanan 2011: 101). Nonetheless, they had not included the extent of critical land in Jakarta (*ibid.*). Furthermore, the coverage of critical land in Indonesia in 2010 was 82 million hectares (*ibid.*). Compared to the same figure in 2004, the extent of critical land drastically increased by as much as 18 million hectares between 2004 and 2006 (*ibid.* and Kementerian Kehutanan 2006). This did not yet consider the environmental quality degradation caused by the conversion of primary forest into secondary forest and agricultural land.

Besides due to the policy of GoI on the administration of the land, land degradation came about because of the inability of GoI to achieve the reforestation of the critical land. Up to 2004, the program on reforestation of the critical land within the forestry area could only cover 346,000 hectares, while the reforestation program was only successfully done within 390,000 hectares of the critical land area outside the forestry area (*ibid.*).

Area under Sustainable Forest Management

In 1999, GoI introduced a new classification of forest, which was the Community Forest. As defined by the Elucidation of Article 5.1 of the 1999 Forestry Act, Community Forest is the forest within an area that has Right to Possess the Land attached to it. At its implementation level, Community Forest is considered as the only type of forest under

sustainable forest management. This is particularly due to the nature of the recently developed Community Forests that were established beyond the forestry area stated above (Kementerian Kehutanan 2011: 112). Most of the Community Forests were developed within the scope of the reforestation program for the benefit of the community, including the indigenous community (*ibid.*). The establishment of Community Forest has basically enhanced the environmental quality of the area in question, while, through the employment of indigenous knowledge, its management has been devoted to the greatest benefit of the people, which is described in the section regarding Customary Coastal and Marine Management in Section 2.2.

Unfortunately, the total coverage of the developed Community Forest between 2006 and 2010 was only 685,000 hectares. Compared to the total extent of the State's Forest in Indonesia, the total coverage of Community Forest was less than 1%.

The Proportion of Marine protected area

In 2011 there were 100 Marine protected areas in Indonesia (Kementerian Kelautan dan Perikanan 2011: 47). These Marine protected areas were spread over 27 provinces with the total extent of 15 million hectares (*ibid.*). Nonetheless, the total coverage of Marine protected areas in Indonesia only covered 5% of the total extent of archipelagic and territorial waters of 310 million hectares, or 3% of the total coverage of Indonesia's waters including Economic Exclusive Zone of 580 million hectares.

Coverage of Coral Reef Ecosystem

As the largest archipelagic state in the world, as well as due to its location along the equator, Indonesia hosts 18% of world's coral reef with the approximate coverage of the coral reefs being 5.1 million hectares (Burke *et. al.* 2002: 36). In general, the coral reef ecosystems in Indonesia are threatened by destructive fishing, pressures from inland (*ibid.*: 37) and 1997-1998 El Niño Southern Oscillation (*ibid.*: 38). Accordingly, the proportion of degraded reefs in Indonesia between the 1950s and 2000s increased from 10 to 50% (Hopley and Suharsono 2000, as cited in Burke *et. al. op. cit.*). Moreover, 68% of the coral reef ecosystems in Indonesia have less than 50% of living coral reefs (Kementerian Kelautan dan Perikanan 2011: 48).

Economic Impact

Economic impact of Spatial Unit Administration is described in this section. This comprises of its impact to production of land, production of marine sector, employment and sectoral diversification and poverty. Production of Land

The figure on the production of land of Indonesia reveals that either the data was inaccurate or the Land Administration was not well done. On one hand, the extent of agrarian land is extraordinarily vast compared to the extent of land territory of Indonesia. In 2010, GoI declared that 52% of land territory of Indonesia was covered by forest, even though the extent of the primary forest was only 33% of the total forest coverage in Indonesia. Moreover, 70 million hectares of land in Indonesia in 2006 was categorised as agricultural land, which extent was 37% of total land territory of Indonesia.

On the other hand, the annual production of Indonesia's forest up to the end of 2010 was only 50 million cubic meter wood (Grehenson 2011). Furthermore, even though the extent of agricultural land in Indonesia was considered as one of the biggest in the world, in 2011 it was expected that Indonesia would import 1.7 million tonnes of rice,

while 70% of soja and 50% of salt from the total national demand would also be exported. Additionally, the oil and natural gas annual production of Indonesia between 2007 and 2010, except in 2008, did not exceed IDR 500 trillion or EUR 40 billion, or less than 12% of GDP of Indonesia in 2007 and 2008 and less than 9% of GDP of Indonesia in 2009 and 2010 (Kementerian Kelautan dan Perikanan 2011: 2).

Production of Marine Sector

Even though the coverage of Indonesia's sea territory is no less than 75% of its total jurisdiction, the average annual contribution of the fisheries sector of Indonesia to Indonesia's Gross Domestic Product (GDP) between 2007 and 2010 was less than 4%. In 2007, production of the fisheries sector of Indonesia was IDR 98 trillion or EUR 8 billion, which contributed 2.47% of Indonesia's GDP in the same year. Due to increased fisheries production, the contribution of the fisheries sector to Indonesia's GDP in 2008 increased by 0.30% to IDR 138 trillion or EUR 11 billion. In 2009, the production of the fisheries sector was IDR 177 trillion or EUR 14 billion, which boosted the contribution of this sector to Indonesia's GDP to 3.15%. At the end of 2010, the fisheries production was estimated to reach no less than IDR 199 trillion or EUR 16 billion, even though the contribution of this sector to Indonesia's GDP on that year was only 3.10%, or 0.05% less than that of 2009.

Employment and Sectoral Diversification

Due to its direct link to the activities within the management of the natural resources of Indonesia, the Spatial Unit Administration of Indonesia has been providing the employment opportunities within its various sub-sectors. As stated in Article 33.3 of the Constitution of 1945 and Article 1.2 of Agrarian Principles Act, the Spatial Unit Administration in Indonesia comprises of activities regarding the administration of land, waters, space and natural resources therein. Moreover, as previously mentioned in section on Land Administration System of Indonesia, the administration of land in Indonesia does not only cover the settlement area, but also the forestry, agricultural and mining area. Even the administration of the Spatial Unit is directly related to activities regarding the valuation and taxation of thereof.

Within the Spatial Unit Administration sector itself, it provides enormous employment opportunities for various fields especially for surveyors and lawyers. This is considering that there were 476 Land Offices of National Land Agency in Indonesia in 2010. Unfortunately, many positions at these offices have not yet been filled due to lack of adequate human resources as explained in the section on the fundamental framework of Land Administration System of Indonesia.

Poverty

In March 2010, the number of poor citizens in Indonesia was 31.02 million or 13.33% of the total population (Badan Pusat Statistik 2010: 2). This figure was 1.51 million less than that of March 2009, which was 32.53 million or 14.15% of the total Indonesia's population.

Social Impact

Social impact of Spatial Unit Administration is portrayed in this section. This comprises of its impact to access to Spatial Unit, gender equity, function of Spatial Unit and customary values preservation.

Access to Spatial Unit

The Spatial Unit Administration System of Indonesia could unfortunately not provide the equity on accessing the Spatial Unit in Indonesia. It was revealed that, in 2003, 85% of farmers in Indonesia possess no land (Arsyad 2011). On the other hand, by 2011, 56% of the national assets, 87% of which were in the form of land, were possessed by 0.2% of citizen of Indonesia (*ibid.*). Moreover, on the forestry sector, 26 million hectares were possessed by 248 companies, while, on the agricultural sector, 15 million hectares had Right to Cultivate the Land attached to it (Khaerudin 2012). The same figure could also be found on mining sector as 35% of lands in Indonesia were possessed by 1,792 companies that have the various types of secondary tenures in this sector (*ibid.*).

Furthermore, out of 85 million land parcels, there were only 39 million land parcels that had already been registered in 2008 (Arsyad 2011). This did not take into account the land parcels within the forestry area belonging to indigenous communities (*ibid.*). The figure on the registered land parcel was basically increasing compared to that of 2004, which was 25 million land parcels (Dimas 2004). Moreover, the annual pace of the land registration between 2004 and 2008 was 3.5 million parcels per year (Arsyad *op. cit.*), while the annual pace of land registration between 1989 and 2004 was 1.1 million parcels (Dimas *op. cit.*).

Gender Equity

According to Article 4.1 of the Agrarian Principles Act, eligible subjects of the Spatial Unit in Indonesia are individuals who have Indonesian citizenship or a corporate body that is established under the valid law in Indonesia. The Spatial Unit Administration of Indonesia therefore allows both female and male to be the legal subject of Spatial Unit Tenure in Indonesia.

Function of Spatial Unit

In essence, the division of the Spatial Unit Administration System into agrarian sectors was done in order to ensure that each sectoral Spatial Unit Administration would be able to sustain its function within the sector of the Spatial Unit Administration in question. However, at implementation level, the overlapping jurisdiction among the sectors of Spatial Unit Administration produced insecurity in accessing Spatial Unit, which in turn affected the function of the Spatial Unit as well.

Customary Values Preservation

As explained in the section on the relationship between Spatial Unit Administration and custom, the Spatial Unit Administration System of Indonesia practically provides no means at all to preservation of custom. At the regulation level, the path to the acknowledgement of the existence of custom has already been regulated. Such an acknowledgement would require an extensive study on assessing the fulfilment of requirements for the acknowledgement by the indigenous community in question that should be done by regional government, experts on customary law, indigenous community in jurisdiction in question, Non-governmental Organisations and other institutions that are responsible for the management of natural resources.

Furthermore, such an acknowledgement would act as the basis for the registration of customary right over Spatial Unit. In order to acquire the legal protection from the State, which could still be contested at any time in court, the customary tenure should be converted into tenures defined in Article 16 of the Agrarian Principles Act as regulated

by the Conversional Provision of the Agrarian Principles Act. This provision acts as the main evidence on the application of the adverse possession in the Formal Spatial Unit Administration System in Indonesia.

Nonetheless, the legal infrastructure for ensuring the implementation of customary law does not exist. As described in the section on customary Spatial Unit arrangement in Section 2.2, it is customary law concerning the Spatial Unit Administration that has been guiding the indigenous community to achieve the objective of sustainable development. Even though the legal infrastructure to convert the customary tenure into the formal one already exists, the legal infrastructure to allow the indigenous community to regulate the use of the Spatial Unit within its own territory by means of the valid customary law has not yet been established. The existing regulations concerning the use of Spatial Unit, which have previously been explained, always put the interests of the government and private sector ahead of the citizen in general and the indigenous community in particular.

4.4 Concluding Remarks

The important conclusions regarding the Spatial Unit Administration System of Indonesia can be divided into two aspects. Those aspects are the recent status of the Spatial Unit Administration System in Indonesia and the assessment of the role of the Formal Spatial Unit Administration to facilitate the fulfilment of the goal of sustainable development.

The current progress on the Spatial Unit Administration in Indonesia is greatly influenced by the fundamental framework of the Spatial Unit Administration System of Indonesia. From its legal and organisational point of view, even though the Agrarian Principles Act has been acting as the umbrella regulation on the Spatial Unit Administration, the Spatial Unit Administration in Indonesia has been carried out sectorally. This is particularly due to the enactment of sectoral Spatial Unit Administration acts that are at the same level with the Agrarian Principles Act. Considering as well that the Agrarian Principles Act was not taken into consideration during the composition of some sectoral Spatial Unit Administration acts, the sectoral Spatial Unit Administration did not take into account the coordination among those sectors. Respectively, jurisdictional overlapping is commonly identified within the performance of the sectoral Spatial Unit Administration in Indonesia.

The Spatial Unit Administration System of Indonesia lacks adequate human resources, particularly surveyors. Surveying and mapping are the main activities within the Spatial Unit Administration. Consequently, the human resources aspect is one of the major impediments of improving the performance the Spatial Unit Administration System in Indonesia, such as described in section in fundamental framework of Land Administration System in Section 4.1.

Even though the policy of each sectoral Spatial Unit Administration refers to the same principle stated in Article 33.3 of the Constitution of 1945, each system is in a different stage of development, particularly from a technological point of view. In spite of the lack of adequate human resources, the main sectors of Spatial Unit Administration namely the administration of settlement, forestry and mining area have been employing GPS CORS on the data acquisition process, as well as cadastral or at least a cadastral-like system on the maintenance of Spatial Unit information. Unfortunately, it is not the Settlement Area Administration System that was established along the enactment of the Agrarian Principles Act that has the most advanced Cadastral System. Although the land administration system in Indonesia has been strongly associated with the admini-

stration of settlement area, the Forestry and Mining Area Cadastral-like System contain the most comprehensive and accurate information. On the other hand, among 476 National Land Agency offices, there were only 156 offices in 2010 that have had a computerised system to support the performance of daily activities, while the land information is mostly stored in the paper-based land book.

The financial support is basically not considered as an issue that impedes the fulfilment of the objectives of the Spatial Unit Administration in Indonesia. The Spatial Unit Administration is solely financed by the treasury of the state, as well as the foreign loans for a few projects. Moreover, few services regarding the Spatial Unit Administration are charged to the client, even though the fees are mostly transferred directly to the treasury of the State.

In relation to the link between the Formal Spatial Unit Administration and sustainable development in Indonesia, the Formal Spatial Unit Administration System of Indonesia has basically a solid basis for acting as the basic infrastructure to leading to the achievement of the goal of sustainable development. First of all, as stated in Article 33.3 of the Constitution of 1945, the management of the Spatial Unit and the natural resources attached to it should be made for the greatest benefit of the people. Secondly, the role of indigenous knowledge for achieving the the goal of sustainable development is also acknowledged by every existing Formal Spatial Unit Administration regulation. Thirdly, some of the Spatial Unit Tenures that existed prior to the establishment of the Formal Spatial Unit Administration Systems, including the the right of the indigenous community to the Spatial Unit, are also acknowledged through the enactment of the conversional provision of Agrarian Principles Act.

Nevertheless, at the implementation level, based on the assessment of the fulfilment of the goal of sustainable development by means of Formal Spatial Unit Administration in Indonesia described in Section 4.3, the Formal Spatial Unit Administration System of Indonesia in general has not been able to facilitate the achievement of the objective of sustainable development. From the ecological point of view, as described in the section on ecological impact in Section 4.3, the rate of deforestation in Indonesia has been extremely high. This has been influenced by the commercialisation of forest, the establishment of new plantations and the opening of new mining area. Besides the changes on the coverage of forest, permanent cropland and mining area, the rate of Land Use change in Indonesia has also been noticeably high, particularly due to the proliferation of municipal jurisdiction and urbanisation, which has led to the conversion of vast areas of productive agricultural land into settlement areas. Such changes have not been followed by the establishment of areas under sustainable forest management, which has further led to the degradation of land environment. Furthermore, even though there were 100 Marine protected areas in Indonesia in 2011, the percentage of the total extent of marine protected areas was only as little as 5% of the total extent of archipelagic and territorial waters of Indonesia. Additionally, due to destructive fishing, pressures from inland and El Niño Southern Oscillation phenomenon, 68% of coral reef ecosystems in Indonesia have less than 50% of living coral reefs.

From the economic point of view, the degradation of environmental quality has not been followed by an improvement of economic achievement in Indonesia. As a country with the largest extent of agricultural land, Indonesia was importing 1.7 million tonnes of rice in 2011, while the annual contribution of oil and natural gas to the GDP between 2007 and 2010 except in 2008 was less than 12%. Moreover, the annual contributions of the latter mentioned sectors to Indonesia's GDP in 2009 and 2010 were less than 9%. The annual contribution of the fisheries sector to GDP of Indonesia between 2007 and 2010 was also small, less than 4%. Additionally, among the number of citizens in 2010,

there were 13.33% poor citizens. Fortunately, the Spatial Unit Administration System of Indonesia has a huge potential to provide the employment for the citizens of Indonesia especially considering the extent of the Spatial Unit that is administered under the Spatial Unit Administration System. Moreover, the sectors of the Spatial Unit Administration System of Indonesia provide the citizens of Indonesia with employment in various fields. Nonetheless, the major impediment of the provision of such opportunities is inadequate human resources.

From the social point of view, the security of access to the Spatial Unit has not been able to be guaranteed by GoI. Consequently, GoI has not been able to provide the citizen of Indonesia with equitable access to Spatial Unit. The function of Spatial Units in Indonesia could not be maintained, particularly due to the overlapping of the jurisdiction of the sectors of Formal Spatial Unit Administration System of Indonesia. The customary values preservation has also not been able to be guaranteed by GoI. Nonetheless, every female and male citizen of Indonesia is allowed to be the legal subject of Spatial Unit Tenure in Indonesia.

Apart from these facts, the absence of good Spatial Unit governance has been acting as the fundamental issue that hampers the Spatial Unit Administration in Indonesia to provide the greatest benefit for the people of Indonesia. While the policy regarding the Spatial Unit clearly dedicates the management and administration of Spatial Units for the benefit of the citizen of Indonesia, the implementation of the mentioned policy is obviously driven by specific interest, either the GoI's own interest or other interests that have driven the interests of GoI. The Spatial Unit Administration Acts from the 1960s have clearly indicated the GoI's interest in directing the Spatial Unit Administration to achieve the specific objectives set by GoI. On the other hand, however, since the 2000s the enacted Spatial Unit Administration regulations have undoubtedly reflected that the regulation makers have been providing mostly corporates with incentives through the enactment of the previously mentioned regulations. This reflects the ignorance of GoI to provide its citizens with the greatest benefits by means of the Spatial Unit Administration.

Furthermore, the existence of Spatial Unit Administration System dualism at the implementation level in Indonesia has limited the capability of indigenous communities to implement Customary Spatial Unit Administration within their customary territory. While Customary Spatial Unit Tenures could be converted into one of the Formal Spatial Unit Tenures, the rights of indigenous communities to utilise their territory based on their rights of origin and prevailing custom have not been guaranteed by GoI. This is particularly due to the absence of legal infrastructure that allows the indigenous community in particular and the community at large to regulate the use of the Spatial Unit within its own territory by means of the valid customary law as stated in the section on customary values preservation of Section 4.3. Consequently, the indigenous communities have not been able to fully benefit from their own territory.

Within the next three chapters, the Customary Spatial Unit Administration Systems, as well as their role in leading to the fulfilment of sustainable development objective in the selected case study areas, is described. Chapter 5 provides the portrayal of the milestones on the development of the indigenous community and the customary governance in the selected cases, which laid the foundation of the Customary Spatial Unit Administration Systems in this region, as well as the level of intervention posted by the higher hierarchical government to the indigenous community. Furthermore, Chapter 6 describes the detailed arrangement on the Customary Spatial Unit Administration in this region, which includes the depiction of the Customary Spatial Unit Use, Tenure, Value and Cadastral System, as well as the basic framework of the Customary Spatial Unit

Administration in Ambon Lease region. Last but not least, Chapter 7 describes the outcome of the assessment of the role of the Customary Spatial Unit Administration Systems in the selected case study areas towards the achievement of the goal of sustainable development.

5 Indigenous Institution in Ambon Lease

Based on the criteria for selecting the case for this study, as depicted in Section 3.2, Ambon Lease region in the Province of Maluku, Indonesia, has been selected as the case study. Moreover, four sub-case study areas, namely Negeri Latuhalat, Negeri Tulehu, Negeri Siri Sori Islam and Negeri Paperu, have been chosen in order to facilitate the exploration of the potential of Customary Spatial Unit Administration for sustainable development, as well as to maintain the quality of this study at its highest.

In this chapter, the description of Ambon Lease region and four sub-case study areas is given in Section 5.1. Furthermore, the concept of customary governance in Ambon Lease region is portrayed in Section 5.2, while the external influence from the higher hierarchical administrative level on the customary governance is depicted in Section 5.3. Finally, the concluding remarks regarding the indigenous institution in Ambon Lease region is given in Section 5.4.

5.1 General Information

In this section, the background to the selection of Ambon Lease region and four sub-case study areas is explained. The description of the selected case study areas is structured based on the criteria for case selection, namely the existence of Customary Spatial Unit Administration System, the proportion of the land and marine territory, the existence of external pressure to the Customary Spatial Unit Administration System and the existence of legal framework on the community-based Spatial Unit Administration.

Customary Spatial Unit Administration System

The identification of the existence of Customary Spatial Unit Administration System in the Ambon Lease region was initially initiated from the existence of the indigenous community that was still upholding customary law in general. Since its civilisation was well-developed, Ambon Lease region constitutes many independent indigenous jurisdictions called *negeri* (Effendi 1987: 39). The average extent of *negeri-negeri* is approximately equal to that of a village, *desa* in Indonesian, or sub-district, *kelurahan* in Indonesian (*ibid.*: 40). Each *negeri* is governed by an autonomous customary regime (*ibid.*: 39), which rules the *negeri* based on the legitimate customary law in *negeri* in question (*ibid.*: 45), which is further explained in Section 5.2.

Similarly the customary Spatial Unit arrangement depicted in Section 2.2, the Customary Spatial Unit Administration has been considered as an integrated part of the customary governance in Ambon Lease region. During the problem structuring phase, it could be identified that the Customary Spatial Unit Administration System existed and is operational in this region. This is particularly due to the existence of Customary Land Tenure law (*ibid.*: 91-114, 141-162) and Customary Land and Marine Use regulation such as *sasi* (Kisya 1993: 5-23). The detail on the Customary Spatial Unit Administration in this region is given further in Chapter 6.

Land and Marine Area Proportion

The Province of Maluku, in which the Ambon Lease region is located, comprises of 632 islands. The extent of its land territory is 54,185 km², or only 8% of the total extent of its jurisdiction. Within its territory, hills and mountains occupy 57% of its land territory,

while 28% of its land territory is classified as undulated landscape. The dependency of the citizens of the Province of Maluku on sea is considerably high, which explains the fact that 75% of the citizens of this province live in the coastal area.

Ambon Lease region has been considered as the most important region in the Province of Maluku. It is not only because it is located at the centre of the province but also because it functions mainly as the administrative and business capital of the Province of Maluku. See Figure 5.1 for the location of the case study areas.



Figure 5.1 The location of the case study areas (Source: Land Use Map 2006 of National Land Agency)

External Pressure

By considering the above facts, the external pressures from the higher hierarchical regimes on the customary governance in general and the Customary Spatial Unit Administration in particular have been considerably high. Nevertheless, the weight of such pressures has not been equally distributed over the Ambon Lease region. Due to the differences in the weight of the external pressures on the customary governance and the Customary Spatial Unit Administration in this region, four sub-cases were chosen.

In this section, the rationale for the selection of the four sub-case study areas based on the exposure to the external pressures is explained. Located at the western end of the Municipality of City of Ambon, *Kota Ambon* in Indonesian, which is the capital of the Province of Maluku, Negeri Latuhalat was chosen because of its proximity to the governance centre. Further, the customary law in general and the Customary Spatial Unit Administration regulation were in existence and operating well^{1, 2, 3}.

¹ Interview with Mozes Salhuteru, the chief of Negeri Latuhalat, 22 June 2009, 10 – 11 am

Negeri Tulehu is also located in Ambon Island, precisely at the eastern end of Ambon Island. Even though it is located in Ambon Island, Negeri Tulehu is administered by the Municipality of Central Maluku, *Kabupaten Maluku Tengah* in Indonesian. Negeri Tulehu has been acting as one of the important hubs that connect Ambon City to other islands in the Ambon Lease region and other regions in the Province of Maluku. Due to its openness, the incoming external influence has been hampering the performance of customary governance and Spatial Unit Administration in this *negeri*⁴. The external influence from the Mayor of the Municipality of Central Ambon on the customary governance in general and particularly on the election of the chief of this *negeri* had been the main source of the conflict between the Government of Negeri Tulehu and Municipality of Central Maluku⁵. Nonetheless, the customary law and the Customary Spatial Unit Administration had principally been operational⁶.

Negeri Siri Sori Islam and Negeri Paperu are located in Saparua Island, the Municipality of Central Maluku. Saparua Island can be reached in an hour by speedboat leaving from Tulehu twice a day or by ferry in two hours also leaving from Tulehu once a day. Due to the location of Saparua Island, the biggest external influence on the customary governance and the Customary Spatial Unit Administration comes from the formal Government of the District of Saparua, *Kecamatan Saparua* in Indonesian, particularly compared to Negeri Latuhalat that has been directly influenced by the policy of the Government of Municipality of the City of Ambon. The capital of the Municipality of Central Maluku is also two hours away by ferry and an hour away by speedboat from Saparua Island, which has minimised the influence from the Government of the Municipality of Central Maluku on the customary governance and the Customary Spatial Unit Administration.

Among *negeri-negeri* in Saparua Island, Negeri Siri Sori Islam is considered as one of the *negeri-negeri* that has been not only upholding the custom but also able to maintain the written records regarding the Customary Spatial Unit Administration over time⁷. The advancement of the Customary Spatial Unit Administration could also be identified as several new customary rules were proposed⁸.

Eastern Indonesian Time, Office of the Chief of Negeri Latuhalat, Latuhalat, Municipality of City of Ambon

² Telephone interview with Mozes Salhuteru, the chief of Negeri Latuhalat, 6 January 2010, 2 – 3 am Central European Time, Dortmund

³ Interview with Mozes Salhuteru, the chief of Negeri Latuhalat, 6 June 2011, 11 am – 12 pm Eastern Indonesian Time, Office of the Chief of Negeri Latuhalat, Latuhalat, City of Ambon, Municipality of City of Ambon

⁴ Interview with Abdul Rahim Lestaluhu, the native of Negeri Tulehu, 17 June 2009, 1 – 2 pm Eastern Indonesian Time, Building of Faculty of Fisheries and Marine Science, University of Darussalam, Tulehu, Municipality of Central Maluku

⁵ Interview with John Saleh Ohorella, the chief of Negeri Tulehu, on 25 June 2011, 12 – 2 am Western Indonesian Time, Homann Hotel, Bandung

⁶ Interview with Abdul Rahim Lestaluhu, *op. cit.*

⁷ Interview with Ferry Siahaya, the Head of District of Saparua, on 18 June 2009, 12 – 2 pm Eastern Indonesian Time, the office of the Government of Sub-District of Saparua, Saparua, Municipality of Central Maluku

⁸ Group interview with Jhony Karim Pattisahusiwa, the chief of Negeri Siri Sori Islam, on 18 June 2009, 8 – 10 pm Eastern Indonesian Time, the residence of the Chief of Negeri Siri Sori Islam, Siri Sori Islam, Municipality of Central Maluku

On the other hand, between 2008 and 2011, the customary government of Negeri Paperu was in a transition period due to the departure of the late chief of this negeri in 2008. Even after the new chief was appointed by the Government of Municipality of Central Maluku in 2011, the turmoil continued as the new chief had not been customarily appointed by the people of Negeri Paperu. The appointment of the chief by the people of Negeri Paperu is customarily important as the people represent the indigenous community institution. The transition period had led to the partial abandonment of customary law and Customary Spatial Unit Administration regulation. The customary law and Customary Spatial Unit Administration regulation had been partly implemented as the role of each kinship association on the customary governance has been pre-defined since the early establishment of this *negeri*, which requires this association to perform its task even though the chief has not yet been appointed⁹. See Section 5.3 for further details regarding the existence of the external pressures on the customary governance and the Customary Spatial Unit Administration in the four sub-case study areas.

Legal Framework on Customary-based Spatial Unit Administration

The Province of Maluku, as well as the Municipality of City of Ambon and the Municipality of Central Maluku, are one step ahead on the implementation of the decentralisation approach of governance compared to most other provinces in Indonesia, particularly on the empowerment of village and sub-district within the scope of municipality governance. While Act No. 5 of 1979 regarding Village Governance no longer suits the decentralisation approach of governance regulated by Regional Governance Act, the new Village Governance Act, *Undang-Undang Pemerintahan Desa* in Indonesian, has not yet been promulgated, even though the foundation of such an act, which is the Governmental Decree No. 72 of 2005 regarding Village, *Peraturan Pemerintah tentang Desa* in Indonesian, already exists. Moreover, in accordance with the statement in Article 208 of the 2004 Regional Governance Act that states that the task and obligation of the head of a village should further be regulated by the regional decree on regional governance, the Government of the Province of Maluku promulgated Provincial Decree No. 14 of 2005 regarding Rearrangement of Negeri as the Unitary Indigenous Community within the Jurisdiction of the Province of Maluku, *Peraturan Daerah Provinsi Maluku tentang Penetapan Kembali Negeri sebagai Kesatuan Masyarakat Hukum Adat dalam Wilayah Pemerintahan Provinsi Maluku* in Indonesian, as the basis for the empowerment of *negeri* within the scope of a decentralisation approach of governance in the Province of Maluku. Additionally, the Municipality of Central Maluku promulgated 16 municipality decrees in 2006, while the Municipality of City of Ambon promulgated 3 municipality decrees in 2008, to implement the previously mentioned provincial decree.

These previously mentioned regulations provide a solid basis for customarily administering the Spatial Unit in *negeri-negeri* in the Province of Maluku and particularly in the Municipality of City of Ambon and the Municipality of Central Maluku. As stated in Article 2 of the above mentioned provincial decree, *negeri* has the authority to define the boundary of its jurisdiction, as well as to manage its own household in accordance with the right of origin, *hak asal-usul* in Indonesian; and the prevailing custom. Moreover, Article 5.1 of the Decree of Municipality of Central Maluku No. 8 of 2006 regarding Guidelines for Composition of the Decree of Negeri/Negeri Administrative and the

⁹ Group interview with T. Pattipawae, the customary socialite of Negeri Paperu, on 9 June 2011, 8 – 10 pm Eastern Indonesian Time, the residence of the Chief of Negeri Paperu, Paperu, Municipality of Central Maluku

Decision of the Head of Negeri Government, *Peraturan Daerah Kabupaten Maluku Tengah tentang Pedoman Penyusunan Peraturan Negeri/Negeri Administratif dan Keputusan Kepala Pemerintahan Negeri* in Indonesian, states that *negeri*'s decree could regulate the provisions that legally bind the citizens of the *negeri* in question in accordance with the right of origin and custom, while Article 9 of the Decree of Municipality of City of Ambon No. 3 of 2008 regarding Negeri in Municipality of City of Ambon mentions that *negeri* has an authority over its jurisdiction and the governmental matters that are based on the right of origin and the custom.

5.2 Structure of Indigenous Institution

In this section, the structure of indigenous community and *negeri* government in Ambon Lease region is depicted. The general information regarding the foundation of the indigenous community in Ambon Lease region is firstly described, while the process on the establishment of Customary Spatial Unit Administration System in this region is further illustrated. In additional, customary government structure in this region is also portrayed.

Foundation of Indigenous Community

Ambon Lease region was not inhabited until the arrival of the ancestor of the the indigenous community in this region (Effendi 1987: 11). The ancestors of this community came mostly from an island to the north of this region, Seram Island (*ibid.*). Moreover, a part of this community is originally from the Banda and Kei Islands, which are located to the south and southeast of this region respectively, as well as from the northern Maluku such as Halmahera, Ternate and Tidore Island; the northwestern Maluku such as Sula Islands; the east of the Province of Maluku, particularly Papua Island; and Tuban, eastern Java (*ibid.*: 11-12). Furthermore, this community also constitutes a small portion of the *Mestico* people, who are a mixture of Spanish and Portuguese men and native women (*ibid.*: 21), and *Binongko* people, or normally called the Butons, who originated from Binongko Island located to the south of Buton Island.

Over time, these new settlers further developed relationships within several indigenous institutions. In general, the indigenous institutions in Ambon Lease region were initially founded based on a genealogical relationship pattern with a single family as the smallest unit called *mataruma* (*ibid.*: 25). *Mataruma* was initially defined as a group of people living under the same roof (*ibid.*: 26). As the *mataruma* became overcrowded, new *mataruma-mataruma* were further established (*ibid.*). These *mataruma-mataruma* further developed a new community structure called *uku* (*ibid.*: 28). However, the first *mataruma* continued to act as the main *mataruma* among the new *mataruma-mataruma* and the head of the first *mataruma* acted as the representative of the newly established *uku* (*ibid.*: 27-28).

Within its further development, a *mataruma* or an *uku* could completely relocate to a new place (*ibid.*: 28). In turn, *uku* could also be considered as a territorial or a territorial-genealogical association (*ibid.*: 29). Riedel (1883, as cited in Effendi *op. cit.*) considers the latter types of *uku* as *soa*.

Soa is a territorial-genealogical association that comprising several *mataruma-mataruma* (*ibid.*: 29). The difference between the former type of *uku* and *soa* is that the corresponding *mataruma-mataruma* within a *soa* are not genealogically linked (*ibid.*), which acted as the basis for Riedel's statement. Moreover, *uku* has *primus inter pares*

who could take legal actions on behalf of the associated *mataruma-mataruma* due to their genealogical relationship, while *soa* has no *primus inter pares* that forbids the head of *soa* to take legal action on behalf of *mataruma-mataruma* within *soa* in question (*ibid.*).

Further higher hierarchical structures of the indigenous community in Ambon Lease region are *aman* or *hena*; and *negeri*. The terms *aman* and *hena* have basically the same definition, which is an association of *uku-uku* (*ibid.*: 30). Even though *aman* and *hena* are basically genealogical associations as they are consisted of *uku-uku* that are genealogical associations, they nevertheless could not be purely considered as genealogical association, particularly considering the extent of their jurisdiction (*ibid.*). At the moment, the term *aman* and *hena* are not used anymore as all *aman-aman* and *hena-hena* were transformed either into *soa-soa* or *negeri-negeri* (*ibid.*).

Negeri is the highest, autonomous hierarchical structure within the indigenous community in the Ambon Lease region. Each *negeri* comprises of at least three *soa-soa* (*ibid.*: 31) and, as described earlier in the section on the existence of Customary Spatial Unit Administration in Section 5.1, has the authority to manage its own household. Even though *negeri-negeri* that share territorial bonds further formed coordination forum called the Union of the Chiefs, *Perserikatan Latupatty* in Malay Ambon dialect, it has no administrative authority (*ibid.*: 47). This type of territorial association normally acts as a mediator for resolving conflicts among *negeri-negeri* bonded by this association (*ibid.*). However, this forum has no authority to push conflicting *negeri-negeri* to implement its recommendation (*ibid.*).

The most imminent feature of these associations is that each type of association was established based on consensus among the lower level associations (Pattipawae 2010), except for the genealogical association. The genealogical association is developed naturally and defers to the prevailing custom for defining the role of each member of the latter mentioned association, as well as the relationship among the member and between the members and non-members of this association (Effendi *op. cit.*: 26).

Customary Government Structure

Based on the course of the development of the indigenous community in Ambon Lease region, the *negeri* governance had been done by means of communalistic approach. The structure of *negeri* government in Ambon Lease region explains the previously mentioned statement.

The customary government comprises four main bodies, namely the chief, *negeri* government, *saniri negeri* and *saniri besar* (*ibid.*: 40-43). The chief, *pamerintah* in Malay Ambon dialect or directly translated as government, is the functionary of *negeri* who executes the *negeri* governance (*ibid.*: 40). The chief mostly belonging to *mataruma parenta*, whose ancestor was either the first inhabitant of the *negeri* in question (*ibid.*) or appointed as the chief by the higher hierarchical government due to some reasons (see Pattipawae *op. cit.*).

The chief executes the customary governance together with the heads of *soa-soa* under *negeri* government institution, *saniri rajapatti* in Malay Ambon dialect (*ibid.*: 41). Besides the chief and the heads of *soa-soa*, *negeri* government comprises as well of *ke-wang*; the clerk, *juru tulis* in Malay Ambon dialect and the herald, *marinyo* in Malay Ambon dialect (*ibid.*: 43). *Negeri* government also acts as the customary judiciary body (*ibid.*: 42). The structure of *negeri* government therefore reveals one of the communalistic governance features as the *negeri* government is a collective one that represents *soa-soa*, which constitute the *negeri* in question.

Another customary governmental body is *saniri negeri*. *Saniri negeri* is a legislative body of customary government that comprises *negeri* government; the representatives of *soa-soa* who are not the heads of *soa-soa*; customary socialites; the scholars; foremen on physical development, *tukang* in Ambon Malay dialect; religious leaders; land *kewang* and marine *kewang* (*ibid.*: 42). *Kewang* is a customary institution whose responsibility is to manage the natural resources for the greatest benefit of the people, as well as to maintain orderliness within its jurisdiction (Kisya 1993: 25). Even though *saniri negeri* is led by the chief, every decision from the chief regarding important subjects should be referred to *saniri negeri*, which has the authority to either accept or reject the proposal from the chief (Effendi *op. cit.*). By looking at the composition of *saniri negeri*, the different sectors of *negeri* are represented in this institution, which facilitates the communalistic type of sound decision-making process to be in place.

Last but not least, the customary government structure in this region also facilitates the participation of the community at large in *negeri* in question through the fourth body of customary government namely *saniri besar*. *Saniri besar* is an institution that facilitates annual general assembly that is attended by not only the above mentioned customary government bodies but also by all members of the indigenous community in the *negeri* in question (*ibid.*). Within such an assembly that is normally held in the beginning of a new year, *negeri* government is represented by the chief who reports to the assembly the performance of *negeri* government of the preceding year (*ibid.*).

Establishment of Customary Spatial Unit Administration System

The Customary Spatial Unit Administration System in Ambon Lease region started to take form along the foundation of the indigenous institution of this region. The development of the Customary Spatial Unit Administration System in this region could mainly be categorised into three periods namely the period during the establishment of *negeri*, along the prevailing of *dati* law and after the establishment of *negeri*.

During the establishment of *negeri*, the extent of jurisdiction of *negeri* was defined and under the possession of *negeri* in question (*ibid.*: 91). The Spatial Unit within the jurisdiction of each *negeri* was further being attached to the communal tenure (*ibid.*).

Alike indigenous communities in Pacific Islands Region and Northern Québec, the indigenous communities in Ambon Lease region had been managing the land and marine territory based on the indigenous knowledge within the scope of integrated customary territorial management. Under such a scheme, the customary territory had been divided into zones based on the characteristics of each zone. Furthermore, land and marine territory had been treated equally, which had allowed the interaction among zones in land and marine territory to act as one of the inputs on all processes concerning the management of the customary territory.

Furthermore, within the jurisdiction of *negeri*, there were normally Spatial Units that had been occupied by kinship associations associated with the *negeri* in question prior to its establishment (*ibid.*). The latter mentioned type of Spatial Unit was still considered as belonging to the kinship association in question (*ibid.*) in various degrees. Nonetheless, due to the developed consensus among kinship associations during the establishment of *negeri*, the tenures of the latter mentioned type of Spatial Unit were overlaid over the communal tenure as the only existing primary tenure within the Customary Spatial Unit Administration System in Ambon Lease region (*ibid.*: 141). This is particularly due to the high degree of the control over kinship association's Spatial Unit by the customary government, even though such a degree had been dynamically changing over time (*ibid.*: 92). The right of kinship association over the Spatial Unit could be appro-

priated by *negeri* government due to some reasons such as the violation of customary regulation (*ibid.*: 93) or the non-existence of the heirs of kinship association (*ibid.*: 101). On the other hand, the authority of kinship association over Spatial Unit could also become very strong, which, in turn, weakened the control over Spatial Unit by the customary government.

Within the further indigenous institutional development, *negeri* acted as the basis for the establishment of vertical institution both within and beyond the scope of the jurisdiction of *negeri*. As the consequence of the formation of this territorial association, each citizen of *negeri* should perform specific duties voluntarily as their contribution to the performance of *negeri* governance, which was administered under *dati* law (*ibid.*: 118-120). To compensate the efforts on completing *dati* tasks, usufruct on a portion of *negeri*'s land was transferred to the responsible person (*ibid.*: 119). The *dati* task was further transferred to the heir of the responsible person, which in turn led to the establishment of *dati* association the purpose of which was to arrange the working shift among the members of a *dati* association. As a legal body, *dati* association has taken an important role in shaping the economic and social structure, as well as laying the fundamentals of family, property, inheritance and Land Administration law (*ibid.*).

After the establishment of *negeri*, the Customary Spatial Unit Administration System was slightly developed. Within this period, the improvement of the system was only concerning the conversion of the communal Spatial Unit tenure into usufruct and freehold due to the increasing demand for Spatial Unit or likewise particularly due to the dynamics of the degree of control over the Spatial Unit as previously described in this section.

The most important feature of the Customary Spatial Unit Administration in this region was its objective to provide the greatest benefit for the people (*ibid.*: 91). The possession of the communal Spatial Unit and the control over other types of Customary Spatial Unit by *negeri* government had been done in order to drive the utilisation of Spatial Unit and resources attached to it to sustain the community (*ibid.*). The internal impact of such a policy was the application of restrictions and monitoring on the employment and exploitation of Spatial Unit and resources attached to it by any individual or group of individuals without exception (*ibid.*), while its external impact was that the Spatial Unit and resources attached to it were exclusively devoted to the welfare of the citizens of the *negeri* in question, even though a non-member of this community could also enjoy the benefit from the Spatial Unit and resources attached to it after being granted permission from the customary authority (*ibid.*: 92).

5.3 Higher Governmental Level Intervention

As described in the section on the institutional aspect of collective action on common-pool resources management in Section 2.2, the external influence is still considered as one of the important factors influencing the sustainability of common-pool resources, as well as the common-pool resources management institution. It is therefore necessary to particularly address the external influence from the higher governmental level on the customary governance and the Customary Spatial Unit Administration in this region.

In this section, the external influence is on the customary governance and the Customary Spatial Unit Administration in Ambon Lease region. The external influence particularly on the implementation of formal definition of village governance on the customary governance and the Customary Spatial Unit Administration is firstly depicted. Secondly, the external pressure from the Formal Spatial Unit Administration in this region on the Customary Spatial Unit Administration is further illustrated.

Village Governance

The policy on formal village governance has influenced the customary governance in this region. In this section, the influence of formal village governance policy on the customary governance in Ambon Lease region before 1965, between 1965 and 1979, between 1979 and 1999 and after 1999 is described.

Before 1965

The formal village governance policy in this region before 1965 could further be classified into the period before and after the independence of Indonesia on 17 August 1945. Before the independence of Indonesia, in particular during Dutch colonial rule, the customary governments were basically operational under several restrictions. Act on Interior Governance and the Financing of Amboina and Its Dependencies, *Reglement op het Binnenland Bestuur en dat de Financiën op Amboina en Onderhoorigheden* in Dutch, documented as State Gazzette 1824-19a, expressed the recognition of the chief of negeri as the head of negeri government in Ambon Residence, as well as the authority of the chief of negeri to govern the negeri in question (*ibid.*: 44). Moreover, the Decree of State Council, *landraad* in Dutch, of Amboina No. 14 of 1919 (Nijhoff 1922, as cited in Effendi *op. cit.*; 41) and the Decree of State Council of Saparua No. 30 of 1919 define negeri government as comprising of the chief and heads of *soa-soa*. Even though the indigenous community in this region was authorised to implement the prevailing customary law within this period, there were nevertheless several restrictions that were basically related to the maintenance of the sovereignty of the Dutch Colonial Government (*ibid.*: 47).

After the independence of Indonesia, the customary governments in this region were granted the authority to manage their own households based on the prevailing right of origin (Program Studi Pendidikan Sejarah STKIP Setia Budhi Rangkasbitung 2011). A series of acts regarding the regional and village governance were promulgated. Act No. 1 of 1945 regulates the state of the village and the authority of regional national committee as the legislative bodies, which is led by the head of the jurisdiction in question (*ibid.*) Furthermore, the act states that the smallest autonomous government unit is sub-district (*ibid.*), *kecamatan* in Indonesian.

Between 1965 and 1979

Due to the need to address the more complex issues on decentralisation and village governance, the GoI started to compose the new act afterwards, which was at long last finalised by the promulgation of Act No. 19 of 1965 regarding Autonomous Village as the Transitional Form to Accelerate the Establishment of the Fourth Tier Level of Government Across Republic of Indonesia, *Undang-Undang tentang Desapraja sebagai Bentuk Peralihan untuk Mempercepat Terwujudnya Daerah Tingkat III di Seluruh Wilayah Republik Indonesia* in Indonesian that is further named as Autonomous Village Act (*ibid.*). Through the enactment of the Autonomous Village Act, all jurisdictions classified under the fourth tier level were uniformly identified as Autonomous Village, *Desa Praja* in Indonesian.

Furthermore, the Autonomous Village Act also regulated the structure of the autonomous village government. As stated in Article 7 of the mentioned act, the functionaries of autonomous village government were the head of the autonomous village; autonomous village consultative council, *Badan Musyawarah Desapraja* in Indonesian; autonomous village administrator, *Pamong Desapraja* in Indonesian; autonomous village clerk, *Panitera Desapraja* in Indonesian; autonomous village official, *Petugas De-*

sapraja in Indonesian and autonomous village advisory council, *Badan Pertimbangan Desapraja* in Indonesian.

The previously mentioned autonomous village government structure suited the customary government structure in Ambon Lease region well. The head of the autonomous village was identical to the chief as defined in Article 8 of the Autonomous Village Act, while the autonomous village consultative council was partly equal to *saniri negeri* as stated in Article 17 of the Autonomous Village Act. Moreover, the autonomous village administrator was substantially identical to the head of *soa* as, according to Article 23 of the Autonomous Village Act, autonomous village administrator is defined as the head of a quarter, *kepala dukuh* in the term of this act. On the other hand, *soa* in Ambon Lease region occupies a specific area the extent of which is equal to quarter. Additionally, the official of autonomous village and autonomous village advisory council were similarly functioning as *saniri negeri* as well. According to Article 30 of the Autonomous Village Act, the official mentioned is responsible for religious, security, irrigation or other matters in accordance with the prevailing custom in the village in question, while the autonomous village advisory council is responsible for providing the guidance on customary governance. Besides acting as the representative of the people and a legislative body, *saniri negeri* is also responsible for executing the tasks of the autonomous village official and advisory council. The autonomous village clerk position is also identical to the *negeri* government clerk as defined in Article 28 of the Autonomous Village Act.

Additionally, the Autonomous Village Act guaranteed the performance of customary governance. This act states that the election of the autonomous village government functionaries should be done based on the prevailing custom. Most importantly, the customary government should also govern its jurisdiction based on the prevailing custom.

Between 1979 and 1999

After the promulgation of Act No. 5 of 1979 regarding the Village Governance, *Undang-Undang Pemerintahan Desa* in Indonesian, uniformed village governance was applied across Indonesia. This can be seen from the structure and the authority of the village government defined in the previously mentioned act.

As stated in Article 3 of the Village Governance Act, the simplified village government structure compared to the previous period was defined. The village government comprised of the head of the village, *Kepala Desa* in the term employed in this act and the village consultative council, *Lembaga Musyawarah Desa* in the term employed in this act. Within the performance of its task, village government was supported by village officials, comprised of village secretariat, *Sekretariat Desa* in the term employed in this act and head of quarter, *Kepala Dusun* in the term employed in this act.

The authority of village government in this period was very limited compared to that of previous periods. According to Article 10.1 of the Village Governance Act, the village government had only the authority to manage its own household, as well as to act as the executor and the body in charge of the governance, physical and social development and general affairs.

Even though the customary governance was not facilitated by the Village Governance Act, the customary governments in the four sub-case study areas had been able to be embedded in the customary government structure within the formal government structure^{10, 11, 12, 13}. The chief acted as both the head of the formal village and the customary

¹⁰ Interview with Mozes Salhuteru, the chief of Negeri Latuhalat, 22 June 2009, 10 – 11 am Eastern Indonesian Time, Office of the Chief of Negeri Latuhalat, Latuhalat, Municipality of

government. Even though the appointment of the head of a formal village should go through a normal election, the people of all four sub-cases elected their chiefs as the head of formal village government as well. Furthermore, the other functionaries of *negeri* government that were not included within the formal government structure were assigned to further execute their tasks.

Even though the customary law could still be implemented, the consequences of the application of the Village Governance Act on the indigenous community in the four sub-case areas were severe. The authority of *negeri* government was limited and the *negeri* governance was not eligible to receive State funding. Most importantly, the functions of the *negeri* government that went beyond the formal village government functions such as the Customary Spatial Unit Administration were considered illegal, particularly because the Spatial Unit was centrally administered by GoI during this period. See Chapter 6 for more detail.

After 1999

After the promulgation of the 1999 Regional Governance Act, which is further revised by the enactment of the 2004 Regional Governance Act, the customary governments in this region again regained their authority to govern their jurisdictions in accordance with their rights of origin and the prevailing customs. This is revealed from the statement in Article 206 of the 2004 Regional Governance Act, which stated that the village has the authority to execute the existing governance matter based on the right of origin of the village in question. Moreover, according to Article 1.12 of the 2004 Regional Governance Act, the village is entitled to the name in accordance with its right of origin and the prevailing custom.

Furthermore, in order to provide guidance on village governance, Article 11 of the Governmental Decree regarding Village defines the village government structure as comprising of the village government, *Pemerintah Desa* in the term employed in the governmental decree and village consultative council, *Badan Permusyawaratan Desa* in the term employed in the same decree. Article 12 of this governmental decree further defines that the village government constitutes of the head of the village; village secretary; village secretariat; on field technical practitioner, *pelaksana teknis lapangan* in the term employed in this decree and territorial element, *unsur kewilayahan* also in the term employed in this decree. Field technical practitioners include chiefs of village government sections on development, governance, welfare and general affairs, while the territorial elements are the heads of quarters. Moreover, according to Article 30.2 of this decree, village consultative council comprises of the head of quarter, *Ketua Rukun Warga* in Indonesian; customary socialite; professional; religious leader and community socialite.

Compared to the previous acts regarding the village, this decree inherits the simplification of the village government structure from the 1979's Village Governance Act. As stated earlier, the village government structure comprises two main elements, which reveals its simplicity. Nevertheless, this decree also inherits the richness of 1965's

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¹¹ Interview with John Saleh Ohorella, the chief of Negeri Tulehu, on 21 June 2009, 10 – 11 am Eastern Indonesian Time, the residence of the Chief of Negeri Tulehu, Tulehu, Municipality of Central Maluku

¹² Group interview with Jhony Karim Pattisahusiwa op. cit.

¹³ Group interview with T. Pattipawae op. cit.

Autonomous Village Governance Act and the customary government structure in Indonesia partly. The head of the village still acts as the central figure on the village governance. In addition to the village secretariat, the village government is also supported by a village secretary who acts as the village administrator as stated in Article 25.1 of the Governmental Decree regarding Village; the on field technical practitioner and territorial elements. The definition of the task and obligation of village government officials besides the village secretary is further delegated to the the municipal government as stated in Article 26.4 of the Governmental Decree regarding Village. Moreover, this decree defines the composition of the village consultative council as similar to that of *saniri negeri*.

While the Provincial Decree No. 14 of 2005 only defines the requirement for jurisdiction at the same level with village or sub-district in the Province of Maluku to be declared as *negeri*, as well as the guidance on the enactment of the further arrangement regarding *negeri* governance, the municipal decrees regarding *negeri* governance in Municipality of City of Ambon and Municipality of Central Ambon provide the detailed assistance on the implementation of the above mentioned provincial decree. Among the arrangements defined in these municipal decrees, the provision on the structure and the authority of *negeri* government is significantly crucial for the *negeri* governance in Ambon Lease region. The Decree of Municipality of City of Ambon No. 3 of 2008 clearly defines that the customary government in the Municipality of City of Ambon constitutes of *negeri* government and *saniri negeri* as stated in Article 11.1 of the decree. Moreover, Article 11.2 states that *negeri* government should comprise of the chief, *raja* in the term employed in this decree or translated as king or other title locally employed in the *negeri* in question; the heads of *soa* and *negeri* government officials. Moreover, according to Article 14.2 of the previously mentioned decree, *negeri* government comprises of *negeri* secretary; section chiefs, *kepala urusan* in the term employed in this decree, which could also be found in village structure of 1979's Village Governance Act; the herald and *kewang*. Additionally, Article 11.3 of the previously mentioned decree defines *saniri negeri* as comprising of the chief as the head of *saniri negeri*, the representatives of *soa*, the customary socialites, the elders, foremen and *kewang*.

On the other hand, the Decree of the Municipality of Central Maluku No. 1 of 2006 regarding Negeri provides no further detail on the customary government structure compared to the Governmental Decree regarding Village. Additionally, Article 17.4 of the Decree of the Municipality of Central Maluku regarding Negeri delegates the authority to define the customary government structure to *negeri-negeri* in the Municipality of Central Maluku.

Moreover, the authority of customary government to implement the customary law within the scope of *negeri* governance is also defined differently in the Municipality of the City of Ambon and Municipality of Central Maluku. While the Decree of the Municipality of Central Maluku regarding Negeri defines the authority of the customary government as defined in the Governmental Decree regarding Village, the Decree of the Municipality of City of Ambon regarding Negeri in Municipality of Ambon provides the guidance for the customary governance to not only perform the administrative tasks but also to maintain and preserve the customs, as well as to protect the resources within the jurisdiction of Negeri as stated in Article 21.g and 21.h of the Decree of the Municipality of City of Ambon regarding Negeri in Municipality of Ambon.

The above mentioned provisions impacted the Customary Spatial Unit Administration in *negeri-negeri* in the Municipality of City of Ambon and Municipality of Central Maluku differently. The structure of *negeri* government in the Municipality of City of

Ambon, including Negeri Latuhalat, includes *kewang*, which legalises the *kewang* institution to perform its task. Most importantly, the management of resources within the jurisdictions of *negeri-negeri* in the Municipality of City of Ambon is also included within the jurisdiction of customary government.

On the other hand, in the Municipality of Central Maluku, which also includes Negeri Tulehu, Negeri Siri Sori Islam and Negeri Paperu, *kewang* is not included within the structure of *negeri* government but only considered as a member of the *saniri negeri*. Moreover, the delegation of the authority to manage the resources within the jurisdiction of *negeri* is not clearly stated in the Decree of the Municipality of Central Maluku regarding Negeri. Even though Article 21 of the latter mentioned decree states that the chief has the authority to perform *negeri* governance based on the prevailing custom and customary law, the management of the resources has basically gone beyond the authority of village government except it is clearly stated such as in the case of customary governance in the Municipality of City of Ambon. See Chapter 6 for the Customary Spatial Unit Administration in the four sub-case study areas.

Spatial Unit Administration

The Formal Spatial Unit Administration in this region has also been influencing the Customary Spatial Unit Administration. In this section, the influence of the Formal Spatial Plan on the Customary Spatial Unit Administration in this region is highlighted, while the impact of the existence of the Formal Spatial Unit Tenure System in this region on the Customary Spatial Unit Administration is also depicted.

Spatial Plan

As described in the section on Land Use System in Section 4.1, by considering its administrative jurisdiction, the Spatial Plan of Indonesia could be classified into National, Provincial and Municipal Spatial Plan. Furthermore, at each level of administrative jurisdiction, Strategic Plans could be defined for addressing specific issues on the development.

At national level, the Spatial Plan of Indonesia is developed based on the Presidential Decree No. 5 of 2010 regarding National Mid-Term Development Plan Year 2010-2014, *Peraturan Presiden tentang Rencana Pembangunan jangka Menengah Nasional Tahun 2010-2014* in Indonesian. According to this plan, the development of Maluku Islands, which includes the Province of Maluku and the Province of Northern Maluku, between 2010 and 2014 is expected to result in developed coastal cities that act as the centre for the integrated marine industry activities; the integrated development of land, marine, coastal area and small islands; the maintenance of environmental carrying capacity through the deployment of conservation areas; the economic advancement through the development of local, main sectors based on the local natural resources; the productive, efficient and sustainable employment of natural resources and the advancement on the availability and quality of basic utilities (Presiden Republik Indonesia 2010: III.7-14). Such objectives were set due to the poor development of local sectors and main products; undeveloped border area, isolated island and disaster-resistant zone; under performance of government officials; low human resources quality; negative impacts of conflicts on environmental security, social and economic development and environment and illegal logging and degradation of the quality of the environment (*ibid.*: III.7-13-III.7.14). Furthermore, the assumption that the use of land in the Province of Maluku was not effectively done due to the coverage of the forest in this province,

which reached 53% of its total land jurisdiction, was considered as one of the important inputs on the development of the Spatial Plan of the Province of Maluku (*ibid.*: III.7-11).

The Spatial Plan of the Province of Maluku for 2007-2027 employs island clusters as the Spatial Unit of analysis (Badan Perencanaan Pembangunan Daerah Provinsi Maluku 2007: II-1-II-2). In the above mentioned plan, Ambon Lease region is specified as the 7th island cluster with City of Ambon as its service centre (*ibid.*: III-10). Furthermore, it is expected that Ambon Lease region would act as the provider of national and provincial public service facility and the national and regional hub (*ibid.*: III-12). According to this Spatial Plan, the priority of the development in this region is on agricultural, forestry, fisheries, tourism, educational and governmental sector (*ibid.*). Additionally, the City of Ambon is expected to serve as the national activity centre, while Saparua and Tulehu would act as the local activity centres (*ibid.*: III-14-III-15)

At the municipality level, up to June 2011, it was only the Municipality of the City of Ambon that already had a Strategic Spatial Plan. Such a plan was developed in order to guide the Government of Municipality of City of Ambon on the development of its coastal area (Badan Perencanaan Pembangunan Daerah Kota Ambon 2008: I-4). Within the above mentioned plan called the Spatial Plan of Bay and Coastal Area of City of Ambon, *Rencana Penataan Kawasan Teluk dan Pesisir Kota Ambon* in Indonesian, it is expected that the City of Ambon would be the regional and international centre for marine-based services and trading activities (*ibid.*: V-1-V-2). Moreover, this plan defines Negeri Latuhalat as the local conservation area, which is expected to be able to protect the local water sources, prevent erosion and maintain soil fertility (*ibid.*: VI-20).

By considering the existing Spatial Plans for Ambon Lease region, Negeri Tulehu would receive the largest stimulus from the implementation thereof, while Negeri Latuhalat would be slightly affected by such plans. Nonetheless, Negeri Paperu and Negeri Siri Sori Islam would only receive indirect impacts from such plans.

Having been functioning as the local activity centre even before the prevailing plans were established, Negeri Tulehu had been affected by incoming external values due to its openness. Such values had been weakening the performance of custom¹⁴. Moreover, due to its targeted function as the local activity centre, the development of Negeri Tulehu would be greatly hindered by the higher hierarchical governments. This *negeri* had even been experiencing the impact of the prevailing Spatial Plans such as the development of a new market at its main customary business district and a new port in one of its customary marine protected areas. Particularly for the development of the new port, the customary government did not receive any notice from the Government of the Municipality of Central Maluku¹⁵.

Even though Negeri Latuhalat is located in the Municipality of City of Ambon, which is the capital of the Province of Maluku, the above mentioned Spatial Plans would only be slightly impacted by the Customary Spatial Unit Administration in this *negeri*. As mentioned earlier, Negeri Latuhalat is expected to act as the local protection area. This means that the recent function of this *negeri* would be maintained. Moreover, the existence of several natural tourism destinations had driven the Customary Spatial Unit Administration System of this *negeri* to develop itself to cope with the protection of these tourism aspects.

¹⁴ Interview with Abdul Rahim Lestaluhu op. cit.

¹⁵ Interview with John Saleh Ohorella, the chief of Negeri Tulehu, on 25 June 2011, 12 – 2 am Western Indonesian Time, Homann Hotel, Bandung

Additionally, it is expected that Negeri Paperu and Negeri Siri Sori Islam would not be directly affected by the above mentioned plans. The non-existence of the more detailed spatial plan had not yet enabled the establishment of the more detailed plan for both *negeri-negeri*. These *negeri-negeri* would depend on the development of Saparua as their local activity centre. The possible consequence of the non-existence of the detailed spatial plan for these *negeri-negeri* is that the Customary Spatial Unit Administration Systems in these *negeri-negeri* would not be directly affected by the existing spatial plans. See Chapter 6 for more detail on the Customary Spatial Unit Administration in the four sub-case study areas.

Spatial Unit Tenure

As depicted in Section 4.2, the Spatial Unit Tenure in Indonesia has been administered sectorally. On the other hand, even though through the Regional Governance Act the authority to administer Spatial Unit Tenure has been delegated to the institutions in charge at municipality level, the sectoral Spatial Unit Tenure Systems have been centrally managed by ministries and agencies in-charge at national level. This is particularly due to the nature of the in-charged institutions at municipal level, which are considered as vertical institutions under the ministries or agencies at the national level.

The Formal Land Tenure arrangement has been influencing the Customary Spatial Unit Administration in Ambon Lease region. Such an influence existed initially after the registration of *dati* land was finalised. Even though the *register dati*, the *dati* land registration document that is comparable to a land book, has not been updated since 1923, it has until now been employed as the main evidence to resolve conflicts over *dati* land. Furthermore, the Formal Land Tenure arrangement has also been contributing to strengthening control of an individual or a group of individual over her/his/their land that is located within a customary jurisdiction, while, on the other hand, it has also been weakening control of the customary government over the land in question, particularly after the land is formally registered^{16, 17, 18}.

As the revision of the Management of Coastal Zone and Small Islands Act concerning the Right of Management of Coastal Waters is still on-going, the only prevailing Marine Tenure System at the moment is the one that is regulated by the Regional Governance Act as described in the section on Marine Tenure System in Section 4.2. Due to the requirements set by the latter act to secure permits before initiating any activity, except the traditional activity, within the marine jurisdiction at all administrative level, the *mare nullius* concept has basically been implemented. Fortunately, the application of such a concept of the arrangements within Marine Tenure System is not in conflict with the application of the same concept by the indigenous community in Ambon Lease region as the jurisdiction of this indigenous community is customarily clearly defined. Even though the municipal decrees on *negeri* of the Municipality of City of Ambon and the Municipality of Central Maluku have regulated the definition of boundary of jurisdiction of indigenous institution in Ambon Lease region, the mapping of the extent of jurisdiction of indigenous institution in this region has not been done yet. It is necessary for this to be done to avoid both vertical and horizontal conflict due to the unclearness of the boundary of the indigenous institution. See Chapter 6 for the more detailed description on the Customary Spatial Unit Administration in the four sub-case study areas.

¹⁶ Interview with John Saleh Ohorella op. cit.

¹⁷ Group interview with T. Pattipawae op. cit.

¹⁸ Group interview with Jhony Karim Pattisahusiwa op. cit.

5.4 Concluding Remarks

In this chapter, the description of the indigenous institution in the Ambon Lease region is given. Firstly, the importance of this region to provide the empirical facts within the scope of the exploration of the potential of Customary Spatial Unit Administration towards the fulfilment of the goal of sustainable development is depicted in Section 5.1. Secondly, the structure of indigenous institution in Ambon Lease region is set out in Section 5.2. Finally, having considered that external influences have taken important roles over the customary governance and Customary Spatial Unit Administration as described in Section 2.2, the external influence from the higher hierarchical government on the customary governance and the Customary Spatial Unit Administration in Ambon Lease region is described.

Ambon Lease region was chosen as the case study due to its characteristic that suited the criteria on the selection of the case described in Section 3.2. The indigenous community in this region consisted of many independent indigenous communities, which have been occupying the customary territory called *negeri*. Having had an average extent as vast as the extent of the village, which is the lowest administrative level in Indonesia, each *negeri* had been independently governing its own territory since its early establishment by means of self-developed custom. As the Customary Spatial Unit Administration had mostly been considered as an integrated part of the customary governance in this region, the Customary Spatial Unit Administration had also been operational and sustained over time.

Province of Maluku in which Ambon Lease region is located had declared itself as an archipelago province. It is made up of 632 islands, with its marine territory as vast as 92% of its entire territory. Ambon Lease region was selected as it had been considered as the most important region in the Province of Maluku due to its function as the administrative and business capital of that province.

In spite of its function as the administrative and business capital of the Province of Maluku, various degrees of external pressure on the Customary Spatial Unit Administration in this region could be found. In order to explore the potential of the Customary Spatial Unit Administration on leading to the achievement of the the goal of sustainable development, four sub-case study areas were selected. Located in Ambon Island in which the capital of the Province of Maluku is located, Negeri Latuhalat and Negeri Tulehu were selected as the sub-case study areas due to their adjacency to the governance and activity centre in the Province of Maluku in general and Ambon Lease in Particular. Furthermore, Negeri Siri Sori Islam and Negeri Paperu were selected due to its location in Saparua Island. Even though Saparua Island is located only an hour away from Ambon Island by medium-sized speedboat that travels back and forth twice a day, the external pressure to the Customary Spatial Unit Administration Systems in the latter mentioned *negeri-negeri* was considerably lower than it of Negeri Latuhalat and Negeri Tulehu. Particularly for the case of Negeri Paperu, it was selected due to the ineffective customary governance and Customary Spatial Unit Administration as this *negeri* was experiencing power transition between 2008 and 2011.

Additionally, the Province of Maluku was a step ahead compared to other provinces in Indonesia on the implementation of the regional governance. In this province, *negeri* had had an authority to govern itself based on its right of origin and the prevailing custom. The four sub-case study areas had therefore had a solid basis for performing the self-governance and Customary Spatial Unit Administration.

The indigenous community in the four sub-case study areas can be classified as a communalistic community. The smallest unit of this community was a single family,

which, along with the increasing number of the members of the family, had been growing into a bigger family unit called *mataruma*. Several *mataruma-mataruma* were further allied to establish *uku* or *soa*. The latter had been acting as the pillar of the foundation of *negeri-negeri* in the selected case study areas.

The communalistic approach had also been done on the customary governance and the Customary Spatial Unit Administration in the selected case areas. The customary governance structure comprised of the chief and the heads of *soa-soa* who represented the *negeri* government; *saniri negeri*, the legislative body of *negeri* that comprised of *negeri* government, representatives of *soa-soa* besides the heads of *soa-soa*, customary socialites, the scholars, foremen on physical development, religious leaders, land *kewang* and marine *kewang*; and *saniri besar*, an institution that facilitated the annual assembly attended by all members of the indigenous community in question. Through the employment of this structure, the decision making process had been made collectively and involving the representatives of all sectors and kinship associations in these *negeri-negeri*. Additionally, all members of *negeri* as territorial association had also been getting involved in the decision making process, at least annually by means of the assembly of *saniri negeri*.

The Customary Spatial Unit Administration in *negeri-negeri* in the selected case study areas had been made within the scope of the *negeri* governance. *Kewang* institution had been acting as both a part of the executive body due to its responsibility on the management of the natural resources and a part of legislative body by considering its stakes on the decision making processes under *saniri negeri*.

The external pressures on the customary governance and the Customary Spatial Unit Administration had also been influencing the sustainability of the customary governance and the Customary Spatial Unit Administration. Between 1979 and 1999, the Village and Regional Governance Act between 1979 and 1999 removed the rights of the indigenous community in the four sub-case study areas to govern itself based on its right of origin and the prevailing custom. Nonetheless, the Regional Governance Acts and their derivative regulations that were enacted after 1999 had been able to provide this indigenous community with guidance in linking customary and formal governance.

In the Customary Spatial Unit Administration, the impacts of external pressures particularly from the formal system had also been identified. The formal Spatial Plan of Ambon Lease region would lead to the development of infrastructures to support the formal governance in Negeri Tulehu but provide no significant change in the development and Customary Spatial Unit Administration of Negeri Latuhalat, Negeri Siri Siri Islam and Negeri Paperu. Nevertheless, the Formal Spatial Unit Tenure System had been responsible for the deterioration of the authority of the customary government to control the use, tenure and value of the communal-individual and individual Spatial Unit.

Having described the institutional setting of the indigenous community in Ambon Lease region in general and *negeri-negeri* in the selected case study areas, this chapter is followed by the description of the Customary Spatial Unit Administration in the four sub-case study areas and its impacts on the sustainable development. Chapter 6 illustrates the Customary Spatial Unit Administration in the four sub-case study areas, while Chapter 7 explains the role of the Customary Spatial Unit Administration in the achievement of sustainable development in these areas.

6 Customary Spatial Unit Administration in Ambon Lease

Chapter 5 illustrates the indigenous institutional setting in the selected case study areas particularly within the scope of Customary Spatial Unit Administration. In this chapter, the Customary Spatial Unit Administration Systems in the selected case study areas are depicted. The Customary Land Administration Systems in the four sub-case study areas are firstly portrayed in Section 6.1, while the Customary Marine Administration Systems in the previously mentioned areas are described in Section 6.3. Concluding remarks are given in Section 6.4.

6.1 Customary Land Administration System

In this section, the Customary Land Administration Systems in the four sub-case study areas are described in detail. Firstly, the Land Use Systems of the indigenous communities in the selected cases are set out, followed by the description of the Customary Land Tenure and Value System in the sub-case study areas. Furthermore, the Customary Land Cadastral Systems of these indigenous communities are portrayed. Finally, the fundamental framework of the Customary Land Administration Systems of the four sub-case study areas is illustrated.

Land Use System

The Land Use Systems in the four sub-case study areas had been shaped by the communalistic institutional setting of indigenous communities. In this section, the characteristics of the Land Use System in Negeri Latuhalat, Negeri Tulehu, Negeri Siri Sori Islam and Negeri Paperu are described consecutively.

Negeri Latuhalat

The Land Use of Negeri Latuhalat was dominated by plantations and well-organised settlements along the main street of Negeri Latuhalat, where each house had at least a front- and/or backyard. Each land parcel was bounded by low fences or walls. Within most of front- and/or backyards in Negeri Latuhalat, decorative and/or medicinal plants had been planted. The settlement layout was basically in accordance with guidance from the church¹.

Besides the settlement zones, spread all over the negeri, there were other zones in Negeri Latuhalat namely:

- *Customary governance zone*, comprising of formal village government office that has been functioning as the customary government office as well, Baileo and church
- *Formal government service area*, especially for public clinic
- *Tourism areas*, mostly located at the coastline of Negeri Latuhalat
- *Cultivated areas*.

¹ Interview with Asril Djunaedi, the non-native and young environmental activist of Negeri Tulehu, on 17 June 2009, 7 – 8 pm Eastern Indonesian Time, Tulehu, Municipality of Central Maluku

The cultivated areas in Negeri Latuhalat were dominated by nutmeg, banana, clove and breadfruit (*Artocarpus altilis*) plantations². Most, if not all, of these plantations were located in *dati* land³.

The Land Use pattern of Negeri Latuhalat could still reveal the pattern of the earliest distribution of the population of this *negeri*. As described in the section on the establishment of the Customary Spatial Unit Administration System in Section 5.2, *dati* land was distributed to the the earliest population of this *negeri* along the advancement of the structure of this community, while the private lands were distributed after the registration of *dati* land had been finalised. The population of this *negeri* was distributed along with the distribution of *dati* and private land, while the customary governance zone was located at the strategic area of this *negeri*. Moreover, as mentioned earlier in this section, almost every activity in this *negeri* was performed on *dati*, private and communal land, which in turn maintained its Land Use pattern.

Due to the pressure from its increasing population, some areas of nutmeg, clove and coconut plantations were converted into settlement area and cropland⁴. Especially on the coconut plantations conversion, the rising trend of planting bananas was also considered as another influencing factor⁵. See Figure 6.1 for the view of a banana plantation from the main road of Negeri Latuhalat.

The Customary Land Use arrangement in Negeri Latuhalat had also been greatly affected by its strategic location in Ambon Island. Particularly in the cultivated areas in this *negeri*, the Municipality of City of Ambon had taken over some areas for the exploitation of industrial and construction minerals⁶. Its strategic location had also been attracting local migrants, whose numbers had been increasing up to 10% of the total population of Negeri Latuhalat⁷. This had been putting more pressures on the Land Use of Negeri Latuhalat, especially to generate more settlement areas. This had been taking place even before the 1500s and these migrants had been considered as an integrated part of this community under a group of people called *orang datang dari belakang* in Malay Ambon dialect, which is directly translated as people that were coming from the backdoor⁸.

² Telephone interview with Mozes Salhuteru, the chief of Negeri Latuhalat, 6 January 2010, 2 – 3 am Central European Time, Dortmund

³ Ibid.

⁴ Interview with Mozes Salhuteru, the chief of Negeri Latuhalat, 22 June 2009, 10 – 11 am Eastern Indonesian Time, Office of the Chief of Negeri Latuhalat, Latuhalat, Municipality of City of Ambon

⁵ Telephone interview with Mozes Salhuteru, the chief of Negeri Latuhalat, 6 January 2010, 2 – 3 am Central European Time, Dortmund

⁶ Ibid.

⁷ Interview with Mozes Salhuteru, the chief of Negeri Latuhalat, 22 June 2009, 10 – 11 am Eastern Indonesian Time, Office of the Chief of Negeri Latuhalat, Latuhalat, Municipality of City of Ambon

⁸ Telephone interview with Mozes Salhuteru, the chief of Negeri Latuhalat, 6 January 2010, 2 – 3 am Central European Time, Dortmund



Figure 6.1 View of banana plantation from the main road of Negeri Latuhalat

Due to the above mentioned pressures on the jurisdiction of Negeri Latuhalat, the customary government of Negeri Latuhalat occupied no communal land at all, except within the customary governance zone. All land parcels had already been distributed to the landless, particularly those who had no blood relations in the existing clans including the local migrants as well, after the registration of *dati* land was finalised⁹.

Moreover, the management of tourism areas had long been taken over by the Municipality of City of Ambon. All tourism areas in Negeri Latuhalat had been managed by private companies that cooperated with the Municipality of City of Ambon, except Namalatu Beach that was managed directly by The Tourism Agency of Municipality of City of Ambon¹⁰. However, the customary government of Negeri Latuhalat, which at the same time acted as the formal government representation in Latuhalat Village as well, was preparing a village regulation to levy a retribution fee on the management of tourism areas especially to those private companies in order to increase their share of to local development¹¹.

During the performance of the data collection processes, there were only the basic customary rules on Land Use management applied in Negeri Latuhalat, such as the restriction to harvest natural and man-made resources belonging to others without the permission from the land owner. Negeri Latuhalat used to apply *sasi kelapa*, which is the restriction to cut down coconut trees and to harvest the coconut within a specific period, particularly before the coconut is ripe. However, as some coconut plantations had already been converted into settlements and other Land Use types such as banana and

⁹ Ibid.

¹⁰ Ibid.

¹¹ Ibid.

breadfruit plantation, *sasi kelapa* was no longer effective during the final data collection¹².

Negeri Tulehu

The Land Use Negeri Tulehu was mostly occupied by dense settlements arranged in grid plan. While most of locals were depending on fisheries, the local migrants from Buton Island had mostly been depending on farming¹³, which explained the existence of the arable lands in this *negeri*. During the performance of the data collection processes, the arable lands mostly occupied the outskirts of settlement areas.

In spite of its dense settlements, customary conservation areas, such as *wasi amang* still existed, which is defined as the forest belonging to Negeri Tulehu, and *ewang*, in which that defined as forest acted as the buffer area of watershed¹⁴. The outer boundary of *ewang* is defined by the *capatu berdiri* rule. *Ewang* ends in which the elevation rises, which causes the front part of shoes, *capatu* in Malay Ambon dialect, of a person who walks through the boundary of *ewang* rises, *berdiri* in Malay Ambon dialect, compared to the rear part of the person's shoes¹⁵. From *wasi amang* areas, people of Negeri Tulehu could collect small amount of nutmeg, cacao and clove daily, which had been planted during the era of Dutch Colonial Government¹⁶. Moreover, in some places, it was also possible to convert *ewang* into cultivated land with permission from the chief¹⁷. The converted land is called *parusa*, which is argued as originating from the word *perusak* that means destroyer¹⁸. The maximum extent of a single *parusa* is 2 Ha¹⁹.

Moreover, since its early establishment, the customary government of Negeri Tulehu had been applying zoning ordinance, especially in settlement areas²⁰. Other zones that could still be physically recognised were as follows:

- *Customary governance zone*, comprised of the office of the chief; baileo, the meeting hall of Negeri Tulehu and mosque.
- *Customary central business district*, in which the market was located.

¹² Interview with Mozes Salhuteru, the chief of Negeri Latuhalat, 22 June 2009, 10 – 11 am Eastern Indonesian Time, Office of the Chief of Negeri Latuhalat, Latuhalat, Municipality of City of Ambon

¹³ Interview with John Saleh Ohorella, the chief of Negeri Tulehu, on 21 June 2009, 10 – 11 am Eastern Indonesian Time, the residence of the Chief of Negeri Tulehu, Tulehu, Municipality of Central Maluku

¹⁴ Group interview with Abdul Rahim Lestahulu, the native and young environmental and customary activist of Negeri Tulehu, on 17 June 2009, 8 pm – 12 am Eastern Indonesian Time, Tulehu, Municipality of Central Maluku

¹⁵ Group interview with Salim Ohorella, the native and young environmental and customary activist of Negeri Tulehu, 17 June 2009, 8 pm – 12 am Eastern Indonesian Time, Tulehu, Municipality of Central Maluku

¹⁶ Interview with John Saleh Ohorella op. cit.

¹⁷ Ibid.

¹⁸ Interview with Abdul Rahim Lestahulu, the native and young and customary activist of Negeri Tulehu, 17 June 2009, 1 – 2 pm Eastern Indonesian Time, Building of Faculty of Fisheries and Marine Science, University of Darussalam, Tulehu, Municipality of Central Maluku

¹⁹ Interview with John Saleh Ohorella op. cit.

²⁰ Ibid.

- *Customary monumental areas*, such as the location in which the ancestors of the natives of Tulehu were resting after their first arrival in Tulehu.
- *Tourism areas*, in which located the hot spring baths managed solely by the natives.

The above mentioned Land Use pattern was developed over time based on the prevailing custom in this *negeri*. The customary governance zone was located at the strategic area of the main settlement area of Negeri Tulehue and 100 ms from the coastline of the main settlement area, in order to provide the customary government officials a the land and sea view to monitor the activities in this *negeri*. The official residence of the chief used to be located in the customary governance zone as well in order to provide the chief with quick access to the customary governance and religious structure, with a good sea view²¹. Nonetheless, a huge number of new houses had been established, with the permission of the chief, between the coastline and the former residence of the chief, which blocked the sea view from the former residence of the chief²².

Besides the above customary zones, some areas in Negeri Tulehu had been converted into formal government service areas such as the regional ferry port that connects Ambon Island to Haruku Island, Saparua Island and Seram Island, as well as speedboat port that connects Ambon Island to islands in its surroundings, clinics and hospitals.

Besides applying a zoning principle, indigenous community of Negeri Tulehu had been applying customary rules, especially under *sasi* scheme, to manage its land natural and man-made resources. There were six *sasi* that could be identified:

- *Sasi kepala air*, the prohibition for converting springs into any other type of Land Use. This type of *sasi* had been applied permanently²³.
- *Sasi kelapa*, the restriction for harvesting coconuts within specific period and for cutting down coconut trees²⁴. See Figure 6.2 for the symbol signing the closure of *sasi* on coconut.
- *Sasi pala*, the restriction for harvesting nutmeg within specific period and for cutting down nutmeg trees²⁵.
- *Sasi bambu*, the restriction for cutting down bamboo trees within specific period²⁶.
- *Sasi atap*, the restriction for harvesting young leaves of sago palm trees within a specific period. The leaves of the sago palm had been utilised as the main roofing material for most of the traditional houses in Tulehu²⁷.

²¹ Interview with Abdul Rahim Lestalu, the native and young and customary activist of Negeri Tulehu, 17 June 2009, on 7 June 2011, 8 – 9 am Eastern Indonesian Time, Tulehu, Municipality of Central Maluku

²² Ibid.

²³ Interview with John Saleh Ohorella op. cit.

²⁴ Interview with Asril Djunaedi op. cit.

²⁵ Ibid.

²⁶ Ibid.

²⁷ Ibid.



Figure 6.2 Sign marking the closure of the sasi on coconut

The violation of the above rules, except *sasi kepala air*, either with or without permission from the customary government of the indigenous community of Tulehu, was the subject of fines or administrative fees²⁸. All *sasi* except *sasi kepala air* had been applied temporarily by considering the life cycle of the resources²⁹.

Negeri Siri Siri Islam

The Land Use of Negeri Siri Siri Islam was dominated by dense settlements along the main street of Negeri Siri Siri Islam, with plantations and forest on its surroundings. Besides the settlement areas and plantations, there were also other customary zones in Negeri Siri Siri Islam, which were the customary governance zone and non-cultivated areas. The customary governance zone comprised of the office and residence of the chief, *baileo* and mosque.

There were three sub-classes of non-cultivated areas in Negeri Siri Siri Islam, which comprised of *ewang*, *tanitar* and *negeri lama*³⁰. *Ewang* upheld a different function with *Ewang* in Negeri Tulehu as *Ewang* is defined as an area that used to be a cultivated area but became naturally re-forested after the abandonment of the area, while *tanitar* served the same function as *wasi amang* in Negeri Tulehu³¹. Moreover, there was another type of conservation area called *negeri lama*. *Negeri lama* is the location of the previous set-

²⁸ Ibid.

²⁹ Interview with John Saleh Ohorella op. cit.

³⁰ Interview with Ferry Siahaya, the Head of District of Saparua, on 18 June 2009, 12 – 2 pm Eastern Indonesian Time, the office of the Government of Sub-District of Saparua, Saparua, Municipality of Central Maluku

³¹ Ibid.

tlement of the ancient of of people of Negeri Siri Sori Islam³². It was forbidden for anybody, except for customary purposes, to exploit the area³³. *Negeri lama* was located at the top of a heavily forested hill and had not been used for any purposes since the Dutch had instructed all the people in Saparua Island to settle on the coastline of the island during their occupation in the mid of 16th century³⁴. See Figure 6.3 for the view of *negeri lama* of this *negeri* from the governance centre zone.

In Negeri Siri Sori Islam, there were no other types of plantations except clove and nutmeg plantations. During the occupancy of the Dutch Colonial Government, Ambon Lease region was defined as a clove and nutmeg plantation zone³⁵. Up to the performance of the final data collection, clove and nutmeg plantations could not be clearly identified as those plantations had been mixed with other types of plants that had taken root naturally. However, as most plantations were located on *dati* land, they were usually enclosed by fences made from 3-metre-high cut twigs and mostly strengthened with barbed wire. The fences were also equipped with an entrance gate also made from twigs and barbed wire.

Due to its quite isolated location, unlike Negeri Tulehu and Negeri Latuhalat, there was no tourism area in Negeri Siri Sori Islam. However, the chief of Negeri Siri Sori Islam was planning to open a forestry tourism industry, especially because of the existence of the *gandaria* tree (*Bouea macrophylla*) that is an endemic plant of Saparua Island³⁶. Apart from the Saparua Island, the *gandaria* tree can only be found in the Botanical Garden in Bogor, West Java, Indonesia³⁷.

Moreover, besides the application of *sasi* scheme that could mostly be found in the other sub-case study areas, such as *sasi* on coconut, nutmeg and sago palm leave, some unique *sasi-sasi* had also been applied in Negeri Siri Sori Islam. In this *negeri*, *sasi-sasi* had been applied in the collection of durian, walnut, clove and leaves of *ketupa* (*Baccaurea dulcis*), as well as for cutting tree logs and branches, from *negeri*'s forest during a specific period (Pemerintah Negeri Siri Sori Islam 1928: 2). These products were the most important products of secondary forest of Negeri Siri Sori Islam.

³² Ibid.

³³ Group interview with Jhony Karim Pattisahusiwa, the chief of Negeri Siri Sori Islam, on 18 June 2009, 8 – 10 pm Eastern Indonesian Time, the residence of the Chief of Negeri Siri Sori Islam, Siri Sori Islam, Municipality of Central Maluku

³⁴ Ibid.

³⁵ Ibid.

³⁶ Ibid.

³⁷ Group interview with Agus Soukotta, the native of Negeri Paperu, on 18 June 2009, 8 – 10 pm Eastern Indonesian Time, the residence of the Chief of Negeri Siri Sori Islam, Siri Sori Islam, Municipality of Central Maluku



Figure 6.3 Negeri lama Negeri Siri Sori Islam from the customary governance zone

Negeri Paperu

The Land Use of Negeri Paperu was dominated by a well-organised settlement, laid in a grid pattern within the customary governance centre and along the main street of Negeri Paperu within the areas in the perimeter of the *negeri*. Each settlement parcel comprised of at least one dwelling, but not more than three. All settlement parcels had at least 25 m² front yards and, especially for the parcels located within the perimeter of this *negeri*, shared their backyards with highly forested or cultivated areas on private land parcels. Most settlement parcels had decorative plants or simply coconut trees in their front yards. The well-organised settlement areas were carefully planned due to the involvement of the church on the planning of settlement areas³⁸. See Figure 6.4 for a settlement parcel in this *negeri*.

Negeri Paperu was surrounded by *ewang*, *tanitar* and secondary forest on private land parcels. Moreover, some forestry areas on private land parcels had been cleared for the establishment of arable lands.

Besides *ewang* and *tanitar*, Negeri Paperu had *negeri lama* as another conservational Land Use type. *Negeri lama* in Negeri Paperu was highly forested. Moreover, Negeri Paperu shared the same definitions of *ewang* and *tanitar* with Negeri Siri Sori Islam. Figure 6.5 for the view of *negeri lama* from the settlement area near the customary governance zone.

As the result of its previous Land Use plan of 1600s³⁹, there were still many clove and nutmeg plantations within the surroundings of Negeri Paperu. However, the plantations could not be clearly identified at the moment as there have been other types of tree

³⁸ Interview with Asril Djunaedi op. cit.

³⁹ Group interview with Jhony Karim Pattisahusiwa, the chief of Negeri Siri Sori Islam, on 18 June 2009, 8 – 10 pm Eastern Indonesian Time, the residence of the Chief of Negeri Siri Sori Islam, Siri Sori Islam, Municipality of Central Maluku

naturally growing in it. See Figure 6.6 for highly forested private land with nutmeg tree in it.

The Land Use pattern of Negeri Paperu had been influenced by the customary government structure of this *negeri*. Since its early establishment, the role of each citizen of Negeri Paperu on the customary governance had been defined (Pattipawae 2010). Based on this arrangement, the customary territory of Negeri Paperu was divided into four areas in order to provide each citizen with the ease to perform her/his task within the scope of the customary governance⁴⁰.



Figure 6.4 Settlement parcel with two houses, front- and backyard in Negeri Paperu

Even though the customary government of Negeri Paperu was in power during the transitional period between 2008 and 2011, the customary governance and Customary Spatial Unit Administration were partly operational by 2011. This was another consequence of the division of tasks among the citizens of Negeri Paperu within the customary governance, which required each citizen of this *negeri* to perform her/his customary governmental tasks⁴¹.

⁴⁰ Group interview with T. Pattipawae, the customary socialite of Negeri Paperu, on 9 June 2011, 8 – 10 pm Eastern Indonesian Time, the residence of the Chief of Negeri Paperu, Paperu, Municipality of Central Maluku

⁴¹ Ibid.



Figure 6.5 View of negeri lama from the settlement area near the customary governance zone of Negeri Paperu



Figure 6.6 Nutmeg trees in secondary forest in Negeri Paperu

During the performance of the data collection processes, two main Customary Land Use-related rules were identified in this *negeri*, mainly *sasi* on coconut and *sasi* on forest products, *sasi hasil hutan* in Malay Ambon dialect⁴². However, as the customary government of Negeri Paperu is in a transitional period, the enforcement of the Customary Land Use rules was partly ineffective. Moreover, Novaczek *et al.* (2001: 77) reveal that *kewang* institution, which is responsible for the enforcement of the Customary Land Use rules, had long been ineffective, even after the promulgation of formal village gov-

⁴² Ibid.

ernment regulation on customary rules based on the land and marine use management model from the past in 1996. However, it was expected that the application of the above mentioned Customary Land Use rules would be re-initiated soon after the new customary regime was established⁴³.

In Paperu Cape there was a resort called Cape Paperu Resort and Spa managed by two Austrians, Eliane and Kurt Gross. The area was bounded by a high wall except the part facing the Sapparua Bay. This area had been extensively dedicated for only the customers of the resort, which mostly arrived by the resort's speedboat from Ambon. No one else except the resort's owners, employers and customers was allowed to enter the area⁴⁴.

Land Tenure System

The Customary Land Tenure Systems in the four sub-case study areas were operational by 2011. In this section, the Customary Land Tenure Systems of Negeri Latuhalat, Negeri Tulehu, Negeri Siri Sori Islam and Negeri Paperu are given consecutively.

Negeri Latuhalat

Up to the finalisation of land registration by the Dutch Colonial Government in 1814, there were three types of customary land namely individual land for settlement, communal land belonging to customary government of this *negeri* and communal-individual land, which comprised of *dati* and *dati pusaka* land⁴⁵. As described in the section on the establishment of the Customary Spatial Unit Administration, each *negeri* in the four sub-case study areas was established based on the consensus among the members of this territorial association. Besides implying the obligation to support the customary governance, the right of the member of this association, in particular to settle, had been respected by considering the role of each member on the establishment of *negeri*. This could be identified from the fact that each parcel dedicated for settlement purposes had been considered to be attached with freehold.

After the 1814's *register dati* was finalised, the communal land was distributed to citizens of Negeri Latuhalat and those migrants who had no land⁴⁶. Almost every land parcel, if not all, had been formally registered in 2011⁴⁷, which had considerably reduced the authority of the customary government over the latter mentioned land. The only parcel left with communal use is the parcel that has been utilised for the customary governance zone, which in fact belongs to the formal government. Additionally, the citizen of this *negeri* could also acquire usufruct on a portion of *dati*, *dati pusaka* or communal land through the application for such a right to the head of *dati* association or the customary government, acquisition of communal-individual or individual land by purchasing the land in question or reception of the land as a gift (Effendi 1987: 101-

⁴³ Interview with Charles Pattiselano, Secretary of Government of Negeri Paperu, on 19 June 2009, 10 – 11 am Eastern Indonesian Time, at the Office of the Chief on Negeri Paperu, Paperu, Municipality of Central Maluku

⁴⁴ Ibid.

⁴⁵ Telephone interview with Mozes Salhuteru, the chief of Negeri Latuhalat, 6 January 2010, 2 – 3 am Central European Time, Dortmund

⁴⁶ Ibid.

⁴⁷ Ibid.

102). The inheritance of land with usufruct attached to it further led to the establishment of another communal-private or private land tenure called *dati pusaka* land (*ibid.*).

Dati land in Negeri Latuhalat had also been partly individualised. As mentioned earlier, the customary government had still had the authority to control the management of land, which tenure is overlaid on top of the communal land tenure, even though such an authority had over time been changing dynamically. As *dati* land had been the main means of living for *dati* association in question, in most cases, the authority of the customary government to control the administration of *dati* land had been weakening. *Dati* land, which was considered as a communal-individual type of tenure, had even mostly been distributed to the members of the clan⁴⁸. The outcome of the partial individualisation of *dati* land was another form of customary land tenure, which was communal-individual freehold. By 2011, the on-going communal-individualisation process was still acting as one of the main obstacles for formalising the land possession in Negeri Latuhalat in particular because of the distribution of sub-parcels of *dati* land had not yet been finalised⁴⁹. On the other hand, the same process had still urged the Customary Land Administration in Negeri Latuhalat to be in place.

The Customary Land Registration System of Negeri Latuhalat had been using a mix of oral agreement and registration of title type of Land Registration System. An oral agreement had been employed within the delivery of individual freehold, *dati pusaka* and usufruct over communal or communal-individual land by the customary government of Negeri Latuhalat. The delivery of the above mentioned tenures had mostly been done within an assembly of the association in question without resulting in any written documentation.

Moreover, as highlighted earlier, the type of registration of title had been employed on the alienation of *dati* land. *Dati* lands were registered in *register dati* of 1814⁵⁰. 1814's *Register dati* belonging to Negeri Latuhalat comprised of a list of families that occupied *dati* land and the location of *dati* land in a scaled sketch of the *negeri*. This *register dati* was also supplemented by the receipts of land tax payment, mostly to the Dutch Colonial Government. Even though it had not been updated since 1814, the *register dati* of 1814 had been utilised as the main means for resolving conflicts over *dati* land.

Individual dwelling parcels in Negeri Latuhalat were treated in 2D environment and enclosed by fences. Nevertheless, most plantations and communal land parcels had not been enclosed. Most plantations and communal land parcels were enclosed by a natural or semi-natural boundary, such as river and road, while the individual parcel could be enclosed by low walls, plants, natural or semi-natural object. A natural boundary principle had also been employed for delimitating the customary territory of Negeri Latuhalat. Additionally, some monuments had been erected to symbolise the boundary of this *negeri*. See Figure 6.7 for land parcels enclosed by low walls and plants. See also Figure 6.8 for a land parcel enclosed by the road.

⁴⁸ *Ibid.*

⁴⁹ *Ibid.*

⁵⁰ *Ibid.*

Negeri Tulehu

In Tulehu, there were four types of land namely communal⁵¹, individual⁵², communal-individual and usufruct on communal land⁵³. The subject of communal land rights was the indigenous community of Tulehu, which had been represented by the chief and the customary governmental structure⁵⁴. The communal land right was the origin of all land rights^{55,56}.



Figure 6.7 Parcels delineated by low walls and plants in Negeri Latuhalat

Individual freehold for settlement purposes in Negeri Tulehu also originated from the same process of the establishment of the customary government in Negeri Latuhalat. All land parcels within the settlement areas in this *negeri* belongs to individuals⁵⁷.

Dati and *dati pusaka* could also be found in Negeri Tulehu. As mentioned in the section on the establishment of Customary Spatial Unit Administration in Section 5.2, *dati* land was distributed to provide a living for the *dati* association.

⁵¹ Group interview with Abdul Rahim Lestahulu, the native and young environmental and customary activist of Negeri Tulehu, on 17 June 2009, 8 pm – 12 am Eastern Indonesian Time, Tulehu, Municipality of Central Maluku

⁵² Ibid.

⁵³ Interview with John Saleh Ohorella op. cit.

⁵⁴ Ibid.

⁵⁵ Ibid.

⁵⁶ Group interview with Abdul Rahim Lestahulu op. cit.

⁵⁷ Ibid.



Figure 6.8 Parcel delimited by the road in Negeri Latuhalat

Moreover, it was also possible to acquire usufruct of specific areas on communal land⁵⁸. See Figure 6.9 for kiosks built on the customary land supplemented by customary usufruct. Each member of the community in Tulehu, either native or migrant, was allowed by Upu Latu to directly make use of the communal land without having to apply for the permit and the usufruct which automatically followed the land occupation⁵⁹. However, when it was necessary, the usufruct could be revoked by the chief as the representative of customary government of Tulehu⁶⁰. Customarily, the customary government of Tulehu had no obligation to provide compensation for the revocation as the communal land upheld socio-economic functions upholding the customary governance, protecting natural and man-made resources and ensuring welfare generation for the people of Negeri Tulehu⁶¹. Moreover, it was not possible for the holder of an automatic usufruct to formalise the right to land under the formal land registration act unless the customary usufruct had been converted into customary-individual freehold⁶².

The customary land registration system in Negeri Tulehu had been applying a mixture of two land registration system types namely oral agreement and registration of title. By 2011, both types of Land Registration Systems were still operational.

The type of oral agreement land registration system had been applied for administering communal right, *dati pusaka* land and individual freehold, as well as the usufructuary right. The communal land had never been registered within any other type of land registration in Negeri Tulehu. However, the subject and object of communal land had

⁵⁸ Interview with John Saleh Ohorella op. cit.

⁵⁹ Ibid.

⁶⁰ Ibid.

⁶¹ Ibid.

⁶² Ibid.

been agreed and acknowledged by the citizen of this *negeri*. Moreover, as the definition of boundary of communal land was to some extent directly related to the definition of the boundary of customary territory of Negeri Tulehu, the boundary of customary territory of this *negeri* had been agreed by its adjacent *negeri*.

Moreover, on administration of *dati pusaka* land, individual land and usufruct over the communal or communal-individual land, the type of oral agreement Land Registration System had also been applied as well in Negeri Tulehu. The delivery of tenures of the above type had been done through internal assemblies of the association in question. No documentation had been issued but it had been agreed by the elders and representatives of the association in question, which also reflects the acknowledgement of each member of the clan on the distribution of individual freehold.



Figure 6.9 View from the sea of kiosks over land with usufruct in speedboat port of Negeri Tulehu

Register dati of 1814 had been employed as the main register document for maintaining the register of *dati* land in this *negeri*. Even though it had not been updated since 1814, it had still been kept by the customary government of this *negeri* and employed as the main evidence for resolving conflicts regarding *dati* land⁶³.

The customary land registration unit in Tulehu was a 2D tract of land or area. Especially for the individual freehold, the individual land was bounded by fences, low walls or paved verandas. See Figure 6.10, 6.11 and 6.12 for details. Moreover, the boundary of communal land, particularly with its adjacent *negeri*, was represented by natural objects and, in the main roads connecting these *negeri-negeri*, semi- and permanent monuments. See Figure 6.13 and 6.14 for details.

⁶³ Ibid.



Figure 6.10 Land with individual freehold bounded by fences in Negeri Tulehu

Negeri Siri Siri Islam

In Negeri Siri Siri Islam, there were three types of customary land tenure, which were the communal right controlled by customary government of Negeri Siri Siri Islam, communal-individual land right and usufruct on communal land⁶⁴. Under communal-individual right to land, there were two sub-types, which were *dati* land, which belonged to one or more families within a *dati* association, and *dati pusaka* land, which belonged to two or more families that had shared no single *dati* land but committed to a particular kinship association⁶⁵. Moreover, even though it was not clearly stated, each sub-parcel within the *dati* land in question had been occupied by a smaller unit of *dati* association and would be inherited by the male and non-married female descendant of the family unit in question. This was particularly due to the increasing number of citizens of Negeri Siri Siri Islam, which led to the land occupation becoming an important issue.

⁶⁴ Interview with Ferry Siahaya op. cit.

⁶⁵ Ibid.



Figure 6.11 Land with individual freehold bounded by law walls in Negeri Tulehu

Differing from the arrangement in Tulehu, usufruct over communal land could only be issued after the citizen of Negeri Siri Sori Islam submitted an application for the usufruct to and was approved by the chief as the representative of customary government of Negeri Siri Sori Islam⁶⁶. The maximum period of usufruct was one year, even though it was possible to extend it⁶⁷.

Within the performance of the customary land tenure system in Negeri Siri Sori Islam, the customary government of this *negeri* had been applying a mixture of three types of land registration system, which were the oral agreement, the private conveyance and the registration of title. The Land Title Registration System had been particularly devoted to the registration of *dati* land. See Figure 6.15 for *register dati*, registry on the registration of *dati* land, and Figure 6.16 for the scaled sketch of the *dati* land in *register dati*.

⁶⁶ Ibid.

⁶⁷ Ibid.



Figure 6.12 Land with individual freehold bounded by narrow strip of paved veranda in Negeri Tulehu

The oral agreement land registration system had been used particularly for administering communal land. Communal land had never been documented. However, its location, as well as its functions, had been agreed by the citizens of Negeri Siri Sori Islam. Furthermore, it was clear that the subject of communal land was the customary government of Negeri Siri Sori Islam.

Moreover, the oral agreement type of land registration had also been applied within the further administration of *dati* land. Each sub-parcel of *dati* land had been occupied by the smallest unit of the *dati* association in question⁶⁸. The distribution of *dati* land had been made on a “first come first serve” principle⁶⁹.

⁶⁸ Group interview with Jhony Karim Pattisahusiwa, the chief of Negeri Siri Sori Islam, on 18 June 2009, 8 – 10 pm Eastern Indonesian Time, the residence of the Chief of Negeri Siri Sori Islam, Siri Sori Islam, Municipality of Central Maluku

⁶⁹ Ibid.



Figure 6.13 Monument delimited Negeri Tulehu from Negeri Tengah-Tengah

Within the delivery of usufruct over communal land, the private conveyancing type of land registration system had been applied. Permission from the customary government, which has normally been proved by the issuance of a letter of approval on the delivery of usufruct, was required⁷⁰.

The customary land tenure unit in Negeri Siri Sori Islam was 2D land parcel. Based on the classification of customary land tenure in this *negeri*, a land parcel could be found in the form of an area equal to a quarter within *dati* land; communal land, which was the area out of *dati* land within territory of Negeri Siri Sori Islam; and a smaller tract of land attached with usufruct or *dati pusaka* over communal land or *dati* land.

Dati land and *dati land Pusaka* were normally bounded by general boundary objects such as river, road, the edge of the forest and so forth. Communal lands had also been applying the same boundary object definition with *dati* land and *dati land Pusaka*. Especially the communal lands that shared the same boundary with *negeri*'s boundary, a symbolic, man-made object was usually employed to mark the boundary. Moreover, in the case of usufruct or communal-individual land tenure for the settlement purposes, it was usually bounded by low fences or wall, see Figure 6.17 for details, while the field or plantation was usually bounded by high fences made from twigs.

⁷⁰ Ibid.



Figure 6.14 The semi-permanent monument benchmarking the boundary of Negeri Tulehu and Negeri Tengah-Tengah. Behind the benchmark was the small stream delimited Negeri Tulehu from Negeri Tengah-Tengah

Van Ambona

Ulas daten daten der negeri

Amboina, 1778

Nama des negeri daten	Nama des daten	Ulas des daten	W des daten	S des daten	R des daten	P des daten
15. Ulas Pasir	Pasir	Pasir	Pasir	Pasir	Pasir	Pasir
16. Ulas Patah	Patah	Patah	Patah	Patah	Patah	Patah
17. Ulas Patah	Patah	Patah	Patah	Patah	Patah	Patah
18. Ulas Patah	Patah	Patah	Patah	Patah	Patah	Patah
19. Ulas Patah	Patah	Patah	Patah	Patah	Patah	Patah
20. Ulas Patah	Patah	Patah	Patah	Patah	Patah	Patah
21. Ulas Patah	Patah	Patah	Patah	Patah	Patah	Patah
22. Ulas Patah	Patah	Patah	Patah	Patah	Patah	Patah
23. Ulas Patah	Patah	Patah	Patah	Patah	Patah	Patah
24. Ulas Patah	Patah	Patah	Patah	Patah	Patah	Patah
25. Ulas Patah	Patah	Patah	Patah	Patah	Patah	Patah
26. Ulas Patah	Patah	Patah	Patah	Patah	Patah	Patah
27. Ulas Patah	Patah	Patah	Patah	Patah	Patah	Patah
28. Ulas Patah	Patah	Patah	Patah	Patah	Patah	Patah
29. Ulas Patah	Patah	Patah	Patah	Patah	Patah	Patah
30. Ulas Patah	Patah	Patah	Patah	Patah	Patah	Patah

Figure 6.15 Register dati of Negeri Siri Sori Islam

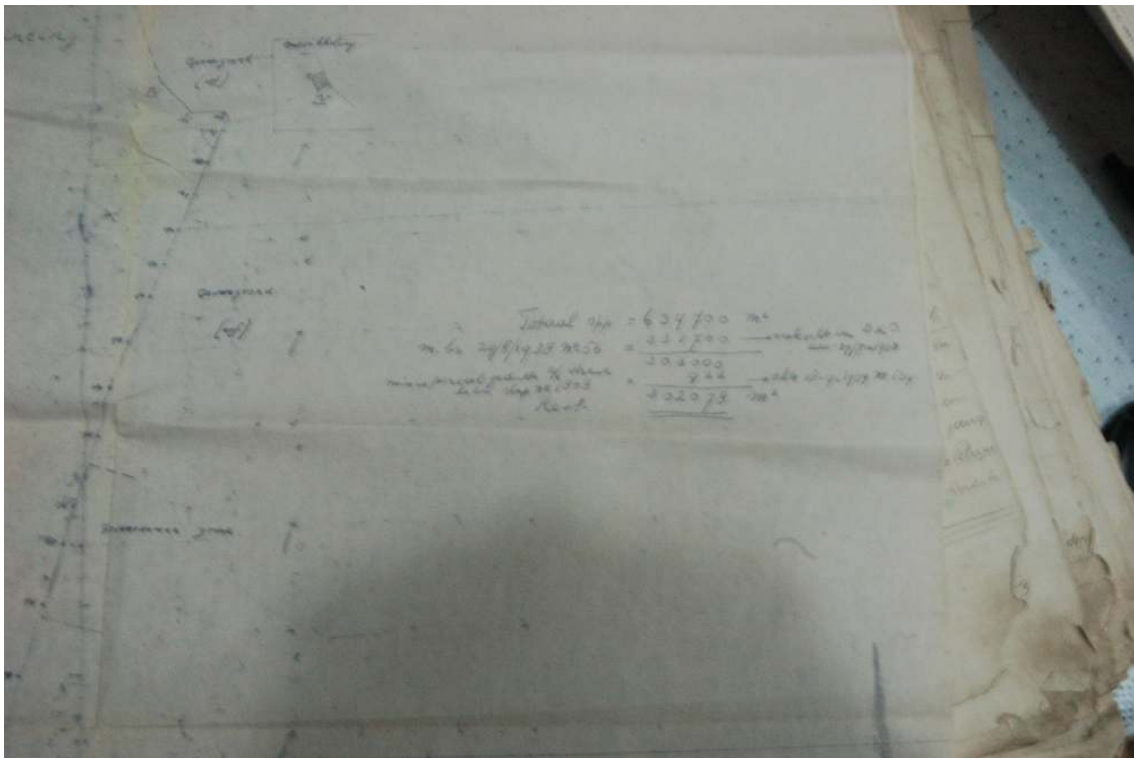


Figure 6.16 Scaled sketch of dati land in register dati of Negeri Siri Sori Islam



Figure 6.17 Parcels for settlement purposes bounded by fences and low walls

Negeri Paperu

There were four types of customary land tenure in Negeri Paperu namely the communal right controlled by customary government of Negeri Paperu, communal-individual land tenure, usufruct on communal and communal-individual land and leasehold⁷¹. Communal-individual land tenure in Negeri Paperu comprised of *dati* land and *dati pusaka* land. Usufruct over communal land and *dati* land could also be arranged by the same arrangement as the one in Negeri Siri Sori Islam. In most cases, land parcels with usufruct attached to them were designated for settlement or agricultural purposes.

Moreover, there was an exceptional case in Negeri Paperu in relation to the leasing of a tract of land in Paperu Cape for the purpose of establishment of Cape Paperu Resort and Spa⁷². Leasehold for the area of Cape Paperu Resort and Spa had been promulgated by the late chief of Paperu to Kurt and Eliane Gross for a 25-year-period since 2007⁷³. To acquire the leasehold, Kurt and Eliane Gross submitted an application to the chief of Paperu, and under the name of the chief, they submitted an application to acquire a formal freehold to the Land Office of Municipality of Central Maluku⁷⁴.

The customary government of Negeri Paperu had also been keeping *register dati*⁷⁵. *Register dati* had been employed as the main registry document for addressing issues

⁷¹ Interview with Ferry Siahaya op. cit.

⁷² Ibid.

⁷³ Ibid.

⁷⁴ Group interview with Kurt Gross, the owner of Cape Paperu Resort and Spa, on 19 June 2009, 4– 5 pm Eastern Indonesian Time, Cape Paperu Resort and Spa, Paperu, Municipality of Central Maluku

⁷⁵ Interview with Ferry Siahaya op. cit.

regarding *dati* land⁷⁶. Initiated by the Dutch Colonial Government, the registration of title of *dati* land was made in 1823 and updated in 1923. Even though the *register dati* had not been updated since 1923, *register dati* had been acting as the solid basis of the performance of the Customary Land Tenure System in Negeri Paperu in general and the other types of applied land registration systems in Negeri Paperu in particular. However, due to the idleness of its customary government, the cadastral record maintained by customary government of Negeri Paperu was not accessible.

The indigenous community in Negeri Paperu had been treating *register dati* as the heritage of their ancestors. Unfortunately, this had not led to the development of an understanding in the importance of the currentness of the registry data as demanded by the recent Spatial Unit Administration concepts as the customary government of this *negeri* had only had a plan to centennially update *register dati*, particularly considering that *register dati* had only been updated 100 years after its initial establishment⁷⁷. Accordingly, the next updating of *register dati* would only be made in 2023.

Besides *register dati* that acted as the evidence for the registration of title of *dati* land, the Customary Land Registration System in Negeri Paperu had also been implementing the oral agreement type of land registration. The oral agreement and symbolic delivery type of land registration system was in place on the administration of *dati pusaka* land and usufruct over communal and communal-individual land. The permit to use the land parcel within a certain location in *dati* land had been transferred to a person or a smaller unit of a family within the internal assembly of the kinship association in question⁷⁸. There had been no written proof issued and no symbolic delivery done in the internal assembly⁷⁹.

Moreover, an oral agreement type of land registration system had also been employed within the alienation of communal land in Negeri Paperu. Even though the territory of Negeri Paperu had never been documented, it had been agreed that the communal lands were those parcels located within the customary territory of Negeri Paperu and outside the registered *dati* land⁸⁰. It meant that the communal lands had never been documented although their locations had at least been acknowledged by the citizens of Negeri Paperu⁸¹. This was enormously important as communal lands upheld not only the economic functions of the land but also the functions for sustaining the environmental carrying capacity and the application of cultural values⁸².

The defined unit of customary land tenure system in Negeri Paperu varied depending on the type of land registration system which upheld the land parcel unit. In general, the land parcel was defined as 2D unit. The extent of *dati* lands extent was on average equal to a quarter, comprised of land parcels with usufruct or *dati pusaka* attached to it that were designated for settlement purposes and the plantations belonging to the association in question. The extent of land parcel with usufruct and *dati pusaka* over *dati* land at-

⁷⁶ Ibid.

⁷⁷ Group interview with T. Pattipawae, the customary socialite of Negeri Paperu, on 9 June 2011, 8 – 10 pm Eastern Indonesian Time, the residence of the Chief of Negeri Paperu, Paperu, Municipality of Central Maluku

⁷⁸ Group interview with Jhony Karim Pattisahusiwa op. cit.

⁷⁹ Ibid.

⁸⁰ Ibid.

⁸¹ Ibid.

⁸² Ibid.

tached to it, which was designated for settlement purposes, was quite large as on average it contained of one to three dwellings and a back and front yard. Moreover, the communal lands were located within the customary territory of this *negeri* but outside the location of *dati* land and *dati* land *Pusaka*. The aggregate extent of communal lands was therefore very large. The communal lands were only subdivided by the existence of land parcels with other types of tenures attached to them. In relation to the land parcel with usufruct over communal land, its extent was varied depending on its use, which was either for settlement or agricultural purposes.

The smallest unit of land parcel, which included land parcel with usufruct over *dati* and communal land and *dati pusaka* land, designated for settlement purposes was mostly bounded by low fences or walls. On the other hand, the smallest unit of land parcel designated for agricultural purposes was mostly bounded by high fences made from twigs, strengthened by barbed wire. For the larger unit of land parcels in Negeri Paperu, these are mostly bounded by general boundary objects such as river, stream, the edge of the forest, road and so forth.

Land Value System

Except in Negeri Latuhalat, the same Customary Land Value approach had been applied in the case study areas. In this section, the Customary Land Valuation and Taxation Systems in the mentioned areas are described.

The Customary Land Valuation in the case study areas except Negeri Latuhalat had been made based on the traditional value of the resource attached to land. While the Customary Land Taxation Systems only partially existed in the four sub-case study areas, the valuation of land had been done during the transfer of the possession of the land. In Negeri Tulehu, Negeri Siri Sori Islam and Negeri Paperu, the land belonging to the customary government as the representative of the people of these *negeri-negeri*. Consequently, it was the objects attached to land that could be transferred (Effendi 1987: 93). On the other hand, as the customary government of Negeri Latuhalat had lost its control over the land within its territory⁸³, the Customary Land Valuation System had not operational.

As mentioned earlier, the Customary Land Taxation Systems were only partly operational in Negeri Tulehu, Negeri Siri Sori Islam and Negeri Paperu, while the Customary Land Taxation System no longer existed in Negeri Latuhalat. Except in the latter mentioned *negeri*, there were two types of fees within the Customary Land Taxation System namely the fee for acquiring usufruct (*ibid.*: 107), which was called *ngase* in Malay Ambon dialect, and the fine for the violation of the Customary Land Use rules, which is previously described in the section on Customary Land Use System. Additionally, the citizens of this *negeri* had also contributed a small portion of their land products particularly to *kewang* institution in accordance with the prevailing custom in this *negeri*⁸⁴.

⁸³ Interview with Mozes Salhuteru, the chief of Negeri Latuhalat, 6 June 2011, 11 am – 12 pm Eastern Indonesian Time, Office of the Chief of Negeri Latuhalat, Latuhalat, City of Ambon, Municipality of City of Ambon

⁸⁴ Group interview with Jhony Karim Pattisahusiwa op. cit.

Land Cadastral System

By considering the working definition of the Spatial Unit Cadastral System in Section 2.1, the Customary Land Cadastral Systems in the four sub-case study areas depicted in this section only partially existed. This was particularly due to the existence of the written rules such as those regulating the Land Use in the four sub-case study areas, which had been applied particularly in specific areas. Nonetheless, even though each sub-case study area had been applying a zoning ordinance within the administration of its customary jurisdiction and the function of each zone had been defined, there had been no written documentation issued regarding the zoning ordinance and the function of each zone. Furthermore, the rest of the information concerning processes on the establishment of the Land Use plan had never been recorded, even though the objectives of Land Use plan that had existed for centuries was clearly understood by the citizens of these *negeri-negeri*. On one hand, it had been allowing the institutional change process to be in place but, on the other hand, upholding the reconstruction of the plan for the purpose of the replication of the Land Use planning process.

The Customary Legal Land Cadastral Systems were considered as the most advanced system among the components of the Customary Land Cadastral Systems in the four sub-case study areas. The existence of *register dati* that had been functioning similarly to a land book had been acting as the only evidence of the existence of the Customary Legal Cadastral System in the four sub-case study areas. Nonetheless, as *register dati* in Negeri Lathhalat and Negeri Tulehu had not been updated since 1814, while the last update of *register dati* in Negeri Siri Sori Islam and Negeri Paperu had been made in 1923, its level of currentness was considerably low, particularly as the secondary and tertiary tenures that had emerged mostly after the *register dati* was finalised had only been administered by means of an oral agreement type of land registration.

On the other hand, the Customary Fiscal Land Cadastral Systems in the four sub-case study areas had not been well-developed by 2011. This was particularly due to the non-existence of the Customary Land Taxation Systems, which, in turn, restricted the Customary Land Value arrangement to be in place only within the scope of land transfer and the monitoring of the performance of the Customary Land Use rules.

By considering the state of Customary Spatial Unit Cadastral Systems in the four sub-case study areas, the existence of the Customary Multipurpose Cadastral Systems could only be partly identified. Even though all processes on the administration of Spatial Units had been made with the objective of fulfilling the the goal of sustainable development, the basic requirement on the establishment of Spatial Unit Information System, which is the existence of the complete, written records regarding use, tenure and value of Spatial Unit, could only be partially identified.

Fundamental Framework of Land Administration System

The institutional aspect of Customary Land Administration has taken an important role in shaping the Customary Land Administration Systems in four sub-case study areas. On the other hand, the fiscal aspect of Customary Land Administration had basically restrained the Customary Land Administration Systems in the mentioned areas from being fully functional, while the technical aspects thereof had been left unexplored. The fundamental framework of the Customary Land Administration Systems in Negeri Lathhalat, Negeri Tulehu, Negeri Siri Sori Islam and Negeri Paperu is explained in this section.

Negeri Latuhalat

The customary government and *kewang* institution of Negeri Latuhalat had almost no authority to control the utilisation of land parcels in this *negeri*, except those within the customary governance zone. This was mainly due to the exhausted natural and man-made resources in Negeri Latuhalat that in turn encouraged people of Latuhalat to change their means of livelihood from farming to fisheries and tourism⁸⁵, as well as the individualisation of land. Cloves and nutmegs had been the main products of the Ambon Lease and Banda regions and the Dutch Colonial Government had planned for these regions to be clove and nutmeg plantation zones⁸⁶. It was necessary to renew the clove and nutmeg trees⁸⁷. Moreover, the pressure from its growing population on its Land Use had also contributed to the decline of the carrying capacity of Negeri Latuhalat's land.

The individualisation of land was considered as one of the important factors that led to the ineffective Customary Land Use management of Negeri Latuhalat. The abolishment of the land *sasi* scheme was evidence upholding this argument. Some areas of clove, nutmegs and coconut plantations had been converted into settlements and other Land Use types such as banana and breadfruit plantations. While clove and nutmegs were once considered as the main product of Ambon Island and *sasi kelapa* used to be applied in this *negeri*, the conversions mirror the inability of customary government and *kewang* institution to control the Land Use conversion rate. The Land Use conversion, especially the conversion of coconut plantations, was the subject of an administration fee⁸⁸. However, the Land Use of private land in Negeri Latuhalat had solely depended upon the owner's vision. Once an administration fee was paid, the Land Use conversion could further be performed.

The intervention of formal government on Land Use management of Negeri Latuhalat had also partly contributed to the ineffectiveness of Customary Land Use management of Negeri Latuhalat. Especially regarding the exploitation of land natural resources such as the mining of industrial and construction minerals, it had been strictly controlled by the Municipality of City of Ambon⁸⁹.

Moreover, the shift of focus on the management of the customary territory of this *negeri* from of its land territory to marine territory since 2006 was also considered as another factor influencing the Customary Land Use management ineffectiveness. Due to the above fact, the customary government abolished the application of *Sasi Kelapa* in Negeri Latuhalat⁹⁰. Moreover, there were only two land *Kewang* for maintaining the orderliness of the *negeri* and, additionally, collecting administration fees and taxes by 2011⁹¹.

⁸⁵ Interview with Mozes Salhuteru, the chief of Negeri Latuhalat, 22 June 2009, 10 – 11 am Eastern Indonesian Time, Office of the Chief of Negeri Latuhalat, Latuhalat, Municipality of City of Ambon

⁸⁶ Group interview with Jhony Karim Pattisahusiwa op. cit.

⁸⁷ Interview with Mozes Salhuteru op. cit.

⁸⁸ Interview with Mozes Salhuteru op. cit.

⁸⁹ Telephone interview with Mozes Salhuteru, the chief of Negeri Latuhalat, 6 January 2010, 2 – 3 am Central European Time, Dortmund

⁹⁰ Interview with Mozes Salhuteru, the chief of Negeri Latuhalat, 22 June 2009, 10 – 11 am Eastern Indonesian Time, Office of the Chief of Negeri Latuhalat, Latuhalat, Municipality of City of Ambon

⁹¹ Telephone interview with Mozes Salhuteru, the chief of Negeri Latuhalat, 6 January 2010, 2 –

Even though the Customary Land Use management had not been effectively operational, the customary government of Negeri Latuhalat had been taking an important role in supporting the production of agricultural post product⁹², as well as service and tourism industries⁹³. Since 2009, the customary government of this *negeri* had sponsored trainings on the post processing of breadfruit into breadfruit crackers⁹⁴.

Furthermore, the customary government of Negeri Latuhalat had also been actively performing the development of its human resources, both customarily and formally. While the customary governance itself included the human resources development aspect described in the section on customary government structure in Section 5.2, the community meetings with the formal government officials from various institutions to discuss issues regarding the formal governance in Negeri Latuhalat had also been held.

The technical aspect of the Customary Land Administration had not been improved since the end of the registration of *dati* land initiated by the British. As mentioned earlier in the section on Customary Land Tenure System, besides the employment of the *register dati*, the Customary Land Tenure System of this *negeri* had been applying an oral agreement type of Land Registration System to administer the secondary and tertiary tenures, which were developed based on the increasing demands on land and overlaid over the *dati* land and individual freehold. While *register dati* had not been updated by 2011, the registration of secondary and tertiary tenures required no further technical improvement due to the nature of oral agreement type of Land Registration System. Furthermore, the Customary Land Cadastral System had also not been improved further.

The financial aspect of the Customary Land Administration in Negeri Latuhalat had been improving, particularly after the enactment of the Decree of the Municipality of City of Ambon regarding *Negeri* in Municipality of City of Ambon in 2008. Due to the inclusion of *kewang* within the structure of the formal *negeri* government, the customary Spatial Unit governance in this *negeri* was eligible to receive State funds. This was very important as the performance of activities of *kewang* had been largely depending on the fines applied in the conversion of Land Use and the contribution from the citizens of this *negeri*, which amount was considerably small compared to the budget of *kewang* institution.

Negeri Tulehu

Due to external influences in the management of territory of Negeri Tulehu and its natural and man-made resources, the customary governance was not fully operational by 2011. *Kewang* of Negeri Tulehu had not performed well as almost nobody wanted to be a member of *Kewang* institution and this institution was no long respected by a number of people⁹⁵. This had been influencing the performance of *kewang*⁹⁶. Moreover, the role of *kewang* in maintaining sustainability of land natural and man-made resources had

3 am Central European Time, Dortmund

⁹² Ibid.

⁹³ Interview with Mozes Salhuteru, the chief of Negeri Latuhalat, 22 June 2009, 10 – 11 am Eastern Indonesian Time, Office of the Chief of Negeri Latuhalat, Latuhalat, Municipality of City of Ambon

⁹⁴ Telephone interview with Mozes Salhuteru, the chief of Negeri Latuhalat, 6 January 2010, 2 – 3 am Central European Time, Dortmund

⁹⁵ Interview with John Saleh Ohorella op. cit.

⁹⁶ Ibid.

been declining. This was basically due to the inability of recent *kewang* to maintain the institution, as well as the fact that the natural and man-made resources in Tulehu had been exhausted⁹⁷. Nutmeg and clove trees had not been renewed since their first planting in the late 1800s by the Dutch Colonial Government⁹⁸. In 1970s, a huge area of nutmeg plantation was converted into clove plantations due to its rising price⁹⁹. However, the price of cloves was declined sharply due to the monopoly of central government on the distribution of clove during the early 1980s¹⁰⁰.

Especially within the Customary Land Use management in Negeri Tulehu, less bureaucracy had been applied by the regime of the Chief John Saleh Ohorella. Land Use conversion, such as in the case of *parusa* or the conversion of vacant spaces on communal land for temporary kiosks, required no permission from the chief and *kewang* as long as it did not violate the Land Use policy of customary government of Negeri Tulehu¹⁰¹. However, such a policy could be well-performed in Negeri Tulehu because of the existence of basic, unwritten customary rules on Land Use management in Negeri Tulehu, such as the maximum extent of *parusa*, the prohibition to harvest natural and/or man-made resources belonging to others except with the permission of the owner and so forth. Moreover, for some substantial matters such as the exploitation of coconut, bamboo, nutmeg and sago, as well as the management of springs, specific rules had been employed, mostly under the *sasi* scheme.

The implementation of *sasi* scheme, together with the empowerment of *kewang* institution, had become an important means of Land Use management in Negeri Tulehu. *Sasi* scheme had been applied not only to the use of communal land but also to the exploitation of land parcels under individualised tenures¹⁰². Since 2006, the customary government of Negeri Tulehu had been providing the means for financing *kewang* institution¹⁰³. This in turn could not only reduce the rate of stealing man-made resources but also reduce the clearing rate of coconut, nutmeg, bamboo and the sago palm tree¹⁰⁴. Moreover, the customary rules that regulated the permit for performing businesses regarding coconut, nutmeg and clove products had been able to control the trading of these products, which in turn was expected to improve the welfare of the citizens of Negeri Tulehu¹⁰⁵.

Moreover, along the effort of the customary government for legally binding the customary government in Negeri Tulehu by means of the Village Governance Act, the customary rules were already identified within this *negeri*'s assembly in 2008 and written in its minutes of meeting¹⁰⁶. Nonetheless, the Customary Land and Marine Administra-

⁹⁷ Ibid.

⁹⁸ Ibid.

⁹⁹ Ibid.

¹⁰⁰ Group interview with Muhammad Padja, the resident of City of Ambon, 22 June 2009, 5 – 6 pm Eastern Indonesian time, Jami Mosque Ambon, Municipality of City of Ambon

¹⁰¹ Interview with John Saleh Ohorella op. cit.

¹⁰² Interview with Asril Djunaedi op. cit.

¹⁰³ Interview with John Saleh Ohorella op. cit.

¹⁰⁴ Ibid.

¹⁰⁵ Ibid.

¹⁰⁶ Interview with Abdul Rahim Lestaluhu op. cit.

tion rules had not yet even been drafted. Unfortunately, the minutes of the meeting of 2008's assembly was lost¹⁰⁷.

The customary governance in Negeri Tulehu had basically provided its human resources with a fine means to develop the understanding on the customary governance in general and the Customary Spatial Unit Administration in particular. The customary government structure of this Negeri encouraged the participation of experts from various sectors on the decision making process. Within the assembly of *saniri besar* normally held once in a year, the customary government presented the performance report to all citizens of this *negeri*. The knowledge on the customary governance and the Customary Spatial Unit Administration could therefore be passed on for generations.

Moreover, located on the communal land of Negeri Tulehu, University of Darussalaam Ambon had also contributed to the enhancement of quality of human resources of Negeri Tulehu. In spite of becoming one of the main factors that opened the customary jurisdiction to external exposures due to the incoming of the non-member of this territorial association and external values, this university had opened the opportunity for the citizens of Negeri Tulehu to enjoy a higher level of education. Many young activists of the customary government of Negeri Tulehu were educated in this university, while others were working in the academic environment.

The technical aspect of the Customary Land Unit Administration in Negeri Tulehu was not well-developed by 2011. As mentioned earlier in the section on Customary Land Cadastral System, the Customary Land Cadastral System in this *negeri* was only partially developed and comprising of *register dati* and written rules in analogue form. No technological tools had been employed by this indigenous community as the registration of *dati* land was initiated by the British and finalised by the Dutch. Even though the process of the development of the spatial plan was not known by the recent generation of the indigenous community in this *negeri*, the Customary Land Administration of this *negeri* had been able to be enhanced over time based on the understanding of the recent generation on the objective of the existing spatial plan and the most recent circumstances

The financial aspect of the Customary Spatial Unit Administration System had been acting as the obstacle of the mentioned system to be fully operated. *Kewang* was not included in the formal *negeri* government structure, which made it ineligible to receive State funds. Even though *kewang* was still included within the structure of *saniri negeri*, the function of *saniri negeri* as a legislative body restricted the function of *kewang* compared to the function of *kewang* in the traditional customary government. In order to allow *kewang* institution to be operational, the chief of this *negeri* had been privately financing the performance of the task of *kewang*.

Negeri Siri Sori Islam

The role of customary institution of Negeri Siri Sori Islam on the management of its land territory, as well as its land natural and man-made resources, was very strong. Even though the demand on land within its territory, the extent of which was 8.2 km², had been increasing due to the growth of its population, *negeri lama* and *tanitar* were still heavily forested. However, due to the inability of the customary governmental institution to renew especially the man-made resources within its jurisdiction, the people's means of livelihood had been shifting from farming to traditional fisheries.

¹⁰⁷ Ibid.

Kewang institution of Negeri Siri Sori Islam acted as the only customary institution whose tasks were to maintain the carrying capacity of its surrounding environment and the orderliness of the *negeri*. Even though there was no land *sasi* applied in Negeri Siri Sori Islam, *kewang* institution has still important tasks to sustain the basic custom¹⁰⁸. Every violation of the norms was the subject of a fine or administration fee¹⁰⁹. The trustworthiness of *kewang* institution of Negeri Siri Sori Islam could be maintained as its performance had always been directly monitored by the chief and the community. General guidelines in the form of written rules were available to ensure transparency within the performance of its tasks, such as the payment of fines and administration fees to the representative of customary government by those who have violated the rules. This took place in front of the customary leaders, elders and community in *Baileo* in a special ceremony¹¹⁰.

The human resources development within the scope of the customary governance in general and the Customary Land Unit Administration in Negeri Siri Sori Islam had also been carried out along the performance of the tasks of the customary government of this *negeri*. The experts from the various sectors had been getting involved within the composition of the customary rules by *saniri negeri*, while all citizens of Negeri Siri Sori Islam were required to attend the annual *saniri besar* assembly. This allowed information on the customary governance and the Customary Spatial Unit Administration in Negeri Siri Sori Islam to be passed from generations to generations.

The technical aspect of the Customary Spatial Unit Administration in this *negeri* was considerably undeveloped. The registration of the *dati* land had been done by the Dutch, while the customary government of this *negeri* had only been keeping *register dati* without updating it. Furthermore, the secondary and tertiary tenures that had been developed after the finalisation of *dati* land registration had only been administered by means of the oral agreement type of Land Registration, which required no technological tools for its implementation.

Finally, the customary government of Negeri Siri Sori Islam had been enjoying full financial support of the customary governance and Customary Spatial Unit Administration. *Kewang* institution had been able to finance itself by means of the contributions from the citizens of this *negeri* and occasionally from the fines levied for violation of the Land Use rules.

Negeri Paperu

Due to the transition from the previous customary regime to its consecutive regime that was just established in 2011, the Customary Land Administration in Negeri Paperu had only partly been operational between 2008 and 2011. As other *negeri* in Ambon Lease region, *kewang* institution had been responsible for maintaining orderliness and sustainability of natural and man-made resources, which included the Land Use management of this *negeri*¹¹¹. Nonetheless, as described earlier in the section on the Customary Land Use, in spite of the ineffective customary governance between 2008 and 2011, the *kewang* institution had been partly operational. Unfortunately, the ineffective customary governance had also undermined the authority of *kewang* on the enforcement of the

¹⁰⁸ Interview with Ferry Siahaya op. cit.

¹⁰⁹ Ibid.

¹¹⁰ Ibid.

¹¹¹ Ibid.

Customary Land Administration rules, which had even annulled the positive impact that should have been achieved by the promulgation of the Regional Governance Act and provincial and municipal decrees on Customary Spatial Unit Administration.

Due to the ineffectivity of customary governance in Negeri Paperu, the Customary Land Tenure System had only been partly operational between 2008 and 2011¹¹². The legal status of *dati* land had been guaranteed by *register dati*, which had been kept by the Village Secretary between 2008 and 2011, even though the Village Secretary position was initially set up within the scope of formal village governance, and the subject of *dati* land itself. The legal status of communal land, other communal-individual land besides *dati* land and land with usufruct attached to it had however been customarily guaranteed only because the delivery of the tenures attached on the above mentioned types of land was done publicly. In the case of leasehold in Paperu Cape, its legal status was only guaranteed by oral agreement between the leaseholder and the previous regime and had been heavily challenged by most citizens of this *negeri*. Moreover, this leasehold had also been formally secured as it had already been formally registered under the name of the late chief of Negeri Paperu.

Due to the ineffective customary governance in Negeri Paperu, the human resources development scheme from the point of view of the customary governance and Customary Land Administration had not been in place between 2008 and 2011. The assemblies and community meetings within the scope of the customary governance were not in place between 2008 and 2011. Further, because of the lack of credibility of the previous customary regime, the previously mentioned circumstance had increased the level of ignorance of the citizens of this *negeri* to conform to the custom in general and the Customary Spatial Unit Administration rules. This could be identified particularly during the final data collection process, which exhibited the violation of the various Customary Land Administration rules.

The technological aspect of the Customary Land Administration in Negeri Paperu had not been well developed. The registration of *dati* land was done by the Dutch, while the customary government of this *negeri* had only been keeping *register dati*, particularly due to its function not only as the registry but also as the heritage of the ancestors of this *negeri*. Within its further advancement, the Customary Land Administration System had only been applying the oral agreement type of Land Registration for administering the secondary and tertiary customary tenures that had arisen from the further utilisation of communal and *dati* land. Accordingly, the Customary Land Cadastral System was not well-developed compared to the recent concept of a Spatial Unit Cadastral as it had only been maintaining the written Customary Land Administration rules, while the implementation of the mentioned rules had never been recorded.

The financial aspect of the Customary Land Administration in this *negeri* had also taken its role in shaping the state of the Customary Land Administration System. The lack of credibility of the customary government regime had lessened the support of the citizen to the customary government of this *negeri*. This had unfortunately also impacted the level of support from the citizen of this *negeri* on the Customary Land Administration. Accordingly, the Customary Land Administration System had been receiving less financial support from the citizens of this *negeri* particularly compared to that of Negeri Siri Sori Islam. Furthermore, as *kewang* had not been considered as an executive body in the formal customary government structure, it had therefore not been eligible to receive State funds as well.

¹¹² Interview with Charles Pattiselano op. cit.

6.2 Customary Marine Administration System

Similarly to the Customary Land Administration Systems in the four sub-case study areas, the Customary Marine Administration Systems were identified. In this section, the Customary Marine Use Systems in the four sub-case study areas are firstly portrayed, followed by the description of the Customary Marine Use and Value Systems in the above mentioned areas. Furthermore, the Customary Marine Cadastral Systems in the selected cases are depicted and, finally, the framework of the Customary Marine Administration is illustrated.

Marine Use System

The Customary Marine Use System had been shaping the Customary Marine Administration System in the selected cases. In this section, the description of the role of the Customary Marine Use Systems on sustaining the Customary Marine Administration Systems in Negeri Latuhalat, Negeri Tulehu, Negeri Siri Sori Islam and Negeri Paperu is given consecutively.

Negeri Latuhalat

The marine territory of Negeri Latuhalat comprised of its territory in Ambon Bay to the north of this negeri and in Banda Sea to the south of Negeri Latuhalat. The marine territory of this negeri had been considered as an integrated part of its customary jurisdiction, particularly considering the non-existence of the coastal line definition within the scope of the Customary Spatial Unit Administration. Moreover, the customary jurisdiction of Negeri Latuhalat at sea was bounded by the edge of the shallow waters.

Due to the scarcity of land and the abundance of natural marine resources within the customary jurisdiction of Negeri Latuhalat, as well as the increasing numbers of citizens in this *negeri*, most people of Negeri Latuhalat had been moving from land cultivation activities to marine specific activities, particularly fisheries and tourism¹¹³. In 2009, there were 500 fishermen, while before 2006 there had only been 100 fishermen¹¹⁴.

Due to this change, the customary government of Negeri Latuhalat had been working on the re-establishment of the customary marine governance in Negeri Latuhalat. By 2011, there were four types of marine *sasi* applied in Negeri Latuhalat, which were¹¹⁵:

- *Sasi Udang*, the restriction to catch prawns except by means of arrows or *tango*.
- *Sasi Teripang*, the restriction to collect sea cucumbers in a specific period.
- *Sasi Lola*, the restriction to harvest top shells (*Trochus niloticus*) in a specific period.
- *Sasi Ikan Hias*, the restriction to fish fancy fish in a specific period.

Besides the above mentioned marine *sasi*, there were basic Customary Marine Use rules that had been acting as the foundation of Customary Marine Use management in Negeri Latuhalat. Some rules such as the restriction of fish bombing and the obligation to use small boat while fishing in shallow waters had been commonly applied in the marine

¹¹³ Interview with Mozes Salhuteru, the chief of Negeri Latuhalat, 22 June 2009, 10 – 11 am Eastern Indonesian Time, Office of the Chief of Negeri Latuhalat, Latuhalat, Municipality of City of Ambon

¹¹⁴ Ibid.

¹¹⁵ Telephone interview with Mozes Salhuteru, the chief of Negeri Latuhalat, 6 January 2010, 2 – 3 am Central European Time, Dortmund

territory of Negeri Latuhalat¹¹⁶. Moreover, especially to support tourism in this *negeri*, another rule, which was the restriction to mine beach sand, see Figure 6.18 for details, was promulgated by the customary government of Negeri Latuhalat¹¹⁷. As there was no *labuan*, the customary marine protected area, defined in marine territory of Negeri Latuhalat, these rules, besides the *sasi* scheme, had been the only means to uphold the sustainability of its marine natural resources.



Figure 6.18 Sign on the prohibition of beach sand and pebbles mining in Namalatu Beach, Negeri Latuhalat

Moreover, within the customary marine territory of Negeri Latuhalat, it had been strongly forbidden to fish with a rattan net called *tabung*, which means cylinder. This area had been functioning as the breeding ground for all types of marine fish. The restriction on the use of rattan nets could then allow fish seeds to survive and grow. Within the same area, it had also been forbidden to drive a motorboat. On one hand, the propeller might harm the breeding ground, while, on the other hand, the *sasi* was trying to provide equality for all fishermen in Negeri Latuhalat as only a few of them have a motorboat¹¹⁸.

Negeri Latuhalat had several tourism sites, which are mostly located in its coastal area. All tourism sites had been managed by the private sector, except for Namalatu Beach that had been managed by Tourism Agency of Municipality of City of Ambon. Moreover, as the territory of this *negeri* was bounded by Ambon Bay to its north and Banda Sea to its south, it had good potential to be the base for diving services. In fact,

¹¹⁶ Interview with Mozes Salhuteru, the chief of Negeri Latuhalat, 22 June 2009, 10 – 11 am Eastern Indonesian Time, Office of the Chief of Negeri Latuhalat, Latuhalat, Municipality of City of Ambon

¹¹⁷ Ibid.

¹¹⁸ Ibid.

the customary government of Negeri Latuhalat had been supporting the establishment of two diving service companies owned by the natives of Negeri Latuhalat¹¹⁹.

The fisheries industry of Negeri Latuhalat had been considered as the biggest supplier of fish for Ambon Island, especially for the fish market in the City of Ambon, besides its competitor in Asilulu Village¹²⁰. Since 1997, the fisheries industry of this *negeri* had been exporting its best fresh fish to Japan¹²¹. Furthermore, the customary government of Negeri Latuhalat, supported by the University of Pattimura of City of Ambon and the Marine and Fisheries Agency of the City of Ambon, had been providing training for four community groups on post processing of fish product into fishball; fish sauce; *dendeng ikan*, jerk fish meat; and *abon ikan*, minced and fried fish meat¹²². These products had been sold in local supermarkets in the City of Ambon¹²³.

Within the customary marine territory of Negeri Latuhalat, there was only one sea grass plantation¹²⁴. Due to the busy transportation route of Ambon Bay, the waves of Banda Sea and the east monsoon, it had been almost impossible to establish a sea grass plantation in the customary marine territory of Negeri Latuhalat¹²⁵.

Negeri Tulehu

Customarily, the marine territory of Negeri Tulehu was bounded by the edge of shallow water called *meti jauh*, see Figure 6.19 for details, as well as the agreed marine territory borders with Negeri Waai to the north, Negeri Haruku to the west and Negeri Tengah-Tengah to the south¹²⁶. The use of marine territory of Negeri Tulehu had been exclusively bestowed to the member of Tulehu community, including the natives and local migrants particularly from Buton Islands and Geser, Seram Island¹²⁷.

¹¹⁹ Ibid.

¹²⁰ Telephone interview with Mozes Salhuteru, the chief of Negeri Latuhalat, 6 January 2010, 2 – 3 am Central European Time, Dortmund

¹²¹ Ibid.

¹²² Ibid.

¹²³ Ibid.

¹²⁴ Ibid.

¹²⁵ Ibid.

¹²⁶ Interview with John Saleh Ohorella op. cit.

¹²⁷ Ibid.



Figure 6.19 Boundary of customary marine jurisdiction of Negeri Tulehu marked by line separating shallow water in light blue and open sea in dark blue

Especially within the customary jurisdiction of this *negeri*, a special permit should be acquired from *Upu Latu* before carrying out any exploration and/or exploitation in the territory in question¹²⁸. This area had been the breeding ground for most of the pelagic fish of Banda Sea¹²⁹. Banda Sea, which is directly connected to the Haruku Strait and coastline of Negeri Tulehu, had been acknowledged for its enormous stock of tuna¹³⁰. According to Marten *et al.* (1982), Japanese fishermen had caught 40,000 tons of tuna, approximately worth USD 20 million, in Banda Sea between 1968 and 1975. Fishing in this area has been fully restricted to only fishing during certain periods. Moreover, under the requirement of acquiring a special permit from *Upu Latu*, it was only possible to explore and exploit the area by traditional means, such as from a traditional fishing boat¹³¹. It had also restricted to dive with regulator in this area. Violation of the restrictions was subject to a fine¹³². Several exceptions had been applied, even though these exceptions were still becoming the subject of administration fee¹³³.

Moreover, exploration and exploitation of marine resources in *labuan* of Negeri Tulehu had only been allowed under special circumstances. By 2011, there were only three *labuan*, out of a total of seven, which could still be identified, which were located in the Air Panas Quarter¹³⁴, Nunumoni¹³⁵ and Batu Lompa¹³⁶. See Figure 6.20 for Batu

¹²⁸ Ibid.

¹²⁹ Ibid.

¹³⁰ Interview with Asril Djunaedi op. cit.

¹³¹ Interview with John Saleh Ohorella op. cit.

¹³² Interview with Asril Djunaedi op. cit.

¹³³ Ibid.

¹³⁴ Group Interview with Ibrahim Lestalu, the native and young environmental and customary

Lompa Labuan. However, the application of customary rule could only be identified in Batu Lompa. In the area surrounding Batu Lompa, it had been restricted net fishing¹³⁷. The only acceptable fishing tool in Batu Lompa was a fishing rod¹³⁸. Batu Lompa and its surrounding area had been acting as the breeding ground of Yellowback fusilier (*Caesio xanthonota* Bleeker), which is known as Lalosi Fish in local term¹³⁹.



Figure 6.20 Batu Lompa Labuan in Negeri Tulehu at the right hand side of the cape

The exploitation of marine natural resources in the marine territory of Negeri Tulehu, except in the shallow waters and *labuan*, had been the subject of the application of basic customary rules, such as restriction to carry out fish bombing¹⁴⁰. For exploitation by traditional means, no permit was required from the chief¹⁴¹. However, exploitation by means of modern tools required a special permit from the chief¹⁴². Furthermore, a special permit from the chief was also required for the exploitation in all areas that directly

activist of Negeri Tulehu, on 17.06.2009, 8 pm – 12 am Eastern Indonesian Time, Tulehu, Municipality of Central Maluku

¹³⁵ Ibid.

¹³⁶ *Interview with John Saleh Ohorella op. cit.*

¹³⁷ Ibid.

¹³⁸ Ibid.

¹³⁹ Ibid.

¹⁴⁰ Ibid.

¹⁴¹ Ibid.

¹⁴² Ibid.

affected the carrying capacity of the shallow water area and *Labuan*, which also included the area beyond the customary jurisdiction of Negeri Tulehu¹⁴³.

Negeri Siri Sori Islam

The marine territory of Negeri Siri Sori Islam is bordered by the edge of shallow water to the east, the marine territory of Negeri Siri Sori Amalatu to the north, the marine territory of Negeri Ullath to the south and the marine territory of Negeri Paperu and Booi to the west. The marine territory of this *negeri* is entirely located within Saparua Bay.

As mentioned earlier, people of Negeri Siri Sori Islam had been depending on agriculture, mainly clove and nutmeg, and fishing¹⁴⁴. Fish products were mainly allocated to fulfil the needs of the citizens of Negeri Siri Sori Islam. Fresh fish had been sold at a particular point on *negeri*'s main road, which was located 20 metres from *negeri*'s customary governance zone.

Even though the fishing industry of Negeri Siri Sori Islam was quite small and it had only been traditionally managed, people of Negeri Siri Sori Islam understood very well the direct and indirect correlation between the marine environment and resources sustainability¹⁴⁵. Based on the indigenous knowledge of people of Negeri Siri Sori Islam, the existence of sea cucumber and top shell had been considered to directly correlate to the fish stock¹⁴⁶. This had been the main reason behind the establishment of *sasi lola*, *sasi* on top shell; and *sasi teripang*, *sasi* on sea cucumber, by the ancestors of the people of Negeri Siri Sori Islam (see Novaczek *op. cit.*: 320).

Sasi lola and *sasi teripang*, like the application of the *sasi* scheme in Ambon Lease region, had periodically disengaged¹⁴⁷, normally every one or two years (*ibid.*). Within the engagement period of *sasi* scheme in this *negeri*, it was also possible for customary government of Negeri Siri Sori Islam to issue dispensation for harvesting sea cucumber and top shell¹⁴⁸. An administration fee had been applied for such a dispensation, while the violation of the *sasi* rules was also the subject of a fine.

The application of *sasi lola* and *sasi teripang* had however been slightly different from the application of the *sasi* scheme in Ambon Lease region. As it had been applied in other *negeri* in this region, the marine resources within the territory of Negeri Siri Sori Islam were allocated to the citizen of this *negeri*, while outsiders could only harvest the resources with permission from the customary government of this *negeri*¹⁴⁹. However, Novaczek *et al.* (*ibid.*) revealed that it was also possible to acquire the leasehold by auctioning the right to harvest sea cucumber and top shell, when the *sasi* were disengaged, to outsiders. Novaczek *et al.* (*ibid.*) revealed that, during the period of field survey for their research, the auction on the right to harvest sea cucumber and top shell was won by the Oceanographic Research Centre of Indonesian Institute of Science or *Pusat Penelitian Oseanografi, Lembaga Ilmu Pengetahuan Indonesia* in Indonesian. However, between 2009 and 2011, the right to harvest sea cucumber and top shell belonged

¹⁴³ *Ibid.*

¹⁴⁴ *Group interview with Jhony Karim Pattisahusiwa op. cit.*

¹⁴⁵ *Interview with Ferry Siahaya op. cit.*

¹⁴⁶ *Ibid.*

¹⁴⁷ *Group interview with Jhony Karim Pattisahusiwa op. cit.*

¹⁴⁸ *Ibid.*

¹⁴⁹ *Ibid.*

to the customary government of Negeri Siri Sori Islam and was given to the citizens of Negeri Siri Sori Islam¹⁵⁰.

Due to its limited marine customary territory, the whole customary marine territory of Negeri Siri Sori Islam had been defined as *labuan*. Therefore, besides the application of *sasi* scheme in Negeri Siri Sori Islam, this *negeri* had also been applying uniformed customary rule on the management of its marine territory and resources. According to Novaczek *et al.* (*ibid.*), it was not allowed to carry out fish bombing within the marine territory of Negeri Siri Sori Islam. Moreover, for any type of use except for traditional fishing, a permit was needed from the customary government of Negeri Siri Sori Islam¹⁵¹. Such a permit normally promulgated for a period of one year¹⁵².

Negeri Paperu

The marine territory of Negeri Paperu was completely located in Saparua Bay. To the north, the marine territory of this *negeri* was bounded by the marine territory of Negeri Porto, while, to the south, it was bounded by the marine territory of Negeri Booi. To the east, Negeri Paperu's marine territory was bounded by marine territory of Negeri Siri Sori Amalatu, Siri Sori Islam, Ullath and Ouw.

Besides depending on agriculture, the people of Negeri Paperu also depended on fisheries. Almost 70% of the citizens of this *negeri* were part-time fishermen¹⁵³. Moreover, the marine space unit in Negeri Paperu had been mainly occupied by offshore fish plantations. These fish plantations had been established to supply fishermen with the lure especially for tuna. See Figure 6.21 for a fish plantation in the marine territory of Negeri Paperu.

Basic principles on the Marine Use management had been applied in Negeri Paperu. While some of its territory had been protected by Paperu Cape from the exposure of Banda Sea, this area was once the home of several types of coral reefs. In order to protect the coral reefs, fish bombing and poisoning were not allowed (Novaczek *et al.*, *op. cit.*), nor was diving using regulator within the marine territory of Negeri Paperu¹⁵⁴. Moreover, the use of marine territory except for the traditional fishing required a permit from the customary government of Negeri Paperu¹⁵⁵.

Negeri Paperu used to apply *sasi teripang* within its marine territory. Novaczek *et al.* (*ibid.*) revealed that this *sasi* had still partially existed. Having been ineffective between 1994 and 1995, *saniri negeri* drafted *negeri*'s regulation on management of the use of its marine territory in 1996 (*ibid.*). The latter regulation included not only *sasi teripang* but also the basic principles on the marine use management, which was modelled based on the previous *sasi* arrangement in this *negeri* (*ibid.*). Unfortunately, the enforcement of marine *sasi* by *kewang* institution was still ineffective due to the ineffectivity of customary governance¹⁵⁶.

¹⁵⁰ Interview with Ferry Siahaya *op. cit.*

¹⁵¹ *Ibid.*

¹⁵² *Ibid.*

¹⁵³ Interview with Charles Pattiselano *op. cit.*

¹⁵⁴ Group interview with Kurt Gross *op. cit.*

¹⁵⁵ Interview with Ferry Siahaya *op. cit.*

¹⁵⁶ Interviews with Agus Soukotta, the native of Negeri Paperu, on 18-20.06.2010, Paperu, Municipality of Central Maluku



Figure 6.21 Inshore fish plantation for culturing lures for Tuna in Negeri Paperu

Marine Tenure System

Like the indigenous communities described in the section on Customary Coastal and Marine Management in Section 2.2, the indigenous communities in the selected cases had been applying the *mare nullius* principle within the scope of the Customary Marine Tenure arrangement. In this section, the Customary Marine Tenure Systems in Negeri Latuhalat, Negeri Tulehu, Negeri Siri Sori Islam and Negeri Paperu are described respectively.

Negeri Latuhalat

The customary marine territory of Negeri Latuhalat had been linked to the communal right to marine space unit¹⁵⁷. Under this tenure that had been the only primary Marine Tenure in this *negeri*, the customary marine territory had been under full control of the customary government of Negeri Latuhalat, which had been devoted to the greatest benefit of the citizens of this *negeri*. Moreover, the citizen of this *negeri*, including *orang datang dari belakang*, could enjoy the automatic usufruct over the communal marine unit as long as she/he complied with the prevailing Customary Marine Use rules and only utilised traditional tools¹⁵⁸.

¹⁵⁷ Interview with Mozes Salhuteru, the chief of Negeri Latuhalat, 22 June 2009, 10 – 11 am Eastern Indonesian Time, Office of the Chief of Negeri Latuhalat, Latuhalat, Municipality of City of Ambon

¹⁵⁸ Telephone interview with Mozes Salhuteru, the chief of Negeri Latuhalat, 6 January 2010, 2 – 3 am Central European Time, Dortmund

Besides the above mentioned tenures, the citizen of this *negeri* could also enjoy usufruct over the communal marine unit. Such an usufruct had been issued by the customary government of Negeri Latuhalat for activities for specific purposes beyond the traditional use of marine unit in this *negeri*¹⁵⁹. Nonetheless, this usufruct had only been issued along with the issuance of the permit to exploit the marine resources issued by the Agency of Marine Affairs and Fisheries of the Municipality of City of Ambon¹⁶⁰.

An oral agreement type of registration system had been applied in maintaining the customary marine unit registry in Negeri Latuhalat. The delivery of the Customary Marine Tenures had been done within the *saniri negeri* assembly¹⁶¹. Moreover, the Customary Marine Unit Tenure System had been well-operated. In spite of the application of customary rules on the management of Marine Unit and the high level of intervention from the Government of Municipality of City of Ambon, the customary government of this *negeri* has been actively monitoring the performance of the system¹⁶². By 2011, there were six marine *kewang-kewang* who had been responsible for safeguarding the marine territory of customary government of Negeri Latuhalat¹⁶³.

The Marine Unit in the Customary Marine Tenure System had been basically treated in 3D environment. Most of, if not all, objects maintained in the Customary Marine Unit Tenure System of Negeri Latuhalat were mainly in place to assist traditional fishing¹⁶⁴. The 3D Marine Unit was normally bounded by the edge of the water column the shape of which was defined based on the 2D extent of the object on the sea surface; and the imaginary surface, which represented the projection of the 2D extent of the object on sea surface, on, above or below the sea surface.

Negeri Tulehu

Customarily, the marine territory of Negeri Tulehu had been directly linked to the communal right to the Marine Unit. Under the tenure, the Marine Unit had been controlled by the customary government of Negeri Tulehu¹⁶⁵. Over the mentioned communal right, both the indigenous and migrant citizens of Negeri Tulehu could enjoy automatic usufruct to explore and exploit marine resources in the marine territory of this *negeri*¹⁶⁶. General customary restrictions, such as the prohibition of fish bombing, the exploitation of marine resources by traditional means including offshore fish plantation, had been included within the terms of use of the mentioned rights¹⁶⁷. Additionally, specific restrictions had been also applied within the customary marine conservation areas

¹⁵⁹ Interview with Mozes Salhuteru, the chief of Negeri Latuhalat, 22 June 2009, 10 – 11 am Eastern Indonesian Time, Office of the Chief of Negeri Latuhalat, Latuhalat, Municipality of City of Ambon

¹⁶⁰ Ibid.

¹⁶¹ Ibid.

¹⁶² Ibid.

¹⁶³ Ibid.

¹⁶⁴ Telephone interview with Mozes Salhuteru, the chief of Negeri Latuhalat, 6 January 2010, 2 – 3 am Central European Time, Dortmund

¹⁶⁵ Interview with John Saleh Ohorella op. cit.

¹⁶⁶ Ibid.

¹⁶⁷ Ibid.

such as *labuan* and the customary marine territory¹⁶⁸. Additional permits from the chief had also been required on the exploration and exploitation of marine resources marine resources in the shallow waters by both traditional and modern means, as well as within the unrestricted area in marine territory of Negeri Tulehu by modern means¹⁶⁹. The exploration and exploitation of unrestricted areas that had been directly or indirectly affecting the shallow waters and restricted areas also required additional permits from the chief. The promulgation of the additional permits had been acting as a means to deliver a usufruct. Additionally, *kewang* institution had been backing up the chief on monitoring the application of Marine Unit Tenures rules.

In accordance with the Customary Land Tenure System of this *negeri*, the above mentioned usufruct could become communal-individual tenure over time along the weakening of the control of the customary governance over the Marine Unit in question. The most common type of usufruct was *saaro*, the inshore fish plantation, which had initially been given within a limited period (Effendi 1987: 104). See Figure 6.22 for *saaro* in customary marine territory of Negeri Tulehu. Over time, the degree of control of the usufruct holder on *saaro* could become stronger, which allowed *saaro* to be inherited by the heirs of the usufruct holder (*ibid.*). After finalisation of the inheritance, *saaro* was transformed immediately into *saaro pusaka*, which had been equal to *dati pusaka* on land (*ibid.*).



Figure 6.22 *Saaro*, inshore fish plantation, in the customary marine territory of Negeri Tulehu

The Customary Marine Registration System had been basically employing the oral agreement type of registration system. The communal right to marine unit, which had been linked directly to the marine territory of Negeri Tulehu, had been commonly

¹⁶⁸ *Ibid.*

¹⁶⁹ *Ibid.*

agreed and acknowledged by the citizen of this *negeri*, as well as the customary governments of neighbouring *negeri*. Furthermore, even though it was not necessary to acquire permission from the chief in the case of the employment of the automatic usufruct, the citizen however acknowledged the terms of use defined by the customary government of Negeri Tulehu. On the other hand, the delivery of the usufruct, either permanently or temporarily, will require permission from the customary government of Negeri Tulehu. Additionally, as the delivery of the usufruct is normally followed by the payment of an administration fee and each single change within customary marine unit registry would be announced in a public hearing at a special ceremony. In turn, acknowledgement of the changes of registry would be acquired from the citizens of this *negeri*.

Within the application of Customary Marine Tenure System in Negeri Tulehu, the basic unit of Marine Tenure was 3D marine space unit. The construction of the 3D marine space unit had been based on the type of tenureship attached to it, which had been directly linked to its use. Within the marine conservation areas, the 3D marine space unit had been bounded by the delimited 2D area in the sea surface, water column, its seabed and the 3D space above the surface, particularly in the case of the preserved, exposed offshore objects. Moreover, within the application of communal right, the marine space unit had been normally defined as comprising of the 2D area in the sea surface, the water columns and, in some cases, its seabed. The vertical planes delimited the 3D Marine Unit within the marine conservation areas and the applications of communal right had been located exactly above their projections in the sea surface. Moreover, in the case of Marine Unit for the offshore fish plantation, it had normally been defined as comprising a 2D area on the sea surface delimited by the outer sides of the offshore fish plantation or the projection of outer boundary of the object on the sea surface; the 3D space above the sea surface enclosed by the parallel projection of 2D area at the highest point of the construction of the offshore fish plantation, as well as the vertical planes that enclosed the air column between the 2D area and the upper horizontal plane of the unit; and 3D marine space unit below the marine surface bounded by the horizontal plane representing the projection of a 2D area on the sea surface at the lowest level of the construction of the offshore fish plantation, as well as the vertical planes that bounded the water column between the 2D area on sea surface and the lower horizontal plane of the unit.

Negeri Siri Sori Islam

The marine territory of this *negeri* has been directly linked to the communal right to the marine space unit. Over the communal Marine Unit, the citizens of Negeri Siri Sori Islam enjoyed an automatic usufruct to explore and exploit most of the marine resources, except for top shell and sea cucumber. The main term of use of the automatic usufruct had been the prohibition to carry out fish bombing (Novaczek *et al. op. cit.*). On the other hand, the application of *sasi* scheme on the exploitation of top shell and sea cucumber had been strictly controlled by the customary government. The right to exploit these products under *sasi* scheme had been auctioned by the customary government of this *negeri* to institutions that are interested in it (*ibid.*). This raised another type of tenure, the leasehold, which could be enjoyed not only by the citizen of this *negeri* but also the non-citizen of this *negeri*.

The above mentioned customary marine rights had been administered by means of the oral agreement type of registration system. While the communal tenure and the automatic usufruct required no written documentation on their delivery as they had been

agreed by the citizen of this *negeri* and respected by the adjacent *negeri-negeri*, the delivery of leasehold had been done within the public *sasi* ceremony.

The basic unit of Marine Unit Tenure in Negeri Siri Sori Islam was a 3D Marine Unit. The construction of the 3D Marine Unit was based on the type of tenureship attached to it, which had been directly linked to its use. As the use of the marine territory of this *negeri* had been devoted to the traditional exploration and exploitation of the marine resources, the 3D Marine Unit comprised of a water column bounded by the sea surface delimited by the agreed boundary and the projection of the delimited area of sea surface on the seabed.

Negeri Paperu

The Customary Marine Tenure System of Negeri Paperu recognised two types of Marine Tenures, namely Communal Marine Tenure and automatic usufruct. The Communal Marine Tenure had been directly linked to the customary marine territory of this *negeri*. See Figure 6.23 for the mark signifying the boundary between Negeri Paperu and Negeri Booi.

Within the customary marine territory of Negeri Paperu, an automatic usufruct could be enjoyed by the citizen of this *negeri* for traditional exploration and exploitation the marine resources.

Since 2007, the citizen of Negeri Paperu had been restricted from entering the marine area in the environs of Paperu Cape by the management of Cape Paperu Resort and Spa¹⁷⁰. The management of the Cape Paperu Resort and Spa maintained that the activities of the people of Negeri Paperu in this area were the main cause of the destruction of the coral reefs habitat. The chief, however, believed that every activity within its marine territory had been executed in accordance with the prevailing custom, which, on the contrary, had proven to be the main means for the maintenance of the sustainability of this area¹⁷¹. See Figure 6.24 for the area occupied by Cape Paperu Resort and Spa.

In spite of this conflict, the previously mentioned tenures had been maintained under the oral agreement type of Registration System. The ineffective customary governance in this *negeri* had not been affecting the performance of the Customary Marine Tenure System as the Communal Marine Tenure had been long settled, while the automatic usufruct had been automatically granted to the citizen of this *negeri* without requiring the concern of the customary government.

The Marine Unit in Negeri Paperu had been treated in 3D environment. Due to the employment of traditional activities within the marine territory of this *negeri*, all the Marine Units in this *negeri* had been located within the water column, which had been bounded by the sea surface bounded by the agreed boundary, the projection of the sea surface plane on seabed and the plane connecting the boundary of the previously mentioned planes.

Marine Value System

Similar to the Customary Land Value System, the Customary Marine Value System in the four sub-case study areas had only been partially operational. In this section, the

¹⁷⁰ Group interview with Christian Lawalata, the chief of Negeri Paperu, on 9 June 2011, 8 – 10 pm Eastern Indonesian Time, the residence of the Chief of Negeri Paperu, Paperu, Municipality of Central Maluku

¹⁷¹ Ibid.

Customary Marine Valuation Systems in the mentioned areas is described, while the Customary Marine Taxation Systems in the selected cases are also depicted.

The Customary Marine Valuation System had basically existed in the selected case study areas, except in Negeri Paperu. In general, the value of the Marine Unit had been assessed by means of the traditional value of the resources attached to the Marine Unit in question. Having been similarly treated to *dati pusaka* land (Effendi 1987: 104), *saaro pusaka* in Negeri Tulehu had been valued based on the value of resources contained in this Marine Unit. The usufruct in Negeri Latuhalat and Negeri Tulehu had also been valued by the previous method. Additionally, even though the temporary leasehold within the scope of *sasi* on top shell and sea cucumber had been transferred by auction, the nominal of the bid had also been considering the approximate value of top shell and sea cucumber. The valuation of the Marine Unit had mostly been done within the scope of the transfer of the above mentioned secondary tenures.

On the other hand, the Customary Marine Taxation System had only partially existed. The citizens particularly of Negeri Tulehu, Siri Sori Islam and Negeri Latuhalat had been contributing a small portion of the production of the Marine Unit in accordance with the prevailing custom. Furthermore, fines and administration fees levied to the violation of the Customary Marine Use rules had also been applied.

Marine Cadastral System

The Customary Marine Cadastral Systems in the four sub-case study areas had not been well-developed. As mentioned earlier in the section on Customary Land Cadastral System in Section 6.1, the Customary Spatial Unit Administration rules had mostly been written in the form of the decree of *negeri* government. Nonetheless, the rest of the information regarding the Regulatory, Legal, Fiscal and Multipurpose Marine Cadastral System had not been recorded and managed under the information system.

Fundamental Framework of Marine Administration System

In spite of the lack of technological and financial support, the Customary Marine Administration Systems in the selected case study areas, except in Negeri Paperu, had been able sustain itself over time particularly due to its community-based institutional setting. In this section, the framework of the Customary Marine Administration Systems in Negeri Latuhalat, Negeri Tulehu, Negeri Siri Sori Islam and Negeri Paperu is described.

Negeri Latuhalat

The policy of customary government of Negeri Latuhalat had been allowing the citizen of this *negeri*, both local and *orang datang dari belakang*, to explore and exploit the marine resources within its territory by traditional means under the application of communal right to Marine Unit. However, the high level of intervention from the Government of Municipality of the City of Ambon had limited the citizen of this *negeri* from accessing its marine resources. Inshore fish and sea grass plantation were included as the objects within the Customary Marine Administration. The necessity to apply for the permit from the Marine and Fisheries Agency of Municipality of City of Ambon had however led the mentioned items to be administered under the formal system.



Figure 6.23 Mark signing boundary between Negeri Paperu and Negeri Booi

Despite of the high level of intervention from the Government of Municipality of City of Ambon, the Customary Marine Unit Tenure System is currently still performing very well. This system was designed to provide the exclusive rights for the citizen of this *negeri* to explore and exploit the marine resources within its territory. However, the authority to issue the Customary Marine Tenures had been taken over by the formal government from this community. Moreover, the intervention from the formal government on the Customary Marine Unit Use and Tenureship had opened the area to be explored and exploited not only by the citizens of Negeri Latuhalat but also the outsiders.



Figure 6.24 Area occupied by Cape Paperu Resort and Spa within the customary marine territory of Negeri Paperu

Customarily, the marine space unit tenure system of Negeri Latuhalat provided no means for transferring the communal right to the Marine Unit. Every citizen of this *negeri* could therefore benefit from the Communal Marine Unit.

The duration of the application of communal right to Marine Unit had customarily not been limited, except in the case of the application of *sasi* scheme. The citizens of Negeri Latuhalat could explore and exploit most of the marine resources in its territory at any time. However, the exploitation of the specific products such as prawn, sea cucumber, top shell and fancy fish had only been allowed within a specific period.

Within the application of the Customary Marine Unit Tenure System in Negeri Latuhalat, there were three types of Marine Unit Tenure namely communal right, automatic usufruct and the usufruct. The security of these tenures had been ensured by the Customary Marine Tenure System of this *negeri*.

The Customary Marine Unit Administration had been done by the *kewang* institution, under the direct control of the chief. The head of *kewang* had been a hereditary appointment, while the member of *kewang* institution had been chosen from each quarter within the customary territory of Negeri Latuhalat.

The Customary Marine Administration rules of Negeri Latuhalat had been passed on verbally for generations. The role of customary government and various types of kinship association had been crucial for sustaining the system. Most importantly, the customary government had been upholding the important task of maintaining the custom, as well as their applications. Besides relying on the kinship system for transferring the prevailing Customary Marine Administration rules in this Negeri, the existence of vocational high schools in this *negeri* and in the Municipality of City of Ambon had been supplying reliable human resources for supporting the Customary Marine Administration.

The technological advancement had basically reshaped the Customary Marine Administration of Negeri Latuhalat. The Customary Marine Administration rules revealed

that institutional change processes had been taking place. The regulation on the use of motorboats and other modern fishing equipment acted as the evidence to support the above mentioned statement.

Nonetheless, the technological framework of the Customary Marine Administration in this *negeri* had not been well developed. The spatial knowledge on the customary territory and Marine Unit had been verbally passed on in detail for generations, while the administration of Marine Unit had been done by means of the oral agreement type of Marine Registration. Furthermore, the Marine Cadastral System in this *negeri* had only partially existed.

The Customary Marine Administration System had basically been enjoying the financial support from the higher hierarchical government and the activities performed within the scope of this system. Due to the inclusion of *kewang* within the structure of *negeri* government, this institution had been eligible to receive State funding. Furthermore, the customary government of Negeri Latuhalat had also been both customarily and formally allowed to generate local revenue from the customary governance in general and the Customary Spatial Unit Administration in particular¹⁷².

Negeri Tulehu

The performance of the Marine Tenure System in Negeri Tulehu had been done solely based on the existing custom, particularly the custom on the Marine Unit Use. In essence, the customary marine territory had been controlled by the customary government of Negeri Tulehu for the greatest benefit of the citizens of this *negeri*. The full authority on managing the Customary Marine Tenure System by the customary government of Negeri Tulehu had been allowing the Marine Unit Use to be bonded by the rights, restrictions and responsibilities of the subject of tenures over the Marine Unit in question, which had been implemented by the delivery of communal right, automatic usufruct and usufruct.

The policy of the customary government of Negeri Tulehu on Marine Unit Tenure-ship had allowed the citizens of this *negeri* to automatically enjoy the automatic usufruct to harvest marine resources in its marine territory without having to apply for it to the chief as the representative of the customary government of Negeri Tulehu. However, some general restrictions had been included within the terms of use of the communal right, which had only been given for the exploration and exploitation of marine resources within *negeri*'s customary territory by traditional means.

The current policy of Marine Unit Tenureship in this *negeri* had also been addressing the advancement of technology on the exploitation and exploration of marine resources in its marine territory, in particular in the customary marine protected areas. Additional restrictions had been applied in the exploration and exploitation of these marine resources by modern means, such as the prohibition of the use of a regulator for diving activities in shallow waters, the restriction of the use of a manufactured fishing net and so forth. Moreover, monitoring of the application of the terms of use of automatic usufruct and usufruct particularly in marine protected areas had been carried out by modern means such as modern diving equipment.

The Customary Marine Administration System of Negeri Tulehu had been managed centrally by the customary government of this *negeri*. The chief had been in charge of

¹⁷² Interview with Mozes Salhuteru, the chief of Negeri Latuhalat, 6 June 2011, 11 am – 12 pm Eastern Indonesian Time, Office of the Chief of Negeri Latuhalat, Latuhalat, City of Ambon, Municipality of City of Ambon

maintaining the sustainability of the system, which had been backed by *kewang* institution.

Unfortunately, the diminished respect for the *kewang* institution due to its inability to maintain its officials in the past, as well as the exhausted natural resources, had been a major obstacle in the enforcement of Customary Marine Administration rules. In response, the chief had decided to personally control the performance of this system. Furthermore, the lack of acknowledgement on legitimacy of Negeri Tulehu's customary government by a group of high-ranked citizen had also significantly affected the performance of the system as the level of compliance of the citizens classified under the latter mentioned group had steeply declined.

Due to its strategic location that attracted migrants and external values, the role of kinship on defining the excludability on the exploration and exploitation of marine resources had been considerably decreasing. Characterised as a patrilineal community, the kinship used to take an important role in defining the membership for this community. *Anak negeri* had been used as the term to define one's membership in the Negeri Tulehu's kinship system. However, the membership of this community had been extended to include all citizens of this *negeri*.

The participation of the citizens of this *negeri* had been considerably critical in maintaining the performance of the system. The willingness of the member of this society to put respect on the Customary Marine Administration System, as well as to contribute to the performance of the system, had acted as one of the factors that affected the performance of the system.

The Customary Marine Administration rules in Negeri Tulehu had been verbally passed on for generations. The role of kinship had been crucial for sustaining the system. Most importantly, the customary government had been upholding the important task of maintaining the custom, as well as their applications. Besides maintaining the custom, the customary government of this *negeri* had also been responsible for the enrichment of the Customary Marine Administration System. Such enrichment had been imperative, on the one hand, to sustain the system and, on the other hand, coping with modernisation.

As the representative of customary government, *kewang* institution had also been taking an important role in the maintenance of the Customary Marine Administration System. The head of *kewang* of Negeri Tulehu had been a hereditary position, while the membership of *Kewang* institution of this *negeri* had been considerably open to *anak negeri*. As the implementation of the Customary Marine Administration rules had greatly relied on the policy of customary government and the kinship system of this *negeri*, the performance of *kewang* institution had also been depending on the leadership of the head of *kewang*. Fortunately, the awareness of some citizens of this *negeri* for monitoring the effects of exploration and exploitation of marine resources on the environmental sustainability of its marine territory had been partly supplementing the limited capability of *kewang* institution in maintaining the system.

The technological aspect of the Customary Marine Administration System of Negeri Tulehu had not been well-developed. Even though the spatial knowledge regarding the customary marine territory and the existing Marine Unit had been clearly understood by the citizen of this *negeri* and respected by the adjacent *negeri-negeri*, it had nonetheless never been mapped. The Customary Marine Cadastral System had only partially existed, particularly due to the existence of the written custom on the Customary Marine Administration. On the other hand, the rest of the information regarding the Customary Marine Administration had never been recorded.

The Customary Marine Unit Administration System in Negeri Tulehu had been facing a financial problem to finance its activity. As *kewang* had not been included in the formal *negeri* government structure in accordance with the decrees of the Municipality of Central Maluku, *kewang* had not been eligible to receive State funding. Consequently, the chief himself had been providing the financial support for this institution since 2006¹⁷³. Nonetheless, such financial support had not been adequate to finance the marine *kewang* to perform its tasks as this institution required more facilities such as motorboats and so forth to monitor the vast marine territory of this *negeri*.

Negeri Siri Sori Islam

The policy of customary government of Negeri Siri Sori Islam has been, on one hand, providing unlimited access for the citizen of this *negeri* to marine resources in its marine territory except for top shell and sea cucumber, while, on the other hand, the application of *sasi* regime has been limiting the fishing operational areas. However, the *sasi* regime has proven to be the main means of maintaining the sustainability of the carrying capacity of this *negeri*'s marine environment. Top shell and sea cucumber have been acting as the indicator of marine environmental state as the existence of these products have proved to be positively correlated to the number of fish caught. Moreover, the technology advancement on fishery has also been taken into account on the enhancement of customary norms and values within the administration of the marine space unit use and tenure. The utilisation of advance technology has in general been prohibited in shallow waters.

The performance of the Customary Marine Unit Tenure System in this *negeri* had been highly valued. This system had been able to ensure the exclusivity of the right of the citizen of this *negeri*, as well as other institutions appointed by the customary government of Negeri Siri Sori Islam, for exploring and exploiting marine resources within its customary territory.

The role of customary institution on the management of its marine territory had been very strong, especially within the area in which the *sasi* scheme had been applied. The responsibility of customary government of Negeri Siri Sori Islam within the management of its marine territory and resources had been represented by *kewang* institution¹⁷⁴. *Kewang* institution in Negeri Siri Sori Islam had still been respected by the citizen of this *negeri*, especially due to its ability to provide the greatest benefit from the management of marine use and resources for the citizen of this *negeri*. The fact that *kewang* comprised of the representation of all *soa-soa* in Negeri Siri Sori Islam (Novaczek *et al. op. cit*) had been acting as one of the important vehicles in facilitating the people's participation. These had been confirmed by Novaczek *et al. (ibid.)*, who mentioned that the role of citizen on decision-making had been increasing enormously. Moreover, Novaczek *et al. (ibid.: 46)* also revealed that the level of consistency of *Kewang* within this domain had been considerably high. Furthermore, *kewang* had been liable to charge fines for the violation of *sasi* rules and customary values¹⁷⁵. Limited dispensations from *sasi* rules and custom for both citizens and non-citizens of Negeri Siri Sori Islam could also be issued, which had been the subject of an administration fee.

The human resources development had been done along the performance of the customary governance and the Customary Marine Administration in this *negeri*. As men-

¹⁷³ Interview with John Saleh Ohorella *op. cit*.

¹⁷⁴ Interview with Ferry Siahaya *op. cit*.

¹⁷⁵ *Ibid*.

tioned earlier, the participation of the citizens of this *negeri* had been encouraged, particularly by the structure of *kewang* institution and the customary governance in general. The Customary Marine Administration rules had been verbally passed on for generations by means of the above mentioned scheme. Accordingly, the understanding of the citizens of this *negeri* of the importance of the Customary Spatial Unit Administration System sustainability had been well-developed.

The technical aspect of the Customary Marine Administration System of Negeri Siri Sori Islam had not been well-developed. Since the establishment of this *negeri*, the oral agreement type of Marine Unit Registration System had been applied. The delivery of secondary Marine Tenures had been done within *saniri negeri* or *saniri besar* assembly, as well as the customary ceremony particularly in relation to the application of *sasi* scheme in this *negeri*. Furthermore, the Marine Cadastral System had only partially existed as such a system had only been maintaining the written Customary Marine Administration rules.

The partial cost recovery scheme applied in management of marine use and resources in Negeri Siri Sori Islam is quite unique compared to other sub-case study areas in this study. According to Novaczek *et al.* (*ibid.*: 320), the fund acquired from the auction of right to harvest sea cucumber and top shell is normally distributed among the mosque (5%), *Kewang* institution (10%) and the customary government of Negeri Siri Sori Islam (85%). Moreover, administration fee and fine acquired from the enforcement of the *sasi* scheme and customary values within this domain also add to the income of customary government of this *negeri* and have been used to support the performance of the customary government in general and *Kewang* institution in particular.

Negeri Paperu

Between 2008 and 2011, the customary government of Negeri Paperu was in a transition period as the late king was passed away in 2008¹⁷⁶. Consequently, *sasi*, which has also been acting as the customary rules on management of terrestrial and marine territory of Negeri Paperu, had not been functioning¹⁷⁷. The previously mentioned circumstance had also led to the deterioration of the well-being of most coral reefs in the territory of Negeri Paperu¹⁷⁸.

In fact, Negeri Paperu had already had a good basis for the application of Customary Marine Administration of its territory. *Saniri negeri* had promulgated a formal village regulation regarding this *negeri*'s marine use management. Novaczek *et al.* (*ibid.*: 62-63) highlighted the ineffectiveness of *kewang* institution as of fundamental causes of the unsuccessful attempt on the enforcement of Customary Marine Administration rules. However, it was expected that marine *sasi* would be re-established after the establishment of new customary government of Negeri Paperu, particularly in the area between Paperu Village and a small cape between Paperu Village and Booi Village¹⁷⁹. This area had mainly been considered as one of the important breeding ground for pelagic fish of Banda Sea, especially due to its location within Saparua Bay that was protected from the Banda Sea by the Paperu Cape¹⁸⁰.

¹⁷⁶ Interviews with Agus Soukotta *op. cit.*

¹⁷⁷ Interview with Charles Pattiselano *op. cit.*

¹⁷⁸ Group interview with Kurt Gross *op. cit.*

¹⁷⁹ Interview with Charles Pattiselano *op. cit.*

¹⁸⁰ *Ibid.*

Fortunately, the customary norms and rules on the management of marine territory of Negeri Paperu had still been enforced in a few cases. The customary government of Negeri Paperu had been claiming an administration fee from Cape Paperu Resort and Spa for the extensive diving activities in this *negeri*'s marine territory by the owners and the customers of this resort¹⁸¹.

Even though the customary governance in this *negeri* had been ineffective between 2008 and 2011, the Customary Marine Administration had still been partially operational. This was mainly due to the division of tasks among the kinship associations in this *negeri* within the scope of the customary governance in general and the Customary Marine Administration in particular. The Customary Marine Administration in this *negeri* had been upheld by *kewang*, which allowed the Customary Marine Administration to be partially operational.

Along with the ineffective customary governance in this *negeri*, the human resources development scheme within the scope of the Customary Marine Administration had also been ineffective. Due to this ineffective customary governance, the assembly of *saniri negeri* and *saniri besar*, which had been acting as the only means of the development of the human resources, was not upheld between 2008 and 2011.

The technological aspect of the Customary Marine Administration had not been well-developed. In spite of the ineffective customary governance, the administration of Marine Tenure had been done by means of the oral agreement type of Registration System, which required no technological means. Moreover, the Customary Marine Cadastral System had only partially existed.

The Customary Marine Administration in this *negeri* had unfortunately not been reinforced by sufficient financial support. Due to the ineffective customary governance, as well as its ineligibility to receive State funding, the *kewang* institution had been forced to provide self-financial support to performing its activities. Furthermore, the ineffective customary governance had also lessened the contribution from the citizens of Negeri Paperu.

6.3 Concluding Remarks

The Customary Spatial Unit Administration Systems in the selected case study areas already used the fine basis to maintain its sustainability. This particularly due to the application of the concept of Spatial Unit, Spatial Unit Administration, Spatial Unit Cadastral System, fundamental framework of Spatial Unit Administration System and, most importantly, the integrated Spatial Unit Administration. See Table A.1 in Appendix A for the description of the Customary Spatial Unit Administration Systems in the four sub-case study areas.

The hybrid application of Spatial Unit concept had been made within the application of Spatial Unit Administration in the four sub-case study areas. On one hand, the Spatial Unit on land had been administered in 2D environment, while, on the other hand, the Spatial Unit at sea had always been treated as a 3D unit. This was due to the nature of the resources attached to the Spatial Unit. On land, the employment of notion of land as a part of the Earth's surface had affected the customary administration of Spatial Units and resources attached to it, either the natural or man-made one. Even though each natural or man-made resource in the four sub-case study areas occupied a space between the surface of the Earth and the plain represented the highest point or surface of the re-

¹⁸¹ Group interview with Kurt Gross op. cit.

source above the Earth's surface, the resource was still considered to be attached to the Earth's surface.

On the contrary, the customary administration of Spatial Units at sea in the four sub-case study areas had been done in 3D environment particularly due to the characteristic of the marine resources in these areas and, most importantly, the concept of customary territory at sea. In these sub-case study areas, the seabed had been acknowledged as the extension of their terrestrial territories. The customary territory boundaries of the four sub-case study areas were bordered by the edges of sea trenches, which revealed the employment of the concept of Spatial Unit at sea. Moreover, the local marine resources could be found in the water column between the sea floor and the sea surface.

In principle, the Customary Spatial Unit Administration in the four sub-case study areas had been applying the proposed Spatial Unit Administration concept. The evidence on the implementation of the Spatial Unit Administration concept within the performance of the Customary Spatial Unit Administration could be seen from the activities regarding Spatial Unit Use, Spatial Unit Tenure and Spatial Unit Value.

Cadastre was basically introduced as the impact of the existence of well-established written culture. As the system that is designated to maintain information regarding the tenureship, the use and the value of Spatial Unit, Spatial Unit Cadastre consists of written information that can be disseminated to the competent authorities. Beside the development of the cadastre, the paperless information has mostly constituted the contemporary cadastre.

The Customary Spatial Unit Cadastre was considered as the initial form of the cadastre. The implementation of Spatial Unit Cadastre concept could only be found in the form of cadastral records on paper called *register dati* in the four sub-case study areas, as well as the written form of Spatial Unit management rules and their spatial description in Negeri Paperu, Negeri Siri Sori Islam and Negeri Latuhalat.

The fundamental framework of the Customary Spatial Unit Administration Systems had been shaping the Customary Spatial Unit Administration in the four sub-case study areas. The policy of the customary governments of the selected areas, except for Negeri Paperu, to provide the greatest benefit to its people had been leading to the sustainability of the Customary Spatial Unit Administration Systems. The case of Negeri Paperu had also strengthened the statement that the lack of credibility of the customary government had impeded the Customary Spatial Unit Administration in this *negeri*.

Organisationally, the Customary Spatial Unit Administration had been made sectorally, particularly considering the existence of marine and land *kewang* in each sub-case study area. Such a division of task in *kewang* institution had been done particularly due to the different knowledge and skills required on the administration of marine and land territory.

Besides the formal means on the development of human resources, the communalistic approach on the customary governance and Customary Spatial Unit Administration had taken an important role in the development of human resources within the scope of the Customary Spatial Unit Administration. Such an approach proved to be able to provide the adequate human resources to support the Customary Spatial Unit Administration and sustaining the Customary Spatial Unit Administration Systems. The case of Negeri Paperu had also provided evidence in the importance of the human resources development for particularly encouraging the participation of the people on the Customary Spatial Unit Administration.

Even though the technological aspect of the Customary Spatial Unit Administration Systems in the selected case study areas had not been well-developed, the Customary Spatial Unit Administration Systems had been able to sustain themselves over time.

This had been greatly affected by the communalistic type of the communities in the selected case study areas. Even though information regarding the Customary Spatial Unit Administration had been distributed verbally, such information was publicly known and understood by the citizen of each *negeri*. In the case of Negeri Paperu, the ineffective Customary Spatial Unit Administration was in place not due to the lack of utilisation of technology but because of the ineffective customary governance.

The financial aspect of the Customary Spatial Unit Administration Systems of the four sub-case study areas had also taken an important role in sustaining the system. To sustain themselves, these systems had relied on financial contributions from and participation of the people, in accordance with the prevailing custom. Consequently, the credibility of the customary government as the executor of the system was extremely important. Furthermore, the external influences particularly from the higher hierarchical government had also financially affected the Customary Spatial Unit Administration in the four sub-case study areas.

Most importantly, the integrated Customary Spatial Unit Administration on land and sea had been considered as the most important factor that sustained the Customary Spatial Unit Administration Systems in the selected case study areas. The key feature of the system that had led to its sustainability was the structure of the Spatial Unit governance. Even though the Customary Spatial Unit Administration had sectorally been done, the Customary Spatial Unit Administration had been done under direct supervision of the customary government, except in Negeri Paperu in which the customary government had been ineffective between 2008 and 2011. The development of policy and regulations on the Customary Administration, as well as the implementation of the policy and regulations, had been done collectively by the customary governments of Negeri Latahalat, Negeri Tulehu and Negeri Siri Sori Islam. Accordingly, such an approach had been able to guarantee the representativeness of the people of these *negeri-negeri*, as well as the transparency on the decision-making process, which further increased the credibility of the customary government as the executor of the Customary Spatial Unit Administration and, in turn, led to the effectiveness of the implementation of the policy and regulations.

Having identified the features of the Customary Spatial Unit Administration Systems in the four sub-case study areas, the roles of the Customary Spatial Unit Administration on leading to the achievement of the the goal of sustainable development are portrayed in Chapter 7. The roles of the Customary Spatial Unit Administration on the achievement of the the goal of sustainable development were assessed by means of the sustainable development indicators that are directly linked to the Spatial Unit Administration, which is described in the section on Spatial Unit Administration indicators for sustainable development in Section 2.2.

7 Role of Customary Spatial Unit Administration on Sustainable Development

The Customary Spatial Unit Administration System had to some extent been able to lead to the achievement of the goal of sustainable development in the Ambon Lease region. Among the roles of Customary Spatial Unit Administration System on the attainment of a sustainable development objective in this region, the institutional aspect of Spatial Unit Administration had been acting as the basis of the achievements within the scope of three other pillars of sustainable development, namely environmental sustainability, as well as economic and social development. Without the ability to sustain itself, in turn, achievement of the goal of sustainable development would be impeded as the Spatial Unit Administration theoretically provides the fundamental means for administering the Spatial Unit within the scope of economic and social development, as well as environmental preservation.

Within this chapter, the role of the Customary Spatial Unit Administration Systems in the selected case study areas on leading to the fulfilment of the goal of sustainable development is revealed. The impacts of the Customary Spatial Unit Administration on environmental preservation, as well as economic and social development, are illustrated in Section 7.1, 7.2 and 7.3. Concluding remarks are given in Section 7.4.

7.1 Ecological Impact

In this section, the ecological impacts of the Customary Spatial Unit Administration in the four sub-case study areas are measured. The assessment of the role of the Customary Spatial Unit Administration System on the achievement of the objective of sustainable development depicted in this section was done by utilising the indicators of sustainable development, which are directly linked to the Spatial Unit Administration as described in the section on Spatial Unit Administration indicators for sustainable development in Section 2.2. The role of the Customary Spatial Unit Administration on sustaining land environment is firstly depicted, followed by the description on the outcome of the assessment of the ecological impacts of the Customary Spatial Unit Administration on marine environment.

Land Environment

As described in the section on Spatial Unit Administration indicators for sustainable development in Section 2.2, there are several indicators that could be employed to measure the sustainability of land environment. Those indicators are the proportion of land covered by forest, coverage of arable and permanent cropland area, area of forest under sustainable forest management, the rate of Land Use change and land degradation.

Proportion of Land Covered by Forest

In general, the Customary Spatial Unit Administration in this region had proven to be able to act as a means of sustaining its land environment, particularly considering its geographical limitation. Even though it only had of 20% liveable area, 35% of Ambon Lease region or 38,255 ha was covered by primary rainforest, while 22% of its area or

24,312 ha was covered by secondary rainforest. The higher figures on the coverage of primary and secondary rainforest could even be acquired as 11% of the coverage of this region was covered by clouds during the Land Use map data acquisition. See Figure 7.1 for Land Use of Ambon Lease region. Among the main islands in this region, Ambon Island had the largest coverage of forest, which was 38,462 ha or 30% of the extent of the island, while Nusalaut Island had the highest percentage of primary and secondary forest coverage, which was 91% or 2,955 ha. Moreover, Saparua Island had 12,177 ha of primary, secondary and industrial forest or 69% from its total extent, while the coverage of primary and secondary forest in Haruku Island was 9,643 ha or 64% of its extent. See Figure 7.1 for the description of Land Use of Ambon Lease region.

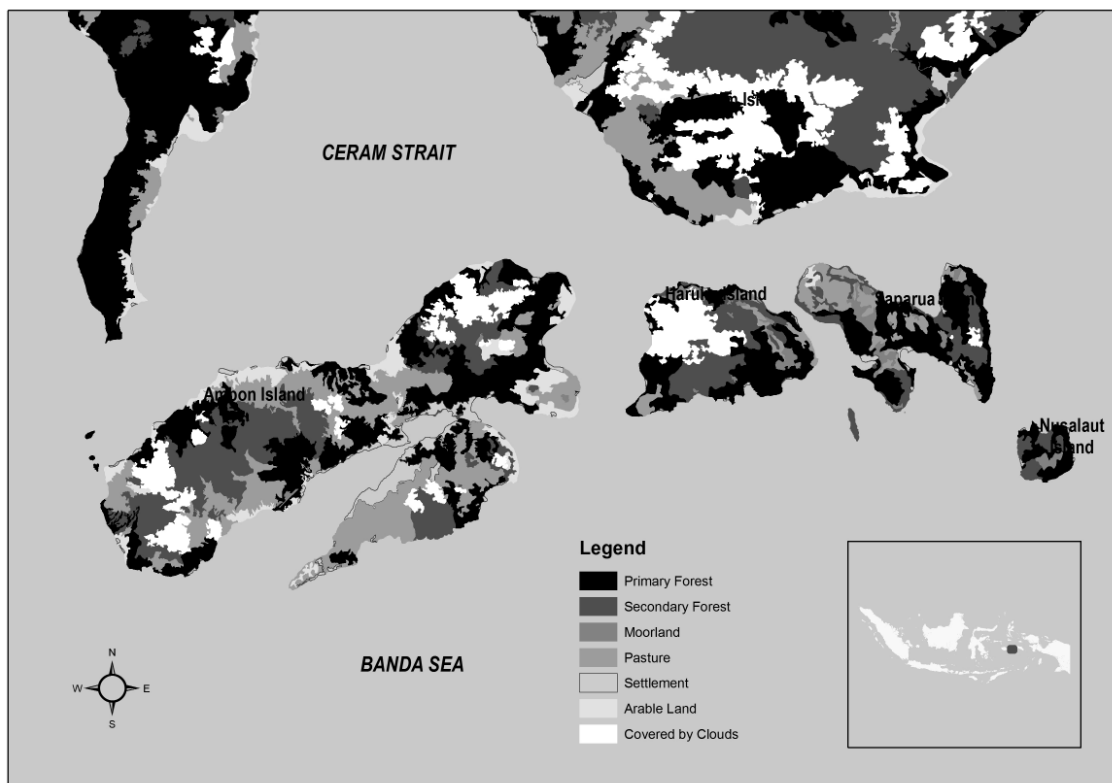


Figure 7.1 Land Use of Ambon Lease region (Source: Land Use Map 2006 of National Land Agency)

The Land Use of Negeri Latuhalat in Ambon Island was dominated by settlement, pasture, arable land and permanent cropland. The primary and secondary forest in Negeri Latuhalat had long been converted into pasture and various types of arable land and permanent cropland, while a settlement area had existed even before the establishment of this *negeri*. However, during the data collection processes it could be identified that most of the permanent cropland had grown into secondary forest. Additionally, the existence of large scale breadfruit and banana plantations could, at least partly, substitute the function of primary and secondary forest in Negeri Latuhalat.

The non-existence of primary forest in Negeri Latuhalat was in fact influenced by the individualisation of communal land, as well as the deterioration of influence of customary land governance by the citizens of this *negeri*. During the implementation of *dati* law, several parcels of communal lands were distributed to *dati* associations as compensation for performing one or more *dati* tasks. After all *dati* lands had been registered, the process of the distribution of land belonging to *negeri* to those who had no land at

all was initiated. At the end of this process, lands belonging to *negeri* had all been distributed to those who did not belong to any *dati* association, which was done to ensure equity on accessing the land.

Moreover, the diminishing influence of government of Negeri Latuhalat on management and administration of the land within its territory had also led to the non-existence of primary and secondary forest in this *negeri*. The decline of influence of customary land governance on the attitude of the citizens of Negeri Latuhalat on the management of land could not solely be blamed on the individualisation of tenureship as the individualisation of communal land in the other sub-case study areas did not lead to what had happened in Negeri Latuhalat. In fact, the *negeri* government's policy was the reason that had allowed the conversion of primary and secondary forest into other types of Land Use. However, careful consideration was taken before allowing such a conversion to take place. Even though the Customary Spatial Unit Administration on land territory of this *negeri* had been ineffective, during the data collection processes in 2009 and 2011 it could be identified that most of the permanent cropland had grown into secondary forest. Additionally, the greenness of this *negeri* was considerably high.

On the other hand, Negeri Tulehu still had a vast extent of primary forest, as well as a small portion of secondary forest. The primary forest is mostly found in the northern part of Negeri Tulehu, which was classified under primary swamp forest. Moreover, most clove plantations, which were established a couple decades ago, had grown into secondary forest.

The sustained primary forest in Negeri Tulehu had mainly been an effect of the excellent performance of the Customary Spatial Unit Administration in this *negeri*. Several features were identified as the pillar of the Customary Spatial Unit Administration System in Negeri Tulehu on preserving primary forest in its territory. The first feature was the zoning ordinance, which regulated the access to *wasi amang* and *ewang*. As most, if not all, of the primary forest in this *negeri* was classified under primary swamp forest, *ewang* had taken an important role in maintaining the primary swamp forest and watershed buffer forest.

The Customary Spatial Unit Administration rules particularly in relation to the use and the tenure of the land on the territory of Negeri Tulehu had also been applied. Several customary rules were in the form of *sasi*, which was considered as the most powerful regulation regarding the management of Land and Marine Units. Besides applying the *sasi* rules that could be found in other *negeri-negeri* in Ambon Lease, such as *sasi* on nutmeg, bamboo, palm sago and coconut, Negeri Tulehu had a unique *sasi* for protecting the springs. This was quite important as there were only a few springs available in Ambon Island, while the irresponsible use of springs, creeks and rivers had led to the deterioration of water and environmental quality of Ambon Island.

Finally, the effective customary Spatial Unit governance on land was the main feature that had driven the Customary Spatial Unit Administration System in protecting the primary forest in Negeri Tulehu. The Customary Spatial Unit Administration System had been regulating the interaction between human and the surrounding environment, which also included the two previously mentioned arrangements. Most importantly, the customary government of Negeri Tulehu had been applying the customary regulations on the management of land in its territory, strictly and without any exception, to everyone who lived there. In spite of the lack of funding to facilitate the performance of the customary Land Administration System in this *negeri*, the customary government of Negeri Tulehu had been monitoring all activities in relation to land management in its territory. By only depending on the private fund from the Chief of Negeri Tulehu, the customary government had been able to minimise the illegal logging activities. More-

over, customary law enforcement had effectively been instituted as the customary reward and punishment scheme was still strictly applied within the customary land governance in this *negeri*. The trustworthiness of customary government of Negeri Tulehu had also maintained the high level of trust of the people of Negeri Tulehu to the customary government of this *negeri*, which strengthened the level of obedience of the people to the customary government of Negeri Tulehu.

Furthermore, the territories of Negeri Paperu and Negeri Siri Sori Islam of Saparua Island were still heavily covered by primary and secondary forest. In Negeri Paperu, the settlement area was surrounded by primary forest, which covered not less than 30% of its territory or approximately 270 ha, while secondary forest located at the western part of this *negeri*, covered not less than 40% of the territory of this *negeri* or approximately 360 ha.

The influence of the customary Spatial Unit governance in the past could still be recognised in Negeri Paperu. Even though the customary government had been ineffective between 2008 and 2011 because of the customary government succession period, the coverage of primary and secondary forest in this *negeri* could still be maintained. Due to the absence of the customary government, *sasi* scheme had not been applied between 2008 and 2011. However, the customary zone order had still been maintained. Restrictions regarding certain activities in the primary forest, which was locally classified as *tanitar*, were still being implemented and obeyed by the people of Negeri Paperu.

Moreover, most of the nutmeg, clove and cocoa plantation located on *dati* land, which had grown into secondary forest, were still well-preserved. This revealed the attitude of members of the *dati* association, who preferred to sustain their secondary forest on *dati* land, and which was influenced by the values employed during the performance of Customary Spatial Unit Administration System in the past.

Identical circumstances could also be found in Negeri Siri Sori Islam. The coverage of each of primary and secondary forest was no less than 40% of its territory or approximately 650 ha altogether. This was mainly due to the effective performance of customary Spatial Unit governance on the land of this *negeri*. The customary land zones, such as *negeri lama*, *tanitar*, also known as *negeri's* forest and *ewang* still existed and were respected by the people of Negeri Siri Sori Islam. Moreover, the strong and customary government had influenced its people to maintain the sustainability of the primary and secondary forest in this *negeri*. The existence of the endemic plant of Saparua Island locally known as Gandaria Tree (*Bouea macrophylla*), which was only found this island and Botanical Garden in Bogor, West Java, Indonesia, had increased the importance of maintaining the sustainability of primary and secondary forest in Negeri Siri Sori Islam. The initiative to promote ecotourism due to the existence of the Gandaria Tree was also evidence that the objective of customary land governance in this *negeri* was to promote a balance among economic development, ecological preservation and social values conservation.

Coverage of Arable and Permanent Cropland

The coverage of arable land and permanent cropland in Ambon Lease Region was considerably high. As previously mentioned, most permanent cropland in this region had grown into secondary forest. The coverage of arable land and permanent cropland altogether in Ambon Lease region was 30,986 ha or 28% of its area. This figure was the second highest after the coverage of primary forest. From 30,986 ha area, the coverage of permanent cropland was 22% of the area of Ambon Lease region or 24,312 ha, while the coverage of arable land in this region was 6% or 6,316 ha. This indicated that permanent crops still acted as the main products of this region.

In 2007, Saparua Island had only a small extent of arable land, which was 2% of its extent or approximately 270 ha (Dinas Pertanian Tanaman Pangan Kecamatan Saparua 2007a: 39 and 2007b: 40), such as the one in *negeri* Kulur that could be identified on map. During data collection process in 2009, a massive land conversion into arable land in *negeri* Kulur was in place. See Figure 7.2 for the view of arable land in the surroundings of Negeri Kulur. On the other hand, in 2007, the permanent cropland, which had mostly grown into secondary forest, and industrial forest in Saparua Island covered up to 23% of its total extent or approximately 4,145 ha (Dinas Perkebunan Kabupaten Maluku Tengah 2007b: 43). Among the permanent croplands in Saparua Island, the coverage of clove plantation was the largest, reaching 2,608 ha, while the coverage of cocoa, nutmeg and coconut plantations was 877 ha, 529 ha and 131 ha (*ibid.*).



Figure 7.2 Arable land in the surroundings of Negeri Kulur

As the main island in which the capital of the Province of Maluku is located, Ambon Island had been experiencing considerable pressure on its Land Use. Its 74,227 ha, coverage of main settlement areas, was higher compared to that of Saparua Island. While Saparua Island had only 410 ha of settlement areas or 2% of its total extent, the total extent of settlement areas in Ambon Island was 3,411 ha or 5%. Fortunately, the extent of secondary forest could still be maintained at the level of 15,879 ha or 21% of the extent of Ambon Island. As identified in Saparua Island, the most permanent cropland in Ambon Island had in fact grown into secondary forest. Moreover, arable lands in Ambon Island could easily be identified as they covered 6,116 ha or 8% of its total extent.

In Negeri Siri Sori Islam and Paperu, arable land could barely be identified. There was no arable land in these *negeri-negeri* that could be identified from the Land Use map. During the data collection processes in 2009 and 2011, most arable lands in these *negeri-negeri* were found in pasture areas, each with a small extent of 20 m² on average. See Figure 7.3 for a small portion of arable land in a backyard in Negeri Paperu. This explained the inexistence of arable land in Negeri Siri Sori Islam and Paperu as the

small portion of arable land within a greater pasture area would be merged into pasture area class during data processing on the making of the Land Use map. On the other hand, the permanent cropland coverage in Negeri Siri Sori Islam and Paperu was quite high. In both *negeri-negeri*, the coverage of permanent cropland was 50%.



Figure 7.3 Arable land in a backyard in Negeri Paperu

Even though the customary government of Negeri Paperu had been ineffective between 2008 and 2011, the influence of the Customary Land Administration System from the past on the management of permanent cropland could still be acknowledged. No *sasi* scheme had been applied during the previously mentioned period. However, the awareness of the members of *dati* association to maintain the sustainability of the permanent cropland was exceptionally high, even though their level of obedience in applying the Customary Spatial Unit Administration rules on land from the past was lower than that in which the customary Land Administration rules were still applied. During the data collection processes in 2009 and 2011, a few young coconuts were harvested for the guests during the coconut's off season, which had been forbidden during the implementation of *sasi kelapa* in the past.

In contrast, the effective customary Spatial Unit governance on the territory of Negeri Siri Sori Islam had taken an important role in maintaining the coverage of permanent cropland. Coverage of permanent cropland, which was identified as secondary forest on the Land Use map, was quite high. Even its extent was more or less equal to the extent of primary forest. The fact that the *sasi* scheme was still applied in this *negeri* indicated that the customary Spatial Unit governance was operational.

Moreover, besides the application of *sasi* scheme that could mostly be found in the other sub-case study areas, such as *sasi* on coconut, nutmeg and sago palm leaves, some unique *sasi-sasi* had also been applied in Negeri Siri Sori Islam. In this *negeri*, *sasi-sasi* had been for collecting durian, walnut, cloves and the leaves of *ketupa* (*Baccaurea dulcis*), as well as for cutting tree logs and branches, from *negeri*'s forest during specific

periods. These *sasi-sasi* were applied by considering the most important products of the secondary forest of Negeri Siri Sori Islam.

The coverage of arable land and permanent cropland in Negeri Tulehu shared more or less the same extent, which altogether covered 40% of the territory or not less than 1,230 ha. The arable lands had mostly established by the Butons. Moreover, most permanent croplands had only been established couple decades ago. Actually, there was a massive establishment of permanent croplands, particularly clove plantations, during the Dutch colonial era. However, to escape from the government's monopoly on clove during the 1980s, most permanent croplands were abandoned or converted into other types of Land Use¹. The newly established permanent croplands were mostly founded by the locals a couple decades ago².

The policy of the customary government of Negeri Tulehu to allow the conversion of *negeri's* land into arable land by the Butons had significantly increased the coverage of arable land in this *negeri*. Moreover, as the influence of customary government on its people particularly on the management of land had weakened, permanent cropland on *dati* land had been converted from clove plantations into other types of permanent cropland. However, the high economic value of cloves caused them to be planted again a couple of decades ago. The customary government of Negeri Tulehu was not involved in this activity as it mostly happened on *dati* land. This revealed the diminishing of influence of Negeri Tulehu's customary land governance on the management of *dati* land. The focus of the customary government of Negeri Tulehu on protecting the primary forest had also taken into account the rationale of the dynamics of permanent cropland along with the existence of a limited number of *kewang* institution members.

Differing from the previously mentioned *negeri-negeri*, Negeri Latuhalat territory was dominated by arable land, pasture and permanent cropland. The main product of arable land in Negeri Latuhalat was cassava. With the cassava plantation's extent of 37.75 ha, Negeri Latuhalat had produced 23.47 tons of cassava in 2007. Moreover, there were small portions of arable lands found in pasture areas during the data collection processes in 2009 and 2011. Besides cassava, there were also banana, mango and breadfruit plantations in Negeri Latuhalat³.

The policy of customary government of Negeri Latuhalat regarding its land management had indeed increased the extent of arable land and permanent cropland. The conversion from primary forest into arable land and permanent cropland had been allowed after the registration of *dati* land was completed in 1814, particularly for providing the citizens of Negeri Latuhalat with the benefits from land management. Moreover, for the same reason, the conversion of traditional cropland in this *negeri*, particularly coconut into banana, mango and breadfruit, was also permitted.

Land Use Change

In general, Saparua Island has been experiencing a modest Land Use change. The extent of forest in 2007 in Saparua Island was exactly the same as that of 2003, which was

¹ Group interview with Muhammad Padja, the resident of City of Ambon, 22 June 2009, 5 – 6 pm Eastern Indonesian time, Jami Mosque Ambon, Municipality of City of Ambon

² Interview with Muhammad Zaenuddin, the native of Negeri Tulehu, 10 June 2011, 1 – 2 pm Eastern Indonesian Time, Tulehu, Municipality of Central Maluku

³ Interview with Mozes Salhuteru, the chief of Negeri Latuhalat, 6 June 2011, 11 am – 12 pm Eastern Indonesian Time, Office of the Chief of Negeri Latuhalat, Latuhalat, City of Ambon, Municipality of City of Ambon

4,625 ha (Badan Pusat Statistik Kabupaten Maluku Tengah 2003: 38 and 2007: 38), while the extent of secondary and industrial forests in 2003, which were 9,750 ha, was exactly the same as that of 2007 (Dinas Perkebunan Kabupaten Maluku Tengah 2003b: 43 and 2007: 43). Moreover, even though there had been an increasing area of arable land for growing spinach, cabbage, spring beans, chilli, tomatoes, eggplant, broad beans, cucumbers and morning glory, the total extent of arable land in Saparua Island had only slightly changed from 445 ha in 2003 to 478 ha in 2007 (Dinas Pertanian Tanaman Pangan Kabupaten Maluku Tengah 2003a: 39-40 and 2007a: 39-40). However, the increasing extent of arable land mentioned above had also been compensated by the decreasing extent of fruit plantation (Dinas Pertanian Tanaman Pangan Kabupaten Maluku Tengah 2003b: 41 and 2007b: 41). See Figure A.1 in Appendix A for the description of the change of extent of primary forest, secondary forest and arable land in Saparua Island between 2003 and 2007.

Even though the Municipality of City of Ambon had been experiencing an extensive pressure on its Land Use, the coverage of its forest between 2005 and 2007 had not changed. The coverage of primary forest in the Municipality of the City of Ambon between 2005 and 2007 was 23,038 ha (Dinas Kehutanan Provinsi Maluku 2006: 273-274 and 2008: 280-281).

On the other hand, coverage of arable land in Municipality of City of Ambon between 2005 and 2007 had only slightly increased, while the total extent of permanent cropland during this period had decreased. The extent of arable land in 2005 was 215 ha (Dinas Pertanian Provinsi Maluku 2006: 220-250), while the coverage of arable land in the Municipality of City of Ambon in 2007 was 287 ha (Dinas Pertanian Provinsi Maluku 2008: 231-258). On the other hand, the extent of permanent cropland in the Municipality of City of Ambon in 2005 was 9,502 ha (Dinas Pertanian Provinsi Maluku 2006: 252-267), while the coverage of permanent cropland was only 8,567 ha in 2007 (Dinas Pertanian Provinsi Maluku 2008: 260-276). See Figure A.2 in Appendix A for the description of the change of extent of primary forest, permanent cropland and arable land in the Municipality of City of Ambon between 2005 and 2007.

The prevalence of Land Use change in Negeri Siri Sori Islam and Paperu was quite low, while the rate of Land Use conversion in Negeri Latuhalat and Tulehu was quite high. Negeri Siri Sori Islam had been able to maintain the coverage of primary forest, mostly locally classified as *negeri's* forest, as well as the secondary forest or *ewang*. The coverage of other Land Use types, which were settlement area and pasture land, had also not changed. See Figure 7.4 for satellite map of Negeri Siri Sori Islam and Negeri Paperu from 1987 and Figure 7.5 for satellite map of the mentioned *negeri-negeri* from 2002 for the comparison of the land cover of both *negeri-negeri*.

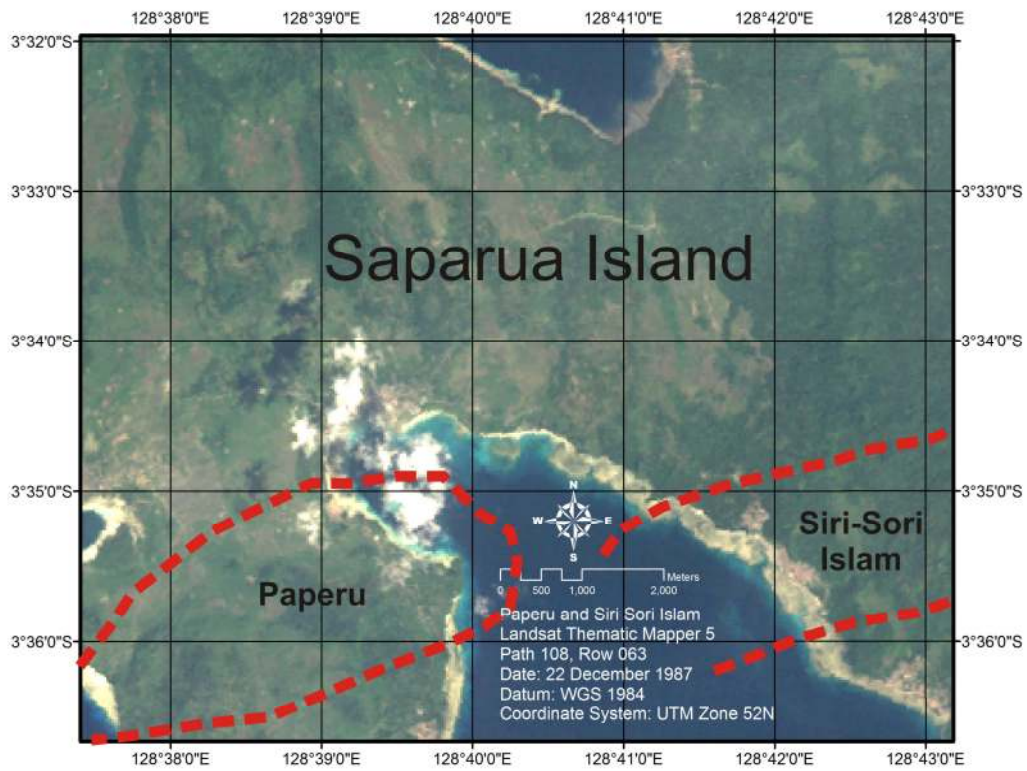


Figure 7.4 Land cover of Negeri Siri Sori Islam and Negeri Paperu on 22 December 1987

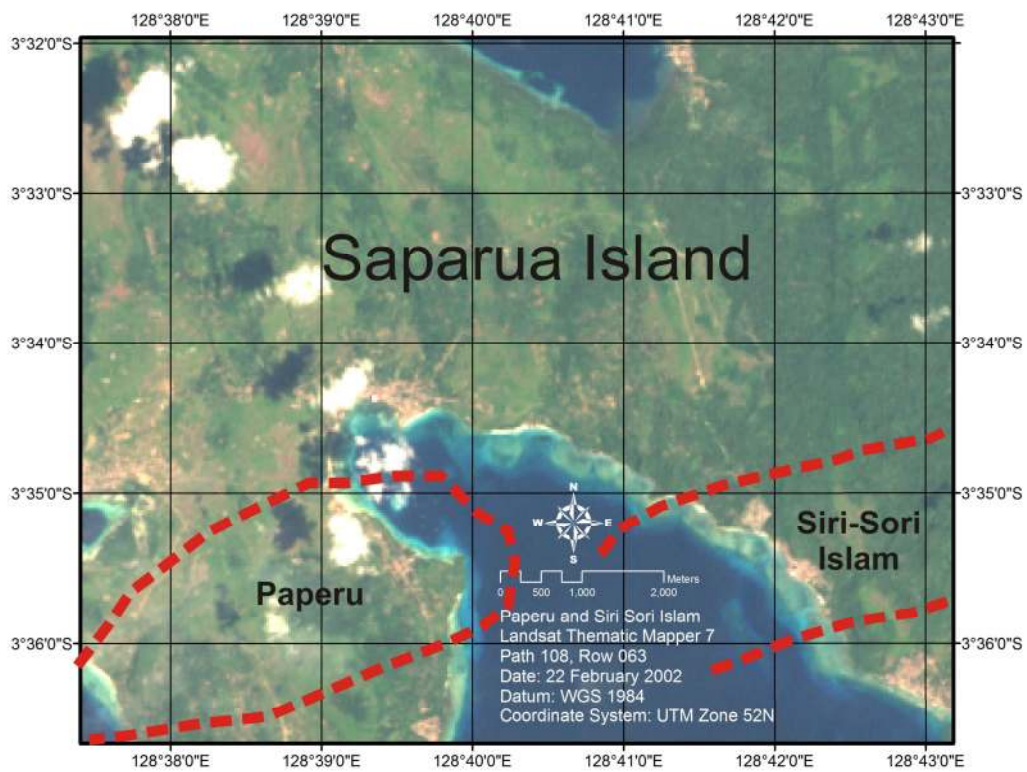


Figure 7.5 Land cover of Negeri Siri Sori Islam and Negeri Paperu on 22 February 2002

Several factors were influencing the ability of the customary government of Negeri Siri Sori Islam to lessen the prevalence of Land Use change. Besides the above factors that had led the customary government of this *negeri* to maintain the coverage of primary forest and permanent cropland, the ability to provide housing for the citizens of Negeri Siri Sori Islam had also led to the maintenance of coverage of settlement areas here. Between 2003 and 2007, the number of inhabitants of this *negeri* had increased from 2,183 to 2,509 (Badan Pusat Statistik Kabupaten Maluku Tengah 2003: 15 and 2007: 15). However, this had led to an overcrowded settlement area in this *negeri* as the population density had increased from 251 people per km² in 2003 to 266 people per km² in 2007 (Badan Pusat Statistik Kabupaten Maluku Tengah 2003 *op. cit.* and Badan Pusat Statistik Kabupaten Maluku Tengah 2007 *op. cit.*).

Even though the customary government of Negeri Paperu had been inactive between 2008 and 2011, the land governance had in general been able to lessen the Land Use conversion in this *negeri*. Most of the conversions from *ewang* into arable land were done on *dati* land, which revealed the diminishing of influence of customary government to the people of Negeri Paperu. However, the awareness established during the performance of Customary Spatial Unit Administration in the past was still at a tolerable level. Furthermore, by comparing the satellite images taken in 1987 and 2002, Negeri Paperu had not experienced a drastic change of Land Use.

The policy on customary Spatial Unit governance on land territory of Negeri Latuhalat could basically still maintain the quality of its land environment. Negeri Latuhalat had gone through a massive Land Use conversion, particularly from coconut plantations to breadfruit, mango and banana plantations. As can be seen from the Land Use map, Negeri Latuhalat had no primary and secondary forests. However, during the data collection processes in 2009 and 2011, it could be identified that most of the permanent cropland had grown into secondary forest. Moreover, the satellite images of Negeri Latuhalat taken in 1993 and 2003 showed that, between 1993 and 2003, the Land Use of Negeri Latuhalat has not changed significantly. The conversion from coconut plantations into breadfruit, mango and banana plantations could basically still maintain the greenness of this *negeri*. See Figure 7.6 for the satellite map of Negeri Latuhalat from 1993 and Figure 7.7 for the satellite map of Negeri Latuhalat from 2003 for the comparison of land cover of this *negeri*.

Negeri Tulehu had also been experiencing a severe Land Use conversion. The Land Use conversions were mostly taking place on land that belonged to *negeri* government, mostly in the form of *ewang*, which was converted into arable land mainly by the Butons⁴. The arable land in the territory of Negeri Tulehu could mostly be found within the outskirts of the settlement area of this *negeri*. Moreover, besides the above mentioned conversion, there had also been the Land Use conversion into public infrastructures such as the new market and new port.

In spite of the pressure to its Land Use due to its strategic position in the Province of Maluku and Northern Maluku, the land governance in Negeri Tulehu could still sustain its primary and secondary forests, as well as permanent cropland. Moreover, even though the birth and immigration rates in 2008 were quite high, the coverage of the settlement area had not changed. However, this had led to overcrowding in the settlement area in this *negeri*.

⁴ Interview with John Saleh Ohorella, the chief of Negeri Tulehu, on 21 June 2009, 10 – 11 am Eastern Indonesian Time, the residence of the Chief of Negeri Tulehu, Tulehu, Municipality of Central Maluku

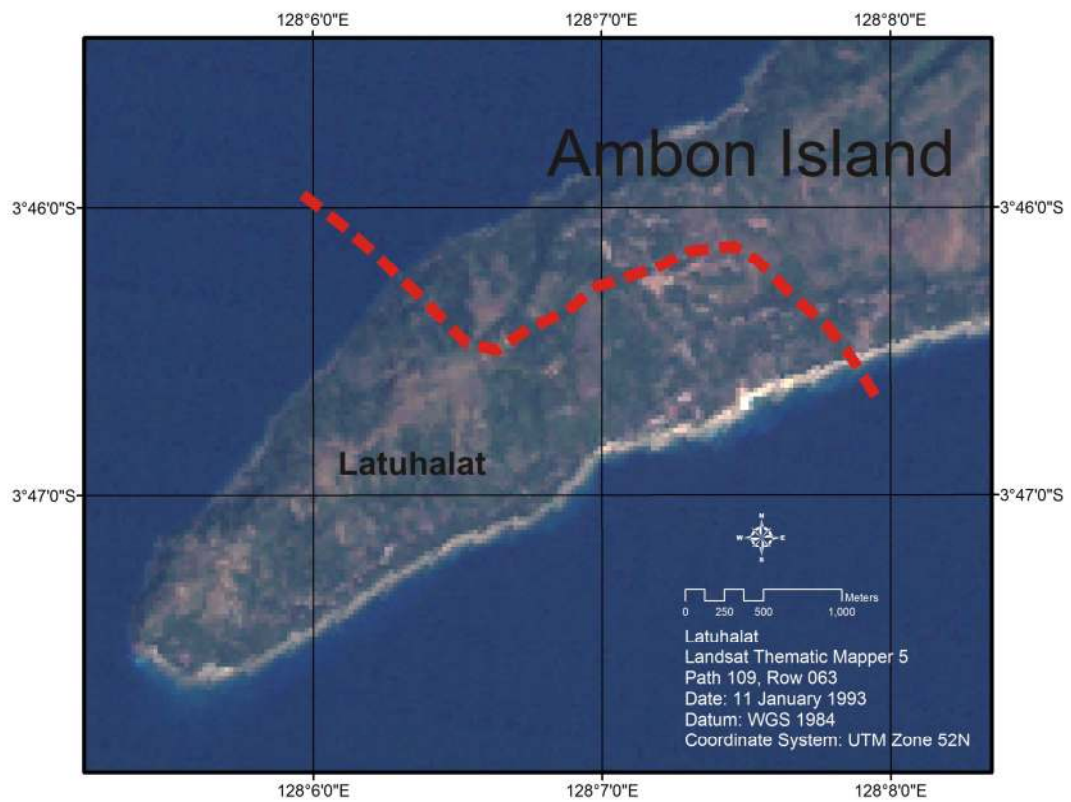


Figure 7.6 Land cover of Negeri Latuhalat on 11 January 1993

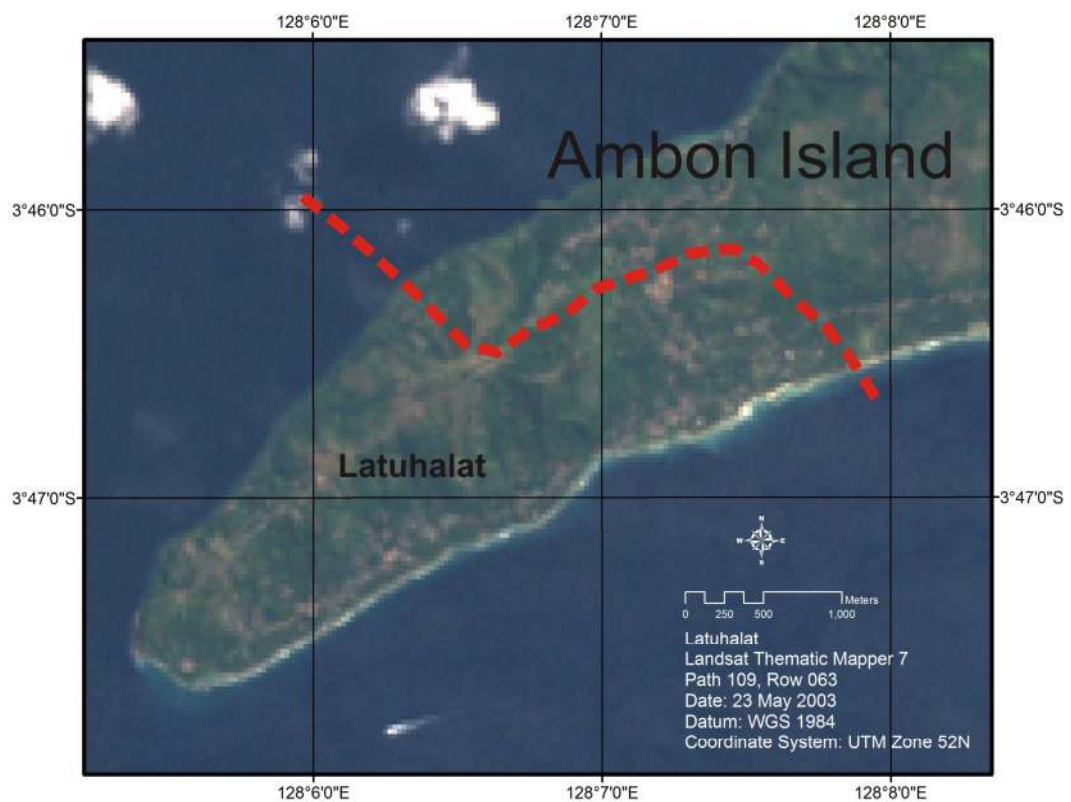


Figure 7.7 Land cover of Negeri Latuhalat on 23 May 2003

Additionally, the Land Use conversion particularly from *ewang* to arable land had also taken place on *dati* land by the locals and *negeri*'s property mostly by the immigrant. Fortunately, every Land Use conversion event could not be realised without permission from the Chief and the implementation of the permitted conversion had been monitored by the customary government of Negeri Tulehu. This revealed that, in spite of the ongoing individualisation process, the influence of customary government of this *negeri* on the performance of management of land by people was still high. See Figure 7.8 for the satellite map of Negeri Tulehu from 1991 and Figure 7.9 for the satellite map of Negeri Tulehu from 2003 for the comparison of land cover of this *negeri*.

Land Degradation

The deterioration of quality of land in the four sub-case study areas could barely be identified. Even though each sub-case study area was in a different state of Land Use, the greenness of territories of these *negeri-negeri* was considerably high. None of the sub-case study areas had moorland either. These facts reveal that the ecological function, as well as the economic function depicted in the section on production of land in Section 7.2, had been sustained as the vegetation in the selected case study areas had been maintained over time.

The ability of these *negeri-negeri* to avoid land degradation to take place in their customary territory was particularly due to the influence from the customary land governance in *negeri* in question. The customary governments in Negeri Tulehu and Siri Sori Islam were still effective, which allowed the customary land management rules to be applied within the development, as well as on the monitoring of the performance of land management activities, in these *negeri-negeri*. Even though the customary government of Negeri Latuhalat was still effective, the policy of customary government of this *negeri* in the past allowed the conversion of primary forest into other types of Land Uses. Additionally, the abolishment of *sasi* on coconut was triggered by the conversion of coconut plantation into mainly banana, breadfruit and mango plantations. However, although such a policy had been applied by the customary government of this *negeri*, the problem on the scarcity of the land had led to the effective Land Use in this *negeri*. Moreover, in spite of the ineffectiveness of the customary government of Negeri Paperu, the customary Spatial Unit governance in the past was still influencing the attitude of the people of Negeri Paperu on the management of their land. The collection of permanent crop products was done only to fulfil people's need, while the land conversion, particularly from *ewang* to arable land was performed within a tolerable level, which was maximum 2 ha for each conversion.

Area under Sustainable Forest Management

Except for Negeri Latuhalat, all other sub-case study areas were implementing sustainable forest management. The extent of primary forest in Saparua Island between 2003 and 2007 had not changed. Neither had the extent of secondary forest in Saparua Island between 2003 and 2007 changed either. This revealed that the deforestation could be lessened, while biodiversity in this island could still be maintained, by the performance of the customary land governance.

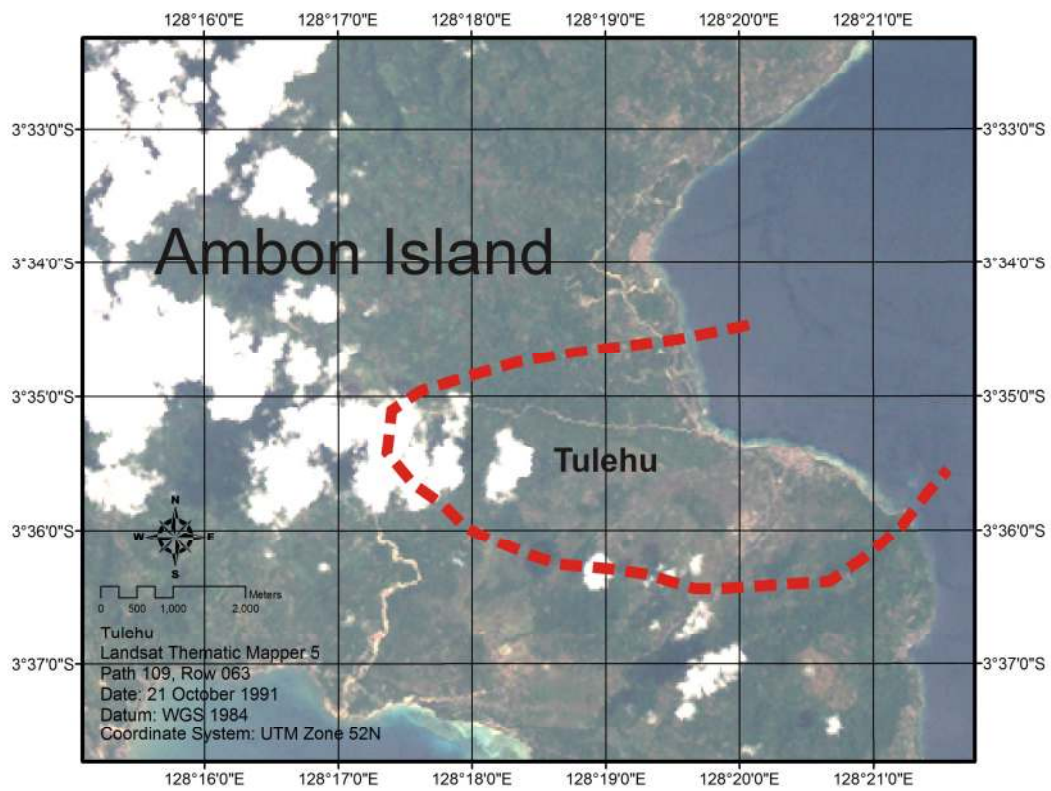


Figure 7.8 Land cover of Negeri Tulehu on 21 October 1991

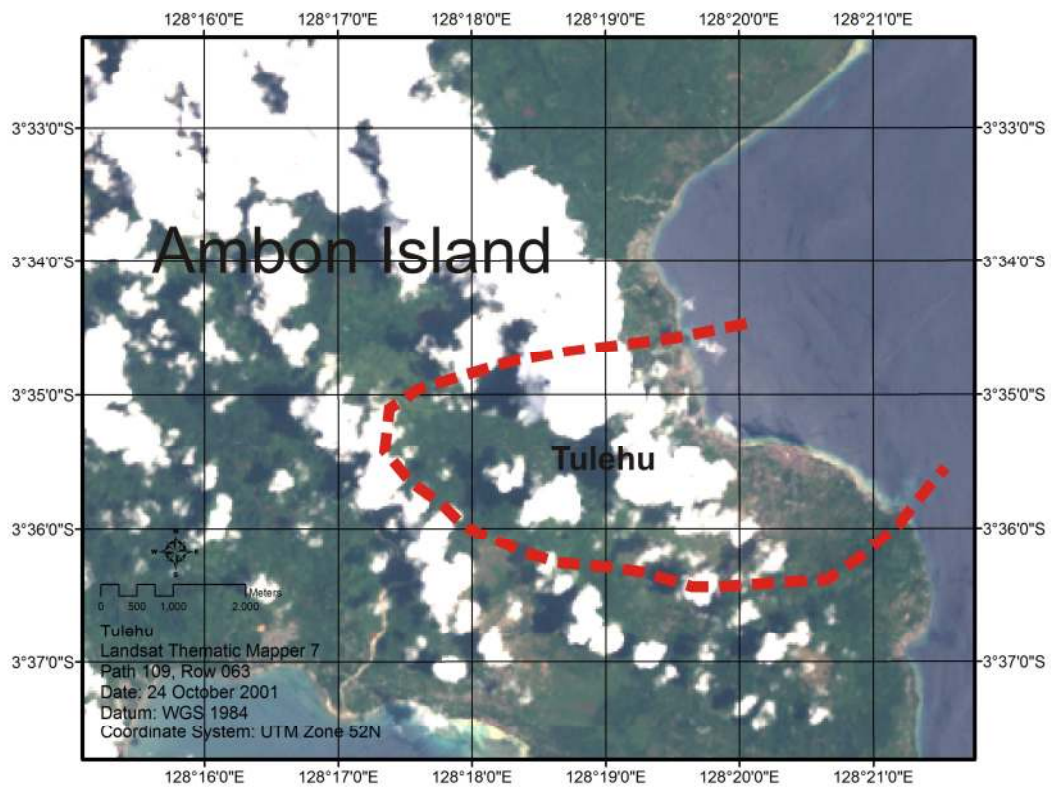


Figure 7.9 Land cover of Negeri Tulehu on 24 October 2001

From the perspective of the forestry sector, which included the permanent crop as well, the products of coconut, clove, nutmeg and cocoa in Saparua Island had been 1,086 tons, 221 tons, 129 tons and 722 tons respectively for both 2004 and 2007 (Dinas Perkebunan Kabupaten Maluku Tengah 2003b: 43 and 2007b: 43). Additionally, the implementation of customary land governance within the areas of Negeri Paperu and Siri Sori Islam revealed the achievement of indigenous communities in this island on maintaining the balance among the economic development, environmental preservation and socio-cultural values conservation.

Particularly in Negeri Siri Sori Islam, the performance of the customary Spatial Unit governance on the land territory of this *negeri* could not only maintain the link between the customary rules and economic values of forest products, but also preserved its surrounding environment. The application of *sasi* scheme had always been related to the efforts to provide the best quality forest products. Moreover, the plan to initiate the eco-forest-tourism, due to the existence of the *Gandaria* Tree (*Bouea macrophylla*) and *Ketupa* Tree (*Baccaurea dulcis*), should be appreciated as one of the efforts from the customary government of Negeri Siri Sori Islam to maintain the balance between biodiversity preservation and the advancement of people's welfare.

The attitude of the people of Negeri Paperu could also reveal the performance of sustainable forest management in this *negeri*. The preservation of primary and secondary forest was still ongoing. The collection of forest products was also done to fulfill the basic needs of the people of Negeri Paperu. Moreover, the increasing need to supply vegetables in Saparua Island was also captured by people of this *negeri* by opening the *ewang* in *dati* land, each with the extent of not more than two hectares. These facts showed that the influence from the performance of customary land governance in the past to the people of Negeri Paperu was still strong.

In Ambon Island, it was unfortunately only Negeri Tulehu that had the applied the sustainable forest management. The application of *ewang* with *capatu berdiri* rule had both maintained the primary swamp forest and watershed areas in this *negeri*. The ability of *kewang* of this *negeri* to perform comprehensive monitoring on the performance of customary land governance in Negeri Tulehu had been able to lessen the occurrence of illegal logging. While the coverage of primary and secondary forests could still be maintained, the forest itself could still provide the needs of the people in this *negeri*. Additionally, the implementation of customary land governance and its ability to maintain the function of the primary and secondary forest for the customary purposes provided solid evidence on the achievement of sustainable forest management in this *negeri*.

Marine Environment

Among the indicators that had been established for measuring the progress and outcomes of integrated coastal and ocean management (see Belfiore *et. al.* 2006 for details) and the achievement of sustainable development (see UN 2007 for details), there are several physical, localised indicators that are directly related to the performance of the Customary Spatial Unit governance at sea of the Ambon Lease region on the preservation of marine environment. Those indicators are a proportion of the marine protected area and coverage of the coral reef ecosystem.

The Proportion of Marine Protected Area

Within this study, all sub-case study areas except Negeri Paperu had marine protected areas within their territory. These *negeri-negeri* had at least its customary marine territory defined as a marine protected area, which was located between the coastal line and the edge of sea trench or locally called *air putih* that was directly translated as white water. The marine protected area within the white water area was mostly classified as *labuan*. Within each *labuan*, it was normally forbidden to perform any activities without permission from the customary government, either the chief or *kewang*. Any permitted activities could only be done by employing traditional tools, which were defined based on the characteristic of the *labuan* itself. Moreover, further rules regarding the exploitation activities within the *labuan* were also promulgated based on its characteristics.

Particularly in Negeri Tulehu, besides its *labuan*, there were also three, out of seven, marine protected areas that could be identified during the data collection process in 2009. The marine protected area in Batulompa Island acted as the breeding ground for Yellowback Fusilier (*Caesio xanthonota* Bleeker) and Lompa Fish (*Trisina baelama*). However, the establishment of a new port had occupied some extent of *labuan*, which had led to a dispute between the customary government of Negeri Tulehu and the Government of Municipality of Central Ambon in 2011, because of the reduced the coverage of *labuan* of this *negeri*.

The customary Spatial Unit governance on the marine territory of Negeri Tulehu had been highly operational. In spite of its strategic location and enormous level of interventions from the higher government level, as well as lack of funds for financing *kewang*, the customary rules were still applied within the management of customary marine territory of Negeri Tulehu. Moreover, the monitoring of the implementation of the customary rules and the customary rules enforcement had also been continuously carried out.

The customary government of Negeri Latuhalat had been focusing on the management of its customary marine territory. Within its *labuan*, there were four *sasi* that had been applied, which were *sasi* on lobster, sea cucumber, top shell and fancy fish. Moreover, there were also several customary rules that had been applied as well, such as the restriction regarding fish bombing, collecting sand and pebbles and use only a small boat for shallow water fishing. Six members of *kewang* institution had been specifically assigned to monitor the implementation of the Customary Spatial Unit Administration rules at sea, as well as its enforcement, within its customary marine protected area.

Within the marine territory of Negeri Siri Sori Islam, its white water area was also defined as *labuan*. Besides the application of *sasi* on top shell and sea cucumber, a *sasi labuan* had also been applied to protect it since 1928. In this *labuan*, it was possible to employ fishing nets during the opening of *sasi labuan*. Moreover, the control over access to *labuan* was strong and stable (Novaczek *et. al. op. cit.*: 320), which was done by *kewang*.

Due to the ineffectiveness of the customary government of Negeri Paperu, the customary rules regarding the activities in *labuan* area and *sasi* on sea cucumber were not in effect even before 2008 in which the customary governmental transition period began. Moreover, the conflict between the people of this *negeri* and the management of Cape Paperu Resort and Spa on the employment of *labuan* area had been an obstacle particularly for the re-employment of *sasi* on *labuan*. Since the establishment of Cape Paperu Resort and Spa, even though the *labuan* area was not included within the leasing deal between the management of Cape Paperu Resort and Spa and the departed Chief, any activities performed by the locals had been prohibited by the management of this resort.

The Coverage of Coral Reef Ecosystem

From the total 33.7 ha coverage of coral reef ecosystem in the eastern coast of Ambon Island, in which Negeri Tulehu is located, the coverage of healthy coral reef ecosystem was 22.5 ha in 2008 (Badan Pusat Statistik Kabupaten Maluku Tengah 2008: 78). The coverage of coral reef ecosystem could also be seen from satellite images taken in 1987 and 2002, see Figure 7.4 and 7.5 for details, as well as bathymetric map issued in 2009. See Figure 7.10 for the bathymetric map of Saparua Bay.

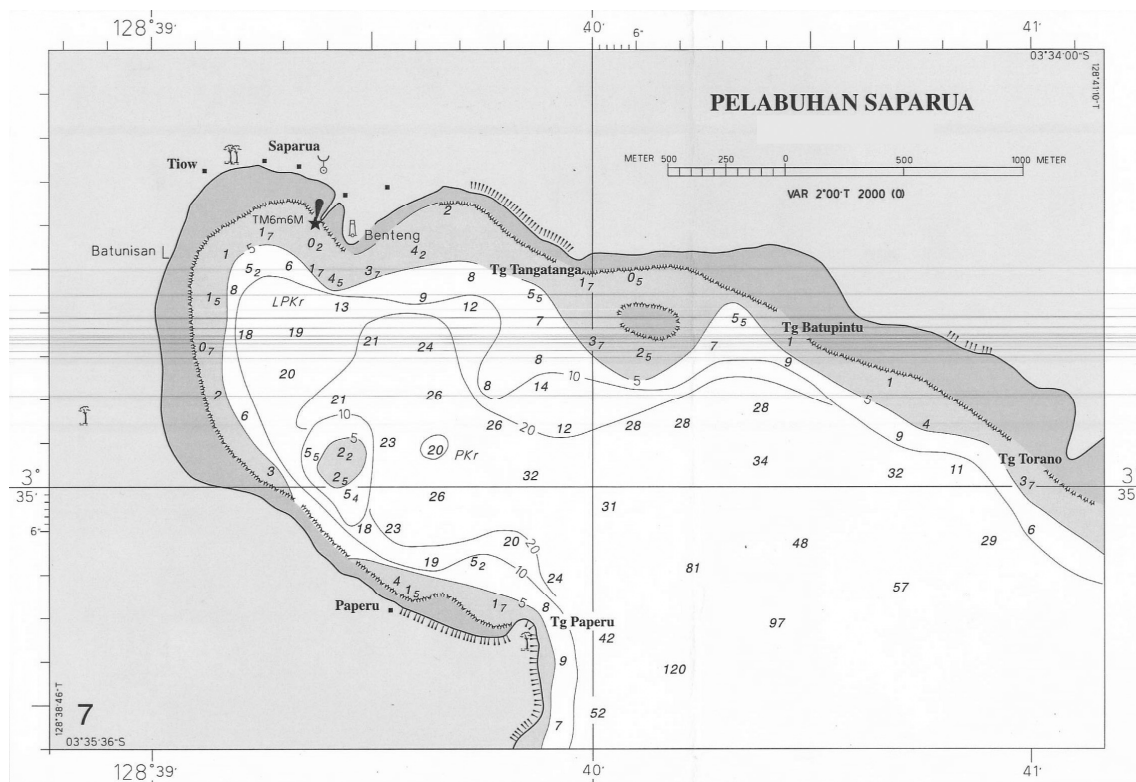


Figure 7.10 Bathymetric map of Saparua Bay that shows the coral reefs ecosystem coverage (Source: Bathymetric Map of Western Seram 2002 of Hidro-oceanographic Office)

However, even though the satellite images shown in Figure 7.11a had gone through further image processing using Lyzenga Algorithm to reveal the objects in shallow waters, the quality of coral reef ecosystem could not be acquired. Fortunately, the employment of Lyzenga Algorithm could accurately capture the coverage of coral reef ecosystem in shallow waters. See Figure 7.11b for the comparison between the satellite image of Saparua Bay with and without the further image processing using Lyzenga Algorithm. According to the locals, most coral reef ecosystems in the eastern coast of Ambon Island were seriously damaged^{5, 6}. However, during the data collection processes, the efforts

⁵ Group interview with Abdul Rahim Lestahulu, the native and young environmental and customary activist of Negeri Tulehu, on 17 June 2009, 8 pm – 12 am Eastern Indonesian Time, Tulehu, Municipality of Central Maluku

⁶ Group interview with Asril Djunaedi, the non-native and young environmental activist of Negeri Tulehu, on 17 June 2009, 8 pm – 12 am Eastern Indonesian Time, Tulehu, Municipality of Central Maluku

for re-planting the coral in the eastern coast of Ambon Island had been done by a group of young natives⁷.

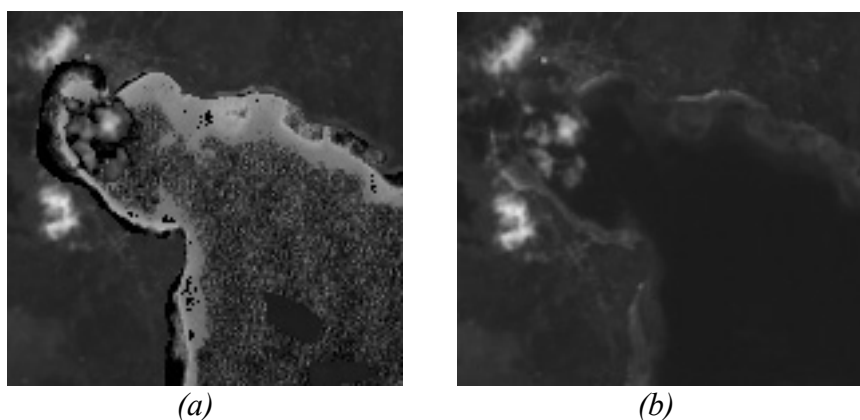


Figure 7.11 (a) Satellite image of Saparua Bay processed by Lyzenga Algorithm, (b) Normal satellite image of Saparua Bay (Source: Landsat TM7 Image path 108 raw 063 taken on 22 February 2002)

The customary government of Negeri Tulehu made an enormous effort to monitor the implementation of customary marine governance within its territory. Unfortunately, due to the the lack of funds for financing the performance of *kewang*, the customary government of Negeri Tulehu had not been able to wholly monitor the performance of the customary marine governance in its customary marine territory. The vast terrestrial territory of Negeri Tulehu had occupied most of the attention of *kewang* institution in this *negeri*. Furthermore, the interventions, mostly without any acknowledgement from the customary government of this *negeri*, from the higher government level had also taken part in decreasing the quality of the coral reef ecosystems. Fortunately, the participatory effort performed by a group of young natives for re-planting the corals had at least slightly improved the condition of the coral reef ecosystems in the eastern coast of Ambon Island.

In Saparua Bay, in which *labuan* of Negeri Paperu and Siri Sori Islam are located, the coverage of coral reef ecosystem could also be identified. Saparua Bay was protected by Cape Paperu from the direct influence of Banda Sea. It was therefore a perfect spot for the coral reef ecosystem. In the satellite images taken in 1987 and 2002, the coverage of coral reef ecosystem can be seen. See Figure 7.4 and 7.5 for details. Moreover, the bathymetric map issued in 2002 also confirmed the existence of a coral reef ecosystem in Saparua Bay. See Figure 7.10 for details. While the condition of the coral reef ecosystem in the *labuan* of Negeri Siri Sori Islam was generally good, most corals in the *labuan* of Negeri Paperu had been spoiled⁸. The effort to re-plant the corals in the *labuan* of this *negeri* had also been done by the management of Cape Paperu Resort and Spa.

⁷ Ibid.

⁸ Group interview with Kurt Gross, the owner of Cape Paperu Resort and Spa, on 19 June 2009, 4– 5 pm Eastern Indonesian Time, Cape Paperu Resort and Spa, Paperu, Municipality of Central Maluku

7.2 Economic Impact

In this section, the economic impact of the performance of the customary Spatial Unit Administration is given. The unit of analysis was at district level. Moreover, more detailed information that revealed the links between the Customary Spatial Unit Administration and its economic impacts are also given in this section.

The measurement of the economic impact of the Customary Spatial Unit governance involved parameters that were directly related to the performance of the Customary Spatial Unit Administration System Customary Spatial Unit Administration System. The first employed indicator was the production of land and marine management sector as it was empirically valuable to describe the economic sustainability of Ambon Lease region. The further indicators that were employed for measuring the economic impact of the customary Spatial Unit governance were total employment and sectoral diversification.

The Production of Land

The productive land in Ambon Lease had been mostly occupied by permanent cropland and arable land. Between 2006 and 2007, the total extent of permanent cropland in the Ambon Lease region, which had been dominated by clove, nutmeg, coconut and cacao plantations was 12,211.22 ha, or 11.08% of the total extent of this region (Dinas Perkebunan Kabupaten Maluku Tengah 2007b: 43, Dinas Pertanian Kabupaten Maluku Tengah 2008b: 70 and Dinas Pertanian Kabupaten Maluku Tengah 2007b: 245-246).

Arable land in Ambon Lease region could mainly be sub-divided into two types, namely vegetable and fruit plantations. The total extent of vegetable plantations in this region between 2006 and 2007 was 1,839.54 ha, or 1.67% of the total extent of Ambon Lease region (Dinas Pertanian Tanaman Pangan Kecamatan Saparua 2007a: 39 and 2007b: 40, Dinas Pertanian Tanaman Pangan Kabupaten Maluku Tengah 2008a: 65-66, Dinas Pertanian Kabupaten Maluku Tengah 2007f: 231-236, Dinas Pertanian dan Peternakan Kota Ambon 2008a: 56, 2008b: 58, 2008c: 55, 2008d: 54, 2008e: 53, 2008f: 52 and 2008g: 57).

Permanent Cropland

Since early 21st century, Ambon Lease region had no longer been the main producer of spices. With its limited space for cultivating cloves and nutmeg, the total productions of cloves and nutmeg in Saparua Island in which Negeri Paperu and Siri Sori Islam are located, as well as Salahutu District of Ambon Island in which Negeri Tulehu is located, were 387.20 and 155.50 tonnes (Dinas Perkebunan Kabupaten Maluku Tengah 2007b: 43, Dinas Pertanian Kabupaten Maluku Tengah 2008b: 70). In Nusaniwe District, in which Negeri Latuhalat is located, cloves and nutmeg were not cultivated between 2004 and 2007 (Badan Pusat Statistik Kota Ambon 2004 and 2008). The contributions of Saparua Island and Salahutu District to the total production of clove and nutmeg in Indonesia were 0.48% and 1.67% in 2007 (Dinas Perkebunan Kabupaten Maluku Tengah 2007b: 43, Dinas Pertanian Kabupaten Maluku Tengah 2008b: 70).

In 2003, Saparua Island only produced 221 tonnes of clove, or 0.19% of total production of cloves in Indonesia in the same year, while the production of nutmeg in Saparua Island in 2003 was 381 tonnes, or 0.58% of Indonesia's total production of nutmeg (Dinas Perkebunan Kabupaten Maluku Tengah 2003b: 43 and FAO 2011). The same amount of cloves and nutmeg were produced in 2007 (Dinas Perkebunan Kabupaten Maluku Tengah 2007b: 43). However, on one hand, the proportion of Saparua

Island's nutmeg production compared to the total of that of Indonesia had increased from 0.58% in 2003 to 1.38% in 2007 (Dinas Perkebunan Kabupaten Maluku Tengah 2003b: 43, 2007: 43 and FAO 2011). On the other hand, the contribution of this island to the total production of cloves in Indonesia between 2003 and 2007 had decreased by 0.30% (Dinas Perkebunan Kabupaten Maluku Tengah 2003b: 43, 2007b: 43 and FAO 2011). See Table A.2 in Appendix A for the permanent cropland production in Saparua Island in 2003 and 2007. See also Figure A.3 in Appendix A for the description of the coverage and the production of permanent cropland in Saparua Island in 2003 and 2007, as well as their comparison with the coverage and the production of permanent cropland in Indonesia within the same period.

Salahutu District, in which Negeri Tulehu was located, provided more or less the same vision as Saparua Island in the early 21st century. With the production of cloves and nutmeg as much as 77.50 and 12.75 tonnes in 2006, the contributions of District Salahutu to the total production of cloves and nutmeg in Indonesia in the same year were 0.12% and 0.15% (Dinas Pertanian Kabupaten Maluku Tengah 2007b: 245 and FAO 2011). Fortunately, after one year, the production of cloves and nutmeg in District Salahutu had increased to 166.20 and 26.50 tonnes (Dinas Pertanian Kabupaten Maluku Tengah 2008b: 70). The increase in the production of cloves and nutmeg elevated the contributions of this district to the total production of cloves and nutmeg to 0.21% and 0.28% in 2007 (*ibid.* and FAO 2011). See Table A.3 in Appendix A for the permanent cropland production in Salahutu District in 2006 and 2007. See also Figure A.4 in Appendix for the description of the coverage and the production of permanent cropland in Salahutu District in 2006 and 2007, as well as their comparison with the coverage and the production of permanent cropland in Indonesia within the same period.

The data collection processes in 2009 and 2011 provided insight on the customary management of cloves and nutmeg plantations. Each week, people in Saparua Island went to their plantations two or three times to collect cloves, nutmeg and mace, as well as coconut and cocoa. The amount of each collected product was not more than 2 m² when it was spread on the ground during the manual desiccation process. See Figure 7.12 for the manual desiccation process of nutmeg and cocoa in Negeri Paperu, as well as Figure 7.13 for the manual desiccation process of nutmeg in Negeri Tulehu. The amount of collected product within a week was basically just enough to provide the basic needs of a family⁹. This in fact led communities in Saparua Island to be unproductive¹⁰.

In spite of its small contribution to the total production of nutmeg in Indonesia, the customary Spatial Unit Administration on land in Saparua Island and Salahutu District still took an important role in the sustainable management of nutmeg plantations in these areas. As previously mentioned in Section 6.2, *sasi* on nutmeg was still operational in Negeri Tulehu and Siri Sori Islam. Of the outcomes of the performance of *sasi* on nutmeg was that the yield of nutmeg production in Saparua Island and Salahutu District in 2007 was almost comparable to the yield of nutmeg production in the Province of Northern Sulawesi. The yield of nutmeg production in the Province of Northern Sulawesi in 2000 was 0.41 ton/ha (Direktorat Jenderal Perkebunan 2000), while the yield

⁹ Interview with Julius Seba, The Head of Division of Land Tenure and Registration of the Regional Office of National Land Agency of Province of Maluku, on 6 June 2011, 2.30 – 3.15 pm Eastern Indonesian Time, The Regional Office of National Land Agency, Municipality of City of Ambon

¹⁰ *Ibid.*

of it of Saparua Island and Salahutu District in 2007 was 0.31 ton/ha ((Dinas Perkebunan Kabupaten Maluku Tengah 2007b: 43 and Dinas Pertanian Kabupaten Maluku Tengah 2008b: 70).

Moreover, the impact of the performance of *sasi* on cloves in Ambon Lease region was considerably lower. Even though cloves were as an endemic plant of this region, it was only Negeri Siri Sori Islam that had been applying *sasi* on cloves, while the management of clove plantations in Salahutu District had been done individually. Accordingly, the production of cloves in Saparua Island in 2007 was higher than that of Salahutu District. The production of cloves in Saparua Island in 2007 was 221.00 tonnes, or 0.27% of total production of clove in Indonesia (Dinas Perkebunan Kabupaten Maluku Tengah 2007b: 43 and FAO 2011), while Salahutu District only produced 166.20 tonnes of cloves, or 0.21% of the total cloves production of clove in Indonesia (Dinas Pertanian Kabupaten Maluku Tengah 2008b: 70 and FAO 2011).

Saparua Island and Salahutu District had also been producing coconut and cocoa, while coconut and cocoa were not cultivated in Nusaniwe District between 2004 and 2007 (Badan Pusat Statistik Kota Ambon 2004 and 2008). Altogether, the production of coconut in these areas in 2007 was 1,564.50 tonnes, or 0.01% of total production of coconut in Indonesia.

With the allocation of only 907 ha in 2003 and 1,025 ha in 2007 of its land for coconut plantation, Saparua Island produced 1.086 tonnes of coconut in both 2003 and 2007 (Dinas Perkebunan Kabupaten Maluku Tengah 2003b: 43 and 2007b: 43). Saparua Island therefore contributed 0.01% to the total production of coconut in Indonesia in both 2003 and 2007 (Dinas Perkebunan Kabupaten Maluku Tengah 2003b: 43, 2007b: 43 and FAO 2011).

The smaller extent of coconut plantation could also be found in Salahutu District. In 2006, the 330.25 ha coconut plantations in this district produced 478.50 tonnes of coconut, which was less than 0.01% of the total production of coconut in Indonesia. Unfortunately, with the same area of coconut plantation in this district in 2007, the production of coconut had decreased steeply to 19.00 tonnes (Dinas Pertanian Kabupaten Maluku Tengah 2008b: 70).

The performance of customary land governance could be seen in the production of coconut in the early 21st century. Even though Negeri Tulehu, Paperu and Siri Sori Islam had been applying *sasi* on coconut, the production of coconut in Salahutu District in 2007 was only 19.00 tonnes, or 0.03% of the total coconut production in Indonesia (*ibid.* and FAO 2011), while, in 2007, Saparua Island only contributed 0.01% of the total production of coconut in Indonesia (Dinas Perkebunan Kabupaten Maluku Tengah 2007b: 43 and FAO 2011). However, with the total coverage of coconut plantations in above mentioned areas as large as 1,355.25 ha, the coconut production yield in these areas was 1.15 ton/ha, which was only 0.17 ton/ha less the yield of the leading producer of coconut in Indonesia. The principal producer of coconut in Indonesia was the Municipality of Indragiri Hilir in the Province of Riau with the harvested extent, annual production and annual production yield of coconut being consecutively 295,380.24 ha, 390,924.28 tonnes and 1.32 ton/ha (Zuprianto 2011). Moreover, the production yield of coconut in Salahutu District in 2006 was even higher than that of the Municipality of Indragiri Hilir, which was 1.45 ton/ha.

Besides cloves, nutmeg and coconut, another main product of the permanent cropland in Saparua Island was cocoa beans. With the extent of cacao plantations in Saparua Island in 2003 as large as 240 ha, this island produced 722 tonnes of cocoa, or 0.13 % of total production of cocoa in Indonesia (Dinas Perkebunan Kabupaten Maluku Tengah 2003b: 43 and FAO 2011). Even though in 2007 the amount of cocoa production was

exactly the same as that of 2003, the contribution of this island to the total production of cocoa in Indonesia between 2003 and 2007 had decreased to 0.10% (Dinas Perkebunan Kabupaten Maluku Tengah 2003b: 43, 2007b: 43 and FAO 2011). On the other hand, the District of Salahutu had contributed less than 0.01% to the total production of cocoa in Indonesia in both 2006 and 2007 (Dinas Pertanian Kabupaten Maluku Tengah 2007b: 245 and 2008: 70), while in Nusaniwe District cacao was not cultivated between 2004 and 2007 (Badan Pusat Statistik Kota Ambon 2004 and 2008).

Arable Land

In Saparua Island, the arable land production, in particular vegetable and fruit products, was considerably lower compared to Indonesia's. This was mainly due to the limited arable land in this island as each type of arable land contributed not more than 0.06% of the total coverage of arable land in question in Indonesia (Dinas Pertanian Tanaman Pangan Kabupaten Maluku Tengah 2003a: 39, 2003b: 41, 2003c: 40, 2007a: 39, 2007b: 41, 2007c: 40 and FAO 2011). Cassava plantation had the highest coverage among other types of arable land in Saparua Island, which was 200 ha in 2003 and 110 ha in 2007 (Dinas Pertanian Tanaman Pangan Kabupaten Maluku Tengah 2003a: 39 and 2007a: 39). However, the coverage of cassava plantations on this island was only 0.02% and 0.01% of the total coverage of cassava plantations in Indonesia in 2003 and 2007 consecutively (Dinas Pertanian Tanaman Pangan Kabupaten Maluku Tengah 2003a *op. cit.*, 2007a *op. cit.* and FAO 2011).

This in fact affected the production of vegetable and fruit plantations on this island, which was also low compared to the total of Indonesia. The highest percentage of production of vegetable and fruit plantations in this island, compared to the total of that of Indonesia, was attained by spinach plantations in 2007, which was 0.05% (Dinas Pertanian Tanaman Pangan Kabupaten Maluku Tengah 2003a: 39, 2003b: 41, 2003c: 40, 2007a: 39, 2007b: 41, 2007c: 40 and FAO 2011). The contribution of the rest of vegetable and fruit plantation to the total of that of Indonesia in 2003 and 2007 was unfortunately lower than 0.02% (Dinas Pertanian Tanaman Pangan Kabupaten Maluku Tengah 2003a: 39, 2003b: 41, 2003c: 40, 2007a: 39, 2007b: 41, 2007c: 40 and FAO 2011). See Table A.4 and A.5 for details. See also Figure A.5 and A.6 in Appendix A for the description of the coverage and the production of vegetable and fruit plantation consecutively in Saparua Island in 2003 and 2007, as well as their comparison with the coverage and the production of permanent cropland in Indonesia within the same period.

The production of vegetable and fruit plantations in Salahutu District was also low compared to the total production of vegetable and fruit in Indonesia. The production of almost all vegetable and fruit plantation in this district had also decreased between 2006 and 2007. In 2006, cassava was largely produced in this district, reaching 6,720 tonnes (Dinas Pertanian Kabupaten Maluku Tengah 2007e: 226). However, this district only contributed 0.03% to the total production of cassava in Indonesia in 2006 (*ibid.* and FAO 2011). Moreover, the production of cassava in this district in 2007 had steeply declined to 1,228.80 tonnes, or only 0.01% of the total production of cassava in Indonesia in the same year (Dinas Pertanian Tanaman Pangan Kabupaten Maluku Tengah 2008a: 65 and FAO 2011).

Furthermore, eggplant plantation had a higher contribution in this district to the total production of eggplant in Indonesia compared to the contribution of each type of arable land to the total production of arable land types in question in Indonesia. In 2006, Salahutu District produced 431 tonnes of eggplant, or 0.12% of the total production of eggplant in Indonesia (Dinas Pertanian Kabupaten Maluku Tengah 2007f: 234 and FAO 2011). Unfortunately, the production of eggplant in this district in 2007 had sharply de-

creased to 265.68 tonnes, which also reduced its contribution to the total production of eggplant in Indonesia to 0.07% (Dinas Pertanian Tanaman Pangan Kabupaten Maluku Tengah 2008a: 66 and FAO 2011).

Another main product of arable land in Salahutu District was corn. In 2006, this district produced 344 tonnes of corn, contributing 0.12% to the total production of corn in Indonesia (Dinas Pertanian Kabupaten Maluku Tengah 2007d: 225 and FAO 2011). Unfortunately, the production of corn declined to only 43.20 tonnes in 2007 (Dinas Pertanian Tanaman Pangan Kabupaten Maluku Tengah 2008a: 65). Additionally, none of the fruit plantations in Salahutu District contributed more than 0.01% to the total production of each fruit plantation type in both 2006 and 2007 (Dinas Pertanian Kabupaten Maluku Tengah 2007f: 237-241, Dinas Pertanian Tanaman Pangan Kabupaten Maluku Tengah 2008b: 67-68 and FAO 2011). See Table A.6 and A.7 for details. See also Figure A.7 and A.8 in Appendix A for the description of the coverage and production of vegetable and fruit plantations consecutively in Salahutu District in 2006 and 2007, as well as their comparison with the coverage and the production of permanent cropland in Indonesia within the same period.

Compared to the production of arable land in Saparua Island and Salahutu District, the production of arable land of Nusaniwe District was considerably lower. Cassava had been considered as the main product of this district. In 2004, this district produced 1,488.00 tonnes of cassava (Dinas Pertanian dan Peternakan Kota Ambon 2004: 55), while, in 2007, Nusaniwe District produced 1,791.42 tonnes (Dinas Pertanian and Peternakan Kota Ambon 2008: 52). However, its contribution to the total production of cassava in Indonesia was as low as 0.01% in both 2004 and 2007 (Dinas Pertanian dan Peternakan Kota Ambon 2004: 55, Dinas Pertanian and Peternakan Kota Ambon 2008: 52 and FAO 2011).

It was mentioned earlier that, particularly in Negeri Latuhalat, most, if not all, coconut plantations had mostly been converted to banana plantations. However, the influence of banana production in this district to the total production of banana in Indonesia was considerably low. With the total production of 14.70 tonnes in 2004 and 10.14 tonnes in 2007, the contribution to the total production of banana in both years was less than 0.01% (Dinas Pertanian dan Peternakan Kota Ambon 2004: 59, Dinas Pertanian and Peternakan Kota Ambon 2008: 56 and FAO 2011). See Table A.8 and A.9 for details. See also Figure A.9 and A.10 in Appendix A for the description of the coverage and the production of vegetable and fruit plantations in Nusaniwe District in 2004 and 2007, as well as their comparison with the coverage and the production of permanent cropland in Indonesia within the same period.



Figure 7.12 Dessication of nutmeg and cocoa in Negeri Paperu



Figure 7.13 Dessication of nutmeg in Negeri Tulehu

Compared to the management of permanent cropland, the customary Spatial Unit governance on arable land had taken a less important role in maintaining the economic sustainability of this region. As there was no *sasi* on arable land crop, the only role of customary governments in this region was to provide their consent for the conversion of any type of Land Use into arable land, as shown in Negeri Tulehu, Siri Sori Islam and Latuhalat.

However, the level of control in the previously mentioned *negeri-negeri* was quite different. The effective customary Spatial Unit governance in Negeri Tulehu and Siri Sori Islam could still be identified as all Land Use conversion process should be firstly requested to and permitted by the chief of this *negeri*. The implementation of the Land Use conversion, as well as the utilisation of the converted land, would be monitored by *kewang* as the representative of the customary government in the field of land management and administration. This customary rule had been applied not only to public land and land possessed by *negeri*, but also to individual land.

On the other hand, the customary government of Negeri Latuhalat had not influenced the Land Use conversion process at all. Every piece of land within the territory of this *negeri*, except the area in which the church and the office of the chief of Negeri Latuhalat were located, had all been distributed to kinship associations and individuals were non-members of any kinship association. However, it was the diminished authority of customary government on its people that allowed the Land Use conversion process to be carried out without any consent from the customary government of Negeri Latuhalat. The increasing demand for arable land products had encouraged the Land Use conversion process into arable land to take place in Saparua Island. The total extent of arable land between 2003 and 2007 had increased from 470.55 ha to 790.90 ha. While the land conversions in Negeri Siri Sori Islam were still under the control of the customary government, the land conversions in Negeri Paperu were done individually without any intervention from the Customary Spatial Unit Administration System of this *negeri* as, between 2008 and 2011, its customary government had been ineffective due to the de-

parture of the late chief of Negeri Paperu and the conflict during the establishment of a new customary government. However, the individual land conversion, particularly on *dati* land, had still complied with the existing custom, particularly regarding the maximum extent of land conversion from any type of Land Use to cropland.

The Production of Marine Sector

The marine sector had been acting as another main means of subsistence for the people in Ambon Lease region. The main products of this region were skipjack, tuna, *tembang* (*Sardinella fimbriata*), *layang* (*Decapterus spp*) and *tongkol* (*Auxis thazard*).

In Saparua Island, the gross value of production of wild fisheries sector in 2003 was IDR 6,216,175,000.00, or EUR 518,014.58 (Dinas Kelautan dan Perikanan Kabupaten Maluku Tengah 2003b: 51). With the production of wild fisheries of 5,430.50 tonnes in 2006, the gross value of production of this sector had increased to IDR 11,844,919,000.00, or EUR 987.076.58 (Dinas Kelautan dan Perikanan Kabupaten Maluku Tengah 2007b: 286-287). However, compared to the total production in Indonesia in 2006, which was 4,769,160 tonnes (Badan Pusat Statistik 2009), the contribution of this island was only 0.11%.

The figure on the wild fisheries production in Salahutu District was even higher than that of Saparua Island. In 2006 alone, the gross value of wild fisheries production in this district reached IDR 23,024,436,300.00 or EUR 1,918,703.03 (Dinas Kelautan dan Perikanan Kabupaten Maluku Tengah *op. cit.*). With its total production of wild fisheries in 2006 of 5,430.50 tonnes, this district contributed 0.11% to the total production in Indonesia (*ibid.* and Badan Pusat Statistik *op. cit.*).

Furthermore, Nusaniwe District had also been acting as the main producer in the wild fisheries sector. In 2004, the total production in this district was 5,215.50 tonnes, with a value of IDR 17,706,969,000.00, or EUR 1,475,580.75 (Dinas Perikanan dan Kelautan Kota Ambon 2004: 62). This district therefore contributed 0.11% of total production of the wild fisheries sector in Indonesia in 2004 (*ibid.* and Badan Pusat Statistik *op. cit.*). The production of this sector in this district in 2007 had also increased to 8,536.95 tonnes, or 0.17% of total production of the wild fisheries sector in Indonesia (Dinas Perikanan dan Kelautan Kota Ambon 2008: 60 and Badan Pusat Statistik *op. cit.*). With such an amount of production, its value was IDR 27,459,591,000.00 or EUR 2,288,299.25 (Dinas Perikanan dan Kelautan Kota Ambon *op. cit.*). See Table A.10 in Appendix A for details. Furthermore, see also Figure A.11 in Appendix A for the description of production value of wild fisheries sector in the District of Saparua, Salahutu and Nusaniwe.

Such an amount of production was still seen to be able to sustain the fish stock over time. Particularly in the south of Ambon Island, in which Banda Sea was located, the above mentioned figure was still below its sustainable yield. According to the Badan Perencanaan Pembangunan Kota Ambon (2008: III-76), with the small pelagic fish monthly stock of 996.00 tonnes, the monthly production of this type of fish was only 53.50 tonnes, which was still under its sustainable yield of 498.00 tonnes. Moreover, with the monthly stock of 620.60 tonnes and monthly sustainable yield of 310.30 tonnes, the monthly production of big pelagic fish in this area was only 41% of its monthly sustainable yield, or 127.10 tonnes (*ibid.*).

Considering the main products of the wild fisheries sector in this region, it was clear that the customary marine governance had taken an important role in sustaining the region's fish stock. Not only in the four sub-case study areas, it was commonly identified that the customary marine territory included the shallow water area, in which most coral

reef habitats were located. While in some customary marine territories, such as in Negeri Tulehu, there were specific customary marine protected areas, all *negeri-negeri* in this region defined the shallow water area as the *labuan*. Depending on the characteristic of the *labuan* in question, customary rules had been applied for not only protecting the customary marine territory of *negeri* in question but also its biological diversity. Consequently, most coral reef habitats were well-protected and in a good condition. As coral reefs acted as the nursery ground and the home of almost all species of tuna such as southern bluefin, bigeye, yellowfin, skipjack and albacore tuna (WWF 2011), the well-protected coral reef habitat could maintain the stock of tuna and coral fishes.

Employment and Sectoral Diversification

From the total of 6,279 households in Saparua Island in 2003 (Badan Pusat Statistik Kabupaten Maluku Tengah 2003: 16), 5,601 households were working in the permanent cropland (Dinas Perkebunan Kabupaten Maluku Tengah 2003a: 42) and wild fisheries sector (Dinas Kelautan dan Perikanan Kabupaten Maluku Tengah 2003a: 48), or 89.20% of the total number of household in this island, while, in 2006, there were only 5,296 households, out of 7,151 households, that depended on the management of permanent cropland (Dinas Perkebunan Kabupaten Maluku Tengah 2007a: 42) and wild fisheries sector (Dinas Kelautan dan Perikanan Kabupaten Maluku Tengah 2007a: 262-264), or 81.82% of the total number of household in Saparua Island.

In 2003, 4,295 households were depending on permanent cropland and wild fisheries management (Dinas Perkebunan Kabupaten Maluku Tengah 2003a: 42), or 68.40% of the total number of households in Saparua Island. However, the number of permanent cropland households in this island in 2006 increased to 4,340 households (Dinas Perkebunan Kabupaten Maluku Tengah 2007a: 42), or 60.69% of the total number of household in Saparua Island.

Even though its number was smaller than that of permanent cropland household in Saparua Island, in 2003 the wild fisheries sector involved 1,304 households in its production line (Dinas Kelautan dan Perikanan Kabupaten Maluku Tengah 2003a: 48). It meant that 20.77% of households in Saparua Island were working in this sector in 2003. The number of wild fisheries households had increased to 1,509 in 2007 (Dinas Kelautan dan Perikanan Kabupaten Maluku Tengah 2007a: 262-264), which was 21.13% of the total households in this island.

The high dependency on the agriculture and wild fisheries sector was shaped by the character of this island, as well as the ability of the Customary Spatial Unit administration System to sustain an abundance of natural resources on this island. Even though the mobility of people of Saparua Island in either Ambon Lease region or the Province in Maluku is quite high, with each of 2 medium-sized ferries and a medium-sized speedboat travelling from Tulehu to Masohi via Saparua Island back and forth twice a day, the people in Saparua Island should be able to at least fulfil their basic needs. This was particularly due to the unstable condition of seas in their surroundings, particularly in the rainy season. The increasing trend of land conversion into arable land indicated such needs. However, with its abundant natural resources, the people of Saparua Island could earn a just and simple life by cultivating their land and exploiting the natural marine resources in their surroundings. Only those with either adequate financial support or good connections migrated to mainly Ambon Island and other islands in Indonesia, particularly Java Island, to study or work.

Moreover, due to the uncertain circumstances of seas in their surroundings particularly in the rainy season, the agriculture sector had been able to sustain the life of people

in Saparua Island during the fisheries' off-season. Besides fulfilling their lives with their own arable land products, the highly priced cloves and nutmeg in the market could provide a further means not only coping with their basic needs but also, most importantly, financing their children's education particularly up to the secondary school.

In Salahutu District, the rate of employment in permanent cropland and wild fisheries sector was less than that of Saparua Island. However, there were still 40.21% of the total households in Salahutu District (Dinas Pertanian Kabupaten Maluku Tengah 2007a: 242-244 and Dinas Kelautan dan Perikanan Kabupaten Maluku Tengah 2007a: 262-264), which was 10,376 households in 2006 (Badan Pusat Statistik Kabupaten Maluku Tengah 2007a: 64-65), that depended on these sectors. In 2007, the number of households depending on these sectors was increased to 4,305 households (Dinas Pertanian Kabupaten Maluku Tengah 2008a: 69 and Dinas Kelautan dan Perikanan Kabupaten Maluku Tengah 2008: 72). Even though the total number of households had also increased to 10,591 households in 2007 (Badan Pusat Statistik Kabupaten Maluku Tengah 2008: 24), the percentage of households that were depending on these sectors had slightly increased to 40.65%.

Among the households that were working in the production line of permanent cropland and wild fisheries sector, there were 3,499 households specialised in the management of permanent cropland in 2006 (Dinas Pertanian Kabupaten Maluku Tengah 2007a: 242-244), or 33.72% of the total number of household in Saalahutu District. The number of household had slightly increased in 2007 to 3,613 households (Dinas Pertanian Kabupaten Maluku Tengah 2008a: 69), or 34.11% of the total number of households in this district.

Compared to Saparua Island, there were fewer households in Salahutu District that were working in the wild fisheries sector, as well as the fisheries sector in general. In 2006, there were 669 households working on the production line of the wild fisheries sector (Dinas Kelautan dan Perikanan Kabupaten Maluku Tengah 2007a: 262-264), or 6.45% of the total number of households in this district, while the number of wild fisheries households in 2007 had increased to 692 (Dinas Kelautan dan Perikanan Kabupaten Maluku Tengah 2008: 72), or 6.63% of the total number of households in Salahutu District.

Differing from the situation of Saparua Island, sectoral diversification in Salahutu District was quite high. This was particularly due to its function as one of the regional hubs in the Ambon Lease region in particular and the Province of Maluku in general. Many natives of Negeri Tulehu and Salahutu District were working in the transportation sector connecting the ports in Negeri Tulehu and the City of Ambon, as well as the surrounding villages of Negeri Tulehu. Moreover, as many natives of Negeri Tulehu were working as motorcycle taxi drivers, the leasing process of motorcycles in Ambon Island being considerably easier for those who held national ID cards issued by the government of Negeri Tulehu¹¹.

However, even though the sectoral diversification in Salahutu District was quite high, 40.21% of residents of Salahutu District in 2006 and 40.65% of inhabitants of this district in 2007 were still dependant on the agriculture and fisheries sectors. Most of those who were working in permanent cropland and wild fisheries were natives, while most arable lands and fish farms were owned by the Butons. This indicated that the land

¹¹ Interview with Alan, a motorcycle taxi driver and native of Negeri Tulehu, on 7 June 2011, 10 am – 12 pm Eastern Indonesian Time, Negeri Tulehu and Negeri Tengah-Tengah, Municipality of Central Maluku

and marine territory of Salahutu District was still suitable for agriculture and fisheries activities.

There was unfortunately no official data regarding the employment in the agriculture and fisheries sector in Nusaniwe District. However, in 2004 there were 19,620 individuals, or 35.82% out of 54,773 citizens of this district aged over 15, who were working (Badan Pusat Statistik Kota Ambon 2004: 26). There were also 25,817 individuals over 15 who were not working due to education or domestic activities, while the number of unemployed individuals over was 9,336, or 32.24% (*ibid.*).

Particularly in Negeri Latuhalat, the agriculture and marine sectoral diversification was considerably high. Besides providing the banana and breadfruit stock for Ambon Island, the locals, who had been supported by the customary government of this *negeri*, had been producing breadfruit cracker¹².

The wild fisheries sector was still a prominent sector in Negeri Latuhalat. The customary government of Negeri Latuhalat had been focusing on the management of its marine territory and beyond¹³. In 2011, the daily income of fishermen in this *negeri* was between IDR 6 to 13 million, or EUR 500 to 1,100¹⁴. Since 1997, a local company had been exporting fresh fish to Japan. The processing of marine products into fishball, fish sauce, jerked fish and fish floss had also been by four local groups¹⁵. The tourism sector also provided means of living for the people of Negeri Latuhalat. In this *negeri* alone, there were two beaches and three marine parks (Dinas Pariwisata dan Kebudayaan Kota Ambon 2007: 246-248). Moreover, two diving companies, owned by locals, had also been providing their services for tourists.

Additionally, the performance of the Customary Spatial Unit Administration System in the four sub-case study areas had also provided an opportunity for the members of these communities to earn a living in the agriculture and fisheries sector. Depending on the customary Spatial Unit administration system, several members of *kewang* institution had been appointed to carry out and monitor law enforcement in relation to the performance of the customary land administration system. In Negeri Paperu, members of the *kewang* institution came from a specific clan¹⁶, while each member of *kewang* institution in Negeri Latuhalat represented a quarter in this institution¹⁷. On the other hand, the membership of *kewang* institution in Negeri Tulehu was open for any citizen of this

¹² Telephone interview with Moses Salhuteru, the chief of Negeri Latuhalat, on 6 January 2010, 2 – 3 am Central European Time, Dortmund

¹³ Interview with Mozes Salhuteru, the Chief of Negeri Latuhalat, 22 June 2009, 10 – 11 am Eastern Indonesian Time, Office of the Chief of Negeri Latuhalat, Latuhalat, Municipality of City of Ambon

¹⁴ Interview with Mozes Salhuteru, the chief of Negeri Latuhalat, 6 June 2011, 11 am – 12 pm Eastern Indonesian Time, Office of the Chief of Negeri Latuhalat, Latuhalat, City of Ambon, Municipality of City of Ambon

¹⁵ Telephone interview with Moses Salhuteru, the chief of Negeri Latuhalat, on 6 January 2010, 2 – 3 am Central European Time, Dortmund

¹⁶ Group interview with T. Pattipawae, the customary socialite of Negeri Paperu, on 9 June 2011, 8 – 10 pm Eastern Indonesian Time, the residence of the Chief of Negeri Paperu, Paperu, Municipality of Central Maluku

¹⁷ Interview with Mozes Salhuteru, the chief of Negeri Latuhalat, 22 June 2009, 10 – 11 am Eastern Indonesian Time, Office of the Chief of Negeri Latuhalat, Latuhalat, Municipality of City of Ambon

negeri as people were rarely willing to participate in this institution¹⁸. Additionally, in 2009 there were six marine *kewang* and two land *kewang* in Negeri Latuhalat.

Poverty

In Indonesia, the poverty level had been measured by different methods, mainly by Statistics Indonesia and National Family Planning Coordinating Board. Moreover, the poverty level could also be measured by the number of social subsidies that were issued, reference on poverty from the government of sub-district and health insurance for the poor that were issued. The measurement of poverty levels by means of these parameters will be described in the section on formal poverty level identification.

Furthermore, the local perspective on poverty is also portrayed in this section. Parameters, such as the ability to fulfil basic needs, as well as the secondary needs for the members of a family, are employed.

Formal Poverty Level Identification

The measurement of the poverty level by Statistics Indonesia had basically been done to identify the number of poor people and household living below the poverty level (Cahyat 2004: 7). The survey had been performed every three years by measuring the level of consumption of both the food and non-food sector (*ibid.*: 2). Statistics Indonesia employed two types of quantitative survey methods with the number of samples as many as 65,000 to 200,000 households, which had been carried out every three years for the core survey and annually for the more detailed survey (*ibid.*). The smallest unit of the quantitative survey performed by Statistics Indonesia was a household, which was defined as a group of persons living under the same roof (*ibid.*). The outcome had however been represented at provincial level (*ibid.*). Nonetheless, this method could hardly be employed within the non-consumptive communities that had been depending on their own products rather than converting their products into currency and spending this currency to fulfill their needs.

On the other hand, the poverty level measurement by National Family Planning Coordinating Board had been done as the basis to increase the prosperity of the people in Indonesia through its programs (*ibid.*: 7). The indicators that have been employed were therefore not only the level of consumption on basic needs but also for fulfilling the socio-psychological needs (*ibid.*). Compared to the previous method, the level of analysis and data acquired by National Family Planning Coordinating Board was more detailed (*ibid.*). The survey had been carried out annually and the smallest unit of analysis was a family (*ibid.*), which was defined as a group of blood-related people that comprised of parents and their children. However, some indicators applied by National Family Planning were too detailed and in some cases not relevant such as the weekly consumption of meat or fish that might not be relevant for the vegetarian family or a family with specific religious requirements (*ibid.*). The method employed during the survey was quite simple (*ibid.*). Moreover, in some cases, such as the case of Salahutu District, the surveyed respondents were participating in the family planning program, while not every family was participating in this program.

¹⁸ Interview with John Saleh Ohorella, the chief of Negeri Tulehu, on 21 June 2009, 10 – 11 am Eastern Indonesian Time, the residence of the Chief of Negeri Tulehu, Tulehu, Municipality of Central Maluku

For providing another formal perspective on poverty, the issuance of social subsidy, letter of reference on poverty from the government of sub-district and health insurance for the poor was also revealed. Unfortunately, this information could not solely be employed to measure the poverty level of the people due to their situational provision. The social subsidy was basically a discrete program that had not only been able to cover all sub-districts in Ambon Lease region but also had been carried out in different sub-districts each year. Regarding the letter of reference on poverty, it was normally issued on request as this reference was mostly required to apply for specific waivers. Moreover, health insurance for the poor had not been able to be delivered to all of the poor. Most importantly, it could not cover all health service expenses. Indicators of the failure of the distribution of this type of health insurance was the large number of accidental movements for collecting donations to facilitate medication for those in need.

In spite of the lack of coverage of each poverty level measurement method and indicator, the representation of the figures acquired from the above measurement methods and indicators was valuable in providing an in-depth perspective of the poverty level in this region. Besides being compared to the outcome of the field observation, these figures also provided the means for fulfilling the gap on information acquired from the field observation.

According to the outcome of National Socio-Economic Survey in 2010, the percentage of the poor among the total number of citizens of the Province of Maluku was the third highest among other provinces in Indonesia (Badan Pusat Statistik 2010: 7). In 2010, the number of poor in this province was 378,630 persons, or 27.74% of the total inhabitants of the Province of Maluku (*ibid.*).

As the data from National Family Planning Coordinating Board covered up to sub-district or village level, almost every statistical data at district level contained the data on poverty from this board. In 2003, there were 4,059 families in Saparua Island, or 53.69% of total number of families in this island, who were considered to be living below the poverty level, which were classified under pre-prosperous and prosperous level I class (Badan Kependudukan dan Keluarga Berencana Nasional Kabupaten Maluku Tengah 2003: 35). The number of families living under the poverty level on this island in 2006 had decreased to 3,880 families, or 49.00% of the total number of families in Saparua Island (Dinas Kependudukan, Keluarga Berencana dan Catatan Sipil Kabupaten Maluku Tengah 2007: 162-163). This figure had further decreased in 2007 to 3,945 families, or 48.75% of the total families in Saparua Island (UPTB Kependudukan, Keluarga Berencana dan Catatan Sipil Kecamatan Saparua 2007: 35). The trend of the decreasing number of families living below the poverty level in 2003, 2006 and 2007 was strongly influenced by the decreasing number of families living at prosperous level I. Unfortunately, the number of families classified under pre-prosperous level between 2003 and 2006 had been increasing, while, between 2006 and 2007, this figure had only slightly increased in number but decreased in the percentage of families classified under pre-prosperous level among the families in Saparua Island. On the other hand, the number of families living in prosperous level III and III+ had been decreasing from 2003 to 2007, while these families were re-classified under prosperous level II or living slightly above the poverty level. See Table A.11 for details. See also Figure A.12 in Appendix A for the description of the poverty level of people in Saparua Island in 2003, 2006 and 2007.

The impact of the different definitions of the smallest unit of analysis employed by Statistics Indonesia and National Family Planning Coordinating Board was clearly identified. In 2003, there were 7,560 families in Saparua Island (*ibid.*), while, in the same year, the number of households was 6,279 (Badan Pusat Statistik Kabupaten Maluku

Tengah 2003: 16). In 2006, there were 8,354 households (Badan Pusat Statistik Kabupaten Maluku Tengah 2007a: 64), while Dinas Kependudukan, Keluarga Berencana dan Catatan Sipil Kabupaten Maluku Tengah (2007: 162-163) published the number of families in Saparua Island being as many as 7,919. Moreover, Badan Pusat Statistik Kabupaten Maluku Tengah 2007b: 16) stated that there were 7,261 households in Saparua Island in 2007, while, in the same year, the number of families surveyed by UPTB Kependudukan, Keluarga Berencana dan Catatan Sipil Kecamatan Saparua (2007: 35) was 8,092. It was therefore obvious that a household on this island could comprise of more than one family. Unfortunately, the total number of families on this island in 2003, 2006 and 2007 could not be obtained, which left the question on the number of unsurveyed families unanswered.

In Salahutu District, the figure on poverty of people in this district was even worse than that of Saparua Island. In 2006, there were 4,489 families living under the poverty level, or 50.20% among the families in this district (Dinas Kependudukan, Keluarga Berencana dan Catatan Sipil Kabupaten Maluku Tengah 2007: 162-163). The poverty level of people of Salahutu District was getting worse in 2007, with the number of families living below the poverty level being as many as 4,991, or 55.12% of the total number of families in this district (UPTB Kependudukan, Keluarga Berencana dan Catatan Sipil Kecamatan Salahutu 2008: 53-54). The number of families classified under pre-prosperous level had decreased from 2,324 families in 2006 to 1,938 families in 2007. However, the number of families classified under prosperous levels II, III and III+ between 2006 and 2007 had also decreased. On the other hand, the number of families living slightly below the poverty level between 2006 and 2007 had increased from 2,165 families in 2006 to 3,053 families in 2007. See Table A.12 for details. See also Figure A.13 for the description of the poverty level of people in District Salahutu in which Negeri Tulehu is located in 2006 and 2007.

Differing from the facts found on Saparua Island, different conclusions on the comparison between the number of households and families in Salahutu District were drawn. The number of households in this district in 2006 was 10,376 (Badan Pusat Statistik Kabupaten Maluku Tengah 2007a: 64), while the number of households defined by Dinas Kependudukan, Keluarga Berencana dan Catatan Sipil Kabupaten Maluku Tengah (2007: 162-163) was 8,943. Less numbers of families compared to the number of households in Salahutu District were also identified in 2007. This meant that, in spite of the possibility of having more than one family in a household, there were unsurveyed families in this district.

A different style of data representation on poverty of people from National Family Planning Coordinating Board was identified for Nusaniwe District. In 2004, there were 3,203 poor families, with the number of poor individuals being 13,353 (Badan Kependudukan dan Keluarga Berencana Nasional Kota Ambon 2004: 25). This meant that 19.48% of families in this district were living below the poverty level, while 16.32% of individuals in Nusaniwe District were poor. Compared to year 2007, the number of poor families had decreased to 3,030, or 16.38% of number of total families in this district, while the number of poor individuals had also decreased to 13,808 or 17.54% among the inhabitants of the Nusaniwe District. See also Figure A.14 in Appendix A for the description of the poverty level of people in District Nusaniwe in which Negeri Latuhilat is located in 2006 and 2007.

Poverty at Grassroot Level

Different perceptions of poverty at *negeri* level were identified. Those perceptions were those of the executive and the citizens of *negeri*. Among the executives of the four sub-

case study areas, most of their perspectives were enormously influenced by the formal perspective of poverty in Indonesia in general. The chief of Negeri Tulehu stated that 10% of his citizens were poor¹⁹, while the chief of Negeri Latuhalat mentioned the poverty figures released by Statistics Indonesia in 2004 and 2008, as well as National Family Planning Coordinating Board in 2008, even though the latter figure was not quite the same as that already released²⁰. The chief of Negeri Paperu also mentioned the number of his citizens that were classified as living below poverty line, which were 102 families²¹, while the secretary of Negeri Paperu defined those living above the poverty line as those who were working as the public employees²². On the other hand, the chief of Negeri Siri Sori Islam stated that generally the prosperity of his people depended very much on the market price of cloves and nutmeg²³.

Several parameters for measuring the level of poverty of the people were also highlighted by some of the chiefs of the four sub-case study areas. The chief of Negeri Tulehu underlined the importance of the fulfilment of needs for adequate food, proper clothing, appropriate housing and sufficient education on the enhancement of the prosperity of the people²⁴. Moreover, the chief of Negeri Latuhalat stated that the prosperity of his people depended on the performance of *sasi*, while innovative programs and trainings on the processing of natural resources products, provision of tools from the higher hierarchical government for exploitation of marine natural resources and the establishment of vocational high school on fisheries would be very useful to address the diminishing of land natural resources production by focusing more on the management of the marine sector²⁵.

The perspective of most citizens of the four sub-case study areas could basically be represented by the perspective of the chief of Negeri Siri Sori Islam, Latuhalat and Tulehu. Most, if not all, people in these sub-case study areas agreed that the Customary Spatial Unit Administration had been directly affecting their level of prosperity. Within the fulfilment of their food consumption needs, the Customary Spatial Unit Administration System had been providing the ability to sustain the stocks of natural resources in the territories of these case study areas and their surroundings. With the sustained, abundant natural resources, the low-diversified land and marine sector could still provide them with basic food materials, as well as the currency to buy basic food materials or dishes. Even for holding a big feast or entertaining their guests, the people could just

¹⁹ Interview with John Saleh Ohorella op. cit.

²⁰ Interview with Mozes Salhuteru, the chief of Negeri Latuhalat, 22 June 2009, 10 – 11 am Eastern Indonesian Time, Office of the Chief of Negeri Latuhalat, Latuhalat, Municipality of City of Ambon

²¹ Group interview with Christian Lawalata, the chief of Negeri Paperu, on 9 June 2011, 8 – 10 pm Eastern Indonesian Time, the residence of the Chief of Negeri Paperu, Paperu, Municipality of Central Maluku

²² Interview with Charles Pattiselano, Secretary of Government of Negeri Paperu, on 19 June 2009, 10 – 11 am Eastern Indonesian Time, at the Office of the Chief on Negeri Paperu, Paperu, Municipality of Central Maluku

²³ Group interview with Jhony Karim Pattisahusiwa, the chief of Negeri Siri Sori Islam, on 18 June 2009, 8 – 10 pm Eastern Indonesian Time, the residence of the Chief of Negeri Siri Sori Islam, Siri Sori Islam, Municipality of Central Maluku

²⁴ Interview with John Saleh Ohorella op. cit.

²⁵ Interview with Mozes Salhuteru op. cit.

fish or collect food materials from their arable land or primary and secondary forests in their surroundings. Moreover, such big feasts were normally held within the local celebrations, such as the opening of *sasi*.

Most citizens of these areas divided the prosperity timeline into prosperous and crisis periods. The prosperous period was basically defined as the period with an abundance of marine catches, mostly during the dry season, while the crisis period started in which rainy season started. The rainy season had basically created uncertainties in relation to the management of the marine sector. However, during the crisis, in particular for the people of Negeri Paperu and Siri Sori, the land natural resources products could still sustain their lives.

Furthermore, the rising trend of the conversion of Land Use into arable land and the existence of small portions of arable land within the pastures belonging to individuals or *dati* associations was acknowledged as the efforts of these people to fulfil their own food consumption needs. With the uncertain circumstances of seas in the surroundings of Saparua Island, the price of basic food materials could be very high. The establishment of arable land was therefore a logical consequence of this situation. Moreover, small scale cultivation of vegetables found in almost all backyards particularly in Negeri Paperu could partly fulfil the food consumption of people in this *negeri*.

Unfortunately, the Customary Spatial Unit Administration System in all the sub-case study areas had taken only a small role in the management of arable land. The most prominent role of this system was the provision of permits to convert the Land Use to arable land. Additionally, the unwritten rule on maximum conversion of Land Use for the purpose of arable land had also been conformed to by most of citizens of all the sub-case study areas. The flexibility and a good vision for the future were thus required to maintain the balance between environmental exploitation and quality preservation.

The role of Customary Spatial Unit Administration Systems on maintaining the economic sustainability in the four sub-case study areas could also be identified within the permanent crop and wild fisheries sector. Except in Negeri Latuhalat, all sub-case study areas were still maintaining the coverage of permanent cropland, particularly the clove, nutmeg, coconut and cacao plantations. A small amount of collected, highly priced cloves and nutmeg could provide the means of a livelihood for a household for a week.

Furthermore, with its abundant marine natural resources, the food consumption needs of people in the four sub-case study areas could also be fulfilled. As previously mentioned, the surroundings seas had been providing the citizens of the four sub-case study areas with abundant raw food materials, with the exception of during the rainy season. Even during the rainy season, coral fish living within the coastal waters could still be caught.

Unfortunately, the fulfilment of food consumption needs from the wild fisheries sector was not in accordance with the wild fisheries production statistical data. In 2006, production of the wild fisheries sector in Saparua Island was 5, 430.50 tonnes (Dinas Kelautan dan Perikanan Kabupaten Maluku Tengah 2007: 272-273), which was valued as much as IDR 11,815,919,000 or equal to EUR 987,077 (*ibid.*: 286-287). As there were 2,765 fishermen on Saparua Island in 2006, their average monthly income was IDR 278,927 or equal to EUR 23.24. Moreover, from the production of 9,050.50 tonnes in Salahutu District in 2006 (*ibid.*: 272-273), which was valued as much as IDR 23,034,436,300 or equal to EUR 1,918,703 (*ibid.*: 286-287), the average monthly income of 1,347 fishermen in this district was IDR 708,311 or equal to EUR 59.03. The average monthly income of fishmen in Saparua Island and Salahutu District was however below the provincial minimum salary standard in 2006, which was defined based of the survey on the minimum standard for decent living, of IDR 800,000, or equal to

EUR 66.67, for the wild fisheries sector. However, the standard of living of fishermen in Negeri Lathualat in 2011 as the daily income of fishermen in this *negeri* could be within the range of IDR 6,000,000, or equal to EUR 500, and IDR 13,000,000 or equal to EUR 1,083. This was quite far from the standard of the daily provincial minimum salary in 2011, which was IDR 30,000 or equal to EUR 3.

The above mentioned discrepancy was principally due to the inability of the formal poverty measurement system to include the people's self-consumed income value. The figures mentioned were acquired from the fish auction markets (see Badan Pusat Statistik 2009 for details), while the daily income of self-consumed captured fish was not included. Moreover, the same circumstances could also be found on the self-consumed arable land products particularly those cultivated in the backyards and pastures as these products had never reached the market.

Besides being able to fulfil their food consumption needs, the agriculture and wild fisheries sector had also been supporting the fulfilment of the needs for appropriate clothing and housing. During the data collection processes in 2009 and 2011, it could be identified that these communities had in general been able to dress suitably, mostly in t-shirt and shorts. Moreover, the elementary and secondary school students could even afford to wear a uniform in school.

Even though a household could comprise more than one family, there were however no homeless people in these sub-case study areas. This was mainly due to their tight kinship relationship culture. In fact, this culture acted as the basis for the establishment of each *negeri* in the Ambon Lease region. The family, which had further grown into *mataruma*, shared the same definition as household. *Mataruma* was initially defined as a group of people living under the same roof. As the *mataruma* became overcrowded, new *mataruma-mataruma* were established. However, the first *mataruma* still acted as the main *mataruma* among the new *mataruma-mataruma* and the head of the first *mataruma* acted as the representative of the newly established *mataruma-mataruma*. The houses of *mataruma-mataruma* had further been inherited for generations, which, in turn, provided the accommodation for the all members of this kinship association.

Additionally, due to the scarcity of land customarily allocated for settlement areas, the settlement areas in these sub-case study areas could not be expanded. Particularly in Negeri Tulehu and Siri Sori Islam, with their dense settlement areas, no new dwellings could be established in the existing settlement areas. However, few constructions of new houses could still be identified in Negeri Paperu in 2009. This was due to the pattern of the settlement area in Negeri Paperu that required each house to have a front-and backyard, as well as the flexibility applied by *dati* association to convert the use of small portions of *dati* land for settlement purposes.

In spite of the increasing population, together with a low rate of out- and immigration, the number of dwellings available could still house all the citizens of these sub-case study areas. Characterised by the *mataruma* principles, the houses were mostly comprised of minimum three bedrooms, with a relatively large common room and an adequate space to receive guests. Furthermore, the subsidy from the member of the family who had migrated had mostly increased the quality of houses in these sub-case study areas²⁶. Even most households with semi-permanent constructions could afford to have

²⁶ Group interview with Jhony Karim Pattisahusiwa, the chief of Negeri Siri Sori Islam, on 18 June 2009, 8 – 10 pm Eastern Indonesian Time, the residence of the Chief of Negeri Siri Sori Islam, Siri Sori Islam, Municipality of Central Maluku

a satellite dish to receive transmission from national and foreign television stations. See Figure 7.14 and 7.15 for a semi-permanent house with satellite television signal transmission receiver in Negeri Tulehu and Negeri Paperu consecutively.



Figure 7.14 Semi-permanent house with satellite disc in Negeri Tulehu

In addition to the fulfilment of food consumption needs, as well as adequate clothing and housing, primary and secondary education had also been taken seriously by the people of these sub-case study areas. Since 1994, GoI had required all citizens between the ages of six and fifteen to pursue primary education. In fact, in 2007, there were only 22 citizens of Saparua Island, out of 4,285 primary schoolage citizens, who did not attend the primary school (Badan Pusat Statistik Kabupaten Maluku Tengah 2007b: 22).



Figure 7.15 Semi-permanent house with satellite dish in Negeri Paperu

7.3 Social Impact

Several indicators were employed to measure the social impact of the performance of the Customary Spatial Unit Administration system. These indicators were the direct outcome of the performance of the Customary Spatial Unit Administration System, which included access to Spatial Unit, the function of Spatial Unit and the preservation of customary values.

Several other indicators to directly measure the social impact of the performance of the Spatial Unit Administration in general were also suggested particularly by UN (2001: 24) and Belfiore *et. al.* (2006: 40), such as gender equity and living condition (UN *op. cit.*), as well as human pressure on habitats, population dynamics, dependency on Spatial Unit and protection of Spatial Unit heritage resources (Belfiore *et. al. op. cit.*). In this research, the analysis on gender equity in relation to the performance of the Customary Spatial Unit Administration was totalled within the analysis on access to Spatial Unit as the former issue had customarily been covered by the latter. Moreover, the issues on living conditions, population dynamics and dependency on Spatial Unit had already been covered by the analysis on economic impacts of the performance of the customary Spatial Unit Administration, while human pressures on habitats had been covered by the analysis on ecological impact of the performance of the previously mentioned system. Last but not least, the protection of Spatial Unit heritage was attached to the identification of the function of Spatial Unit and customary values preservation as the Spatial Unit heritage acted as an integrated part of the custom itself.

Access to Spatial Unit

Access to Spatial Unit as regulated by the Spatial Unit Administration system reveals the policy and strategy on the management of Spatial Unit. It is therefore necessary to

measure whether the system is able to create a balance between the access to Spatial Unit and maintenance of the authority of the government for the greatest benefit of all people. The assessment of the ability of the citizens of the four sub-case study areas was done by employing separate evaluations on access to land, access to marine unit and gender equity on accessing the Spatial Unit.

Access to Land

Even though different levels of customary governance authority had been applied, the people from the four sub-case study areas could enjoy a high degree of access to land. This originated from the establishment of *negeri* as the customary legal institution in Ambon Lease region in particular and the Province of Maluku in general. The basic foundation of *negeri* is their citizens and their families, particularly in the form of *mataruma* structure. Initially, each *negeri* comprised of the first inhabitant of *negeri* in question, who normally acted as the chief as well, and other inhabitants who came later. See Pattipawae (2010) for the history on the establishment of Negeri Paperu and other *negeri-negeri* in Saparua Island. However, not until a mutual agreement on the establishment of *negeri* among the first inhabitants of *negeri* in question was a *negeri* established (*ibid.*). Due to the established mutual agreement among the first inhabitants, each inhabitant acquired a portion of land for settlement purposes. This portion of land had been considered as the private property of *mataruma*.

Later on, due to the implementation of *dati* law, each kinship association was given a portion of land to compensate for the execution of *dati* tasks by the members of the kinship association (Effendi 1987: 119). The land that acted as compensation had further been labelled as *dati* land (*ibid.*). In Negeri Latuhalat, the authority of customary government over *dati* land had diminished in a way that the customary rules could no longer be applied²⁷. Even *sasi* on coconut in Negeri Latuhalat had already been abolished as the coconut plantations had almost totally disappeared in this *negeri*²⁸. On the other hand, the customary control over *dati* land in Negeri Siri Sori Islam and Tulehu was still strictly applied, which included the application of all customary rules regarding the management of land in these *negeri-negeri*^{29,30}. Moreover, even though the customary government of Negeri Paperu was inactive between 2008 and 2011, *kewang* institution was still partly effective. This was particularly due to the assignment of the Huru-malussy clan for performing *kewang* tasks³¹. However, it was the obedience of the citizens of Negeri Paperu that allowed this *negeri* to partly maintain its good land environmental quality.

²⁷ Interview with Mozes Salhuteru, the chief of Negeri Latuhalat, 6 June 2011, 11 am – 12 pm Eastern Indonesian Time, Office of the Chief of Negeri Latuhalat, Latuhalat, City of Ambon, Municipality of City of Ambon

²⁸ *Ibid.*

²⁹ Group interview with Jhony Karim Pattisahusiwa, the chief of Negeri Siri Sori Islam, on 18 June 2009, 8 – 10 pm Eastern Indonesian Time, the residence of the Chief of Negeri Siri Sori Islam, Siri Sori Islam, Municipality of Central Maluku

³⁰ Interview with Asril Djunaedi, the non-native and young environmental activist of Negeri Tulehu, on 17 June 2009, 7 – 8 pm Eastern Indonesian Time, Tulehu, Municipality of Central Maluku

³¹ Group interview with T. Pattipawae, the customary socialite of Negeri Paperu, on 9 June 2011, 8 – 10 pm Eastern Indonesian Time, the residence of the Chief of Negeri Paperu, Paperu, Municipality of Central Maluku

Particularly in Negeri Latuhalat, all lands that had not been registered under *register dati* were distributed to the landless after the registration by the Dutch Colonial Government was finalised³². This type of land had been considered as private land³³. In 2011, all lands classified under this type were already registered by the National Land Agency of Republic of Indonesia³⁴.

During the further implementation of the Spatial Unit Administration system in the four sub-case study areas, except in Negeri Latuhalat, it was also possible to acquire a portion of land that had never been distributed to *dati* association (Effendi *op. cit.*: 101) or belonged to *dati* association (*ibid.*: 144). With the permission from the customary government, the land belonging to the customary government or *dati* association could be utilised with the customary usufruct attached to it (*ibid.*: 98, 101). After the occupation of the land for a couple of generations, the land could be considered as the property of the occupier's family or *dati* association (*ibid.*). For the usufruct attached to the land belonging to the customary government, when it was inherited by the heir of the initial occupier of the land, this type of land was categorised as *pusaka parusahaan* as the land was acquired by opening the land belonging to *negeri* government that was called *parusahaan* land and became a heritage, or *pusaka* in Malay Ambon dialect, of the family of the occupier (*ibid.*: 98). For the land that initially belonged to *dati* association, this type of land was labelled as *pusaka dati* or inheritance *dati* (*ibid.*: 101).

Furthermore, *pusaka parusahaan* and *pusaka dati* could also be sold (*ibid.*: 98, 101-102). The difference between *pusaka parusahaan* and *pusaka dati* was that, for *pusaka parusahaan*, it was only the crops on it that could be transferred as the land belonged to *negeri* government. The status of the bought land in both cases would be *babalian* land. Not until the land was inherited by the next generation of the buyer could the tenureship of the land be converted from usufruct to, depending on the initial state of the land during the land transaction, *pusaka parusahaan* or *pusaka dati*. In the four sub-case study areas, *pusaka parusahaan* and *pusaka dati* had been treated as *dati* land belonging to *dati* association. The customary rules over the management *pusaka parusahaan* and *pusaka dati* were therefore still strictly applied in Negeri Tulehu³⁵ and Siri Sori Islam³⁶, while there was no *pusaka parusahaan* and *pusaka dati* in Negeri Latuhalat as the lands that had not been registered under *register dati* had already been distributed to the landless after the land registration by the Dutch Colonial Government was finalised³⁷. The customary rules on the management of *pusaka parusahaan* and *pusaka dati* in Negeri Paperu between 2008 and 2011 had only been partly applied.

³² Interview with Mozes Salhuteru, the chief of Negeri Latuhalat, 6 June 2011, 11 am – 12 pm Eastern Indonesian Time, Office of the Chief of Negeri Latuhalat, Latuhalat, City of Ambon, Municipality of City of Ambon

³³ *Ibid.*

³⁴ *Ibid.*

³⁵ Interview with Asril Djunaedi *op. cit.*

³⁶ Group interview with Jhony Karim Pattisahusiwa, the chief of Negeri Siri Sori Islam, on 18 June 2009, 8 – 10 pm Eastern Indonesian Time, the residence of the Chief of Negeri Siri Sori Islam, Siri Sori Islam, Municipality of Central Maluku

³⁷ Interview with Mozes Salhuteru, the chief of Negeri Latuhalat, 6 June 2011, 11 am – 12 pm Eastern Indonesian Time, Office of the Chief of Negeri Latuhalat, Latuhalat, City of Ambon, Municipality of City of Ambon

Access to the Marine Unit

Access to the marine unit could be classified based on the location thereof. For the marine unit within the territory of each *negeri* in the four sub-case study areas, the access had been bestowed on the citizens of *negeri* in question. Occasionally, the access to marine unit could also be given to an outsider. For both the citizens of the *negeri* in question and outsider, the access to the marine unit within the customary territory of *negeri* in question required permission from the customary government of *negeri* in question. Moreover, the access to this type of marine unit was also the subject of customary Marine Administration rules.

On the other hand, access to the open seas had been opened for everyone. The access to the open seas within the surroundings of the four sub-case study areas was also the subject of common norms such as no blast fishing allowed. Particularly in the open sea in the surroundings of Negeri Tulehu, any activity that could affect the customary marine territory of this *negeri* had also been the subject of the customary Marine Administration rules thereof³⁸.

The marine unit could also be attached with usufruct. Within the customary marine territory, there was mostly *saaro*, a fish trap that acts as a fish plantation as well (Effendi 1987: 111). The marine unit with usufruct attached to it, with the permission from *negeri* government, could further be inherited by the heir of the usufruct holder after the latter had passed away.

Gender Equity

Characterised by the patrilineality, women could principally have a high degree of access to Spatial Unit, which depended on the occurrence of the access to Spatial Unit itself. The occurrence of access to Spatial Unit for women could be traced from the initial state of the Spatial Unit, which could be of *negeri*'s land, which was normally in the form of *ewang* or customary territorial sea and *dati* land.

The access of women to the Spatial Unit that was initially in the form of *ewang* or customary territorial sea was substantially equal to that of men. There was principally no restriction for women to access this type of Spatial Unit.

Access of women to *dati* land could further be sub-classified into the access to *dati* land itself, *pusaka dati*, *atitin* land and *perusahaan* over *dati* land. A woman could greatly benefit from the *dati* land belonging to her recent *dati* association without any restriction. Differing from the high degree of freedom for women to access Spatial Unit that was initially an *ewang* or customary territorial sea, access of women to *dati* land had been restricted due to the nature of *dati* law. *Dati* land acted as the compensation of the execution of *dati* tasks for supporting the family during the period in which the executor of *dati* task was away (*ibid.*: 119). The *dati* tasks comprised of demanding tasks such as sailing for war or other duty tasks for a long period (*ibid.*: 130). Women were therefore protected from performing such tasks and, on the other hand, could benefit from *dati* land as long as she belonged to the kinship association in question (*ibid.*: 149).

After getting married, the right of women to benefit from the *dati* land belonging to her kinship association was automatically abolished and substituted by that of her husband's (*ibid.*: 149-150). The scarcity of land required these communities to manage their land effectively. While the marriage had transferred a woman from her blood-related kinship association to her husband's, the right to benefit from the *dati* land

³⁸ Interview with John Saleh Ohorella op. cit.

should stay in the former association and be re-distributed to other members of the former association. Otherwise, the former association would have the extent of its land lessened, which could create an imbalanced land possession between the two associations (*ibid.*: 150).

As *pusaka dati* was already considered as the private property of the occupier, a woman could access *pusaka dati* regardless of her membership in other kinship associations due to her marriage (*ibid.*:151). A widow could also still access the *pusaka dati* belonging to her deceased husband, as long as she did not remarry (*ibid.*). When the widow passed away, *pusaka dati* would be returned to the *dati* association of her husband (*ibid.*). The same scheme had also been applied for *saaro* in the customary territorial sea, which was equivalent to *pusaka dati* at sea.

During a woman's marriage, it was common that she was granted a portion of *dati* land from her blood-related kinship association, which was normally called *atitin* land (*ibid.*). The purpose of granting *atitin* land was to tighten the relationship between the married woman and her blood-related kinship association (*ibid.*). The married woman could freely access *atitin* land, which included as well the access of her heirs to *atitin* land (*ibid.*). Not until she had no heirs would *atitin* land be returned to her blood-related kinship association (*ibid.*: 151-152).

Last but not least, a woman could also freely access her own *parusahaan*, which was the subject of a permission from the head of *dati* association (*ibid.*: 152). The right of access to a woman's own *parusahaan* lasted as long as she lived (*ibid.*). The only restriction was that, after getting married, it was not possible for her to cultivate new plants on the *parusahaan* in question (*ibid.*). Not until her death would the *parusahaan* in question be returned to her blood-related *dati* association (*ibid.*: 152).

Function of the Spatial Unit

In general, the performance of the Customary Spatial Unit Administration System Customary Spatial Unit Administration System could provide a means to sustain the function of the Spatial Unit within the territory of the four sub-case study areas. The outcome of the system had however been influenced by the level of authority, as well as the flexibility, applied in the Spatial Unit governance.

The Spatial Units had various functions in the four sub-case study areas, depending on the character of each one in question. Generally, the Spatial Unit had been functioning as the preservation area, as well as the means of a livelihood.

Environmental and Cultural Heritage Preservation

The Customary Spatial Unit Administration System had been well-functioning to preserve natural resources and cultural heritage. In Negeri Siri Sori Islam, the application of sasi on forest products such as tree logs and branches, ketupa, durian, palm sago and walnuts, as well as permanent cropland products such as coconut, cloves and cengkeh (Pemerintah Negeri Siri Sori Islam 1928: 2), had not only been able to maintain the sustainability of the forest and permanent cropland products for centuries but also the coverage of its primary and secondary forest. This was particularly due to the application of the above mentioned rules, as well as other customary rules not only relating to public properties but also to private properties³⁹. Additionally, it was also proposed that the *Gandaria* tree be managed under sasi scheme⁴⁰.

³⁹ Group interview with Jhony Karim Pattisahusiwa, the chief of Negeri Siri Sori Islam, on 18

Besides preserving its land natural resources, the Customary Spatial Unit Administration System of Negeri Siri Sori Islam had also been able to preserve its cultural heritage. Of the important cultural heritages was the location of the initial settlement of the first inhabitants of this *negeri*, which was called *negeri lama* or old *negeri*. Even though it was located just at the outskirts of the main settlement of Negeri Siri Sori Islam, prohibiting entry to the location of old *negeri* had effectively maintained its function as the historical open-air museum of this *negeri*, as well as the greenness of old *negeri*. Moreover, the governance zone had been upholding the preservation of cultural heritage as well, particularly due to the preservation of *baileo* of Negeri Siri Sori Islam, as well as the residence of the chief of Negeri Siri Sori Islam. The residence of chief of Negeri Siri Sori Islam and that of the head of District Saparua were the oldest buildings on Saparua Island⁴¹.

On its customary marine territory, the customary government of Negeri Siri Sori Islam had been applying *sasi labuan* to protect the biodiversity and quality of the ecosystem. The Spatial Unit Administration system had taken an important role in preserving the biodiversity and quality of the ecosystem, particularly considering the location of its marine territory in Saparua Bay. Saparua Bay contained nine customary marine territories. Moreover, as Paperu Cape had been acting as the natural barrier of Saparua Bay from the direct influence of Banda Sea, the degree of biodiversity in this bay was quite high. As Saparua Bay had been acting as the nursery ground of all pelagic fish of Banda Sea, *sasi labuan* applied in the customary marine territory of Negeri Siri Sori Islam had therefore contributed to the maintenance of the pelagic fish stock in Banda Sea, which had been considered among the seas with the biggest stock of pelagic fish in the world.

The function of primary and secondary forest in Negeri Tulehu had also been maintained as an effect of the performance of the Customary Spatial Unit Administration System. *Kewang* of Negeri Tulehu had been able to lessen the rate of illegal logging in its territory⁴². Additionally, the application of *sasi* on springs had been able to maintain the fresh water supply in this *negeri*, while *sasi* on bamboo, sago palm, coconut and nutmeg had also been maintaining their quality for centuries. In turn, the functions of the areas associated with the mentioned *sasi-sasi* had also been able to be maintained. In Negeri Siri Sori Islam, these rules had been applied to both public and private properties, indicating the high degree of authority of customary government to control the management of public and private Spatial Unit in order to maintain the function of the Spatial Unit in the mentioned *negeri*⁴³. Additionally, like the governance zone in Negeri Siri Sori Islam, the governance zone of Negeri Tulehu had also been acting to preserve the *baileo*, as well as the function of the governance zone.

In spite of the existence of small- and medium-scaled ports, as well as the construction of the new ports in the customary territory of Negeri Tulehu, the government of

June 2009, 8 – 10 pm Eastern Indonesian Time, the residence of the Chief of Negeri Siri Sori Islam, Siri Sori Islam, Municipality of Central Maluku

⁴⁰ Ibid.

⁴¹ Interview with Ferry Siahaya, the head of District of Saparua, on 18 June 2009, 4 - 6 pm Eastern Indonesian Time, the residence of the Head of District of Saparua, Saparua, Municipality of Central Maluku

⁴² Interview with John Saleh Ohorella op. cit.

⁴³ Interview with Asril Djunaedi, the non-native and young environmental activist of Negeri Tulehu, on 17 June 2009, 7 – 8 pm Eastern Indonesian Time, Tulehu, Municipality of Central Maluku

Negeri Tulehu had insisted on maintaining the function of its *labuan* as the nursery ground for various pelagic fishes of Banda Sea⁴⁴. Moreover, this *negeri* had also re-defined at least three^{45, 46}, out of seven, customary marine protection areas within its territory. Even though *kewang* institution of this *negeri* had only limited capacity to perform its task, particularly due to man-power and financial support shortages, the monitoring and law enforcement of the customary marine rules within its *labuan* and customary marine protected areas was still significantly in operation⁴⁷.

The Customary Spatial Unit Administration System in Negeri Latuhalat had however not been able to sustain its function on preservation of primary and secondary forest. This had been due to the distribution of *dati* land during the application of *dati* law and the land belonging to the customary government of this *negeri* after the registration of *dati* land by the Dutch Colonial Government in 1814⁴⁸. Furthermore, due to the diminished authority of the customary government and the high degree of flexibility applied in the management and administration of land⁴⁹, the function of primary and secondary forests to maintain the quality of land environment had been partly substituted by breadfruit, banana and mango plantations. The function of land of this *negeri* to support the production of coconut had also weakened sharply, which was followed by the abolishment of *sasi* on coconut⁵⁰. In 2011, land *kewang* was functioning only as the collector of the *negeri*'s duty⁵¹. Additionally, as the effect of the distribution of almost all portions of land in Negeri Latuhalat, the only portion of land belonging to the government was a small parcel in which *baileo*, the office of chief of Negeri Latuhalat and the church were located⁵².

On the other hand, particularly since 2006, the customary government of Negeri Latuhalat had put more focus on the management of its coastal and marine territory⁵³. To maintain the function of the customary marine territory of this *negeri* as the nursery ground for pelagic fish of Banda Sea and the home of shrimp, lobster, fancy fish, sea

⁴⁴ Interview with John Saleh Ohorella, the chief of Negeri Tulehu, on 25 June 2011, 12 – 2 am Western Indonesian Time, Homann Hotel, Bandung

⁴⁵ Group Interview with Ibrahim Lestaluhu, the native and young environmental and customary activist of Negeri Tulehu, on 17.06.2009, 8 pm – 12 am Eastern Indonesian Time, Tulehu, Municipality of Central Maluku

⁴⁶ Interview with John Saleh Ohorella, the chief of Negeri Tulehu, on 21 June 2009, 10 – 11 am Eastern Indonesian Time, the residence of the Chief of Negeri Tulehu, Tulehu, Municipality of Central Maluku

⁴⁷ Ibid.

⁴⁸ Telephone interview with Moses Salhuteru, the chief of Negeri Latuhalat, on 6 January 2010, 2 – 3 am Central European Time, Dortmund

⁴⁹ Ibid.

⁵⁰ Ibid.

⁵¹ Interview with Mozes Salhuteru, the chief of Negeri Latuhalat, 22 June 2009, 10 – 11 am Eastern Indonesian Time, Office of the Chief of Negeri Latuhalat, Latuhalat, Municipality of City of Ambon

⁵² Interview with Mozes Salhuteru, the chief of Negeri Latuhalat, 6 June 2011, 11 am – 12 pm Eastern Indonesian Time, Office of the Chief of Negeri Latuhalat, Latuhalat, City of Ambon, Municipality of City of Ambon

⁵³ Ibid.

cucumber and topshell, the customary government of Negeri Latuhalat promulgated *sasi* on fancy fish, shrimp and lobster, sea cucumber and topshell⁵⁴. Moreover, to maintain the function of coastal tourism spots, the prohibition to exploit sand and pebbles from the beaches had also been promulgated⁵⁵. Additionally, several common rules such as prohibition of blast fishing had also been applied⁵⁶.

Regardless of the void of power between 2008 and 2011 in Negeri Paperu, the preservation of primary forest and old *negeri* was still ongoing in 2011. This meant the customary institution was still respected, even though the level of respect had been decreasing. The governance zone had also been upholding the preservation of *baileo*, as well as table stone and the cannon that were relocated from old *negeri*. Moreover, the vacuum of power, as well as the conflict between Negeri Paperu and the management of Cape Paperu Resort and Spa, had prevented the re-implementation of *sasi* on *labuan* within the customary marine territory of this *negeri*.

Means of Subsistence Provision

Besides functioning as the means for preserving natural resources and cultural heritage, the Spatial Unit in the four sub-case study areas had also been providing a means for the citizens of these areas to earn a living. Inexplicably, the functions of Spatial Unit on providing the means of subsistence for the citizens of the four sub-case study areas could still be maintained in the circumstance that the sectoral diversification in relation to the management of Spatial Unit was relatively low.

The ability of the Spatial Unit to fulfil the needs of the citizens in these four sub-case study areas was an outcome of the performance of Customary Spatial Unit Administration Systems in these areas. Ambon Lease region in particular and generally the Province of Maluku were blessed with an abundance of natural resources attached to their Spatial Unit. However, the sustained forest and permanent cropland production, as well as fish stock, could never be achieved without the effort on limiting the exploitation of these resources at least by the same amount of their sustainable yield. The Customary Spatial Unit Administration System, supplemented by the local knowledge and customary rules, had principally been acting as the basic infrastructure to protect the natural resources from overexploitation.

In spite of the high poverty levels shown by statistical data between 2003 and 2007, the citizens of the four sub-case study areas could highly benefit from the management of Spatial Unit. Equitable access to Spatial Unit was one of the important factors that had taken on the role for providing the greatest benefit for the people from the management and administration of Spatial Unit. By managing their land and sea, the people in these sub-case study areas could have a good and simple life, even after the resources having been exploited for centuries. The citizens of Negeri Tulehu, Paperu and Siri Sori Islam could have the means of living for a week just by collecting limited amount of nutmeg, mace, cloves and/or cacao two or three times a week. Even the fishermen of

⁵⁴ Telephone interview with Moses Salhuteru, the chief of Negeri Latuhalat, on 6 January 2010, 2 – 3 am Central European Time, Dortmund

⁵⁵ Interview with Mozes Salhuteru, the chief of Negeri Latuhalat, 22 June 2009, 10 – 11 am Eastern Indonesian Time, Office of the Chief of Negeri Latuhalat, Latuhalat, Municipality of City of Ambon

⁵⁶ Telephone interview with Moses Salhuteru, the chief of Negeri Latuhalat, on 6 January 2010, 2 – 3 am Central European Time, Dortmund

Negeri Latuhalat could have a daily income between IDR 6 to 13 million, which was equivalent to EUR 500 to 1,100.

Customary Values Preservation

The application of the Customary Spatial Unit Administration System in the four sub-case study areas had taken on an important role in sustaining the customary values, particularly regarding the management of the Spatial Unit. The customary values on the management of Spatial Unit in these areas were basically represented by local knowledge of the character of the Spatial Unit in these areas, which had also been supplemented by the promulgation of customary rules for guiding the management of the Spatial Unit. The custom that had been preserved by the application of Spatial Unit Administration system in the four sub-case study areas was the pattern of Spatial Unit use, customary rules on the management of natural resources, Spatial Unit tenureship and registration and the institutional aspect of the administration of Spatial Unit. These values were acting as the basis for the Customary Spatial Unit Administration in the selected case study areas.

7.4 Concluding Remarks

In spite of the various ranges of external pressures on the Customary Spatial Unit Administration Systems, as well as the lack of technological and financial supports of the Customary Spatial Unit Administration, the Customary Spatial Unit Administration Systems in the selected case study areas had been able to facilitate the fulfilment of the goal of sustainable development. The outcomes of the assessment on the role of the Customary Spatial Unit Administration Systems on leading to the achievement of sustainable development objectives from the ecological, economic and social point of view become the evidence in support of this statement.

As described in Section 7.1, the sustainability of land and marine environment within the jurisdictions of the indigenous communities in the selected case study areas had been maintained by means of the Customary Spatial Unit Administration. Even though the coverage of land territories of these communities had been equal to the average extent of villages and sub-districts in Indonesia, these indigenous communities had over time been able to maintain the coverage of the primary and secondary forests within their territories except in Negeri Latuhalat. While the primary forest in Negeri Latuhalat had been converted into secondary forest particularly due to the individualisation of Land Tenure, the customary land territories of Negeri Tulehu, Negeri Paperu and Negeri Siri Sori Islam were still heavily covered by primary and secondary forest in 2011. Additionally, the primary and secondary forests in the selected case study areas had been under sustainable management, particularly due to the existence of the Customary Spatial Unit Administration regulations.

The coverage of arable land in the selected case study areas, except in Negeri Latuhalat and Negeri Tulehu, was considerably small, while the extent of permanent cropland in these areas was quite high, particularly considering that most of the permanent croplands had grown into secondary forest. In Negeri Siri Sori Islam and Negeri Paperu, the arable land could barely be identified as most of the arable lands were found on pasture area and in backyards of houses. Nonetheless, the coverage of permanent cropland in the mentioned *negeri-negeri* was no less than 50% of each of their territories. On the other hand, the coverage of arable land and permanent cropland in Negeri Tulehu was

considerably equal, while the Land Use of Negeri Latuhalat had been dominated by secondary forest, arable land and pasture areas.

The Land Use of Negeri Siri Sori Islam and Negeri Paperu had only slightly changed, while the extent of arable land in Negeri Tulehu and Negeri Latuhalat had been steeply increasing in the last decade. In Negeri Siri Sori Islam and Negeri Paperu, the low rate of Land Use change had been influenced by the low rate of Land Use conversion into arable land, as well as the ability to provide proper housing for the citizens of these *negeri-negeri*. Nonetheless, even though the needs for proper housing in Negeri Tulehu and Negeri Latuhalat had also been fulfilled, it was the policy of the customary government of the latter mentioned *negeri-negeri* that allowed the Land Use conversion into arable land.

Due to the application of the concept of sustainable forest management, as well as the Customary Spatial Unit Administration rules, the degradation of land environmental quality could barely be noticed. The effective Customary Spatial Unit Administration had been considered as the main factor that had led to the maintenance of the land environmental quality.

At sea, the customary marine territories of indigenous communities in the selected case study areas except in Negeri Tulehu were clearly defined as marine protected areas. The customary marine territories of Negeri Siri Sori Islam and Negeri Paperu located within Saparua Bay were limited but played an important role in maintaining the stock of pelagic fish of Banda Sea. Even though the customary marine territory of Negeri Latuhalat directly faced Banda Sea, it also upheld an important role in maintaining the sustainability of the resources of Banda Sea. There were also marine protected areas within the customary marine territory of Negeri Tulehu. Even though a large portion of the customary marine territory of Negeri Tulehu was not defined as a customary marine protected area, the common Customary Spatial Unit Administration rules had still been applied. Such rules had also been applied in the open sea area that would directly impact the sustainability of the customary marine territory of Negeri Tulehu.

The coral reef ecosystem in the selected case study areas could be identified from the satellite images dated 1991 and 2001, while, in 2009, the coral reef ecosystem was mapped on a bathymetric map. Nevertheless, the quality of the coral reef ecosystem, particularly in Negeri Tulehu and Negeri Paperu, had degraded. In Negeri Tulehu, the inability of marine *kewang* to monitor the performance of the Customary Spatial Unit Administration regulations within its territory was considered as the main factor that had led to the degradation of the quality of the coral reef ecosystem, while it was the ineffective customary governance and Customary Spatial Unit Administration that had been blamed as the main cause of the degradation of the coral reef ecosystem quality in Negeri Paperu.

From the economic point of view, as described in Section 7.2, the restriction on the employment of Spatial Unit and the extraction of resources attached to Spatial Unit had not lessened the economic achievement of these indigenous communities. Instead, their welfare had been maintained over time.

The production of land in the selected case study areas was considerably lower compared to the total production of Indonesia. Considering that this region used to be the only producer of nutmeg and cloves in the World between the 16th and 19th centuries, the production of permanent cropland had decreased significantly.

As the citizens of Negeri Siri Sori Islam and Negeri Paperu had been depending on the fisheries and permanent cropland, the coverage of arable land had been considerably low. This was mainly due to the limited arable land in Saparua Island as each type of arable land in this island contributed not more than 0.06% of the total coverage of ar-

able land in Indonesia. On the other hand, even though the extents of arable land and permanent cropland in Negeri Tulehu were fairly equal, while the Land Use of Negeri Latuhalat was dominated by arable land and pasture areas, the significance of production of arable land in Salahutu District in which Negeri Tulehu and Negeri Latuhalat was also lower compared to the total production of vegetable and fruit in Indonesia.

On the other hand, the production of marine sector had been acting as one of the main means of subsistence for the citizen of the selected case study areas, particularly due to the abundance of pelagic fish stock of Banda Sea. The abundance of the pelagic fish stock had been maintained by the indigenous communities through the Customary Spatial Unit Administration in the selected case study areas over time. Consequently, these indigenous communities had been able to maintain the marine sector as their main means of subsistence.

The rate of employment offered by the Customary Spatial Unit Management and Administration Systems was quite high. Nonetheless, the sectoral diversification on Customary Spatial Unit Management and Administration in Saparua Island in which Negeri Siri Sori Islam and Negeri Paperu located was statistically lower than that of Ambon Island in which Negeri Latuhalat and Negeri Tulehu were located. This was particularly due to the function of Negeri Latuhalat and Negeri Tulehu as the centre of activities in this region. Furthermore, statistically, the selected case study areas had contributed to the figure of the Province of Maluku as the third poorest province in Indonesia. Nevertheless, even though the production of Spatial Unit and the extraction of resources were limited by the Customary Spatial Unit Administration Systems in the selected case study areas, the citizens of the selected case study areas had been able to fulfil their food consumption needs, as well as their needs for appropriate clothing and housing.

Furthermore, statistically, the selected case study areas had contributed to the figure of the Province of Maluku as the third poorest province in Indonesia. Nevertheless, even though the production of Spatial Unit and the extraction of resources were limited by the Customary Spatial Unit Administration Systems in the selected case study areas, the citizens of the selected case study areas had also been able to fulfil their food consumption needs, as well as their needs for appropriate clothing and housing.

As described in Section 7.3, from the social point of view, the Customary Spatial Unit Administration Systems in the selected case study areas had been able to lead to the fulfilment of the objective of the sustainable development. These systems had been able to provide their beneficiaries with equitable access to Spatial Unit. Even though different levels of customary governance authority had been applied, the people from the four sub-case study areas could enjoy a high degree of access to land. This originated from the establishment of *negeri* as the customary legal institution in the selected case study areas. Furthermore, the access to Marine Unit had also been provided to the people of the selected case study areas by the previously mentioned scheme. Occasionally, the access to Marine Unit was also be given to the outsider.

Gender was also not an issue on the Customary Spatial Unit Administration in the four sub-case study areas. Even though these communities were characterised as patrilineal communities, women could principally have a high degree of access to Spatial Unit, which depended on the occurrence of the access to Spatial Unit itself.

Furthermore, these systems had been able to maintain the functions of the Spatial Unit, which in general could be classified into the non- and cultivated area. The outcome of the system had however been influenced by the level of authority, as well as the flexibility, applied in the Spatial Unit governance. In general, the Spatial Unit in the

selected case study areas had been functioning as the preservation area both environmental and customary, as well as the means of living subsistence.

Last but not least, the Customary Spatial Unit Administration in the selected case study areas had been acting as the main means of preserving the custom. The customary values that had been preserved by the Customary Spatial Unit Administration in the four sub-case study areas were the pattern of Spatial Unit Use, customary rules on the management of natural resources, Customary Spatial Unit Tenure and Registration and the institutional aspect of the administration of Spatial Units.

In Chapter 8, the contribution of the Customary Spatial Unit Administration Systems in the selected case study areas to the enhancement of the Spatial Unit Administration concept within the scope of the fulfilment of a sustainable development objective is given. The role of the institutional setting of the Customary Spatial Unit Administration Systems in the four sub-case study areas on maintaining their sustainability, as well as fulfilment of a sustainable development objective, is given initially, while the entry points on the enhancement of the Spatial Unit Administration concept on leading to the achievement of sustainable development is also highlighted. Furthermore, the applicability of the findings of this study beyond the selected case study areas is described. Finally, the need for action on the enhancement of the Formal Spatial Unit Administration System of Indonesia towards the fulfilment of the objective of sustainable development are depicted.

8 Contribution of Customary Spatial Unit Administration

In this chapter, the contribution of the Customary Spatial Unit Administration in the selected case study areas on the enhancement of the concept of Spatial Unit Administration both conceptually and in the Indonesian context is highlighted. Having measured the role of the Customary Spatial Unit Administration Systems in the four sub-case study areas on facilitating the achievement of the objective of sustainable development, the institutional sustainability of the Customary Spatial Unit Administration Systems as the major factor for the Customary Spatial Unit Administration System to function as the basic infrastructure for achieving the goal of sustainable development is described in Section 8.1. Moreover, the entry points on the enhancement of concept of Spatial Unit Administration within the scope of the fulfilment of the goal of sustainable development are given in Section 8.2. By considering the construction of this study, the entry points for replicating its findings beyond the selected case study areas are given in Section 8.3. Additionally, the needs to replicate the findings of this study to enhance the Formal Spatial Unit Administration System of Indonesia to facilitate the fulfilment of the goal of sustainable development are described in Section 8.4. Finally, the concluding remarks are given in Section 8.5.

8.1 Institutional Sustainability

The role of institutional setting of indigenous communities in the four sub-case study areas to maintain the sustainability of these communities and guiding the performance of Customary Spatial Unit Administration towards achievement of the goal of sustainable development is considered as the central finding of this research. Such a setting had over time led to the survival of the above mentioned indigenous institutions, particularly during the implementation of the Village Governance Act between 1979 and 1999. Within this period, the indigenous institutions in the sub-case study areas of this study still existed.

The institutional sustainability took an important role in sustainable management of territories of four indigenous communities explored in this research, which was acting as the basic foundation of the Customary Spatial Unit Administration Systems. As described by Ostrom (1990: 1), a successful institutional setting is one that enables individuals to achieve long-term productive outcomes, while, on the other hand, avoids the exhaustiveness of common-pool resources in the long term. The institutional sustainability therefore provided a means to maintain the sustainability of common-pool resources for both present and future generations.

In this section, the assessment of the institutional sustainability of the Customary Spatial Unit Administration Systems in the four sub-case study areas is described. The assessment of the sustainability of the above mentioned aspect was made by means of SWOT analysis, which covered the analysis on the principles of the sustainable institution design described in the section on designing sustainable common-pool resources management institution in Section 2.2, as well as the unique features of the Customary Spatial Unit Administration Systems in the four sub-case study areas. See Table 8.1 for the outcome of the SWOT analysis on the institutional sustainability of the Customary Spatial Unit Administration Systems in the four sub-case study areas.

Strength

Having already been well-established in 18th century, the indigenous institutions in general and particularly the Customary Spatial Unit Administration System in the highlighted areas had proven to be sustainable. Even in Negeri Paperu, the custom to some extent had still been obeyed and practised, even though the *negeri* government of this *negeri* was put on hold between 2008 and 2011.

In this section, the outcome of the analysis on the strength of the Customary Spatial Unit Administration Systems in the four sub-case study areas on sustaining themselves, as well as on leading to the achievement of sustainable development in the mentioned areas, is depicted. The strengths of the systems that had allowed them to sustain themselves, as well as to lead to the achievement of the goal of sustainable development, is highlighted in the section on institutional setting of the Customary Spatial Unit Administration Systems. Additionally, due to the institutional setting of the mentioned systems, the trust and commitment on the Customary Spatial Unit Administration in the four sub-case study areas had been developed, which is considered as another strength of the Customary Spatial Unit Administration Systems in the four sub-case study areas.

Table 8.1: SWOT analysis on the institutional sustainability of the Customary Spatial Unit Administration Systems in four sub-case study areas

Strength		Weakness	
Internal	<ul style="list-style-type: none"> – Communalistic Spatial Unit Administration institutional setting: Facilitated institutional change process through clear definition of boundary, localised rules, locally arranged institution, freedom to devise own institution, communalistic conflict resolution, free access to information, customary rules enforcement and nested enterprise – Trust and commitment: Increased the operability of Customary Spatial Unit Administration 		<ul style="list-style-type: none"> – Loss of (spatial) information: Undermined the monitoring and law enforcement – Individualisation of Spatial Unit Tenure: Reduced the level of authority of customary government over Spatial Unit – Unreliable customary government: Led to low level of trust and commitment – Low level of participation on mutual monitoring and financing: Led to less financial support and ineffective customary rules enforcement – Less financial support and ineffective customary rules enforcement: Reduced the operability of Customary Spatial Unit Administration System
Opportunity		Threat	
External	<ul style="list-style-type: none"> – Decentralisation of governance up to <i>negeri</i> level in Ambon Lease region and existence of formal communal right over the forest and mining area: Provided opportunity to implement Customary Spatial Unit Administration rules 		<ul style="list-style-type: none"> – Intervention from the higher hierarchical administrative structure: Provided threat to structure and functionality of Customary Spatial Unit Administration System – Incoming values: Increased likelihood of dispute

Source: Authors' construct

Institutional Setting

The communalistic approach had been exercised during the process of Customary Spatial Unit Administration System change. Differing from Ostrom's approach that was based on individualistic approach (*ibid.*: 192-193), as well as the leviathan (*ibid.*: 8-11) and capitalistic approach (*ibid.*: 12-13) offered by previous institutional theories, the institutional change process during the development of the Customary Spatial Unit Administration Systems in these communities had never gone through the phase where individuals were solely prevailed without being bonded to any institutional rules. Instead, the institutional change process was only initiated after the earliest form of these communities had already been established.

Among the principles of the sustainable management of the Spatial Unit and resources attached to it, some of the principles mentioned had been applied during the institutional change processes of the Customary Spatial Unit Administration Systems in the four sub-case study areas. Those principles were the clear definition of the boundary of the subject and object of the Spatial Unit and resources attached to it; localised rules; local arrangement; freedom to devise own institution; communalistic conflict resolution and free access to information; customary rules enforcement mechanism and nested enterprise of the Customary Spatial Unit Administration.

Even though the Customary Spatial Unit Administration rules maintained by these institutions had continually evolved, the stakeholder of the Customary Spatial Unit Administration System could therefore always be defined especially by means of kinship and inheritance law. This was considerably crucial as only the stakeholder of these systems could benefit from all Spatial Units within the jurisdiction of these indigenous institutions.

Moreover, such an institutional arrangement had provided an external bond for non-members of these communities. The Customary Spatial Unit Administration Systems provided a legal means for the member to enjoy pre-emptive rights on the utilisation of Spatial Unit within the jurisdiction of these institutions (Effendi 1987: 92). This principle laid a foundation to resolve disputes particularly among *negeri-negeri*, as well as between members and non-members of these institutions. Moreover, even though in some cases the disputes were resolved by the formal judicial system, this principle was applied as the basic consideration (*ibid.*: 94).

Additionally, the spatial extent of any Spatial Unit and resources attached to it had always been defined. The boundary of the Spatial Unit administered within the Customary Spatial Unit Administration Systems in the four sub-case study areas was defined by either natural or man-made objects. Especially for Spatial Unit and resources attached to it that was bounded by natural objects, the boundary had been agreed by associated parties. Except for *dati* land, the boundary of Spatial Unit and resources attached to it had never been mapped. Nevertheless, the information regarding such a consensus had been verbally passed on for generations.

The Customary Spatial Unit Administration Systems in this region were designed based on existing indigenous knowledge. Each Customary Spatial Unit Administration System in the four sub-case study areas has different characteristics, depending on the nature of the area itself. Having had the specialised systems for managing the specific resources, these institutions had been able to apply contingent strategies on the administration of Spatial Units within the jurisdiction of these indigenous communities.

These customary Spatial Unit Administration institutions were initially established by local stakeholders without any external interference. Consequently, these indigenous institutions had already had sufficient resilience to uphold the norms developed along

the establishment of these institutions. Effendi (*ibid.*: 35-36, 118) mentions that, during the reign of Sultanate of Tidore and Ternate approximately between 15th and 17th century, these indigenous institutions were already well-established. Moreover, it is also hypothetically agreed that the rulers of this region, including Sultanate of Tidore, Sultanate of Ternate, Dutch East Indies Company and Dutch Colonial Government, had benefited from this arrangement without interfering with the indigenous institutional further development (*ibid.*: 118). Moreover, to some extent, these indigenous institutions were able to survive from the application of Village Governance Act in the period between 1979 and 1999 by appointing the chiefs as the head of the village governments and collectively organising the customary Spatial Unit systems in the four-case study areas with limited financial support. The ability of these institutions to exercise full control over all Spatial Units within their jurisdictions had therefore provided these indigenous communities with a means to maintain their institutions independently regardless of the level of authority exercised by the ruling regime.

Apart from the ability of these institutions to independently set up the Customary Spatial Unit Administration Systems, the English and Dutch Colonial Government provided another solid basis for maintaining the sustainability of the Customary Spatial Unit Administration System. Having been initiated by the English Colonial Government, the registration of *dati* land was followed up by the Dutch Colonial Government. The registration of *dati* land was pursued in order to identify the number of labourers that could be mobilised within the production line of cloves. Moreover, there was evidence of taxes levied to owners of *dati* land in this region. In spite of its initial establishment objectives, the *register dati* document has been providing legal assurance to *dati* land as the above mentioned document was still kept by *negeri* governments in the four sub-case study areas to define the interrelationship between the members of these communities and Spatial Unit, as well as among the members of these communities particularly during the Spatial Unit related dispute resolution. The customary legal assurance to Spatial Unit in turn acted as one of the crucial instruments for ensuring the implementation of the Customary Spatial Unit Administration.

Most importantly, the communalistic approach on the Customary Spatial Unit Administration in the four sub-case study areas had been able to promote the almost-free conflict resolution mechanism. Every conflict had been mediated by the chief and, if necessary, brought to *saniri negeri* or *saniri besar*. The only fees that had been levied within such a conflict resolution mechanism were either fines or administration fees, especially in the case in which the conflict in question fell within the scope of the application of specific customary rules.

Differing from Ostrom's (*op. cit.*: 186-187) suggestions for applying incremental punishment, these institutions had been applying a static real value of punishment. There were at least two types of punishment in relation to the performance of Customary Spatial Unit Administration Systems in this region, these were a material fine and superstitious punishment. A material fine was normally applied for the violation of norms upheld by these institutions that either provided no effect to the performance of the Spatial Unit Administration system and/or their surrounding environmental sustainability or related to an institutional adjustment for addressing institutional and/or environmental change. The conversion of coconut plantations into banana and breadfruit plantations, which was the subject of a material fine, was permitted by the Government of Negeri Latuhalat due to the consideration that the demand on banana and breadfruit had been increasing, while the sustainability of the ex-coconut plantations areas were still expected to be maintained. This conversion had indeed initiated an institutional change process in Negeri Latuhalat as *sasi* on coconut, the restriction for harvesting co-

conuts in a specific period and cutting down coconut trees, was abolished due to the large scale of coconut plantation conversion in Negeri Latuhalat. Moreover, even though the norms upheld by these institutions had been enhanced over time, particularly to cope with modernisation, in the case of the re-application of the punishment, the real value of the penalty would not increase compared to the real value of the previously applied penalty.

The belief in the law enforcement of norms upheld by the Customary Spatial Unit Administration Systems in the four sub-case study areas acted as a means for penalising those who violated the norms upheld by these systems. This revealed that these communities acknowledged their limited capability to monitor the performance of the Customary Spatial Unit Administration System and, consequently, brought the trust developed along the establishment of these institutions into a magic-religious domain. The members of these communities believed that the violation of this trust was not acceptable as it would desecrate the purity of the trust had been laid down. Subsequently, the transgressor of the norms upheld by these systems deserved to be punished with such a penalty. The superstitious punishments were identified to be applied to individual arable lands in Negeri Tulehu, as well as to the areas of old *negeri* in Saparua Island, which were located at the outskirts of settlement areas within these *negeri-negeri*.

Additionally, due to the employment of a communalistic approach during the establishment of the Customary Spatial Unit Administration System, they had been able to provide the member of these communities with the mechanism to access the information regarding the performance of customary Spatial Unit Administration almost for free. Every institutional change would be published by means of a ceremony held in *baileo* with the presence of all components of *negeri* government, as well as the people's assembly. The execution of penalties on the violation of norms upheld by these institutions had also been carried out within similar ceremonies. Such a ceremony only acted as a means of formalising and publishing the institutional change and customary law enforcement. The information itself had mostly been communicated to at least the representative of the kinship association in the *negeri* government during the decision making process as the representative of the kinship association also acted as an integral component of *negeri* government.

Most importantly, the structure of these indigenous communities had shaped the Customary Spatial Unit Administration Systems in the four sub-case study areas as the multi-layered enterprises. The Customary Spatial Unit Administration had been carried out in all layers of these communities, even though the monitoring of the performance of such an administration had always been done by the customary government. The administration of individual Spatial Unit had been done at the family level, while the administration of communal-individual type of Spatial Unit had been done either at *mataruma* or *soa* level. Furthermore, the administration of the communal type of Spatial Unit had been done at the level of *negeri*.

Trust and Commitment

The above mentioned institutional setting had facilitated the development of commitment among the members of these communities to safeguard the custom particularly on the Spatial Unit Administration in the four sub-case study areas. The commitment of the members of these indigenous communities to collectively support the performance of customary Spatial Unit Administration had been mainly shaped by the trust developed along the establishment of these indigenous institutions. Even though it was previously mentioned that these communities had to some extent brought the trust into a magic-

religious domain, the rationale behind the development of the trust itself could always be clearly defined. It was common knowledge in this region that *sasi* schemes could not only contribute to the significant improvement of the quality of products regulated by these schemes but, most importantly, the environmental sustainability.

Moreover, the credibility of *negeri* governments to preserve the trust laid upon them by the members of these communities had been a crucial role in maintaining the level of trust retained by the members of these communities. Notwithstanding the external influence to the standpoint of members of these communities to uphold their commitment to support the customary governance, this factor provided a distinctive level of trust upheld by the citizens of Negeri Paperu with the rest of the sub-case study areas. Mainly due to the inability of the late chief of this *negeri* to exercise transparency during the leasing process of a portion of land at Paperu Cape, the level of trust of people to the customary government of Negeri Paperu had decreased significantly. The departure of the late chief further created a vacuum of power in the customary governance of this *negeri*. Consequently, the Customary Spatial Unit Administration had also not been functioning properly. Fortunately, the Customary Land Administration System in Negeri Paperu was still partly functional due to the existence of *register dati*. *Register dati* had been providing the kinship associations in this *negeri* with a legal basis for self-administering *dati* land.

Weakness

Several weaknesses that were identified are the loss of information regarding the Customary Spatial Unit Administration arrangement and their essences, as well as the individualisation of Spatial Unit tenure, credibility of *negeri* government, voluntary action by the members of the communities, financial support and law enforcement on the execution of Customary Spatial Unit Administration System. The loss of information, due particularly to the non-existence of spatial information, had undermined the ability of the customary Spatial Unit Administration institutions to perform the monitoring and law enforcement task. Out of seven *labuan-labuan* in Negeri Tulehu, there were only three locations of *labuan-labuan*, as well as their functions, that could be defined. Moreover, the information regarding the only *labuan* in Negeri Paperu was only recently recovered due to the diving activity organised by the leaseholder of the tract of land in Cape Paperu. Due to the inability of the governments of the previously mentioned *negeri-negeri* to define the areas of *labuan-labuan*, as well as to perform monitoring and law enforcement tasks, most coral reef habitats in both *negeri-negeri* were damaged.

Despite of the dynamics on the control over the possession of Spatial Unit, as well as its roles in providing equity regarding the access to Spatial Unit, the individualisation of tenure on Spatial Unit had reduced the ability of these institutions to continually exercise their authority on the administration of Spatial Units within their jurisdictions. The most important evidence was that the Spatial Unit with individualised tenure attached to it was no longer considered as the object of customary Spatial Unit Administration and, therefore, no longer bonded to the customary Spatial Unit Administration institution. This had been particularly occurring in the case of issuance of freehold over the Spatial Unit for the non-members of these communities. In Negeri Latuhalat, soon after the register *dati* was finalised, the communal land was divided and distributed to the non-members of any genealogical and/or territorial associations in this *negeri*. The holder of freehold could further register her/his land under the formal Land Administration regime and had no obligation to conform to the customary Land Administration law in

Negeri Latuhalat. Fortunately, the fact that *sasi-sasi* regarding onshore resources had been abolished, which provided no significant effects on the performance of the Spatial Unit Administration in Negeri Latuhalat.

The unreliable *negeri* government had also impeded the achievement of sustainability of the Customary Spatial Unit Administration System Customary Spatial Unit Administration Systems in this region. Even though the thrones in this region are hereditary, the *negeri* governance had been performed in accordance with the communality of *negeri* institution. This was due to the fact that a *negeri* government consisted of the chief and heads of *soa-soa*. Moreover, in spite of the fact that the chief also acted as the head of *saniri negeri*, *saniri negeri* could disapprove of the chief's proposal, which disclosed the power of the people within *negeri* governance. Consequently, there was almost no space for the king to exercise dictatorship and every violation of this principle could cause the *negeri* government to lose the trust of its people. The inability of the Government of Negeri Paperu to perform faithful governance had caused the people to lose their trust in the government of this *negeri*. This had further caused the high levels of disobedience exercised by the citizens of Negeri Paperu within the performance of *negeri* governance, which also included the performance of the Customary Spatial Unit System, within the jurisdiction of this *negeri*. Almost all, perhaps even all, of customary Spatial Unit law in Negeri Paperu were ineffective. Due to an ineffective customary law in this *negeri*, it would even be necessary to re-define the customary law such as the re-issuance of ordinance regarding customary conservation zones.

Due to the communality of the indigenous institutions in this region, the inability of *negeri* government to encourage the participation of the members of these institutions had partly undermined the capability of the Customary Spatial Unit Administration System Customary Spatial Unit Administration Systems to sustain themselves. Before its abolishment in 1920, *dati law* was the only means of endorsing the participation of the members of these communities. *Dati law* obliged all kinship associations to provide human resources to support the performance of the Customary Spatial Unit Administration System Customary Spatial Unit Administration Systems in particular. After the abolishment of *dati law*, even though *gotong royong* or community's self-help program had still been periodically carried out by these communities, the *negeri* government could no longer rely on the participation of its citizens and therefore had to maximise the available resources within its structure on the performance of the Customary Spatial Unit Administration System Customary Spatial Unit Administration System.

Furthermore, the lack of participation on the Customary Spatial Unit Administration could also be identified within the monitoring of the application of the Customary Spatial Unit Administration rules. The effectiveness of *kewang* had greatly influenced the enforcement of customary rules within the scope of the Customary Spatial Unit Administration in the four sub-case study areas. This revealed the non-existence of the participatory monitoring scheme in these areas. Even though in Negeri Tulehu there was a group of young natives who had been actively monitoring the quality of coral reefs habitat at the east coast of Ambon Island, the activities of this group were only driven by self interest of the group and had not affected the activities performed within the scope of Customary Spatial Unit Administration that went beyond the interests of this group.

The lack of participation on the Customary Spatial Unit Administration had been in place due to the individualisation of the tenure of Spatial Unit and resources attached to it. Each type of Spatial Unit Tenure including communal Spatial Unit had been exclusively managed by and devoted to the association in question. Consequently, the association in question had only been focusing on the management of its Spatial Unit and

the resources attached to it, which included the efforts to safeguard at any cost the Spatial Unit and resources attached to. The monitoring of the management of Spatial Unit and resources attached to it had therefore been done only within the jurisdiction of the association in question by the members of the mentioned association. Moreover, the monitoring of management of Spatial Unit and resources attached to it belonging to an association by non-member of the association, except the member of *kewang*, had been considered as an intervention on the right of the association in question to manage its Spatial Unit and its attached resources.

Of the consequences of the non-existence of the customary framework to encourage people's participation was that the budget for the Customary Spatial Unit Administration had increased sharply. Not until 2006 did *kewang* institution of Negeri Tulehu get financial support from the chief of Negeri Tulehu, which had boosted the performance of *kewang* institution in maintaining the sustainability of resources in this *negeri*. On the other hand, the strong financial support provided by the Government of Negeri Latuhalat had enabled its *kewang* institution to cover its vast jurisdiction, which also included its marine territory, on the maintenance of the Customary Spatial Unit Administration System Customary Spatial Unit Administration System. As no regulation was yet in place regarding the formalisation of *negeri* government in this region, which included the financial scheme for financing the *negeri* governance, the *negeri* governments in the four sub-case study areas were relying heavily on its self-generated revenues such as the fees acquired by the Government of Negeri Latuhalat from the conversion of coconut plantations to breadfruit and banana plantations.

The enforcement of rules upheld by the Customary Spatial Unit Administration Systems in this region had also taken on an important role in maintaining the sustainability of these systems. The capability of *negeri* government to perform the enforcement of the Customary Spatial Unit Administration System Customary Spatial Unit Administration System law was considered as one of the important measures in the performance of this system. The failure of the enforcement of the customary Spatial Unit Administration in Negeri Paperu, due to the power vacuum and the loss of spatial information, had sadly led to the destruction of coral reef habitat within its customary marine jurisdiction. The coral reef habitat in customary marine jurisdiction of Negeri Tulehu was also damaged for the same reason. Additionally, the ability of the Government of Negeri Tulehu to significantly reduce the rate of illegal exploitation of its natural resources, particularly compared to that before the re-enactment of its *kewang* institution, had provided other evidence in the importance of the enforcement of customary Spatial Unit Administration law.

Opportunity

The application of the decentralisation of governance in the Ambon Lease region had been considered as the means for the indigenous communities to regain control over the management of Spatial Unit and resources attached to it within the jurisdictions of the mentioned communities. The performance of the Customary Spatial Unit Administration based on the right of origin of these communities, as well as the prevailing custom, would be guaranteed.

Moreover, the opportunity to apply the custom on the management of the community forest and mining area had also been provided by GoI. Every eligible subject of the Formal Forest and Mining Area Management System, including the indigenous community, could acquire the formal right on the community-based management of the forest and mining areas.

Threat

The identified threats consisted of intervention from the higher hierarchical administrative structure of formal governance and Spatial Unit Administration system, as well as the incoming values. Even though the decentralisation approach applied since 1999 had provided *negeri* government with a legal basis to autonomously govern its jurisdiction, interference from the ruling regimes had been greatly affecting the performance of these indigenous institutions in general and particularly the Customary Spatial Unit Administration System Customary Spatial Unit Administration Systems in the four sub-case study areas. The abolishment of *dati* law in 1920 had significantly weakened the authority of *negeri* governments over their citizens to encourage the participation of citizens on supporting the performance of *negeri* governance, which was acknowledged as one of the main features of these institutions that had been supporting the achievement of their sustainability. The effect of revoking *dati* law was doubled, as there had been no more legal basis to encourage voluntary action to support the customary governance due to obligations to perform tasks promulgated by *dati* law or the requirement to maintain the possession of *dati* land. Apart from other influencing factors, these had reduced the number of citizens that were willing to voluntarily carry out the monitoring of the performance of Spatial Unit Administration systems, particularly upon Spatial Unit possessed by *negeri*. The participation of members of these communities, particularly through the *kewang* institution, on safeguarding the norms upheld by the Customary Spatial Unit Administration System Customary Spatial Unit Administration Systems, had proven to be able to encourage the self-monitoring activities. In turn, this could ensure the maintenance of the level of conformity to the norms endorsed by these systems and, furthermore, institutional sustainability.

The Village Governance Act of 1979 had also provided the Customary Spatial Unit Administration System Customary Spatial Unit Administration System with the restrictions maintain their own institutional sustainability. This act abolished the rights of any territorial institutions equal to the village institution defined by this act to autonomously govern its jurisdiction (Direktorat Pemerintahan Desa dan Kelurahan, 2007: 52). Particularly within the performance of Customary Spatial Unit Administration, this act had taken out the *kewang* institution from the uniformed structure regulated by 1979's Village Governance Act.

Additionally, even though the application of the decentralisation of governance in the Ambon Lease region would provide the opportunity for the indigenous communities in the four sub-case study areas to customarily regain the control over the management of the Spatial Unit and resources attached to it, such an approach had not been able to provide a means to guarantee the preservation of the customs within the scope of Spatial Unit Administration. While the Regional Governance Act had been providing the opportunity for these indigenous communities to perform customary governance based on their rights of origin and the prevailing custom and the indigenous rights to Spatial Unit had been acknowledged by the Spatial Unit Administration Acts, the detailed regulation on the Spatial Unit Administration based on the right of origin and the prevailing custom of the indigenous community, had only partially existed. In order to legitimately manage the Spatial Unit, the Customary Spatial Unit Tenure should be converted into the tenures recognised by the Formal Spatial Unit Administration System, which had proven to lead to individualisation of the Spatial Unit Tenure and, in turn, deterioration of the degree of control exercised by the customary government over the Spatial Unit in question and resources attached to it. Moreover, the formal community-based manage-

ment of forest and mineral resources had been separately administered and limited only within the community forest and mining areas.

The incoming values had also been seen as a threat to the sustainability of customary Spatial Unit Administration institutions. Even though the *negeri* governance in Tulehu was still fully operational, the process of formalising it in this *negeri* was hampered by the resistance of a group of people who believed that this type of governance should no longer be applied in Negeri Tulehu. While the application of decentralisation of Spatial Unit Administration in the Municipality of Central Maluku had provided a solid basis for formalisation of *negeri* governance, the inability to formalise the *negeri* governance would allow the dualism of the governance to be raised once again, similar to the dualism applied during the implementation of the Village Governance Act of 1979. The informality of *negeri* governance would enormously reduce the autonomy of the indigenous institution in Negeri Tulehu for self-administering the Spatial Units within its jurisdiction, which had proven to be the crucial feature of this institution regarding the maintenance of its sustainability.

Moreover, the contradictory incoming values compared to the existing ones had also contributed to the inability of the indigenous institution to fully perform the Spatial Unit Administration system, which in turn reduced its institutional sustainability. The inability of the customary government of Negeri Paperu to fully apply the customary Spatial Unit Administration law in the case of the leasehold in Cape Paperu, together with the fact that the customary government of this *negeri* was in a power vacuum, had contributed to the arising dispute between the leaseholder of Cape Paperu and the people of Negeri Paperu. The dispute arose particularly due to the implementation of the freedom of the sea principle by the leaseholder of Cape Paperu, which in turn allowed the prohibition to perform diving activities using modern diving equipment in the marine territory of Negeri Paperu, as well as the application of the fine for its violation, did not make sense to the leaseholder.

In fact, the Customary Spatial Unit Administration Systems particularly in Negeri Tulehu and Latuhalat had a prominent principle that could lessen the effect of incoming norms to the performance of Customary Spatial Unit Administration System Customary Spatial Unit Administration System. That principle was the requirement for the non-members of these indigenous institutions to conform to the customary law applied in these *negeri-negeri* in order to acquire the access to Spatial Unit within the jurisdiction of each *negeri*.

Conclusion

The sustainability of the Customary Spatial Unit Administration Systems in the four sub-case study areas had been influenced by the collectivistic features of the systems mentioned therein. Among eight principles to design a sustainable institution to sustainably manage common-pool resources mentioned in the section on designing sustainable common-pool resources management institution in Section 2.2, they were only the participatory monitoring and application of graduated sanctions principles that had not been fulfilled by the Customary Spatial Unit Administration in the selected case study areas. While different schemes had been applied to sanctioning the violator of the Customary Spatial Unit Administration rules, the absence of a voluntary monitoring scheme had indeed reduced the performance of the Customary Spatial Unit Administration Systems on maintaining their institutional sustainability and, in turn, on achieving the the goal of sustainable development.

Nonetheless, it was the communalistic features of the Customary Spatial Unit Administration Systems of the selected case study areas that had driven the Customary Spatial Unit Administration Systems to sustain themselves and to lead to the fulfilment of the the goal of sustainable development. Being based on their communalistic features, the Customary Spatial Unit Administration Systems in the selected case study areas had gone through the institutional change processes smoothly. It had proven that the communalistic approach applied in the Customary Spatial Unit Administration in the four sub-case study areas had the potential to overcome all of the weaknesses of and threats to the Customary Spatial Unit Administration Systems.

8.2 Linking Spatial Unit Administration and Sustainable Development

Having described the Customary Spatial Unit Administration, as well as the role of the Customary Spatial Unit Administration Systems on sustaining itself and on leading to the achievement of the goal of sustainable development, in the four sub-case study areas in Chapter 6, Chapter 7 and Section 8.1 consecutively, the entry points for linking Spatial Unit Administration and sustainable development from the perspective of indigenous communities in the selected case study areas is given in this section. The entry points regarding the integrated territorial administration are depicted first, which is followed by the description of the entry points leading to good Spatial Unit governance.

Integrated Territorial Administration

The existing concepts and practices within the scope of the administration of Spatial Unit and the fulfilment of the objective of sustainable development have unfortunately not yet been able to address the integrated territorial administration, except the notion of the employment of a land management paradigm on the establishment of the Marine Administration System as stated by Williamson *et. al.* (2010: 206). Nonetheless, the latter mentioned statement has still not provided a means for, on one hand, developing the Marine Administration System based on the land management paradigm and, on the other hand, enhancing the land management paradigm within the scope of the Marine Administration to address the complexity of the marine environment.

In this section, the entry points that allow the indigenous communities in the four sub-case study areas to integratedly administer the Spatial Unit both on land and sea within their jurisdiction are depicted. Those entry points are the administration of Spatial Unit and resources attached to it, the employment of hybrid Spatial Unit notion and the integrated institution of Spatial Unit Administration. These entry points complement to each other on the development of notion of an integrated territorial administration.

Administration of Spatial Unit and Associated Resources

In this section are described the considerations on the proposal to employ an integrated administration of Spatial Unit and both natural and man-made resources attached to Spatial Unit in question. The entry point for replicating the integrated administration of customary Spatial Unit in Ambon Lease region elsewhere is further described.

The Customary Spatial Unit Administration in the four sub-case study areas was basically initiated due to the necessity to administer the resources. While Spatial Unit is also considered as natural resource, the Customary Spatial Unit Administration was commenced along the establishment of *negeri*. On one hand, the foundation of *negeri*

was followed by the revocation of Spatial Unit possession by *negeri* government, which had further been classified as common property of citizens of *negeri* in question. On the other hand, the revocation of Spatial Unit possession was always followed by acknowledgement of the right of the citizens of *negeri* in question to the settlement area. Such an acknowledgement indicates that the starting point of Customary Spatial Unit Administration was the administration of the dwelling and Spatial Unit itself.

The zoning of the customary jurisdiction of the four sub-case study areas, which further led to the definition of Customary Spatial Unit Tenure, was also done based on the resources attached to the Spatial Unit. The previously mentioned arrangement regarding the settlement area was followed by zoning the rest of the customary territory of each sub-case study area into non- and cultivated areas. The non-cultivated area on each sub-case study area was defined in accordance with the existing resources and the function of each resource on maintaining the sustainability of the customary jurisdiction and its surroundings.

Along with the advancement of the customary governance in the four sub-case study areas, the rights to utilise some resources were distributed to specific *dati* associations in these *negeri-negeri* in order to fulfil the needs of the members of the previously mentioned associations. As the resources were always attached to the corresponding Spatial Units, the distribution of the right to utilise the resources was done in the form of the delivery of *dati* and *dati pusaka* land, as well as the customary usufructuary right. Especially on the transfer of the customary usufructuary right, such a process only included the transfer of the right to utilise the resources attached to the Spatial Unit from the previous possessor to the subsequent possessor. The right to the Spatial Unit itself continued to be enjoyed by the holder of the Customary Spatial Unit Tenure in which the usufructuary right was overlaid.

In order to be able to administer the Spatial Unit and the resources attached to it within a single administration system, the indigenous communities in the four sub-case study areas had basically been applying the horizontal separation principle. Based on the nature of the existing Customary Spatial Unit Tenure, there were basically two types of Spatial Unit primary tenures being Communal and Individual Spatial Unit Right. The Individual Spatial Unit Right comprised of *dati* land, *dati pusaka* land and individual freehold for dwellings. Additionally, the individual freehold had been enjoyed by some citizens of Negeri Latuhalat who were not connected to any kinship association as the customary government of this *negeri* had distributed the communal land to them, except the small portion of land that had been utilised as the governance centre of this *negeri*.

Moreover, there were also secondary tenures that could be overlaid on top of the previously mentioned primary tenures. Those tenures were usufructuary right and, especially in Negeri Paperu, leasehold. Additionally, non-cultivated areas, customary governance zones and other Spatial Unit zones had also been attached to specific secondary tenures. These secondary tenures were directly linked to the resources and acted as the basis for the administration of the resources attached to Spatial Unit.

By considering the above mentioned facts, as well as the notion of Spatial Unit Administration described in Section 2.1, the integrated administration of Spatial Unit and its associated resources could be developed elsewhere by means of the Spatial Unit Tenure System, regardless of the status on the application of the horizontal separation principle in the area in question. It is proposed that the right to explore, utilise and/or exploit the resources be defined as the legitimate tenure. Within the jurisdiction that applies to the horizontal separation principle, the above mentioned right could be defined as the secondary tenure, while, on the jurisdiction that does not apply the horizontal separation principle, such a right could be defined as tenure that is specifically delivered

within the scope of exploration, utilisation and/or exploitation of the resources in question.

The employment of Spatial Unit Tenure System on the establishment of an integrated administration system on Spatial Unit and the resources attached to it is basically proposed due to the level of interaction between the administrator and the people within the scope of this system, which is considerably higher than two other components of Spatial Unit Administration System. Furthermore, the Spatial Unit Tenure System also legally binds the relationship between the people and the Spatial Unit and its associated resources. As described in Section 2.1, on the performance of Spatial Unit Use System, the interaction between the administrator of the system and the people basically exist through the application of the participatory Spatial Unit Planning scheme, while, on the implementation of the Spatial Unit Value System, the people are only linked to the administrator of the system through the Spatial Unit Taxation System. On the other hand, on the execution of Spatial Unit Tenure System an intensive interaction is required between the people and the administrator of the system from the registration of Spatial Unit and its associated resources to the delivery of Spatial Unit Tenure. Moreover, the Spatial Unit Tenure System has also been employed as one of the tools to regulate the use of the Spatial Unit, as well as the basis to perform the Spatial Unit Valuation and Taxation.

The resources-based Spatial Unit Administration has recently been considered as the basis for designing a pro-poor land recordation system (Zevenbergen *et. al.* 2012: 12). The pro-poor land recordation system is expected to be based on the community-based land tenure system (*ibid.*). This is due to the fact that most of the customary and informal systems have been delivering various rights over the resources, which are considerably more complex compared to the Western systems of registration (*ibid.*). In turn, the resources-based Spatial Unit Administration is expected to lead to the employment of a broader land management issue and to ensure legitimacy and acceptance by the community (*ibid.*).

Hybrid Spatial Unit

This section describes the application of hybrid Spatial Unit notion within the Customary Spatial Unit Administration in the four sub-case study areas and the entry point for replicating the mentioned notion elsewhere. The Spatial Unit in the four sub-case study areas had been administered in accordance with its traditional form. The Spatial Unit on land had been administered in 2D environment, while the Spatial Unit at sea had been principally administered in 3D environment. This was due to the nature of the resources attached to the Spatial Unit. On land, the employment of notion of land as a part of the Earth's surface had been affected by the customary administration of Spatial Unit and resources attached to it, either the natural or man-made ones. Even though each natural or man-made resource in the four sub-case study areas occupied a space between the surface of the Earth and the plain represented the highest point or surface of the resource above the Earth's surface, the resource was still considered to be attached to the Earth's surface.

On the contrary, the customary administration of Spatial Unit at sea in the four sub-case study areas had been done in 3D environment particularly due to the characteristics of the marine resources in these areas and, most importantly, the concept of customary territory at sea. In these sub-case study areas, the sea floor had been acknowledged as the extension of their terrestrial territories. The customary territory boundaries of the four sub-case study areas were bounded by the edges of sea trenches, which revealed the employment of the concept of Spatial Unit at sea. Moreover, the local marine re-

sources in the four sub-case study areas could be found in the water column between the sea floor and the sea surface.

The boundary of the Spatial Unit on land had also been in principle treated in 3D environment. Indeed, the physical, and acknowledged, boundary of on-land Spatial Unit had been basically defined in 2D environment, which was similar to the traditional concept of land parcels. Nevertheless, as the Customary Spatial Unit had always been connected to the resources attached to it, principally, the boundaries of Spatial Units were the highest and lowest point or plain of the on-land resources attached to Spatial Unit such as trees, houses and so forth.

The application of hybrid Spatial Unit Administration had been made possible by the nature of the Customary Spatial Unit Administration that integratively administered the Spatial Unit and resources attached to it. On land, the existing endemic resources were mostly situated on top of the land and highly visible, while, on the other hand, the endemic resources at sea could mostly only be found in the water column and seabed. Such a distinction acted as the rationale for the application of hybrid Spatial Unit concept within the administration of Spatial Unit in the four sub-case study areas.

The further application of the hybrid Spatial Unit concept elsewhere would also be possible. Nonetheless, it would require a clear link between the administration of Spatial Unit and the administration of the resources attached to Spatial Unit. As applied in the administration of Spatial Unit and resources attached to it in the four sub-case study areas, the integrated administration of Spatial Unit and resources attached to it would act as the basic requirement to ensure the security of access to Spatial Unit, providing the greatest benefit from the Spatial Unit Administration to the people and leading to the fulfilment of the objective of sustainable development.

Additionally, the Customary Spatial Unit Administration in Ambon Lease region also mirrors the importance of the advancement of the technical aspect of the Spatial Unit Administration. Even though the Customary Spatial Unit Administration Systems in the four sub-case study areas were still considered to be in the very initial phase of the development of modern Spatial Unit Administration System, the *register dati*, which was established in accordance with the modern land registration system, had for centuries proved to be able to uphold the Customary Spatial Unit Administration. Particularly in relation to the replication of the application of hybrid Spatial Unit concept elsewhere, the Spatial Unit, as well as the link between the resource and its associated Spatial Unit, should be able to be precisely modelled in the Spatial Unit Cadastral System.

The hybrid approach on the modelling of the Spatial Unit has been introduced mainly for the registration of 3D objects. Such an approach proposes the registration of a 3D situation along with the existing 2D parcel registration (Stoter 2004: 217) in order to improve the information that is available in the cadastral registration in 3D situations (*ibid.*: 225).

Even though the Spatial Unit had never been customarily registered in 3D environment, the integration of the hybrid Spatial Unit notion employed within the Customary Spatial Unit Administration in the selected case study areas and the hybrid approach on the registration of 3D objects would provide an opportunity to develop Spatial Unit Cadastral System to seamlessly maintain the information regarding the use, the tenure and the value of Spatial Unit on, in and/or above land and sea. Accordingly, having defined as the core of the proposed Spatial Unit Administration System, the Spatial Unit Cadastral System that is developed based on the integration of the mentioned hybrid Spatial Unit concepts is expected to facilitate the integrated territorial administration.

Integrated Spatial Unit Administration Institution

This section depicts the necessity to administer the Spatial Unit and the associated resources within a single institution. Above the previously mentioned entry points on the development of an integrated territorial administration system, the institutional aspect of Customary Spatial Unit Administration System had taken an important role in leading the Spatial Unit Administration towards the fulfilment of the objective of sustainable development.

The administration of Land and Marine Units had been done by *kewang* institution. In all four sub-case study areas, different *kewang* members were assigned perform the monitoring and customary rules of enforcement on their land and marine territories. Considering the different characteristics of the land and marine territory of each sub-case study area, as well as the different rules applied in the administration Spatial Unit and resources attached to each Spatial Unit, such a division of tasks was essential to ensure the fulfilment of the objectives of the administration of Spatial Unit.

The responsibility of land and marine *kewang* was defined differently in each sub-case study area, which was settled based on the characteristics of the area in question and the policy of the customary government. Due to the extent of its vast land territory and its role as one of the important hubs for connecting Ambon Island and other islands in this region, as well as other regions in the Province of Maluku, *kewang* of Negeri Tulehu had been actively performing its tasks for monitoring and enforcing the customary rules on the management of land and resources attached to it. Despite its small marine territory extent, fewer marine *kewang-kewang* were assigned due to the limited resources for financing *kewang* activities in Negeri Tulehu. In fact, the role of marine *kewang* should be enhanced as the marine management policy of Negeri Tulehu also included the monitoring and customary rules enforcement of open sea in its surroundings, particularly due to direct and indirect impacts of activities in open sea to the marine territory of this *negeri*.

In Negeri Latuhalat, only two land *kewang-kewang* had been assigned to collect *negeri*'s fee contributions from the citizens of this *negeri*, while there were six marine *kewang-kewang* who had been assigned to perform monitor and carry out the customary enforcement of rules in the scope of customary marine management and administration. The authority of customary government of Negeri Latuhalat to control the land management in its territory had been declining during the last decade. The abolition of coconut *sasi* acted as important evidence of what had taken place, due to the conversion of most coconut plantations in this *negeri* into banana and breadfruit plantations. Most importantly, the customary government of Negeri Latuhalat had been focusing on the management and administration of its marine territory due to the abundance of marine resources contained therein.

On the other hand, the activities of *kewang* institution on land and sea in Negeri Siri Sori Islam had been equally done. This was particularly due to the existence of an endemic plant that only existed in this *negeri* and in a botanical garden in Bogor, West Java. On the other hand, the marine *kewang* had also been responsible for occasionally arranging the *sasi* on sea cucumber and topshell, as well as *sasi labuan*.

Even though the customary government of Negeri Paperu was in a period of transition between 2008 and 2011, monitoring and customary rules enforcement in the scope of Customary Spatial Unit Administration were still partly done. Differing from the previously mentioned *negeri-negeri*, Negeri Paperu had been applying kinship-based customary governance as each kinship association had a fixedly defined role in the customary governance. In this *negeri*, *kewang* tasks had been carried out by the sons of Hu-

rumalessy headed by the representative of Luhukay family. While the land *sasi* had been partly applied, marine *sasi* in Negeri Paperu was unfortunately abolished between 1994 and 1995. Even though marine *sasi* was re-introduced by the customary government of this *negeri* in 1996, it was no longer operational during the data collection processes.

Based on the above facts, besides the entry points identified within the two previous sections, another entry point on the development of an integrated Spatial Unit Administration institution is the definition of a single policy on Spatial Unit Administration. The administration of Spatial Unit on land and at sea had been executed separately, the Customary Spatial Unit Administration had conceptually been done integratively in these sub-case study areas, particularly from the institutional point of view. It could clearly be seen that the Spatial Unit Administration in the four sub-case study areas had been implementing the policy of each customary government on the management of its customary territory in order to provide the greatest benefit for the people and maintain the sustainability of the territory at the same time by upholding the custom. Such a policy had been able to lead to the establishment of the integrated Spatial Unit Administration institution, even though the Spatial Unit Administration had sectorally been done. Even though the section on the production of land in Section 7.2 reveals that the production of permanent cropland in the four sub-case study areas was not efficient compared to the extent of the permanent cropland and the contribution of permanent cropland products to the enhancement of the welfare of the people of the four sub-case study areas was statistically low, the Customary Land Use rules had sustained the quality of the permanent cropland for centuries, while the people, who had been depending on the permanent cropland products, had been able to maintain an adequate standard of living, as described in section on poverty at grassroots level in Section 7.2. Most importantly, the Spatial Unit Administration should be done under the direct supervision of the institution that is in charge of the development, the implementation, the monitoring of the implementation and the enhancement of the policy regarding the Spatial Unit Administration.

The previously mentioned facts also mirror the necessity to define not only the physical boundary of the Spatial Unit and its associated resources but also the clear but flexible physical and functional boundary of the Spatial Unit Administration System. Having learned from the formal Spatial Unit Administration System of Indonesia and the customary Spatial Unit Administration Systems in the four sub-case study areas, jurisdictional overlapping could mostly not be avoided. On one hand, the clear physical and functional boundary of the sectoral Spatial Unit Administration System could provide the administrator of the system with clear information regarding the jurisdiction of the system, while the flexibility of the definition of physical and functional boundary could be applied within the scope of the interaction among the sectoral Spatial Unit Administration Systems.

The integration of the Spatial Unit Administration System has basically been addressed by several concepts concerning system integration from various fields. The system integration is proposed as one of the ways to satisfy the need of an organisation by combining functions of a set of sub-systems to produce a single, unified system (Stavridou 1999, as cited in Mulolwa 2002: 24). The integration of the system should not focus on the development of a single system but on the exchange of data and organisational processes (Giacomazzi *et. al.* 1997, as cited in Mulolwa *op. cit.*) and on the coordination of interaction between the components of the systems in question (Toussaint *et. al.* 2001, as cited in Mulolwa *op. cit.*). With the development of the integrated Spatial Unit Administration System, it is expected that the policy on the management of Spatial Unit

on, in and/or above the land and sea could be implemented, monitored and enhanced over time by means of the Spatial Unit Administration System, as well as in turn lead to the fulfilment of the goal of sustainable development.

Good Spatial Unit Governance

As described in the section on Land Administration System for sustainable development in Section 2.2, it is agreed that the Spatial Unit Administration in the future should focus more on the people instead of the technical aspect of the Spatial Unit Administration System. Furthermore, it is also agreed that good Spatial Unit governance could only be achieved by the deployment of the institutional tools within the scope of Spatial Unit Administration.

The Customary Spatial Unit Administration Systems in the four sub-case study areas also provided the entry points to realise the previously mentioned visions. Those entry points are the application of the adverse possession principle within the establishment of Spatial Unit Administration System, the implementation of the specialised Spatial Unit Administration based on the character of the jurisdiction in question and the development of communalistic and indigenous knowledge-based Spatial Unit Administration System.

Adverse Possession

The adverse possession principle should basically be promoted in order to respect the rights of the people, who had committed to having their assets administered by the Spatial Unit Administration in question. As described in Section 5.2 on the customary statesmanship, the right of the individual to dwelling in four sub-case study areas was highly regarded during the establishment of *negeri*. This was particularly in place due to the acknowledgement of the role of the individual on the foundation of *negeri* by the customary government of *negeri* in question, while the possession of the dwelling was initiated even before *negeri* in question was established.

By respecting the right of the people as one of the stakeholders of the Spatial Unit Administration, it is expected that the institutional change caused by the establishment of Spatial Unit Administration System would not lead to disputes between people as one of the stakeholders of Spatial Unit Administration System and the administrator of the mentioned system. Subsequently, through the employment of such a scheme, the trust and the commitment from the people could be expected on the Spatial Unit Administration, which had been reflected within the customary Spatial Unit Administration in the four sub-case study areas as described in the section on trust and commitment in Section 8.1.

Within the existing Land Administration Systems, the adverse possession principle has been applied in order to relinquish the titles and to preserve the status quo (Park 2003: 121). Nonetheless, the application of such a principle should firstly fulfil the basic requirement on the registration of title, which is the present unchallenged occupation (*ibid.*: 121-122). The provision of the security of the tenure by the application of the adverse possession principle in the specific environment such as portrayed in the selected case study areas is expected to increase the degree of credibility of the administrator of the Spatial Unit, which had been proven in the selected case study areas to be able to amplify the likelihood of the development of trust and commitment for upholding the Customary Spatial Unit Administration System.

Specialised Spatial Unit Administration

The Customary Spatial Unit Administration in the four sub-case study areas had been done differently in accordance with the character of the area in question. As described in Section 6.1 and Section 6.2, each sub-case study area had a different set of Customary Spatial Unit rules. The way the customary government instituted these rules affected the form of the rule itself. In Negeri Paperu, *sasi* on forest product basically comprised of *sasi* on clove that could be identified in Negeri Siri Sori Islam, *sasi* on nutmeg that could be found in Negeri Tulehu and Negeri Siri Sori Islam and so forth. Nonetheless, some *sasi-sasi* could only be found in specific *negeri*. *Sasi* on walnut, durian and *ketupa* (*Baccaurea dulcis*) leaves could only be identified in Negeri Siri Sori Islam.

From the above facts, it can be concluded that the Customary Spatial Unit Administration in each sub-case study area adopted a specialised approach on Spatial Unit Administration. Each sub-case study area had a different character compared to each other and, therefore, each sub-case study area had a different set of rules.

Besides the necessity to administer the Spatial Unit and the associated resources based on the character of the area in question, the specialised Spatial Unit Administration provides the insight in the importance of the indigenous knowledge to achieve sustainable development. These above rules basically represent the indigenous knowledge on the management and administration of Spatial Unit and associated resources in the area in question, which had been developed over centuries by these indigenous communities.

Due to its importance on the administration of Spatial Unit, the adoption of indigenous knowledge on the Spatial Unit Administration elsewhere is expected to be done to ensure the fulfilment of goals of local sustainable development. Reverse engineering of indigenous knowledge is sometimes necessary as the rationale behind the enactment of such rules has long been forgotten or was even not transferred to all subsequent generations. Most importantly, the adoption of indigenous knowledge within the scope of Spatial Unit Administration would basically require the legal infrastructure that would allow the process of adaptation of the Spatial Unit Administration to the indigenous knowledge to be in place. The fact that *sasi* scheme could still not be fully adopted within the formal Spatial Unit Administration in the sub-case study areas acts as the evidence to support the latter mentioned statement.

As described in the section on the sustainable common-pool resources management institution in Section 2.2, the proposal to develop a specialised Spatial Unit Administration is in accordance with the second and third principles for designing the sustainable institution on the management of common-pool resources namely the development of the localised rules and the locally arranged institution. By applying specialised Spatial Unit Administration, it could be expected that the Spatial Unit Administration System and the resources managed under this system would be sustained over time.

Communalistic and Indigenous Knowledge-based Spatial Unit Administration

As explained in the previous section, the indigenous knowledge had played an important role in shaping good Spatial Unit governance in the four sub-case study areas. Unfortunately, as described in Chapter 6, even though the indigenous knowledge existed during the period of the implementation of this study, it could not be fully implemented in a few sub-case study areas. The institutional setting, which further led to the development of trust and commitment, is argued to be the leading factor on the successful implementation of indigenous knowledge within the scope of good Spatial Unit governance in the four sub-case study areas.

In this section, the entry points of the development of communalistic, indigenous knowledge-based Spatial Unit governance within the scope of Spatial Unit Administration is proposed. The entry point on the establishment of communalistic Spatial Unit governance is firstly highlighted, while the development of indigenous knowledge and the implementation of indigenous knowledge in the communalistic Spatial Unit governance are subsequently described.

It should be noted that the communalistic type of Spatial Unit Administration proposed by this study was developed based on the concept of communalism and collective action. These concepts were employed on the definition of good Spatial Unit governance as an attempt to promote self-Spatial Unit governance within the scope of the Spatial Unit Administration. This was particularly due to the communalistic type of indigenous communities in the four sub-case study areas, as well as the failure of the capitalistic and leviathan approach to resources management as shown in the section on the institutional aspect of collective action on common-pool resources management and social ecology and communalism in Section 2.2. Furthermore, even though both concepts have a completely different basis, the communalism and collectivistic values are nevertheless positively related to each other (Jagers and Mock 1995: 156), which provides the possibility to replicate the communalistic type of Spatial Unit Administration in the four sub-case study area elsewhere regardless of the type of community and Spatial Unit Administration.

As described in the section on fundamental framework of Customary Land and Marine Administration in Section 6.1 and Section 6.2, the indigenous communities in the four sub-case study areas had been applying the communalistic approach on the Customary Spatial Unit Administration. Such an approach had proven to be able to maintain the sustainability of particularly Negeri Tulehu and Negeri Siri Sori Islam. Even though the individualisation process had been taking place in Negeri Latuhalat, the communalism concept had still been implemented in this *negeri*, which allowed this *negeri* to achieve the balance among the economic and social development achievements, as well as the environmental protection. On the other hand, the inability of the customary government of Negeri Paperu to maintain the people's trust and commitment, which was the result of the abandonment of the customary institutional tools on decision making process particularly by the Chief of this *negeri*, had increased the level of ignorance of people of this *negeri* within the scope of Customary Spatial Unit Administration. The case of Negeri Paperu therefore acted as the supporting evidence in the importance of communalistic approach for leading the Customary Spatial Unit Administration towards good Spatial Unit governance and, subsequently, to the fulfilment of the objective of sustainable development.

Having reviewed the institutional setting of Customary Spatial Unit Administration Systems in the four sub-case study areas, the communalistic features of these indigenous communities on Spatial Unit governance could be identified. These features are the existence of a well-structured genealogical and/or territorial association, the representativeness of the member of the association within the customary governance and the application of customary institutional tools on the decision making process.

In the four sub-case study areas, *mataruma* acted as the basis for customary governance. *Mataruma*, which was a genealogical association and equal to clan, acted as the smallest unit of association in each sub-case study area. The increasing number of members of *mataruma* had led to the establishment of other *mataruma-mataruma* and, subsequently, the higher hierarchical association called *uku* or even *soa*. Several *uku* or *soa* further assembled into *negeri*. Moreover, in all sub-case study areas, the Chief

should be a member of *mataruma parentah*, while, in Negeri Paperu, each *soa* had a specific role in the customary governance.

The setting of these indigenous communities provides an insight into the importance of the smallest association unit within the development of the bigger-scale association. By the establishment of such an association, the individuals would be directed to having common interests instead of separate individual interests. Having bonded to an association, as stated in the section on the institutional setting in Section 8.1, the individuals would be committed to the norms maintained by the corresponding association, which would lessen the second-order dilemma faced by individuals who agreed to form an institution during the institutional change process as it is the norms that allow such a process to be executed and not individual interests. Moreover, such a scheme could be replicated in the bigger-scale association that comprises of smaller association units. Nonetheless, several adaptations should possibly be made to cope with the differences between the norms upheld by the bigger-scale association and the smaller association unit.

This feature would be very valuable in the development of other types of association. The genealogical and/or territorial type of association could basically be substituted by any other types of association. Nevertheless, the degree of bondage of other associations besides genealogical and/or territorial association would be expected to be lower than that of genealogical and/or territorial associations. Moreover, the communalistic setting could not be expected to exist at every corner of the universe. The lesser degree of second-order dilemma would indeed be expected in a communalistic community compared to that of an individualistic one. However, the collective action concept, which is based on the more-or-less similar institutional setting to it proposed by communalism concept, could be applied in the development of institutional norms and the decision-making in relation to institutional change in the individualistic community.

The representativeness of members of genealogical and/or territorial association had also been acting as one of the key features that enabled the application of people's power-based Spatial Unit governance in the four sub-case study areas. The basic institutional setting of these communities allowed the genealogical and/or territorial association to be represented within the customary governance in general and the customary Spatial Unit governance in particular. As described in Section 5.2, the *negeri* government in the four sub-case study areas comprised of the Chief and the heads of *soa-soa* of *negeri* in question. Moreover, the representatives of *soa-soa*, who were not acting as the heads of *soa-soa* at the same time, together with *negeri* government, the elders and other customary functional posts, constituted *saniri negeri*, which acted as the customary house of representatives. Most importantly, once a year, mostly at the beginning of the year, *saniri negeri* held a general assembly, which was attended by most citizens of the *negeri* in question.

The representativeness of members of the association mentioned in the four sub-case study areas on the decision-making process had principally increased the applicability of the decision made by the *negeri* government. The decision-making process had been made collectively and, in turn, represented, at least partly, the interests of the nested associations. While the case of Negeri Latahalat, Negeri Tulehu and Negeri Siri Sori Islam had clearly shown the obvious link between the representativeness of members of nested associations and the higher degree of the applicability of the decisions of *negeri* government, the case of Negeri Paperu had also been acting as the supporting evidence of the above mentioned statement as, in spite of the ongoing government transition process between 2008 and 2011, the inability of the previous regime to perform collective and transparent governance had increased the level of defiance of the citizens of

this *negeri* to comply with the rules within the scope of Spatial Unit Administration that had existed for centuries.

Furthermore, the communalistic institutional setting in the selected cases had been able to ensure the direct supervision of the Customary Spatial Unit Administration by the policy maker, particularly the chief as the main figure of the customary Spatial Unit governance. The chiefs in the four sub-case study areas had been directly getting involved with the decision making processes, not only on the development of the policy of the Spatial Unit governance but also its implementation, implementation monitoring and enhancement.

Additionally, the communalistic setting of the Customary Spatial Unit Administration Systems in the selected case study areas had also been providing a means for these systems to finance themselves. Through the Customary Spatial Unit Administration, *kewang* institution particularly in Negeri Latuhalat and Siri Sori Islam had been able to develop a means to finance itself through either the delivery of temporary leasehold or a contribution from the citizens in the form of fines or administrative fees. Nonetheless, as the case of Negeri Latuhalat and Negeri Tulehu revealed that external financing was required, the Customary Spatial Unit Administration should rely more on the participation of beneficiaries of the Spatial Unit Administration, particularly on the mutual monitoring on the enforcement of the Spatial Unit Administration rules as described in the section on sustainable common-pool resources management institution in Section 2.2 in order to lessen the financial pressure on the Spatial Unit Administration.

Last but not least, the customary institutional tools on the Spatial Unit Administration practised in the four sub-case study areas had also ascertained the good Spatial Unit governance in these areas. Within the scope of customary Spatial Unit governance, those tools were the general assembly and customary ceremony. Having functioned similarly to the political institution of the ancient Greeks as described in section on social ecology and the construction of communalism, the tools mentioned provided a means to perform collective Spatial Unit governance, as well as to educate the human resources within the scope of the Spatial Unit governance.

Indigenous knowledge had principally been the basic rules on Customary Spatial Unit Administration in the four sub-case study areas on providing the greatest benefit to people through the fulfilment of the objective of sustainable development. Having been developed and applied for centuries, the indigenous knowledge has been able to sustain the quality of the environment. Due to the high quality of the environment in the four sub-case study areas and their surroundings, the people's welfare could be maintained above the poverty line at grassroot level, which had encouraged people to continuously employ indigenous knowledge as the basic norm for Customary Spatial Unit Administration. In turn, the customary norm upheld by the Customary Spatial Unit Administration System could be sustained.

Furthermore, indigenous knowledge had provided the Customary Spatial Unit Administration Systems with a solid basis for performing the institutional change processes. From the Customary Spatial Unit Administration in the four sub-case study areas, it was revealed that the currency of indigenous knowledge had been updated over time, particularly in relation to the employment of technological advancement within the employment of Spatial Unit and the extraction of resources attached to Spatial Unit in question as described in the section on Land Use System in Section 6.1 and Marine Use System in Section 6.2.

Moreover, the application of indigenous knowledge within the scope of the Customary Spatial Unit Administration had also been providing the means to measure the necessity to adopt the required technology. As described in the section on fundamental

framework of Customary Land and Marine Administration System in Section 6.1 and 6.2, the technological aspect of the Customary Spatial Unit Administration Systems in the selected case study areas had not been well developed. The fact had been in place due to the less dynamic Customary Spatial Unit Administration System, which had allowed the system to be operational without adopting the recent technological advancement on Spatial Unit Administration. Nonetheless, it is necessary to do a re-assessment on the necessity of adopting the necessary technology for supporting the Customary Spatial Unit Administration in order to increase the capability of the Customary Spatial Unit Administration System to cope with future development, particularly within the scope of the Customary Spatial Unit Administration.

Nonetheless, as the Customary Spatial Unit Administration System was an integrated part of the customary governance in the four sub-case study areas, it was the communalistic institutional setting that took an important role in ensuring the good Spatial Unit governance and sustaining the Customary Spatial Unit Administration System, particularly within the scope of its institutional change as indigenous knowledge in these sub-case study areas had been enhanced over time. As portrayed in the section on institutional setting in the four sub-case study areas in Section 8.1, apart from the ongoing institutional norm shifting process particularly in Negeri Tulehu and Negeri Lathalat, the indigenous communities setting in these *negeri-negeri* had been able to provide a means to ensure the application of indigenous knowledge within the scope of Spatial Unit governance. Consequently, the Spatial Unit Administration in Negeri Tulehu and Negeri Lathalat was done effectively, which positive impacts had been identified in Section 7.1, 7.2 and 7.3. While the more static institutional change process in Negeri Siri Sori Islam had been acting as the perfect example on the role of its community setting on ensuring good Spatial Unit governance and sustaining the Customary Spatial Unit Administration System, the norm shift caused by the untransparent and unaccountable customary governance by the preceding regime in Negeri Paperu had increased the level of non-compliance of people of this *negeri* on the application of indigenous knowledge, which had existed for centuries, within the scope of customary Spatial Unit governance. The latter mentioned circumstance resulted in the partly ineffective customary Spatial Unit governance and, as described in Section 7.1, 7.2 and 7.3, had negatively affected the social development and environmental protection, while the economic development at grassroots level had been principally backed by the sustained productivity of secondary forest and abundant marine resources.

Particularly in relation to the communalistic structure of the Spatial Unit governance, the feature of the Customary Spatial Unit Administration Systems in the selected case study areas as the nested enterprises had been most important to ensure the sound implementation, monitoring of the implementation and enhancement of the policy on the Spatial Unit governance. The nested enterprises of the Customary Spatial Unit Administration Systems had provided the Spatial Unit governance with the direct, gradual supervision scheme by policy makers at all levels of the enterprise.

The proposal to establish a communalistic and indigenous knowledge-based Spatial Unit Administration System to cope with the good, community-based Spatial Unit governance is basically in accordance with the basic idea of the application of communalism as the ideology of sustainable development depicted in Section 2.2 and the approach on the establishment of the pro-poor land recordation system proposed by Zevenbergen *et. al.* (2012: 12). As portrayed in the section on communalism as the ideology of sustainable development in Section 2.2, the application of the communalistic approach on the Spatial Unit Administration is expected to be able to provide the solution for ecological issues on the sustainable development by fostering a civic society

through the promotion of the nation-state-like Spatial Unit Administration System at local level and equity among the citizens on accessing the Spatial Unit and resources attached to it. Furthermore, as highlighted in Zevenbergen *et. al. (ibid.)*, the community should be the centre of attention on the development of a pro-poor land recordation system, which, in turn, would promote the application of land management paradigm and enhance the support from the community within the scope of Spatial Unit Administration.

Conclusion

Six entry points for leading the Spatial Unit Administration System to sustain itself and to act as a means to achieve the the goal of sustainable development are identified in this section. Those entry points are classified into two groups, namely entry points that lead to good Spatial Unit governance and integrated territorial administration. The entry points that lead to good Spatial Unit governance are communalistic and indigenous knowledge-based Spatial Unit Administration, specialised Spatial Unit Administration and application of adverse possession principle. Furthermore, entry points that lead to an integrated territorial administration are the establishment of an integrated Spatial Unit Administration institution, administration of Spatial Units and resources attached to it and application of the notion of hybrid Spatial Unit.

The entry points described in this section are related to each other. The Customary Spatial Unit Administration in the selected case study areas revealed that the communalistic and indigenous knowledge-based Spatial Unit Administration had been acting as the basis leading to specialised Spatial Unit Administration and the establishment of an integrated Spatial Unit Administration institution, as well as the application of the adverse possession principle. Moreover, the application of the adverse possession principle in the Customary Spatial Unit Administration in the four sub-case study areas had also been influenced by the specialised Spatial Unit Administration, which had been considered as one of the prominent features of the Customary Spatial Unit Administration Systems in the selected case study areas.

Furthermore, within the scope of the integrated territorial administration, the well-established integrated Spatial Unit Administration Systems in the selected case study areas had ensured the integrated administration of Spatial Units and the resources attached to it, as well as the application of the notion of hybrid Spatial Unit. Additionally, the application of hybrid Spatial Unit notion in the selected case study areas had been affected by the characteristic of the Customary Spatial Unit Administration Systems in the four sub-case study areas, particularly due to the integrated administration of Spatial Units and resources attached to it. See Figure 8.1 for details.

8.3 Applicability of the Findings

As described in the section on the external validity of this study in Section 3.5, the framework of this study had been able to be replicated in the fours sub-case study areas. Moreover, it is also stated that such a framework could be replicated beyond the context of the selected cases. Accordingly, the findings from this study are also applicable for both the Indonesian context and beyond.

Nonetheless, due to the uniqueness of the selected case study areas, several requirements are posted in order to apply the findings of this study. These requirements are the existence of indigenous knowledge within the scope of the Spatial Unit Administration,

the existence of the pressures from higher governmental level and/or other stakeholders, the employment of communalism as the ideology of the Spatial Unit Administration and, most importantly, the policy on Spatial Unit Management that focuses on the fulfilment of the goal of sustainable development.

In the section on communalistic and indigenous knowledge-based Spatial Unit Administration in Section 8.2, it is revealed that indigenous knowledge had principally been acting as the basic rules on Customary Spatial Unit Administration in the four sub-case study areas to provide the greatest benefit to people through the fulfilment of the objective of sustainable development. Accordingly, the findings of this study could immediately be applied to the Spatial Unit Administration System that is developed based on the communalistic institutional setting.

Due to the application of a decentralisation approach of governance in Indonesia, the pressure from higher governmental level and/or other stakeholders to the Customary and/or community-based Spatial Unit Administration System in Indonesia is considerably equal. As described in section on Formal Land and Marine Administration in Section 4.1, the authority to perform Spatial Unit Administration has been conveyed to provincial and municipal government. Consequently, each province and municipality is responsible for managing its own jurisdiction, including setting up, implementing and monitoring the implementation of the spatial plan. At the implementation level, as depicted in the section on Spatial Unit Administration in Section 5.3, as well as in Chapter 6, the Customary Spatial Unit Administration Systems in the four sub-case study areas have been experiencing various degree of intervention from higher hierarchical governments. In turn, the findings of this study could also be implemented in areas that are experiencing various degrees of intervention from the higher hierarchical government.

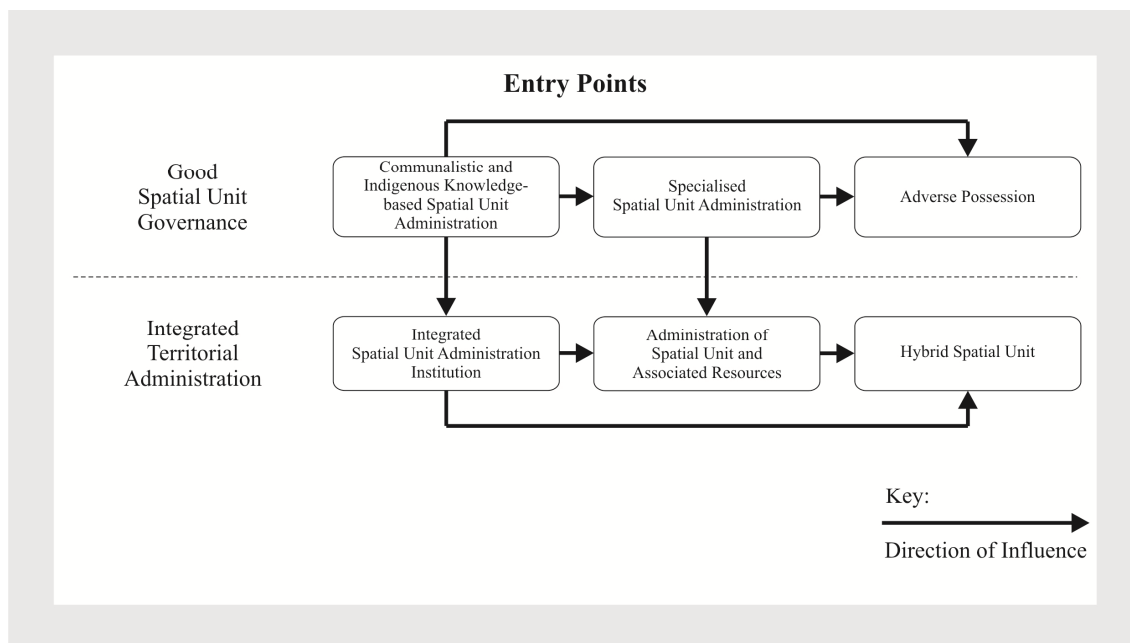


Figure 8.1 Interrelationship among the entry points for sustaining the Spatial Unit Administration System and leading to the achievement of sustainable development

In a relatively newly developed institution in the scope of Spatial Unit governance, the indigenous-like knowledge, which would act as the fundamental framework of such an institution, should be developed. This is particularly due to the evidence from the four sub-case study areas that exposed the importance of the role of institution of indigenous

community on the development, enhancement and application of indigenous knowledge. The establishment of indigenous-like knowledge itself could basically be made by the employment of the tools for particularly identifying the role of the existing resources on maintaining the quality of the environment and its surroundings, the sustainable yield of resources and the impact of the defined sustainable yield of resources to the economic and social development in their surroundings. Most importantly, as portrayed in the section on fundamental framework of Customary Land and Marine Administration System in Section 6.1 and 6.2, indigenous-like knowledge should be based on the needs of the community in question and iteratively enhanced in order to ensure its currency particularly considering the dynamics of economic, social and physical environment.

As depicted in the section on communalistic and indigenous knowledge-based Spatial Unit Administration in Section 8.2, the feature of the Customary Spatial Unit Administration Systems in the selected case study areas as the nested enterprises had been very important to ensure the sound implementation, monitoring of the implementation and enhancement of the policy on the Spatial Unit governance. The findings of this study could immediately be implemented on the nested Spatial Unit Administration System.

Furthermore, the latter feature of the communalistic Spatial Unit governance could also be replicated on the individual community by implementing the nested institutional concept from above. As stated in section on the design of sustainable common-pool resources management institution on Section 2.2, it is agreed that the nested enterprise for common-pool resources is necessary to be established in order to sustain the sustainable common-pool resources management institution. The issue on the representativeness of small-community-based institution is therefore expected to arise in such an individualistic institutional setting. This issue would even appear at the higher level compared to it in a communalistic institutional setting, particularly due to the temptation to free-ride, which had proven to significantly be lessened in the communalistic communities in the four sub-case study areas. Indeed, the stronger the stakeholder of the institution upholds the institutional norms, the lesser possibility the free-ride temptation exists. Hence, even though the issue on the representativeness of the member of association within the association and the smaller-scale association within the bigger-scale association is expected to arise from the development of nested institution, it is the institutional framework that takes an important role in resolving such an issue as it determines the degree of bondage that ties the member of the institution in question.

Additionally, the nested organisational characteristic of the Customary Spatial Unit Administration Systems of the selected case study areas could basically be replicated beyond the selected cases. Even though the Customary Spatial Unit Administration in the selected case study areas had been done sectorally, the sectoral nested organisations had always been under direct supervision of a single institution, which in the selected case study areas had been represented by the customary governments. Considering that each of the Customary Spatial Unit Administration Systems in the selected case study areas had globally been representing the lowest level of the Spatial Unit Administration organisation, the coordination among sectors within each level of enterprise is expected to exist in the scope of the replication of the integrated, sectoral Spatial Unit Administration in the bigger organisation.

Most importantly, the policy that drives the Spatial Unit Administration should be developed in the course of the provision of the greatest benefit for the beneficiaries of the Spatial Unit Administration namely the people. In Chapter 7 it is revealed that the policy to limit the volume of the resources extraction in the selected case study areas had not held back economic achievement of the people in the mentioned areas. Even

though the Province of Maluku was statistically considered among the poorest provinces in Indonesia in 2010, the people in the selected case study areas had been able to enjoy a good standard of living. Moreover, the environmental carrying capacity in the selected case study areas had proven to be maintained by the indigenous knowledge. Consequently, the term of the greatest benefit for the people should be defined within the scope of the sustainable development concept. Additionally, such a benefit should be enjoyed by the community as a whole, not only by specific individuals or a group of people, as the the above mentioned policy should be able to provide an equal opportunity for all member of the community to access the Spatial Unit and resources attached to it.

In conclusion, the applicability of the findings of this study is considerably high beyond the selected cases. The communalistic and indigenous knowledge-based Spatial Unit Administration System as the basis for facilitating the fulfilment of the the goal of sustainable development within the scope of not only the community-based Spatial Unit Administration but also the nationwide-based Spatial Unit Administration is highly desired. Due to the application of a decentralised approach of governance in Indonesia, the findings of this study could be applied in areas that are experiencing various levels of pressure from formal or higher hierarchical government. In the case of the application of the findings of this study in the more individualistic community, the communalistic structure of the Spatial Unit Administration System should initially be developed, which is highly possible due to the existence of the positive interrelationship between the concept of communalism and collectivism. In the case of the non-existence of the indigenous knowledge, the system could still be replicated by identifying local economic, social and environmental knowledge through multi-discipline research prior to the application of the findings of this study. Most importantly, the policy on the Spatial Unit Administration should be able to lead the Spatial Unit Administration System to facilitate the fulfilment of the goal of sustainable development.

8.4 Enhancement of Formal Spatial Unit Administration System of Indonesia

The formal Spatial Unit Administration System of Indonesia had not been able to achieve the objective of sustainable development in Indonesia. In spite of its lack of fulfilment to the requirements to set up a good Spatial Unit Administration System as described in Section 2.1, the formal Spatial Unit Administration System of Indonesia had not yet been acting as the basic infrastructure to provide the greatest benefit to the people of Indonesia within the scope of Spatial Unit governance as portrayed in Section 4.3. Moreover, Section 4.3 also provides evidence on the inability of the formal Spatial Unit Administration in Indonesia to maintain the environmental quality in Indonesia at its highest and protecting the customary Spatial Unit institution.

In this section, the analysis on the enhancement of the Formal Spatial Unit Administration System of Indonesia to facilitate the operation of the Formal Spatial Unit Administration towards the achievement of the goal of sustainable development is highlighted. This analysis was done by means of SWOT analysis within the scope of the entry points presented in Section 8.2. See Table 8.2 for SWOT analysis on the enhancement of the Formal Spatial Unit Administration System of Indonesia to facilitate the operation of the Formal Spatial Unit Administration towards the achievement of the goal of sustainable development.

Strength

In spite of the inability to fulfil the the goal of sustainable development, the Formal Spatial Unit Administration System of Indonesia has basically had a solid basis for leading to the achievement of the objective of sustainable development in the future. The features of the Formal Spatial Unit Administration System of Indonesia that are considered to be its strength are the policy on the Spatial Unit governance, the existence of indigenous knowledge on the Spatial Unit governance, the sectoral Spatial Unit Administration, the application of the horizontal separation principle and the application of adverse possession principle within the alienation of the Spatial Unit.

Table 8.2: SWOT analysis on the enhancement of the Formal Spatial Unit Administration System of Indonesia for facilitating the operation of the Formal Spatial Unit Administration towards the achievement of the goal of sustainable development

	Strength	Weakness
Internal	<ul style="list-style-type: none"> – Policy on Spatial Unit governance: Suited entry point on communalistic and indigenous knowledge-based Spatial Unit Administration – Existence of indigenous knowledge on Spatial Unit governance: Suited entry point on communalistic and indigenous knowledge-based Spatial Unit Administration, specialised Spatial Unit Administration and administration of Spatial Units and resources attached to it – Sectoral Spatial Unit Administration – Application of horizontal separation principle – Application of adverse possession principle 	<ul style="list-style-type: none"> – Lack of implementation of policy on Spatial Unit governance: Provided inequitable access to Spatial Unit, failed to implement communalistic and indigenous knowledge-based Spatial Unit Administration – Inability to empower Customary Spatial Unit Administration: Contradictive assumption that custom would be obstacle for development, failed to implement communalistic and indigenous knowledge-based Spatial Unit Administration – Segregated sectoral Spatial Unit Administration: Lack of coordination and existence of jurisdictional overlapping among sectors, failed to implement integrated Spatial Unit Administration
	Opportunity	Threat
External	<ul style="list-style-type: none"> – Existence of Customary Spatial Unit Administration Systems: Provided opportunity to implement communalistic and indigenous knowledge-based Spatial Unit Administration – Decentralisation of governance: Provided opportunity to implement communalistic and indigenous knowledge-based Spatial Unit Administration, specialised Spatial Unit Administration and administration of Spatial Units and associated resources 	<ul style="list-style-type: none"> – Existence of Customary Spatial Unit Administration Systems: Led to system's pluralism due to existence of extra-legal systems, inability to absorb and empower Customary Spatial Unit Administration Systems, failed to provide security of access to Spatial Unit, threat on application of communalistic and indigenous knowledge-based Spatial Unit Administration and establishment of integrated Spatial Unit Administration institution

Source: Authors' construct

As described in the section on relationship among State, people and Spatial Unit, the main policy of Spatial Unit governance of Indonesia is to provide the greatest benefit for the people. The definition of the greatest benefit for the people also suits the expect-

tation of the application of the used term within the scope of the application of the findings of this study. Furthermore, this feature also fits one of the entry points for leading the Formal Spatial Unit Administration to fulfil the the goal of sustainable development namely the communalistic and indigenous knowledge-based Spatial Unit Administration.

In Chapter 6 it is revealed that the Customary Spatial Unit Administration Systems existed in the selected case study areas. The Customary Spatial Unit Administration Systems, to some extent, could also be identified in other regions in Indonesia such as in West Java (see Abdulharis *et. al.* 2007), Yogyakarta (see Abdulharis *et. al.* 2008b) and West Sumatera (see Abdulharis *et. al.* 2008a). Having had the operational Customary Spatial Unit Administration Systems in place, the Formal Spatial Unit Administration System of Indonesia has a firm foundation to perform communalistic and indigenous knowledge-based Spatial Unit Administration, particularly due to the employment of the filtered customary law as the basis for the establishment of Formal Spatial Unit Administration System as described in the section on the legal aspect of custom in Spatial Unit Administration in Section 4.2. Furthermore, the existing indigenous knowledge would also lead to the specialised Spatial Unit Administration and the administration of Spatial Unit and resources attached to it by considering that the customary Spatial Unit governance in the selected case study areas had been made based on the existing resources as described in Chapter 6.

Chapter 4 portrays the sectoral Formal Spatial Unit Administration in Indonesia. As described in the section on Spatial Unit Administration Principles in Section 4.1, the Spatial Unit in Indonesia comprises land, waters and natural resources contained therein, as well as air space. Furthermore, as described in the section on Land and Marine Administration System of Indonesia in Section 4.1, the administration of Spatial Units in Indonesia has been carried out separately for the settlement, forestry, mining and coastal area. The sectoral Spatial Unit Administration has therefore been done in Indonesia.

As described in the section on horizontal separation in Section 4.1, the Formal Spatial Unit Administration System of Indonesia has been implementing the horizontal separation principle. Within its implementation, the secondary tenures from the various sectors have been overlaid on top of two primary tenures in Indonesia. The application of the horizontal separation principle has basically been acting as the foundation for applying the hybrid Spatial Unit notion as any type of Spatial Unit within the Formal Spatial Unit Administration System of Indonesia could be attached with the primary or secondary tenure.

Particularly within the scope of the delivery of Land Tenure in Indonesia, the adverse possession principle has been implemented. As depicted in the section on customary values preservation in Section 4.3, the Land Tenure that existed prior to the enactment of the Agrarian Principles Act could be converted into the Formal Land Tenure that is described in Article 16 of the mentioned act.

Weakness

The inability of the Formal Spatial Unit Administration System of Indonesia to fulfil the the goal of sustainable development reveals the weaknesses of the system. These are the lack of implementation of the policy on Spatial Unit Administration towards the provision of the greatest benefit from the Formal Spatial Unit Administration to the people, the inability to empower the Customary Spatial Unit Administration System within the

scope of the Formal Spatial Unit Administration in Indonesia and the segregated sectoral Spatial Unit Administration.

The lack of the implementation of the policy on Spatial Unit Administration towards the provision of the greatest benefit for the people has basically been triggered by the non-existence of pro-people Spatial Unit Administration regulations. Even though Article 33.3 of the Constitution of 1945 states that the sole objective of the Spatial Unit Administration in Indonesia is to provide the greatest benefit for the people, its derivative regulations have not been able to provide equitable access to Spatial Unit as described in the section on access in Section 4.3. Furthermore, the derivative regulations only provide the people with a slight opportunity to access the Spatial Unit and resources attached to it within the scope of the community-based resources management as described in the section on areas under sustainable forest management in Section 4.3. The inability to implement the above mentioned policy has impeded the function of the Formal Spatial Unit Administration System to fulfil the goal of sustainable development due to the failure of the system to implement the communalistic and indigenous knowledge-based Spatial Unit Administration.

The existence of the Customary Spatial Unit Administration Systems in Indonesia is also considered as the weakness of the Formal Spatial Unit Administration System of Indonesia. The inability of the Formal Spatial Unit Administration System to absorb and empower the existing Customary Spatial Unit Administration Systems has decreased the capability of the former system to lead to the fulfilment of the goal of sustainable development, particularly after comparing the contribution of the formerly mentioned system on leading to the achievement of sustainable development as described in Section 4.3 and that of the Customary Spatial Unit Administration Systems in the selected case study areas on leading to the achievement of the goal of sustainable development as described in Chapter 7. The effort of unifying the Spatial Unit Administration Systems in Indonesia by the establishment of the sole Spatial Unit Administration System by assuming that the Customary Spatial Unit Administration Systems would only be an obstacle for the development is indeed contradictive to the findings of this study. Consequently, the application of entry point on the communalistic and indigenous knowledge-based Spatial Unit Administration System has not been fulfilled.

Last but not least, the segregated sectoral Spatial Unit Administration has also restrained the capability of the Formal Spatial Unit Administration System of Indonesia to lead to the fulfilment of the goal of sustainable development. Even though the sectoral Spatial Unit Administration has been considered as one of the strong points of the Formal Spatial Unit Administration in Indonesia, the Formal Spatial Unit Administration has lacked coordination among the sectoral Spatial Unit Administration Systems. As described in the section on fundamental framework of Land and Marine Administration System in Section 4.2, most sectoral Land and Marine Administration regulations were codified without referring to the Agrarian Principle Act. Moreover, coordination among sectors has only partially been done within the development of Land Use plan that includes the conversion of forestry and agricultural land. Additionally, the jurisdiction of each sectoral Spatial Unit Administration System has not been clearly defined, which has resulted in the overlapping of jurisdiction of the sectoral systems as described in the section on fundamental framework of Land and Marine Administration System in Section 4.1. Such a weakness has contributed to the inability of the Formal Spatial Unit Administration System to perform an integrated Spatial Unit Administration.

Opportunity

The existence of the Customary Spatial Unit Administration Systems and the application of the decentralised governance approach in Indonesia provide the opportunity to establish a communalistic and indigenous knowledge based Spatial Unit Administration in Indonesia. In the selected case study areas, as well as other areas that have a similar community setting to that of the selected case study areas and applied the indigenous knowledge within the scope of the Spatial Unit Administration, the decentralisation of the Spatial Unit governance would allow the empowerment of the local Spatial Unit Administration System towards the fulfilment of the the goal of sustainable development. Moreover, the decentralisation of Spatial Unit governance within the jurisdiction of indigenous community is expected to facilitate the specialised Spatial Unit Administration, which is also expected to further lead to the administration of Spatial Units and associated resources.

Threat

The existence of the Customary Spatial Unit Administration Systems has also been considered as a threat to the Formal Spatial Unit Administration in Indonesia. Having been considered as the extra-legal systems, the existence Customary Spatial Unit Administration Systems has led to dualism, or even pluralism, of the Spatial Unit Administration System. This is particularly due to the weakness of the Formal Spatial Unit Administration System that has not been able to absorb and to empower the existing Customary Spatial Unit Administration Systems. Consequently, the overlapping jurisdiction of the Formal and Customary Spatial Unit Administration System can be found particularly in the area in which the Customary Spatial Unit Administration System exists. This unfortunately has led to the insecurity of access to Spatial Unit as described in the section on access to Spatial Unit in Section 4.3. Such a dualism has become a threat to the application of communalistic and indigenous knowledge-based Spatial Unit Administration and establishment of an integrated Spatial Unit Administration institution.

Conclusion

The Formal Spatial Unit Administration System of Indonesia has basically had a solid basis for leading to the achievement of the goal of sustainable development in Indonesia. This is particularly due to the policy on the Spatial Unit governance, the sectoral Spatial Unit Administration, the application of the horizontal separation principle and the application of adverse possession principle within the alienation of the Spatial Unit. These features have provided the foundation to implement the entry points for guiding the Formal Spatial Unit Administration System of Indonesia to fulfil the the goal of sustainable development.

Nonetheless, it is revealed that the weaknesses of Formal Spatial Unit Administration System of Indonesia have decreased the capability of the system to lead to the achievement of the goal of sustainable development in Indonesia. Those weaknesses are the lack of pro-people Spatial Unit Administration regulations to implement the previously mentioned policy and the segregated sectoral Spatial Unit Administration. Accordingly, the communalistic and indigenous knowledge-based Spatial Unit Administration has not been able to be implemented and the integrated Spatial Unit Administration institution has not been able to be established.

Most importantly, the existence of the Customary Spatial Unit Administration Systems in Indonesia has been acting as both the strong and weak point of the Formal Spatial Unit Administration System to lead to the fulfilment of the goal of sustainable development. Moreover, it also posts the opportunity and threat to the Formal Spatial Unit Administration System within the scope of the fulfilment of the goal of sustainable development. Having been considered as the fundamental of the establishment of Formal Spatial Unit Administration System in Indonesia, the existence of the Customary Spatial Unit Administration Systems would be able to act as the basis for the implementation of communalistic and indigenous knowledge-based Spatial Unit Administration and specialised Spatial Unit Administration, which is expected to further lead to the administration of Spatial Units and resources attached to it. Unfortunately, the inability of the Formal Spatial Unit Administration System to absorb and to empower the existing Customary Spatial Unit Administration Systems in Indonesia has impeded the implementation of the entry points previously mentioned in this paragraph. Furthermore, the combination of the existence of the Customary Spatial Unit Administration Systems and the application of the decentralisation approach of governance in Indonesia would also provide the opportunity for the application of the entry points previously mentioned in this paragraph. Last but not least, the existence of the Customary Spatial Unit Administration Systems in Indonesia, which have been considered as extra-legal systems within the Formal Spatial Unit Administration, is also considered a threat to the Formal Spatial Unit Administration System as their existence has triggered the dualism of Spatial Unit Administration System. Accordingly, the entry points previously mentioned in this paragraph would not be able to be implemented on the enhancement of the Formal Spatial Unit Administration System to lead to the fulfilment of the the goal of sustainable development.

8.5 Concluding Remarks

In this chapter, the potential of Customary Spatial Unit Administration to lead to sustainable development is highlighted. The key finding of this study, which was the role of the institutional aspect of the Customary Spatial Unit Administration Systems in the selected case study areas on leading to sustainable Customary Spatial Unit Administration Systems and to the fulfilment of the goal of sustainable development, is firstly depicted in Section 8.1. Furthermore, the entry points for leading the Spatial Unit Administration to the fulfilment of the sustainable development are described in Section 8.2, while the applicability of the findings of this study is further portrayed in Section 8.3. Finally, the outcome of the SWOT analysis within the scope of the enhancement of the Formal Spatial Unit Administration System of Indonesia by considering the given entry points from Section 8.2 is highlighted in Section 8.4.

As described in Section 8.1, although the institutional setting of Customary Spatial Unit Administration Systems in the selected case study areas suited the collectivistic type of the institution on the common-pool resources management, it was the communalistic feature of the Customary Spatial Unit that had driven the Customary Spatial Unit Administration Systems to sustain themselves and to lead to the fulfilment of the the goal of sustainable development. It had established that the communalistic approach applied in the Customary Spatial Unit Administration in the four sub-case study areas had the potential to overcome all of the weaknesses and threats to the Customary Spatial Unit Administration Systems.

As set out in Section 8.2, even though the sectoral Spatial Unit Administration could not be avoided, an integrated Spatial Unit Administration is expected to be carried out.

The entry points for allowing the integrated sectoral Spatial Unit Administration to be in place are the application of the concept of the administration of Spatial Unit and resources attached to it, the notion of hybrid Spatial Unit and the concept of the integrated institution on Spatial Unit Administration. In any case, the administration of Spatial Unit would always be related to the administration of natural and/or man-made resources. The Spatial Unit itself is considered as one of the vital resources of the development. Due to the different nature of each Spatial Unit and its associated resources, different knowledge and skill is required to administer different Spatial Unit and resources attached to it. It is therefore encouraged to divide the Spatial Unit Administration System into sectors that are associated to the nature of the Spatial Unit and the resources attached to it.

In order to facilitate the sectoral Spatial Unit Administration to be integratively done, the further entry points on the application of hybrid Spatial Unit are proposed. Having learned from the Customary Spatial Unit Administration in the four sub-case study areas, the Spatial Unit could still be defined in its traditional form. On land, the Spatial Unit was defined in 2D environment, while, at sea, the Spatial Unit was defined in 3D environment. Through the application of this notion, the integration of the Spatial Unit Administration on land and sea could be made, regardless of the differences in the nature of Spatial Unit and its associated resources on land and sea.

Most importantly, the integrated sectoral Spatial Unit Administration could be achieved with the existence of the integrated policy and legal framework that acts as an umbrella for the sectoral Spatial Unit Administration. The objective of the Customary Spatial Unit Administration in the four sub-case study areas was to provide the greatest benefit for the people. Such a policy had even particularly reduced the production of agricultural land compared to that in the period between 1600 and early 1900. Nevertheless, such a policy had proved to be able to sustain both the people and the environment.

It is also portrayed in Section 8.2 that, beyond the integrated Spatial Unit Administration, good Spatial Unit governance should be in place to ensure provision of the greatest benefit for the people, which acted as the fundamental on leading to the achievement of the sustainable development objective. The application of the adverse principle to respect the right of those who had committed to support the Spatial Unit Administration, as well as the specialised Spatial Unit Administration based on the physical and social character of the area in question in order to ensure the optimum outcome are proposed as the entry points in setting up a good Spatial Unit governance. Most importantly, the latter entry points, together with the communalistic institutional setting and indigenous knowledge, are expected to contribute to the establishment of communalistic, indigenous knowledge based Spatial Unit Administration System. The communalistic institutional setting of indigenous communities in the four sub-case study areas had proven to be able to act as the fundamental norm that united the members of these communities during the Spatial Unit Administration institutional change process, while indigenous knowledge regarding the Spatial Unit governance itself had been acting as the basic norm of the Spatial Unit Administration Systems in the four sub-case study areas towards the achievement of the objective of sustainable development. Consequently, the communalistic institutional setting and indigenous knowledge are expected to be developed by the implementation of the notion of communalistic, local-wisdom based Spatial Unit Administration System elsewhere.

Section 8.3 reveals that the above mentioned entry points are replicable beyond the four sub-case study areas. Such entry points are applicable in areas that are experiencing various levels of pressure from formal or higher hierarchical government as, due to the application of decentralised approach of governance in Indonesia, the pressure to the

Spatial Unit Administration System in most customary territories is substantially equal. For the Spatial Unit Administration System that is developed based on the communalistic and indigenous knowledge, these entry points could be applied directly. Nevertheless, in a more individualistic community, the communalistic setting and indigenous knowledge defined in the section on communalistic and indigenous knowledge-based Spatial Unit Administration should be initially developed. In order to develop the communalistic setting in the individualistic community, the collectivistic setting could be employed to bridge the gap. Moreover, the development of indigenous-like knowledge should be made by the multi-disciplinary researches by considering the needs of the community in question and local economic, social and environmental knowledge, as well as iteratively enhanced over time to ensure the currency of the knowledge particularly within the scope of Spatial Unit Administration.

Finally, Section 8.4 reveals the need for strategic action to enhance the Formal Spatial Unit Administration System of Indonesia in order to be able to guide the Formal Spatial Unit Administration to fulfil the goal of sustainable development. The Formal Spatial Unit Administration System has had a solid basis to facilitate the achievement of the goal of sustainable development. Nevertheless, its weaknesses have sharply decreased the capability of the system to guide the Formal Spatial Unit Administration to fulfil the goal of sustainable development in Indonesia. Moreover, the existence of the Customary Spatial Unit Administration Systems in Indonesia has been acting as both strong and weak points of the Formal Spatial Unit Administration System of Indonesia, as well as posted the opportunity and threat for the system to facilitate the achievement of sustainable development in Indonesia.

Having identified the potential of the Customary Spatial Unit Administration Systems in the selected case study areas on facilitating the achievement of the goal of sustainable development, the final concluding remarks of this study, as well as the recommendations for further action on the enhancement of Formal Spatial Unit Administration System of Indonesia, are given in Chapter 9. The final concluding remarks of this study, highlighted in Section 9.1, were linked to the study questions posted in Section 1.3, while the recommendations given in Section 9.2 were developed based on the strong and weak points of, as well as the opportunity and threat to the Formal Spatial Unit Administration System of Indonesia to facilitate the achievement of the goal of sustainable development in Indonesia.

9 Conclusion and Recommendation

In this section, the conclusions from this study and the recommendations to follow up the findings of this in relation to the objective of this study are given. In Section 9.1, study conclusions are given based on the structure of the study questions given in Section 1.3. Furthermore, the recommendations on the enhancement of the Formal Spatial Unit Administration of Indonesia within the scope of the fulfilment of the objective of sustainable development in Indonesia are highlighted in Section 9.2.

9.1 Conclusion

In this section, the conclusions of this study are depicted. The responses from the study questions given in Section 1.3 are initially portrayed, which are followed by the validation of the hypothesis of this study.

Integrated Land and Marine Administration

The existing concepts on Land and Marine Administration have provided a means to integrate the administration of Land and Marine Units. First of all, the existing land management paradigm is capable of being implemented as the paradigm on the management of sea. Secondly, the land management paradigm is also able to cope with the issues on the management of resources contained in, on and/or above Land and Marine Units.

Nonetheless, the same framework is required in order to integratively administer Land and Marine Units. In Section 2.1 it is shown that the Spatial Unit Administration concept, which is proposed as the framework to integrate Land and Marine Administration, is expected to be able to cope with the complexity of marine environment within the scope of Marine Administration. As the Spatial Unit Administration concept was developed based on the land management paradigm, as well as by incorporating particularly cultural landscape concept, the Spatial Unit Administration concept is expected to be able to handle the administration of not only the Marine Unit but also the Land Unit.

Moreover, the capability of the Spatial Unit Administration concept to integratively administer Land and Marine Units is also expected to be acquired through the employment of a smallest unit of administration called Spatial Unit. Spatial Unit is a 3D unit that is wholly enclosed by either physical or imaginary surface(s), which is located partly or completely, on, above and/or beneath the surface of the Earth and sea. The Spatial Unit is further proposed as the common unit on the Spatial Unit Administration, which is operationally defined as an execution tool of policy regarding unique 3D Spatial Unit that comprises space and resources on, in and below the land and marine that encompasses public sector activities applied to the Spatial Unit within the scope of Spatial Unit Tenure, Use and Value. Through the employment of the Spatial Unit, the Spatial Unit Administration is expected to be done without restriction by the coastal line and, even, the dimension of the Land and Marine Units. Additionally, in accordance with the existing land management paradigm, the public sector activities within the scope of Spatial Unit Administration interacting with each other within the scope of the Spatial Unit Cadastral System and facilitating the operation of Spatial Unit Administration. Additionally, Spatial Unit Administration System in this study is defined as a fundamental infrastructure to facilitate Spatial Unit Administration, which is backed

mainly by its institutional, technical and financial arrangement. Spatial Unit Administration System also functions as the facilitator of the interaction of the components of Spatial Unit Administration by means of Spatial Unit Cadastral System, which further assists the operation of the Spatial Unit Administration, as the core of Spatial Unit Administration System.

Linking Spatial Unit Administration and Sustainable Development

In the section on the institutional aspect of Land Administration for Sustainable Development in Section 2.2, it is revealed that the further enhancement of institutional aspect of Land Administration System is expected to lead to good land governance by deploying the people's tools. Through good land governance, it is expected that people, as the beneficiaries of the Land Administration System, would benefit from the Land Administration and, in turn, lead to the achievement of the goal of sustainable development.

Nevertheless, as described in the section on Customary Spatial Unit Administration in Section 2.2, the recent concepts on Spatial Unit Administration were being developed based on the narrow Western concept of Land Administration. Consequently, the institutional setting of the current Spatial Unit Administration concepts has not been able to be universally implemented.

Having reviewed concepts on collective action, social ecology and communalism and cultural landscape, the communalistic type of Spatial Unit Administration System is proposed to facilitate the Spatial Unit Administration to lead to the fulfilment of the goal of sustainable development. This is due to the fact that the Customary Spatial Unit Administration Systems described in the section on Customary Spatial Unit Administration in Section 2.2 have been able over time to enjoy the benefit of sustainable development.

Additionally, the application of the Spatial Unit concept within the scope of the Spatial Unit Administration is also expected to lead to fulfilment of the goal of sustainable development. By applying the Spatial Unit concept, the Spatial Unit Administration is expected to be achieved without restriction by dimension of the unit. Accordingly, the application of the Spatial Unit concept of the Spatial Unit Administration is expected to be able to cope with the administration of resources attached to the unit in question. This is very important as it leads to the definition of a common area on Spatial Unit Administration and sustainable development, which is the resources management.

Last but not least, several indicators are also proposed in order to directly measure the role of Spatial Unit Administration lead to the fulfilment of the objective of sustainable development. As described in the section on Spatial Unit Administration indicators for sustainable development, those indicators are classified into ecological, economic and social indicators. The ecological indicators comprise proportion of land covered by forest, coverage of arable and permanent cropland, Land Use change, land degradation, area under sustainable forest management, proportion of marine protected area and coverage of coral reef ecosystem. Moreover, the economic indicators are production of land, production of marine sector, employment and sectoral diversification and poverty level. Finally, the social indicators consist of access to Spatial Unit, gender equity, function of Spatial Unit and customary values preservation.

Formal Spatial Unit Administration of Indonesia and Sustainable Development

As described in Section 4.1, the Formal Spatial Unit Administration System of Indonesia basically has a solid basis to facilitate the fulfilment of the objective of sustainable

development in Indonesia. The policy on the Spatial Unit Management, which is to provide the greatest benefit for the people, is regarded as a good foundation for the Formal Spatial Unit Administration System of Indonesia to fulfil the goal of sustainable development. Moreover, the Formal Spatial Unit Administration System of Indonesia was developed based on the filtered customary law, which is considered as the basis for developing a community-based Spatial Unit Administration as described in Section 4.2. Additionally, the conversion of some of the Spatial Unit Tenures that existed prior to the establishment of the Formal Spatial Unit Administration System of Indonesia has been facilitated by the enactment of conversional provision of Agrarian Principle Act.

Nonetheless, at the implementation level, the Formal Spatial Unit Administration System of Indonesia has not been able to facilitate the fulfilment of the objective of sustainable development as described in Section 4.3. From an ecological point of view, as described in the section on ecological impact in Section 4.3, the rate of deforestation in Indonesia has been extremely high. Besides the changes in the coverage of forest, permanent cropland and mining area, the rate of Land Use change has also been noticeably high, particularly due to the proliferation of municipal jurisdiction and urbanisation, which has led to the conversion of vast extents of productive agricultural land into settlement areas. Such changes have not been followed by the establishment of areas under sustainable forest management, which has further led to the degradation of land environment. Moreover, in 2011, the percentage of the total extent of the marine protected areas was as little as 5% of total extent of archipelagic and territorial waters of Indonesia. Additionally, due to destructive fishing, pressures from inland and El Niño Southern Oscillation phenomenon, 68% of coral reef ecosystems in Indonesia have less than 50% of living coral reefs.

From an economic point of view, the degradation of environmental quality has not been followed by the improvement of economic achievement of Indonesia. The contribution of sectors that are related to Spatial Unit Management and Administration has been low. Furthermore, there were 13.33% poor citizens in Indonesia in 2010. Fortunately, the Spatial Unit Administration System of Indonesia has a huge potential to provide the employment for the citizen of Indonesia.

From the social point of view, the security of access to Spatial Unit has not been able to be guaranteed by GoI. Consequently, GoI has not been able to provide the citizens of Indonesia with an equitable access to Spatial Unit. The function of Spatial Units in Indonesia could not be maintained, particularly due to the overlapping of the jurisdiction of the sectors of Formal Spatial Unit Administration System of Indonesia. The preservation of customary values has also not been able to be guaranteed by GoI. Nonetheless, every female and male citizen of Indonesia is allowed to be the legal subject of Spatial Unit Tenure in Indonesia.

Customary Spatial Unit Administration and Sustainable Development

As described in Section 5.2, the Customary Spatial Unit Administration Systems in the selected cases study areas had a solid basis for facilitating the achievement of the objectives of sustainable development. This was particularly due to the communalistic setting of these Customary Spatial Unit Administration Systems. The communalistic setting of these systems had been able to lead the sectoral Customary Spatial Unit Administration in the selected case study areas to be integratively done particularly due to the characteristics of the mentioned systems as nested enterprises.

Besides the implementation of the communalism on the Customary Spatial Unit Administration in the four sub-case study areas, the employment of indigenous knowl-

edge was also regarded as another factor to allow the Customary Spatial Unit Administration Systems in the selected case study areas to facilitate the fulfilment of the goal of sustainable development. As described in the section on establishment of Customary Spatial Unit Administration System in Section 5.2, as well as in Chapter 6, indigenous knowledge had been acting as the basic foundation of the Customary Spatial Unit Administration Systems in the selected case study areas. Having been developed for centuries, such knowledge had been able to provide these indigenous communities with guidance to sustainably manage their territories.

The combination of the communalistic setting and indigenous knowledge on the Customary Spatial Unit Administration has also facilitated the institutional change processes in order to cope with any of the latest circumstances. This has been proved by the Customary Spatial Unit Administration rules that were related to the employment of technological tools on the management of the territories of these indigenous communities.

As described in Chapter 6, the Customary Spatial Unit Administration Systems of the four sub-case study areas was considered to be in the early stage of the development of Spatial Unit Administration System. Except on the employment of the technological tools on the Customary Spatial Unit Administration, the applicability of the Spatial Unit Administration concept within the Customary Spatial Unit Administration in the selected case study areas was identified. The public activities within the scope of the administration of the use, tenure and value of Spatial Unit in the selected case study areas had been executed. Furthermore, even though the Customary Spatial Unit Cadastral Systems had mostly been maintained verbally and, in specific instances, analogously, the information maintained by these systems had been able to facilitate the operation of the Customary Spatial Unit Administration in the selected case study areas.

As described in Chapter 7, the Customary Spatial Unit Administration Systems had basically been able to facilitate the achievement of the sustainable development objective in the four sub-case study areas. From the ecological point of view, even though the extent of the land territories of these indigenous communities was very limited, these indigenous communities had over time been able to maintain the coverage of the primary and secondary forest. As the citizens of Negeri Siri Sori Islam and Negeri Paperu had been depending on the fisheries and permanent cropland, the coverage of arable land had been very low. On the other hand, the extents of arable land and permanent cropland in Negeri Tulehu were considerably equal, while the Land Use of Negeri Latuhalat had been dominated by arable land and pasture. Consequently, there had been almost no change of Land Use in Negeri Siri Sori Islam and Negeri Paperu, while the extent of arable land in Negeri Tulehu and Latuhalat had increased steeply. Even though the rate of Land Use change in Negeri Tulehu and Negeri Latuhalat were considerably high, land degradation in the selected case study areas could hardly be identified. Moreover, the citizens of the four sub-case study areas had been customarily managing the primary and secondary forest sustainably. At sea, all sub-case study areas except Negeri Paperu had marine protected areas within their territory. The ineffective Customary Spatial Unit Administration System in Negeri Paperu basically acted as the major cause of the non-existence of the marine protected area in Negeri Paperu. Additionally, the coral reef ecosystems were identified from the satellite images on the inshore of the selected case study areas except Negeri Latuhalat, which coastal area faces the open sea. Nevertheless, the quality of the coral reef ecosystem particularly in Negeri Tulehu and Negeri Paperu had degraded. In Negeri Tulehu, the inability of marine *kewang* to monitor the performance of the Customary Spatial Unit Administration regulations within its territory was considered as the main factor that had led to the degradation of the quality

of the coral reef ecosystem, while it was the ineffective customary governance and Customary Spatial Unit Administration that had been blamed as the main cause of the degradation of the quality of the coral reef ecosystem in Negeri Paperu.

From the economic point of view, the production of land in the selected case study areas was considerably low compared to the total production of Indonesia. By particularly considering that this region used to be the only producer of nutmeg and cloves in the World between 16th and 19th century, the production of permanent cropland had decreased significantly. The production of arable land was also low compared to the total production of arable land in Indonesia. On the other hand, the production of marine sector had been acting as one of the main means of subsistence for the citizens of the selected case study areas, particularly due to the abundance of pelagic fish stock of Banda Sea. The abundance of the pelagic fish stock had over time been maintained by the indigenous communities through the Customary Spatial Unit Administration in the selected case study areas. The rate of employment offered by the Customary Spatial Unit Management and Administration Systems was also quite high. Nonetheless, the sectoral diversification on Customary Spatial Unit Management and Administration in Saparua Island in which Negeri Siri Sori Islam and Negeri Paperu are located was statistically lower than that of Ambon Island in which Negeri Latuhalat and Negeri Tulehu are located. This was particularly due to the function of Negeri Latuhalat and Negeri Tulehu as the centre of activities in this region. Furthermore, statistically, the selected case study areas had contributed to the figure of the Province of Maluku as the third poorest province in Indonesia. Nevertheless, even though the production of Spatial Unit and the extraction of resources were limited by the Customary Spatial Unit Administration Systems in the selected case study areas, the citizens of the selected case study areas had been able to fulfil their food consumption needs, as well as their needs for appropriate clothing and housing.

From the social point of view, the Customary Spatial Unit Administration Systems in the selected case study areas had been able to lead to the fulfilment of the objective of the sustainable development. These systems had been able to provide their beneficiaries with the equitable access to Spatial Unit. Gender was also not an issue on the Customary Spatial Unit Administration in four sub-case study areas. Furthermore, these systems had been able to maintain the functions of Spatial Unit, which in general could be classified into the non- and cultivated area. Last but not least, the Customary Spatial Unit Administration in the selected case study areas had been acting as the main means of preserving custom. As described in Chapter 5 and 6, the Customary Spatial Unit Administration had been considered an integrated part of the customary governance in the selected case study areas, which had been based on the indigenous knowledge.

Contribution of Customary Spatial Unit Administration to Sustainable Development

As described in Section 8.1 and 8.2, the main contribution of the Customary Spatial Unit Administration on the enhancement of the Spatial Unit Administration concept within the scope of the fulfilment of sustainable development is to establish the concept on designing the communalistic and indigenous knowledge-based Spatial Unit Administration System. Together with the specialised Customary Spatial Unit Administration feature and the application of the adverse possession principle, the communalistic and indigenous knowledge-based Spatial Unit Administration System had been able to promote good Spatial Unit governance in the selected case study areas.

Furthermore, as portrayed in Section 8.2, the communalistic and indigenous knowledge-based Spatial Unit Administration in the selected case study areas had been able to facilitate the establishment of the integrated Customary Spatial Unit Administration institutions. Even though the administration of Spatial Units and resources attached to it had customarily been done sectorally, the integrated policy and legal framework applied by the communalistic and indigenous knowledge-based Customary Spatial Unit Administration Systems in the selected case study areas had been acting as the umbrella to integrate the existing sectoral Spatial Unit Administration Systems. The establishment of the integrated Customary Spatial Unit Administration institutions in the selected case study areas had also been facilitated by the application of the hybrid Spatial Unit notion. The latter features had basically been facilitating the integrated territorial administration in the selected case study areas.

Last but not least, the communalistic setting of the Customary Spatial Unit Administration Systems in the selected case study areas had been able to provide a good basis for the establishment of the technical and financial framework of the mentioned systems. The technical framework of these systems had been developed based on the needs of the systems, as well as the prevailing custom. The Customary Spatial Unit Administration Systems in the selected case study areas had been able to provide their beneficiaries with the security of access to Spatial Unit by means of the existing customary governance tools such as the customary assemblies and special customary ceremonies. Even though the undeveloped technical framework of the mentioned systems had also been influenced by the lack of adequate human resources to adopt new technologies on Spatial Unit Administration, due to the communalistic type of these indigenous communities, the employment of the above mentioned tools had been able to ensure the distribution of information within and beyond these indigenous communities, even to future generations. The recent level of the technological absorption on the Customary Spatial Unit Administration had therefore been adequate to provide the security of access to Spatial Unit as all information concerning the Customary Spatial Unit Administration was publicly known. Furthermore, the above setting had also been acting as the solid basis for financing the Customary Spatial Unit Administration. Even though the financial contribution from the beneficiaries of the Customary Spatial Unit Administration had been quite low to fully finance the Customary Spatial Unit Administration Systems, it was the participation of the beneficiaries of the Customary Spatial Unit Administration that had been upholding the systems.

Enhancement of Formal Spatial Unit Administration for Sustainable Development

In Section 8.4, the description on the needs of action on the enhancement of Formal Spatial Unit Administration is given. The Formal Spatial Unit Administration System of Indonesia has basically a solid basis for facilitating the fulfilment of sustainable development objective in Indonesia. The system was developed based on the existing, filtered customary law with the objective of providing the greatest benefit for the people. Furthermore, the Formal Spatial Unit Administration has been done sectorally, which suits two of the entry points previously suggested for facilitating an integrated territorial administration and good Spatial Unit governance namely specialised Spatial Unit Administration and the administration of Spatial Units and resources attached to it. Additionally, the application of the horizontal separation principle is expected to be able to facilitate the application of hybrid Spatial Unit notion, while, by the implementation of the adverse possession principle, it is expected that the Formal Spatial Unit Administration would be able to provide the security of tenure not only for the registered tenures

but also the tenures that existed prior to the establishment of the Formal Spatial Unit Administration System of Indonesia.

Nonetheless, the lack of pro-people Spatial Unit Administration regulations for implementing the previously mentioned policy and the segregated sectoral Spatial Unit Administration has decreased the capability of the Formal Spatial Unit Administration System of Indonesia to lead to the achievement of the the goal of sustainable development. Within the course of the fulfilment of the above mentioned objective of the Formal Spatial Unit Administration, the Spatial Unit Administration regulations have only provided the people with a small opportunity to access the Spatial Unit and resources attached to it. Consequently, the communalistic and indigenous knowledge-based Spatial Unit Administration has not been able to be implemented in Indonesia. Moreover, the segregated sectoral Spatial Unit Administration has also restrained the capability of the Formal Spatial Unit Administration System of Indonesia to lead to the fulfilment of the the goal of sustainable development. Even though the sectoral Spatial Unit Administration has been considered as one of the strong points of the Formal Spatial Unit Administration in Indonesia, this Formal Spatial Unit Administration has lacked coordination among the sectoral Spatial Unit Administration Systems. The coordinations among sectors have only partially been done within the development of Land Use plan that includes the conversion of forestry and agricultural land. Additionally, the jurisdiction of each sectoral Spatial Unit Administration System has been not clearly defined, which has resulted in the overlapping of the jurisdiction of the sectoral systems

Finally, the existence of the Customary Spatial Unit Administration Systems in Indonesia has been acting as both the strong and weak point of, as well as posing the opportunity and threat for, the Formal Spatial Unit Administration System of Indonesia leading to the fulfilment of the goal of sustainable development. As mentioned earlier in this section, the employment of customary law on the establishment of Formal Spatial Unit Administration System in Indonesia acts as the basis for the implementation of communalistic and indigenous knowledge-based Spatial Unit Administration. Nevertheless, the inability of the Formal Spatial Unit Administration System of Indonesia to absorb and to empower the existing Customary Spatial Unit Administration Systems has hampered the implementation of the communalistic and indigenous knowledge-based Spatial Unit Administration concept. On the other hand, the existence of the Customary Spatial Unit Administration Systems in Indonesia and the application of decentralisation on the regional governance provide the opportunity for the establishment of communalistic and indigenous knowledge-based Spatial Unit Administration System. Additionally, having been considered as the extra-legal systems within the Formal Spatial Unit Administration in Indonesia, the Customary Spatial Unit Administration Systems is also considered as a threat to the Formal Spatial Unit Administration System as their existence has triggered the dualism of Spatial Unit Administration System. Consequently, the good basis of the Formal Spatial Unit Administration System of Indonesia to implement communalistic and indigenous knowledge-based Spatial Unit Administration might not be able to be empowered within the scope of the fulfilment of the goal of sustainable development through Formal Spatial Unit Administration.

Hypothesis Assessment

Based on the responses of the study questions given in Section 1.3, the hypothesis of this study is accepted. The Customary Spatial Unit Administration Systems in the selected case study areas provides the institutional entry points to enhance the role of the Formal Spatial Unit Administration Systems on the fulfilment of the objective of sus-

tainable development in Indonesia. The entry points mentioned are subsequently given in Section 9.2. These entry points were developed based on the response of the sixth study question previously given in the section on the enhancement of Formal Spatial Unit Administration towards sustainable development in this chapter.

9.2 Recommendation

The Formal Spatial Unit Administration System of Indonesia has not been able to lead to the achievement of the objective of sustainable development. In spite of its lack of fulfilment to the requirements to set up a good Spatial Unit Administration System described in Section 2.1, the formal Spatial Unit Administration System has not yet been acting as the basic infrastructure for providing the greatest benefit to the people of Indonesia within the scope of Spatial Unit governance as portrayed in Section 4.3. Moreover, Section 4.3 also provides evidence on the inability of the formal Spatial Unit Administration to maintain the environmental quality in Indonesia at its highest and the protecting the customary Spatial Unit institution.

In this section, the institutional entry points for enhancing the role of the Formal Spatial Unit Administration System of Indonesia to facilitate the operation of the Formal Spatial Unit Administration towards the achievement of the goal of sustainable development are highlighted. The entry points are the integrated sectoral Spatial Unit Administration, decentralisation of the Spatial Unit Administration in Indonesia and development of implementation concept of good Spatial Unit governance. See Figure 9.1 for the proposed entry points for enhancing the role the Formal Spatial Unit Administration System of Indonesia to facilitate the operation of the Formal Spatial Unit Administration towards the achievement of the goal of sustainable development.

Integrated Sectoral Spatial Unit Administration

Basically, the formal Spatial Unit Administration in Indonesia had been based on the classification of the resources attached to the Spatial Unit, as described in Section 4.1. This arrangement is principally in accordance with one of the entry points of the development of the integrated Spatial Unit Administration System that is stated in Section 8.2, which is the integrated administration of Spatial Units and its associated resources. Nevertheless, the sectoral Spatial Unit governance in Indonesia has in contrast led to the pluralism of Spatial Unit Administration System. This is particularly due to the inability of GoI to provide the integrated institutional framework of the Spatial Unit Administration. Even though the Agrarian Principles Act has been considered as the umbrella regulation on the Spatial Unit Administration in Indonesia, several sectoral Spatial Unit Administration did not take the Agrarian Principles Act into consideration during their composition. Consequently, the institutional tools provided by Agrarian Principles Act that were devised to facilitate an integrated Spatial Unit Administration in Indonesia had not been able to be fully utilised.

In this section, the entry points on the establishment of integrated sectoral Formal Spatial Unit Administration System of Indonesia based on the Customary Spatial Unit Administration in the four sub-case study areas are highlighted. In order to be able to integratively and sectorally administer Spatial Unit, the use of the horizontal separation principle is proposed for bonding the sectoral Spatial Unit Administration Systems within the scope of the nested Spatial Unit Administration System. The clear definition

of the boundary of jurisdiction of sectoral Spatial Unit Administration is also proposed in order to avoid jurisdictional overlapping.

Strengthening Horizontal Separation Principle

As identified in the section on horizontal separation in Section 4.1, the horizontal separation principle arose due to the employment of the concept of the relationship among the State, the people and the Spatial Unit, as well as the character of the Spatial Unit Tenure defined in Agrarian Principles Act. Nonetheless, the horizontal separation principle had only been applied in the administration of settlement areas and agricultural land.

In order to integratively administer the Spatial Unit and its associated resources in Indonesia, the role of horizontal separation principle could be enhanced. The enhancement of the horizontal separation principle could firstly be done by re-defining the secondary tenures on the sectors besides the administration of settlement area and agricultural land that are described in Section 4.1 as the legitimate secondary tenures in Indonesia, which are equal to the secondary tenures defined by Agrarian Principles Act. Secondly, it is also proposed to regulate the primary tenures that could be overlaid by the formerly mentioned secondary tenures.

The latter mentioned propositions basically arose from the Formal Spatial Unit Administration, as well as the entry points for developing an integrated Spatial Unit Administration System based on the Customary Spatial Unit Administration System that is described in Section 8.2. As portrayed in Section 4.1, the permits the administration of Spatial Units and its associated resources in the sectors besides settlement area and agricultural land acted as the secondary tenures in the Spatial Unit Administration System in question. Additionally, the permits under the Mining Area Administration System were required to be overlaid on the tenures defined by Agrarian Principles Act. Nonetheless, such permits acted as one of the barriers to the development of the integrated, sectoral Spatial Unit Administration System in Indonesia as they acted as the secondary tenures only within the associated sectoral Spatial Unit Administration System, while the clear linkage between the sectoral tenures and the tenures defined in Agrarian Principles Act have not been defined yet.

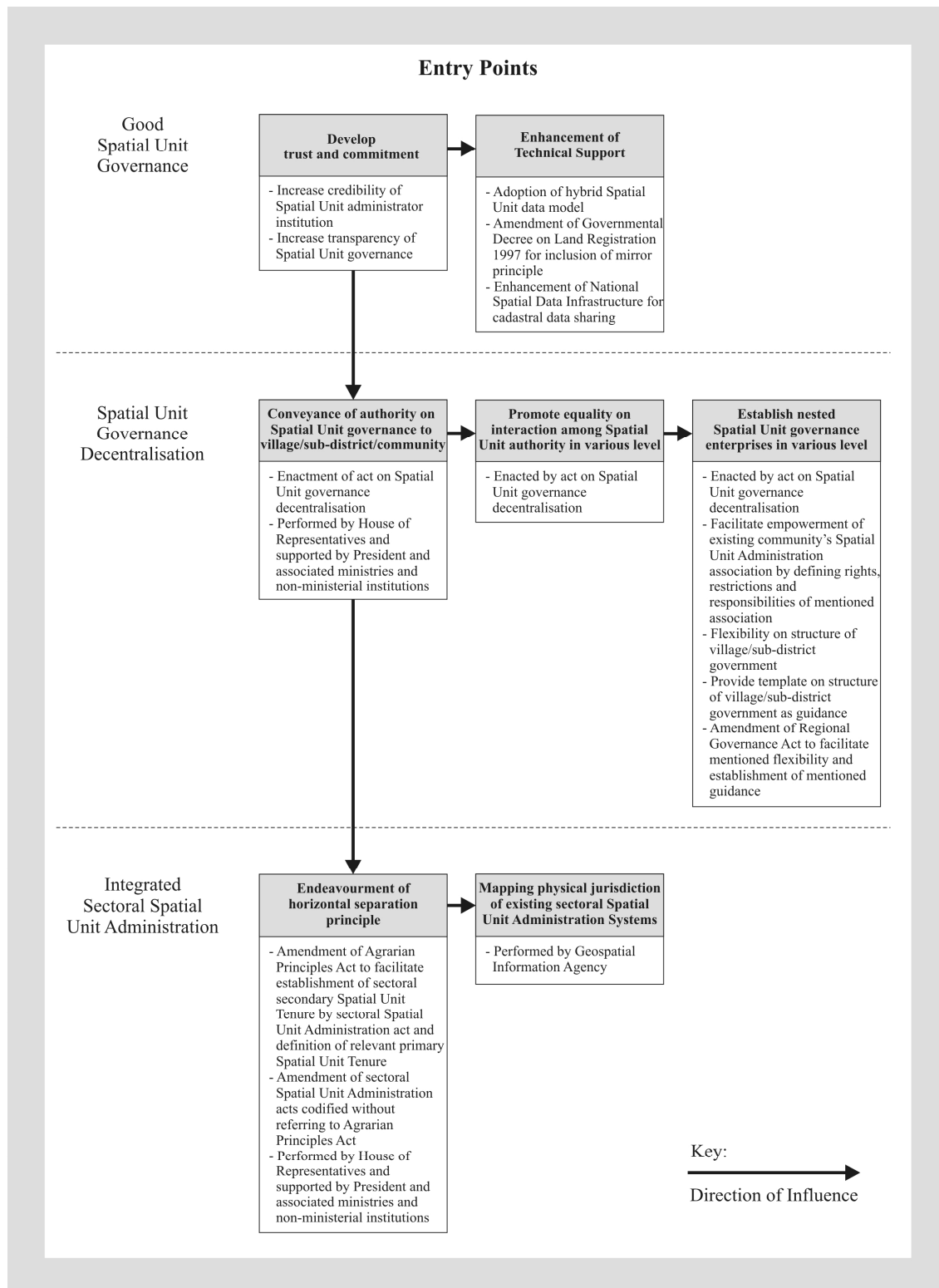


Figure 9.1 The proposed entry points for enhancing the role the Formal Spatial Unit Administration System of Indonesia for facilitating the operational of the Formal Spatial Unit Administration towards the achievement of the goal of sustainable development

Furthermore, in order to facilitate the interaction among the components of Spatial Unit Administration, particularly by means of the Spatial Unit Tenure System, it is proposed to clearly define the rights and restrictions, as well as the responsibilities of the holder of the Spatial Tenure regarding the use of Spatial Unit in question on the Spatial Unit

Tenure document. The defined rights, restrictions and responsibilities are expected to be in accordance with the Spatial Unit Use plan and highlight the intended use of the Spatial Unit in question. At the implementation level, either the definition of new set of tenures based on the possible combination of the rights, restrictions and responsibilities or the flexible definition of the rights, restrictions and responsibilities on the existing Spatial Unit Tenure document could be done. This has been reflected particularly from the Customary Spatial Unit Use and Tenure System in four sub-case study areas as portrayed in Section 6.1 and 6.2. This entry point is also proposed based on the entry point of the establishment of integrated administration of Spatial Units and the resources attached to it as depicted in Section 8.2.

In order to implement the proposed changes, the amendment of Spatial Unit Administration-related acts is expected to be made. First of all, the Agrarian Principles Act is expected to be amended in order to facilitate the establishment of sectoral secondary Spatial Unit Tenures, as well as the definition of primary tenures that could be overlaid by various secondary tenures. It is expected that the amendment of Agrarian Principles Act would provide the legal basis for the establishment of new sectoral Spatial Unit Administration System besides the sectoral Spatial Unit Administration Systems that are highlighted in Section 4.1. Second, the establishment of sectoral secondary Spatial Unit Tenures is expected to be carried out within the scope of the sectoral Spatial Unit Administration in order to maintain the function of Agrarian Principles Act as the umbrella regulation on Spatial Unit Administration in Indonesia. Each sectoral Spatial Unit Administration act that was codified without referring to the Agrarian Principles Act, in particular within the scope of the administration of mining area, is expected to firstly be amended in order to link the act in question to the Agrarian Principles Act. Having linked the sectoral Spatial Unit Administration act to the Agrarian Principles Act, the secondary sectoral Spatial Unit Tenure could further be defined in the sectoral Spatial Unit Administration act in question.

By considering its vast coverage and its enormous impact on people and various sectors, the amendment of the Spatial Unit Administration acts is expected to be done by the House of Representatives, *Dewan Perwakilan Rakyat* in Indonesian. It is expected that such an event would involve eight out of eleven commissions of the House of Representatives. During the above mentioned amendment process, it is expected that the House of Representatives would meet with the President and the associated ministers, as well as hold meetings to listen to public opinion. Additionally, several non-ministerial governmental institutions that are expected to get involved within the amendment process are the National Land Agency, the Geospatial Information Agency, the Financial and Development Supervisory Board and National Institute of Aeronautics and Space. See Table A.13 in Appendix A for the commissions of the House of Representatives, the ministries and the non-ministerial governmental institutions that are expected to get involved in the above mentioned amendment process, as well as their expected role. Alternatively, the President could also propose the bills, *Rancangan Undang-Undang* in Indonesian, during the amendment process, while the meetings on public hearing are still expected to be held by the House of Representatives.

Definition of Jurisdiction of Sectoral Spatial Unit Administration System

Besides the facts mentioned in Section 4.1, the ineffectivity of the sectoral Spatial Unit Administration in Indonesia has been in place also because of the indistinct jurisdiction of sectoral Spatial Unit Administration System. The vague physical boundary of each sectoral Spatial Unit Administration System has led to the overlapping of the physical jurisdiction of the existing sectoral Spatial Unit Administration Systems, such as por-

trayed in the section on the fundamental framework of Land Administration System of Indonesia in Section 4.1.

As depicted in the section on the fundamental framework of Land Administration System of Indonesia in Section 4.1, the functional boundary among the sectoral Spatial Unit Administration System has been clearly defined by each sectoral Spatial Unit Administration System act, while, on the other hand, the overlapped jurisdiction among the sectoral Spatial Unit Administration Systems has also been addressed in a flexible manner by the Forestry Act of 1999. However, as also described in the previously mentioned section, the physical boundary of sectoral Spatial Unit Administration Systems in Indonesia, as well as their overlapping, has not been clearly defined. The mapping of the physical boundary and the overlapping of the sectoral Spatial Unit Administration into a single map would be the only solution to resolve the previously mentioned issue.

The definition of the physical boundary of sectoral Spatial Unit Administration Systems of Indonesia is expected to be done by Geospatial Information Agency, *Badan Informasi Geospasial* in Indonesian, in cooperation with the associated ministries and non-ministerial governmental institution previously mentioned. According to Article 22.2 of Act No. 4 of 2011 regarding Geospatial Information, *Undang-Undang Informasi Geospasial* in Indonesian, the Geospatial Information Agency is responsible to develop and maintain basic geospatial information. By employing basic geospatial information developed and maintained by Geospatial Information Agency, it is expected that the map, which represents the physical boundaries of Spatial Unit Administration sectors, would be developed and maintained under a single platform.

Decentralisation of Spatial Unit Administration

As highlighted in the section on good Spatial Unit governance in Section 8.2, it is agreed that the Spatial Unit Administration should in future focus on the provision of the greatest benefit for the people within the scope of the fulfilment of the objective of sustainable development in Indonesia. Unfortunately, as described in Section 4.3, the citizens of Indonesia have not been able to fully benefit from the formal Spatial Unit Administration in Indonesia. This is particularly due to the inability of the formal Spatial Unit Administration System to specifically address the issues on the administration of local Spatial Unit and its associated resources. Furthermore, within the scope of the Customary Spatial Unit Administration in the four sub-case study areas, the formal Spatial Unit Administration in Indonesia has not been able to provide the legal infrastructure for the application of the communalistic, indigenous knowledge-based Spatial Unit Administration, which, in the section on the communalistic and indigenous knowledge-based Spatial Unit Administration in Section 8.1, is proposed to act as the basis of the specialised Spatial Unit Administration.

In this section, the proposal on the decentralisation of Spatial Unit Administration in Indonesia within the scope of the establishment of specialised communalistic, indigenous knowledge-based Spatial Unit Administration System in Indonesia is depicted. As described in Section 4.1, the authority on the Spatial Unit Administration has been conveyed to the regional government. Nonetheless, such an authority has only been conveyed to the municipal government, while the day-to-day interaction between people and the Spatial Unit and its associated resources has been done at the village or sub-district level, which is the lowest administrative level in Indonesia. Even though the Customary Spatial Unit Administration rules could still be applied within the jurisdiction of the village as described in the Elucidation of Article 7.a of Governmental Decree

No. 72 of 2005 regarding the Village, the formal Spatial Unit Administration Systems in Indonesia do not provide a basis to perform self-Spatial Unit Administration.

Moreover, even though the adverse possession principle has been regulated by the Agrarian Principles Act to facilitate the conversion of customary Spatial Unit Tenure to the formal one as described in the section on the position of custom in the performance of Spatial Unit Administration in Section 4.2, the ability of the Customary Spatial Unit System in the past to fulfil the objective of local sustainable development was driven by the policy and legal framework of the Customary Spatial Unit Administration System, regardless of the legal status of the Customary Spatial Unit within the higher hierarchical Spatial Unit Administration System. Additionally, as portrayed in the section on communalistic, indigenous knowledge-based Spatial Unit Administration in Section 8.2, the communalistic institutional setting has taken the important role in maintaining the sustainability of the Customary Spatial Unit Administration System, as well as the sustainability of the people and the surrounding environment. Therefore, the proposed entry point for decentralisation of Spatial Unit Administration in communalistic community jurisdiction is the provision of full authority for the community mentioned to perform self-Spatial Unit governance. The employment of such an entry point would not only promote the sustainability of the people and their surrounding environment but also eliminate the Spatial Unit Administration System pluralism in Indonesia through the inclusion of the customary and sectoral system within a sole nested Formal Spatial Unit Administration System.

To promote the conveyance of the authority to perform Spatial Unit governance to the communalistic community, firstly, the legal infrastructure is expected to be established. The authority to perform Spatial Unit governance is expected to be conveyed to the local and regional government through the enactment of a new act on Spatial Unit governance decentralisation, particularly considering that the main sectoral Spatial Unit Administration regulations exist in the form of Acts. The act on Spatial Unit governance decentralisation is expected to be able to convey such an authority up to village or sub-district level in order to provide the community with the same legal power with the public institutions that had been performing the Spatial Unit governance. The enactment of such an act is expected to be initiated by the House of Representatives and supported by the President, the associated ministers and the related non-ministerial governmental institutions, which are previously depicted in the section on strengthening horizontal separation principle in Section 9.2. This is due to the same reason stated in the latter mentioned section.

Secondly, the interaction between the Spatial Unit governance at village or sub-district level and at the higher hierarchical administrative level is also proposed to be regulated by the previously mentioned act. The purpose of the enactment of such an interaction is to allow the Spatial Unit governance to promote the achievement of the objective of not only the local sustainable development but also the national one. At the implementation level, the tools for developing multi-level Spatial Plan could still be employed. However, differing from the application of the existing tools, which is described in the section on Land and Marine Use System in Section 4.1, the development of municipal, provincial and national Spatial Plans should truly be based on the village or sub-district Spatial Plan proposal. Such a scheme would be a means for negotiating public interests at all administrative levels, particularly considering the existence of the inter-administrative jurisdiction interaction and the strategic area that is vital for the hierarchical administrative jurisdiction that is higher than village or sub-district. More importantly, by the inclusion of such a term in the act on Spatial Unit governance decentralisation, the government of village or sub-district would have the same legal

power with other public institutions that performed Spatial Unit Administration, which would provide the village or sub-district government with the same bargaining power with those public institutions.

Last but not least, the decentralisation of the Formal Spatial Unit Administration is expected to be followed by the establishment of the nested Formal Spatial Unit Administration institution. This is particularly considering that the Formal Spatial Unit Administration in Indonesia has been done sectorally, while the degree of coordination among sectors has been considerably low. Furthermore, each sector of Formal Spatial Unit Administration System in Indonesia comprises nested enterprises that are based at national, provincial and municipal level. Accordingly, it is firstly expected that the nested enterprise of the Formal Spatial Unit Administration System is established at all administrative levels, except within the customary territory that could be defined in accordance with the existing regulations. Secondly, this nested enterprise specifically established within the scope of the Formal Spatial Unit Administration in Indonesia is expected to include all stakeholders of Spatial Unit Administration System in Indonesia.

The implementation of the latter entry point is expected to be done legally and organisationally. The establishment of nested Formal Spatial Unit Administration enterprise is expected to be enacted by means of the proposed act on Spatial Unit governance decentralisation. Furthermore, it is also expected that the act mentioned would facilitate the establishment of coordinating agency on Spatial Unit Administration from national level to village or sub-district level.

Particularly on the establishment of a coordinating agency on Spatial Unit Administration at village level, the proposed act on Spatial Unit governance decentralisation is expected to facilitate the empowerment of the existing indigenous community and community's Spatial Unit Administration association by defining the rights, restrictions and responsibilities of these associations in the mentioned act. In the case of the absence of the community's Spatial Unit Administration association at village or sub-district level, the village or sub-district government could be assisted by the Spatial Unit Administration enterprise at the higher level within the development of the community's Spatial Unit Administration association. Alternatively, the structure of the village or sub-district government could be enhanced by adding new sections regarding sectoral Spatial Unit Administration. Nonetheless, the legal basis on the enhancement of the structure of the village or sub-district government is expected to not only rely on the proposed act on Spatial Unit governance decentralisation but also to be facilitated by the Regional Governance Act. It is expected that the Regional Governance Act would provide, on one hand, flexibility regarding the structure of the village or sub-district government and, on the other hand, guidance on the development of the structure of the village or sub-district government. Such guidance could be in the form of a template on village or sub-district government structure. Consequently, the Regional Governance Act is expected to be amended in order to facilitate such flexibility and the development of the guidance mentioned.

Development of Good Spatial Unit Governance Implementation Concept

Having developed the above mentioned entry points for enhancing the role of the Formal Spatial Unit Administration System of Indonesia to facilitate the operation of the Formal Spatial Unit Administration towards the achievement of the goal of sustainable development, the basic principle that commonly enables Spatial Unit Administration to be effectively done has however not yet been covered. Such a principle is good Spatial Unit governance. Based on the outcome of this study, the previously mentioned princi-

ple is expected to be developed based on the development of trust and commitment among the actors of the Formal Spatial Unit Administration System and enhancement of technical support of Spatial Unit Administration System.

Development of Trust and Commitment

As summarised in the section on the strength of the Customary Spatial Unit Administration Systems of Section 8.1, trust and commitment developed among actors of Customary Spatial Unit Administration Systems in the four sub-case study areas are considered to be enabling factors for Customary Spatial Unit Administration to be effectively done in the areas in question. As also stated in the same section above, the developed trust and commitment has increased the operationality of the Customary Spatial Unit Administration. Thus, such a scheme is expected to be replicated as well within the Formal Spatial Unit Administration.

Within the development of trust and commitment among actors of Customary Spatial Unit Administration Systems in Ambon Lease region, transparency and accountability on Customary Spatial Unit Administration exercised by customary authority, as well as participation of the beneficiaries of Customary Spatial Unit Administration Systems, have acted as the entry points on development of trust and commitment among actors of the latter mentioned systems as stated in the section on trust and commitment of Section 8.1. As mainly depicted in Section 6.1 and 6.2, transparency, accountability and participation are interrelated with each other. The decision-making process involves not only the authority but also the beneficiaries of Customary Spatial Unit Administration Systems. Such a scheme has mainly been able to direct the decision-making process to lead to the provision of the greatest benefit of Customary Spatial Unit Administration Systems to their beneficiaries. Transparency and accountability of authority on guiding the decision-making process that should be free from any vested interest of such an authority, as well as participation of the beneficiaries on promoting common interest in such a process, have mostly been implemented in Customary Spatial Unit Administration in the four sub-case study areas.

At implementation level, the interrelation between transparency and accountability of customary systems' authority and beneficiaries' participation is also identified. Transparency and accountability of customary systems' regime has mainly been assessed by the beneficiaries of the systems mentioned. In case that transparent and accountable Customary Spatial Unit Administration has been performed by the authority, the Customary Spatial Unit Administration System in the area in question is mostly operational. Moreover, transparent and accountable Customary Spatial Unit Administration has increased the level of obedience of the beneficiaries, which has been crucial in resolving both internal and external conflicts.

In order to encourage development of trust and commitment among actors of Formal Spatial Unit Administration System in Indonesia, implementation concept on good Spatial Unit governance is proposed. Such a concept is expected to be developed within the formulation of a Spatial Unit policy and implementation of such a policy. At both levels, the proposed coordinating agency from the previous section is expected to act as an instrument to facilitate development of the above mentioned concept.

At policy level, decision-making process with regard to Spatial Unit is expected to be transparent and accountable, as well as to facilitate participation of community at any administrative level. As previously mentioned in this section; transparency, accountability and participation scheme are conceptually interrelated with each other. Transparency and accountability of such a process is expected to be developed along with provision of opportunity for the community to get involved in the previously mentioned

process, preferably through community's representative, as well as to assess outcome of decision-making process. In order to facilitate the involvement of the community in such a process, the proposed coordinating agency is expected to comprise not only of stakeholders of Formal Spatial Unit Administration System but also representatives of the community, either in the House of Representatives or coordinating agency of administrative level in question. Moreover, in order to facilitate the assessment of outcome of decision-making process with regard to Spatial Unit, such an outcome is expected to undergo a public consultation period before its enactment.

At implementation level; transparency, accountability and participation scheme are also interrelated to each other. The right of community to monitor the policy implementation process is expected to be brought forward, which is commonly promoted by means of a transparent and accountable policy implementation process. It is therefore expected that representatives of the community could get involved in monitoring of implementation of policy with regard to Spatial Unit.

In order to facilitate the development of trust and commitment among the stakeholders of the Formal Spatial Unit Administration System, the amendment of the existing Spatial Unit Administration acts and the enhancement of Spatial Unit governance decentralisation act by including articles regulating transparency, accountability and participation in the mentioned acts are expected to be made. Transparency, accountability and participation in the mentioned acts are expected to be defined by the House of Representatives due to its legislative function.

Enhancement of Technical Support of Spatial Unit Administration System

As depicted in section on fundamental framework of Spatial Unit Administration System of Section 2.1, a sound Spatial Unit Administration System is expected to be upheld by fine institutional, technical and financial support. While the financial support of Formal Spatial Unit Administration is considerably adequate, the entry points for enhancement of institutional aspect of such an administration in Indonesia are already proposed in previous sections. Nonetheless, enhancement of technical framework of Formal Spatial Unit Administration System is not covered yet by the previous entry points, which is considerably important on development of a sound Spatial Unit Administration System.

The Customary Spatial Unit Administration in the four sub-case study areas provides evidence of the necessity to enhance the technical aspect of Spatial Unit Administration System as depicted in the section on hybrid Spatial Unit of Section 8.2, as well as section on land cadastral system of Section 6.1 and marine cadastral system of Section 6.2. The entry points on the enhancement of technical support of Formal Spatial Unit Administration System are the application of hybrid Spatial Unit notion for modelling any object administered by the above mentioned system and the development of Spatial Data Infrastructure to facilitate the sharing of cadastral data.

In the section on hybrid Spatial Unit of Section 8.2, it is described that the application of hybrid Spatial Unit notion at each of the four sub-case study areas allows Customary Land and Marine Administration to be done by a single institution. By replicating the application of such a notion, it is expected that Formal Land and Marine Administration could be done integratively.

Nonetheless, considering that the Formal Spatial Unit Cadastral System is only able to manage a 2D data model, enhancement of such a system in order to be able to store and manage a hybrid Spatial Unit data model is necessary. Such an enhancement is expected to not only integrate Formal Land and Marine Administration in particular and

Spatial Unit Administration in general but also enhance the capability of Formal Spatial Unit Cadastral System to pay attention to cadastral object's details. The ability of such a system to manage the details of cadastral object is expected to facilitate the enhancement of Formal Spatial Unit Registration System and to reflect the application of mirror principle in Spatial Unit registration in Indonesia.

Of the essential steps to push the adoption of hybrid Spatial Unit within Formal Spatial Unit Cadastral System is the inclusion of mirror principle as of principles in Spatial Unit registration. The inclusion of such a principle is expected to be achieved by means of the amendment of Governmental Decree regarding Land Registration 1997.

Moreover, in order to promote coordination among stakeholders of Formal Spatial Unit Administration System, the enhancement of National Spatial Data Infrastructure to facilitate the sharing of cadastral data is proposed in addition to the establishment of a nested Formal Spatial Unit Administration institution. As depicted in the section on the marine use system of Negeri Tulehu of Section 6.2, the location of four *labuan-labuan* in territory of Negeri Tulehu could no longer be identified. Re-identification of the position of unidentified *labuan-labuan* is consequently necessary in order to fully and sustainably manage and administer the territory of the mentioned *negeri*. Furthermore, as the lost of information probably happened during inter-generation transfer of knowledge regarding Customary Spatial Unit Administration in the four sub-case study areas, recording all spatial information of cadastral object, most expectedly to a GIS, is expected to resolve the previously mentioned problem. Nonetheless, as the nested Formal Spatial Unit Administration institution would comprise stakeholders from various sectors, while most stakeholders have already had their own GISs, the enhancement of National Spatial Data Infrastructure is expected to facilitate the sharing of information and cadastral data among the above mentioned stakeholders.

Further Study

As described in Section 8.3, the findings of this study are applicable beyond the selected case study areas. Nonetheless, due to the uniqueness of the indigenous communities in the selected case study areas, further studies are required in order to apply the findings of this study, particularly in the application of communalistic and indigenous knowledge-based Spatial Unit Administration in various types of community in different areas.

As described in section on the communalistic and indigenous knowledge-based Spatial Unit Administration of Section 8.2, the communalistic and indigenous knowledge-based Spatial Unit Administration has taken an important role in shaping good Spatial Unit governance in the selected case study areas. As also described in Chapter 5 and 6, the customary governance and Customary Spatial Unit Administration was done by means of the communalistic approach. Such an approach has been successfully implemented in the selected case study areas due to the communalistic type of the indigenous communities in those areas. Furthermore, such an approach has also been successfully applied in the selected case study areas due to the existence of indigenous knowledge, which has proved to be able to lead to the fulfilment of the goal of sustainable development.

Nevertheless, the communality level of communities beyond the selected case study areas may vary. Moreover, the existence of the indigenous knowledge and ability of the indigenous knowledge to lead to the achievement of the objective of sustainable development beyond the selected case study area may also differ. Consequently, it is necessary to conduct further studies in different settings of communities. It is expected that

these further studies would be able to cope with the local circumstances, as well as to promote the localised approaches within the scope of Spatial Unit Administration towards the fulfilment of the goal of local sustainable development. In the Indonesian context, these further studies would act as one of the efforts to codify the Customary and Community-based Spatial Unit Administration principles within the enhancement of the Formal Spatial Unit Administration System of Indonesia towards the achievement of the objective of sustainable development in Indonesia.

Furthermore, even though nowadays the level of pressure from formal or higher hierarchical government in most areas in Indonesia is more or less equal, several areas were experiencing more pressure compared to that of the four sub-case study areas. This is particularly due to the application of a centralised approach of governance between 1979 and 1999, while the location of the four sub-case study areas at the eastern part of Indonesia, a six-hour flight from Jakarta, had reduced pressure from formal or higher hierarchical government to Customary Spatial Unit Administration Systems during the previously mentioned period. Such a pressure had led to the deterioration of indigenous knowledge, as well as communality level of communities, in the formerly mentioned areas. Accordingly, further studies in areas that were experiencing a higher level of pressure from formal or higher hierarchical government between 1979 and 1999 compared to that of the four sub-case study areas are expected to be done. Besides providing possibilities to study different settings of communities and application of indigenous knowledge, such studies would also be valuable to identify the impact of various levels of pressure from formal or higher hierarchical government to Customary or Community-based Spatial Unit Administration System.

Last but not least, further studies on Customary or Community-based Spatial Unit Administration System in areas beyond the territory of Indonesia are recommended. As described in the section on Customary Spatial Unit Administration in Section 2.2, Customary Spatial Unit Administration Systems in Ghana, Pacific Islands Region and Northern Québec have also been contributing to the achievement of sustainable development and, on the other hand, experiencing external pressure particularly from formal or higher hierarchical government. The section mentioned also reveals that the communities in the above mentioned areas have been communally managing and administering the Spatial Unit. Nonetheless, economic, social and environmental circumstances in areas beyond Indonesia's territory might differ to that of the four sub-case study areas. Consequently, the level of communality of and pressures from formal or higher hierarchical government to communities in the previously mentioned areas might also differ from that of communities in the four sub-case study areas. Further research in areas beyond Indonesia's territory is valuable for the enrichment of the findings of this study.

Bibliography

- Abdulharis, Rizqi; Sarah, Kurdinanto; Hendriatiningsih, S.; Yamin, Muhammad and Hernandi, Andri (2008a). *Measuring the Necessity of Re-engineering of Indonesian Land Tenure System by Customary Land Tenure System: the Case of Province of West Sumatera, Indonesia*. In: *ProProceeding of XXXI FIG General Assembly and Working Week 2008, Stockholm, 14-19 June*
- Abdulharis, Rizqi; Sarah, Kurdinanto; Hendriatiningsih, S.; Hernandi, Andri and Zevenbergen, Jaap (2008). *The Customary Land Tenure toward the Sustainable City Development: the Case Study of Yogyakarta, Indonesia*. In: *Proceeding of FIG Commission 3 Annual Meeting and Workshop on Spatial Information Management towards Environmental Management of Mega Cities 2008, Valencia, 18-21 February*
- Abdulharis, Rizqi; Sarah, Kurdinanto; Hendriatiningsih, S. and Hernandi, Andri (2007). *The Initial Model of Integration of the Customary Land Tenure System into the Indonesian Land Tenure System: Case of West Java and Banten, Indonesia*. In: *Proceeding of XXX FIG General Assembly and Working Week 2007, Hong Kong SAR, 13-17 May*
- Abdulharis, Rizqi (2006). *Land Administration in Post Disaster Areas: Case Study of Banda Aceh, Indonesia*. M.Sc theses Delft University of Technology
- Abdurrahman (1994). *Kedudukan Hukum Adat dalam Perundang-Undangan Agraria Indonesia*. Jakarta: Akademika Pressindo
- Abidin, Hasanuddin, Z.; Subarya, Cecep; Muslim, Buldan; Adiyanto, Farid H.; Meilano, Irwan; Andreas, Heri and Gumilar, Irwan (2010). *The Application of GPS CORS in Indonesia: Status, Prospect and Limitation*. In: *Proceeding of XXIV FIG International Congress 2010, Sydney, 11-16 April*
- Adam, Felicia, P. (2010). *Tren Urbanisasi di Indonesia*. *Piramida* 6(1). Retrieved on 11.3.2012 from <http://ejournal.unud.ac.id/abstrak/3~urbanisasi.pdf>
- Amin, S. M. (1978). *Kodifikasi dan Unifikasi Hukum Nasional*. Jakarta: Sastra Hudaya
- Arko-Adjei, Anthony (2011). *Adapting Land Administration to the Institutional Framework of Customary Tenure: the Case of Peri-urban Ghana*. *Sustainable Urban Areas* volume 39. Amsterdam: IOS Press
- Arsyad, Idham (2011). *Sesat Pikiran RUU Pengadaan Tanah*. Retrieved on 13.3.2012 from <http://properti.kompas.com/read/2011/03/18/03012199/Sesat.Pikir.RUU.Pengadaan.Tanah>.
- Aswani, Shankar (2005). *Customary Sea Tenure in Oceania as a Case of Rights-Based Fishery Management: Does It Work?*. *Fish Biology and Fisheries* (15), 285-307
- Bada, Myonnie (2003). *Culture and Social Structure*. Retrieved on 30.6.2012 from <http://isanet.ccit.arizona.edu/portlandarchive/bada.html>
- Badan Kependudukan dan Keluarga Berencana Nasional Kabupaten Maluku Tengah (2003). *Hasil Pendataan Keluarga Berencana Menurut Jenis di Kecamatan Saparua*. In: *Badan Pusat Statistik Kabupaten Maluku Tengah (ed.). Saparua dalam Angka tahun 2003*. Masohi: Badan Pusat Statistik Kabupaten Maluku Tengah, 35
- Badan Kependudukan dan Keluarga Berencana Nasional Kota Ambon (2004). *Jumlah Keluarga Miskin di Kecamatan Nusaniwe Dirinci per Desa/Kelurahan*. In: *Badan Pusat Statistik Kota Ambon (ed.). Kecamatan Nusaniwe dalam Angka 2004*. Ambon: Badan Pusat Statistik Kota Ambon, 25
- Badan Kesejahteraan Sosial Kabupaten Maluku Tengah (2007). *Penyantunan dan Pengentasan Kemiskinan Dirinci per Kecamatan dan Desa*. In: *Badan Pusat Statistik Kabupaten Maluku Tengah (ed.). Saparua dalam Angka tahun 2003*. Masohi: Badan Pusat Statistik Kabupaten Maluku Tengah, 204-208
- Badan Perencanaan Pembangunan Provinsi Maluku (2007). *Rencana Tata Ruang Wilayah Provinsi Maluku 2007-2027, Buku Rencana*. Ambon: Badan Perencanaan Pembangunan Daerah
- Badan Perencanaan Pembangunan Kota Ambon (2008). *Laporan Akhir Rencana Penataan Kawasan Teluk dan Pesisir Kota Ambon, Buku I: Penelitian Pengembangan Ekonomi Kawasan Teluk dan Pesisir Kota Ambon (Rencana Zonasi Teluk dan Pesisir Kota Ambon)*. Ambon: Pemerintah Kota Ambon
- Badan Pusat Statistik (2010). *Profil Kemiskinan di Indonesia Maret 2010: Jumlah Penduduk Miskin Maret 2010 Mencapai 31,02 Juta*. *Berita Resmi Statistik No. 45/07/Th. XIII, 1 Juli 2010*

- Badan Pusat Statistik (2009). *Produksi Perikanan Laut yang Dijual di Tempat Pelelangan Ikan menurut Provinsi, 2000-2009 (Ton)*. Retrived on 11.10.2011 from http://www.bps.go.id/tab_sub/view.php?tabel=1 and daftar=1 and id_subyek=56 and notab=3
- Badan Pusat Statistik Kabupaten Maluku Tengah (2008). *Salahutu dalam Angka tahun 2008*. Masohi: Badan Pusat Statistik Kabupaten Maluku Tengah
- Badan Pusat Statistik Kabupaten Maluku Tengah (2007a). *Maluku Tengah dalam Angka Tahun 2007*. Masohi: Badan Pusat Statistik
- Badan Pusat Statistik Kabupaten Maluku Tengah (2007b). *Saparua dalam Angka tahun 2007*. Masohi: Badan Pusat Statistik Kabupaten Maluku Tengah
- Badan Pusat Statistik Kabupaten Maluku Tengah (2003). *Saparua dalam Angka Tahun 2003*. Masohi: Badan Pusat Statistik Kabupaten Maluku Tengah
- Badan Pusat Statistik Kota Ambon (2008). *Kecamatan Nusaniwe dalam Angka 2008*. Ambon: Badan Pusat Statistik Kota Ambon
- Badan Pusat Statistik Kota Ambon (2004). *Kecamatan Nusaniwe dalam Angka 2004*. Ambon: Badan Pusat Statistik Kota Ambon
- Ball, John (1982). *Indonesian Legal History 1602-1848*. Sydney: Oughtershaw
- Banfield, Edward C. (1959). *Ends and Means in Planning*. *International Social Science Journal* XI(3), 361-368
- Barker, Bryce (1998). *Use and Continuity in the Customary Marine Tenure of the Whitsunday Island*. In: Peterson, Nicholas and Rigsby, Bruce (eds.), *Customary Marine Tenure in Australia*. *Oceania Monograph* (48). Sydney: University of Sydney, 89-95
- Barry, Michael; Elema, Ina and van der Molen, Paul (2006). *Governing the North Sea in the Netherlands*. In: *International Federation of Surveyors (ed.) Administering Marine Spaces: International Issues*. Copenhagen: International Federation of Surveyors, 64-83
- Barry, Michael (1999). *Evaluating Cadastral Systems in Periods of Uncertainty*, PhD thesis. Durban: University of Natal
- Belvedere (1999). *Belvedere Memorandum: A Policy Document Examining the Relationship between Cultural History and Spatial Planning*. s' Gravenhage: Minister of Education, Culture and Science; Minister of Public Houseing, Spatial Planning and the Environment; and Minister of Agriculture, Nature Management and Fisheries
- Belfiore, Stefano; Barbieri, Julian; Bowen, Robert; Cicin-Sain, Biliana; Ehler, Charles; Mageau, Camille; McDougall, Dan and Siron, Robert (2006). *A Handbook for Measuring the Progress and Outcomes of Integrated Coastal Management*. *IOC Manuals and Guides No. 46, ICAM Dossier No. 2*. Paris: UNESCO
- Biehl, Janet (1995). *Theses on Social Ecology and Deep Ecology*. Retrieved on 3.11.2011 from http://theanarchistlibrary.org/HTML/Janet_Biehl_Theses_on_Social_Ecology_and_Deep_Ecology.html
- Bloemers, Tom; Kars, Henk; van der Valk, Arnold and Wijnen, Mies (2010). *The Cultural Landscape and Heritage Paradox: Protection and Development of the Dutch Archaeological-Historical Landscape and its European Dimension*. *Landscape and Heritage Studies Proceedings*. Amsterdam: Amsterdam University Press
- Bookchin, Murray (2007a). *Radical Politics in an Era of Advanced Capitalism*. In: Eigliad, Eirik and Bookchin, Murray (eds.). *Social Ecology and Communalism*. Edinburgh: AK Press, 53-67
- Bookchin, Murray (2007b). *The Communalist Project*. In: Eigliad, Eirik and Bookchin, Murray (eds.). *Social Ecology and Communalism*. Edinburgh: AK Press, 77-116
- Bookchin, Murray (2007c). *The Role of Social Ecology in Period of Reaction*. In: Eigliad, Eirik and Bookchin, Murray (eds.). *Social Ecology and Communalism*. Edinburgh: AK Press, 68-76
- Bookchin, Murray (2007d). *What is Social Ecology?* In: Eigliad, Eirik and Bookchin, Murray (eds.). *Social Ecology and Communalism*. Edinburgh: AK Press, 19-52
- Bookchin, Murray (1993). *What is Social Ecology?* Retrieved on 1.11.2011 from http://dwardmac.pitzer.edu/Anarchist_Archives/bookchin/sococol.html

- Boykin, Wade A., Jagers, Robert J., Ellison, Constance M. and Albury, Aretha (1997). *Communalism: Conceptualization and Measurement of an Afrocultural Social Orientation*. *Journal of Black Studies* 27 (3), 409-418
- Brajnik, Milan (2004). *Slovenian Experiences: An Example from a Transition Country*. In: *Proceeding of Symposium on Land Administration in Post Conflict Areas, Geneva, 29-30 April*
- Bryman, Alan (2012). *Social Research Methods, 4th Edition*. Oxford: Oxford University Press
- Burke, Lauretta; Selig, Elizabeth and Spalding, Mark (2002). *Reefs at Risk in Southeast Asia*. Washington D. C.: World Resources Institute
- Cahyat, Ade (2004). *Bagaimana Kemiskinan Diukur? Beberapa Model Penghitungan Kemiskinan di Indonesia*. *Governance Brief 2*. Bogor: Center for International Forestry Research
- Calcari, Meaghan (2004). *Indigenous Marine Tenure in a Common-Pool Framework: A Philippine Case Study*. *Master of Environmental Management Thesis*. Durham, North Carolina: Duke University
- CIAB (2006). *Case Studies in Sustainable Development in the Coal Industry*. Paris: International Energy Agency
- Clark, Jo; Darlington, John and Fairclough, Graham (2004). *Using Historic Landscape Characterisation*. London and Lancashire: English Heritage and Lancashire County Council
- Dale, Peter and McLaughlin, John (1999). *Land Administration*. Oxford: Oxford University Press
- Damanik, M. Riza (2011). *Analisis Putusan Mahkamah Konstitusi terhadap Pembatalan Ketentuan Hak Pengusahaan Perairan Pesisir (HP-3)*. Jakarta: Koalisi Rakyat untuk Keadilan Perikanan
- Dimas (2004). *BPN: 60 Juta Bidang Tanah Belum Bersertifikat*. Retrieved on 14.2.2012 from <http://www.tempo.co/read/news/2004/02/05/05539291/BPN-60-Juta-Bidang-Tanah-Belum-Bersertifikat>
- Dinas Kehutanan Provinsi Maluku (2008). *Rincian Kawasan Hutan Menurut Daerah Tingkat II di Provinsi Maluku*. In: *Badan Pusat Statistik Provinsi Maluku (ed.)*. *Maluku dalam Angka 2008*. Ambon: Badan Pusat Statistik Provinsi Maluku, 280-281
- Dinas Kehutanan Provinsi Maluku (2006). *Rincian Kawasan Hutan Menurut Daerah Tingkat II di Provinsi Maluku*. In: *Badan Pusat Statistik Provinsi Maluku (ed.)*. *Maluku dalam Angka 2005-2006*. Ambon: Badan Pusat Statistik Provinsi Maluku, 273-274
- Dinas Kelautan dan Perikanan Kabupaten Maluku Tengah (2008). *Jumlah Rumah Tangga Perikanan (RTP), Nelayan/Petani, Kelompok Usaha, Anggota Koperasi Menurut Jenis Kegiatan Perikanan di Kecamatan Salahutu*. In: *Badan Pusat Statistik Kabupaten Maluku Tengah (ed.)*. *Salahutu dalam Angka tahun 2008*. Masohi: Badan Pusat Statistik Kabupaten Maluku Tengah, 72
- Dinas Kelautan dan Perikanan Kabupaten Maluku Tengah (2007a). *Jumlah Rumah Tangga Perikanan (RTP), Nelayan/Petani Ikan, Kelompok Usaha, Anggota dan Koperasi Dirinci per Kecamatan di Kabupaten Maluku Tengah*. In: *Badan Pusat Statistik Kabupaten Maluku Tengah (ed.)*. *Maluku Tengah dalam Angka Tahun 2007*. Masohi: Badan Pusat Statistik Kabupaten Maluku Tengah, 262-264
- Dinas Kelautan dan Perikanan Kabupaten Maluku Tengah (2007b). *Pendapatan Perkapita Nelayan Kabupaten Maluku Tengah Dirinci per Kecamatan*. In: *Badan Pusat Statistik Kabupaten Maluku Tengah (ed.)*. *Maluku Tengah dalam Angka Tahun 2007*. Masohi: Badan Pusat Statistik Kabupaten Maluku Tengah, 286-287
- Dinas Kelautan dan Perikanan Kabupaten Maluku Tengah (2007c). *Produksi dan Nilai Produksi Hasil Perikanan Dirinci per Kecamatan di Kabupaten Maluku Tengah*. In: *Badan Pusat Statistik Kabupaten Maluku Tengah (ed.)*. *Maluku Tengah dalam Angka Tahun 2007*. Masohi: Badan Pusat Statistik Kabupaten Maluku Tengah, 272-273
- Dinas Kelautan dan Perikanan Kabupaten Maluku Tengah (2003a). *Jumlah Rumah Tangga Perikanan (RTP), Nelayan/Petani Ikan, Kelompok Usaha, Anggota dan Koperasi di Kecamatan Saparua*. In: *Badan Pusat Statistik Kabupaten Maluku Tengah (ed.)*. *Saparua dalam Angka tahun 2003*. Masohi: Badan Pusat Statistik Kabupaten Maluku Tengah, 48
- Dinas Kelautan dan Perikanan Kabupaten Maluku Tengah (2003b). *Pendapatan Perkapita Nelayan di Kecamatan Saparua*. In: *Badan Pusat Statistik Kabupaten Maluku Tengah (ed.)*. *Saparua dalam Angka tahun 2003*. Masohi: Badan Pusat Statistik Kabupaten Maluku Tengah, 51
- Dinas Kependudukan, Keluarga Berencana dan Catatan Sipil Kabupaten Maluku Tengah (2007). *Hasil Pendataan Keluarga Berencana di Kabupaten Maluku Tengah Dirinci per Kecamatan*. In: *Badan*

- Pusat Statistik Kabupaten Maluku Tengah (ed.). Maluku Tengah dalam Angka Tahun 2007. Masohi: Badan Pusat Statistik Kabupaten Maluku Tengah, 162-163*
- Dinas Pariwisata dan Kebudayaan Kota Ambon (2007). Nama Obyek Wisata di Kota Ambon Menurut Kecamatan. In: Badan Pusat Statistik Kota Ambon (ed.). Kota Ambon dalam Angka Tahun 2007. Ambon: Badan Pusat Statistik Kota Ambon, 246-248*
- Dinas Perikanan dan Kelautan Kota Ambon (2008). Perkembangan Produksi dan Nilai Produksi Perikanan Dirinci per Jenis Ikan di Kecamatan Nusaniwe. In: Badan Pusat Statistik Kota Ambon (ed.). Kecamatan Nusaniwe dalam Angka 2008. Ambon: Badan Pusat Statistik Kota Ambon, 60*
- Dinas Perikanan dan Kelautan Kota Ambon (2004). Perkembangan Produksi dan Nilai Produksi Perikanan Dirinci per Jenis Ikan di Kecamatan Nusaniwe. In: Badan Pusat Statistik Kota Ambon (ed.). Kecamatan Nusaniwe dalam Angka 2004. Ambon: Badan Pusat Statistik Kota Ambon, 62*
- Dinas Perkebunan Kabupaten Maluku Tengah (2007a). Jumlah Rumah Tangga Usaha, Luas Tanaman Seluruhnya dan Yang Belum Menghasilkan Tanaman Perkebunan Menurut Jenis di Kecamatan Saparua. In: Badan Pusat Statistik Kabupaten Maluku Tengah (ed.). Saparua dalam Angka tahun 2007. Masohi: Badan Pusat Statistik Kabupaten Maluku Tengah, 42*
- Dinas Perkebunan Kabupaten Maluku Tengah (2007b). Luas Areal dan Produksi Tanaman Perkebunan yang Menghasilkan Menurut Jenis di Kecamatan Saparua. In: Badan Pusat Statistik Kabupaten Maluku Tengah (ed.). Saparua dalam Angka tahun 2007. Masohi: Badan Pusat Statistik Kabupaten Maluku Tengah, 43*
- Dinas Perkebunan Kabupaten Maluku Tengah (2003a). Jumlah Rumah Tangga Usaha, Luas Tanaman Seluruhnya dan Yang Belum Menghasilkan Tanaman Perkebunan Menurut Jenis di Kecamatan Saparua. In: Badan Pusat Statistik Kabupaten Maluku Tengah (ed.). Saparua dalam Angka tahun 2003. Masohi: Badan Pusat Statistik Kabupaten Maluku Tengah, 42*
- Dinas Perkebunan Kabupaten Maluku Tengah (2003b). Luas Areal dan Produksi Tanaman Perkebunan yang Menghasilkan Menurut Jenis di Kecamatan Saparua. In: Badan Pusat Statistik Kabupaten Maluku Tengah (ed.). Saparua dalam Angka tahun 2003. Masohi: Badan Pusat Statistik Kabupaten Maluku Tengah, 43*
- Dinas Pertanian dan Peternakan Kota Ambon (2008a) Luas Areal, Luas Panen, Hasil Produksi dan Rata-Rata Produksi Buah-Buahan di Kecamatan Nusaniwe. In: Badan Pusat Statistik Kota Ambon (ed.). Kecamatan Nusaniwe dalam Angka 2008. Ambon: Badan Pusat Statistik Kota Ambon, 56*
- Dinas Pertanian dan Peternakan Kota Ambon (2008b) Luas Areal, Luas Panen, Hasil Produksi dan Rata-Rata Produksi Beberapa Komoditi Bumbu-Bumbuan di Kecamatan Nusaniwe. In: Badan Pusat Statistik Kota Ambon (ed.). Kecamatan Nusaniwe dalam Angka 2008. Ambon: Badan Pusat Statistik Kota Ambon, 58*
- Dinas Pertanian dan Peternakan Kota Ambon (2008c) Luas Areal, Luas Panen, Hasil Produksi dan Rata-Rata Produksi Jagung di Kecamatan Nusaniwe. In: Badan Pusat Statistik Kota Ambon (ed.). Kecamatan Nusaniwe dalam Angka 2008. Ambon: Badan Pusat Statistik Kota Ambon, 55*
- Dinas Pertanian dan Peternakan Kota Ambon (2008d) Luas Areal, Luas Panen, Hasil Produksi dan Rata-Rata Produksi Kacang Tanah di Kecamatan Nusaniwe. In: Badan Pusat Statistik Kota Ambon (ed.). Kecamatan Nusaniwe dalam Angka 2008. Ambon: Badan Pusat Statistik Kota Ambon, 54*
- Dinas Pertanian dan Peternakan Kota Ambon (2008e) Luas Areal, Luas Panen, Hasil Produksi dan Rata-Rata Produksi Ubi Jalar di Kecamatan Nusaniwe. In: Badan Pusat Statistik Kota Ambon (ed.). Kecamatan Nusaniwe dalam Angka 2008. Ambon: Badan Pusat Statistik Kota Ambon, 53*
- Dinas Pertanian dan Peternakan Kota Ambon (2008f) Luas Areal, Luas Panen, Hasil Produksi dan Rata-Rata Produksi Ubi Kayu di Kecamatan Nusaniwe. In: Badan Pusat Statistik Kota Ambon (ed.). Kecamatan Nusaniwe dalam Angka 2008. Ambon: Badan Pusat Statistik Kota Ambon, 52*
- Dinas Pertanian dan Peternakan Kota Ambon (2008g) Luas Areal, Luas Panen, Hasil Produksi dan Rata-Rata Produksi Komoditi Sayur-Sayuran di Kecamatan Nusaniwe. In: Badan Pusat Statistik Kota Ambon (ed.). Kecamatan Nusaniwe dalam Angka 2008. Ambon: Badan Pusat Statistik Kota Ambon, 57*
- Dinas Pertanian dan Peternakan Kota Ambon (2004a) Luas Areal, Luas Panen, Hasil Produksi dan Rata-Rata Beberapa Komoditi Bumbu-Bumbuan di Kecamatan Nusaniwe. In: Badan Pusat Statistik Kota Ambon (ed.). Kecamatan Nusaniwe dalam Angka 2004. Ambon: Badan Pusat Statistik Kota Ambon, 60*

- Dinas Pertanian dan Peternakan Kota Ambon (2004b) Luas Areal, Luas Panen, Hasil Produksi dan Rata-Rata Komoditi Sayur-Sayuran di Kecamatan Nusaniwe. In: Badan Pusat Statistik Kota Ambon (ed.). Kecamatan Nusaniwe dalam Angka 2004. Ambon: Badan Pusat Statistik Kota Ambon, 60*
- Dinas Pertanian Kabupaten Maluku Tengah (2008a). Jumlah Rumah Tangga Usaha Tanaman Perkebunan, Luas Tanaman Seluruhnya dan Tanaman Tidak/Belum Menghasilkan Menurut Jenis Tanaman di Kecamatan Salahutu. In: Badan Pusat Statistik Kabupaten Maluku Tengah (ed.). Salahutu dalam Angka tahun 2008. Masohi: Badan Pusat Statistik Kabupaten Maluku Tengah, 69*
- Dinas Pertanian Kabupaten Maluku Tengah (2008b). Jumlah Tanaman Perkebunan yang Menghasilkan dan Produksi Menurut Jenis di Kecamatan Salahutu. In: Badan Pusat Statistik Kabupaten Maluku Tengah (ed.). Salahutu dalam Angka tahun 2008. Masohi: Badan Pusat Statistik Kabupaten Maluku Tengah, 70*
- Dinas Pertanian Kabupaten Maluku Tengah (2007a). Jumlah Rumah Tangga Usaha Tanaman Perkebunan, Luas Tanaman Seluruhnya dan Tanaman yang Tidak/Belum Menghasilkan Menurut Jenis Tanaman Dirinci per Kecamatan. In: Badan Pusat Statistik Kabupaten Maluku Tengah (ed.). Maluku Tengah dalam Angka Tahun 2007. Masohi: Badan Pusat Statistik Kabupaten Maluku Tengah, 242-244*
- Dinas Pertanian Kabupaten Maluku Tengah (2007b). Jumlah Tanaman Perkebunan yang Menghasilkan dan Produksi Menurut Jenis Dirinci per Kecamatan . In: Badan Pusat Statistik Kabupaten Maluku Tengah (ed.). Maluku Tengah dalam Angka Tahun 2007. Masohi: Badan Pusat Statistik Kabupaten Maluku Tengah, 245-246*
- Dinas Pertanian Kabupaten Maluku Tengah (2007c). Luas Panen dan Produksi Tanaman Buah-Buahan Menurut Jenis Dirinci per Kecamatan . In: Badan Pusat Statistik Kabupaten Maluku Tengah (ed.). Maluku Tengah dalam Angka Tahun 2007. Masohi: Badan Pusat Statistik Kabupaten Maluku Tengah, 237-241*
- Dinas Pertanian Kabupaten Maluku Tengah (2007d). Luas Panen, Rata-Rata Produksi dan Produksi Tanaman Jagung Dirinci per Kecamatan . In: Badan Pusat Statistik Kabupaten Maluku Tengah (ed.). Maluku Tengah dalam Angka Tahun 2007. Masohi: Badan Pusat Statistik Kabupaten Maluku Tengah, 225*
- Dinas Pertanian Kabupaten Maluku Tengah (2007e). Luas Panen, Rata-Rata Produksi dan Produksi Tanaman Ubi Kayu Dirinci per Kecamatan . In: Badan Pusat Statistik Kabupaten Maluku Tengah (ed.). Maluku Tengah dalam Angka Tahun 2007. Masohi: Badan Pusat Statistik Kabupaten Maluku Tengah, 226*
- Dinas Pertanian Kabupaten Maluku Tengah (2007f). Luas Panen, Rata-Rata Produksi dan Produksi Tanaman Sayur-Sayuran Dirinci per Kecamatan . In: Badan Pusat Statistik Kabupaten Maluku Tengah (ed.). Maluku Tengah dalam Angka Tahun 2007. Masohi: Badan Pusat Statistik Kabupaten Maluku Tengah, 231-241*
- Dinas Pertanian Tanaman Pangan Kabupaten Maluku Tengah (2008a). Hasil Panen, Rata-Rata Produksi dan Produksi per Jenis Komoditi di Kecamatan Salahutu. In: Badan Pusat Statistik Kabupaten Maluku Tengah (ed.). Salahutu dalam Angka tahun 2008. Masohi: Badan Pusat Statistik Kabupaten Maluku Tengah, 65-66*
- Dinas Pertanian Tanaman Pangan Kabupaten Maluku Tengah (2008b). Luas Panen dan Produksi Tanaman Buah-Buahan Menurut Jenis di Kecamatan Salahutu. In: Badan Pusat Statistik Kabupaten Maluku Tengah (ed.). Salahutu dalam Angka tahun 2008. Masohi: Badan Pusat Statistik Kabupaten Maluku Tengah, 67-68*
- Dinas Pertanian Tanaman Pangan Kecamatan Saparua (2007a). Luas Panen, Produksi dan Rata-Rata Produksi Tanaman Bahan Makanan Menurut Jenis di Kecamatan Saparua. In: Badan Pusat Statistik Kabupaten Maluku Tengah (ed.). Saparua dalam Angka tahun 2007. Masohi: Badan Pusat Statistik Kabupaten Maluku Tengah, 39*
- Dinas Pertanian Tanaman Pangan Kecamatan Saparua (2007b). Luas Panen dan Produksi Tanaman Buah-Buahan Menurut Jenis di Kecamatan Saparua. In: Badan Pusat Statistik Kabupaten Maluku Tengah (ed.). Saparua dalam Angka tahun 2007. Masohi: Badan Pusat Statistik Kabupaten Maluku Tengah, 41*
- Dinas Pertanian Tanaman Pangan Kecamatan Saparua (2007c). Luas Panen dan Produksi Tanaman Sayur-Sayuran Menurut Jenis di Kecamatan Saparua. In: Badan Pusat Statistik Kabupaten Maluku Tengah (ed.). Saparua dalam Angka tahun 2007. Masohi: Badan Pusat Statistik Kabupaten Maluku Tengah, 40*

- Dinas Pertanian Tanaman Pangan Kecamatan Saparua (2003a). *Luas Panen dan Produksi Tanaman Bahan Makanan Menurut Jenis di Kecamatan Saparua*. In: *Badan Pusat Statistik Kabupaten Maluku Tengah (ed.). Saparua dalam Angka tahun 2003*. Masohi: Badan Pusat Statistik Kabupaten Maluku Tengah, 39
- Dinas Pertanian Tanaman Pangan Kecamatan Saparua (2003b). *Luas Panen dan Produksi Tanaman Buah-Buahan Menurut Jenis di Kecamatan Saparua*. In: *Badan Pusat Statistik Kabupaten Maluku Tengah (ed.). Saparua dalam Angka tahun 2003*. Masohi: Badan Pusat Statistik Kabupaten Maluku Tengah, 41
- Dinas Pertanian Tanaman Pangan Kecamatan Saparua (2003c). *Luas Panen, Produksi dan Rata-Rata Produksi Tanaman Sayur-Sayuran Menurut Jenis di Kecamatan Saparua*. In: *Badan Pusat Statistik Kabupaten Maluku Tengah (ed.). Saparua dalam Angka tahun 2003*. Masohi: Badan Pusat Statistik Kabupaten Maluku Tengah, 40
- Direktorat Jenderal Perkebunan (2000). *Tabel 3.2. Produksi Buah Pala Menurut Daerah Produksi di Indonesia*. Retrieved on 8.10.2011 from <http://www.bi.go.id/sipuk/id/text/silmuk/pala/lampiran/Tabel3.2.htm>
- Direktorat Pemerintahan Desa and Kelurahan (2007). *Naskah Akademik: Rancangan Undang-Undang tentang Desa*. Jakarta: Departemen Dalam Negeri
- Dunn, William (1998). *Pengantar Analisis Kebijakan Publik*. Yogyakarta: Gadjah Mada University Press
- Effendi, Ziwari (1987). *Hukum Adat Ambon-Lease*. Jakarta: Pradnya Paramita
- Ehler, Charles and Douvère, Fanny (2009). *Marine Spatial Planning: a Step-by-Step Approach toward Ecosystem-Based Management*. *Integrated Oceanographic Commission and Man and the Biosphere Programme. IOC Manual and Guides No. 53, ICAM Dossier No. 6*. Paris: United Nations Educational, Scientific and Organizational Organisation
- Eiglad, Eirik (2007). *An Introduction to Social Ecology and Communalism*. In: *Eiglad, Eirik and Bookchin, Murray (eds.). Social Ecology and Communalism*. Edinburgh: AK Press, 7-17
- Enemark, Stig (2005). *The Land Management Perspective: Building the Capacity*. In: *Proceeding of ITC Lustrum Conference, Enschede, 14-16 December*
- FAO (2011). *Agricultural Production*. Retrieved on 10.06.2011 from <http://faostat.fao.org/site/567/default.aspx>
- Fomété, Timothée (2001). *The Forestry Taxation System and the Involvement of Local Communities in Forest Management in Cameroon*. *Rural Development Network Forestry Network, Network Paper 25b(ii)*. London: Overseas Development Institute
- FWI/GFW (2001). *Keadaan Hutan Indonesia*. Bogor: Forest Watch Indonesia and Washington D. C.: Global Forest Watch
- Gályász, J., Antal, J., Wagner, K., Neuwirth, J. And Kállay, T. (2007). *Methodology on SWOT Analysis for Developing Rural Areas in Seven European Nature Park Territories*. In: *Proceeding of International Conference on Agricultural Economics, Rural Development and Informatics, Debrecen, 20-21 March*
- Gillis, Malcolm and Repetto, Robert (1988). *Conclusion: Findings and Policy Implications*. In: *Repetto, Robert and Gillis, Malcolm (eds.). Public Policies and the Misuse of Forest Resources. A World Resources Institute Book*. Cambridge: Cambridge University Press
- Grehenson, Gusti (2011). *Menhut: Produksi Hutan Tanaman Capai 30 Juta Kubik*. Retrieved on 14.3.2012 from <http://www.ugm.ac.id/index.php?page=rilis&artikel=4161>
- Hanna, Susan and Munasinghe, Mohan (1995). *An Introduction to Property Rights and the Environment*. In: *Hanna, Susan and Munasinghe, Mohan (eds.), Property Rights and the Environment: Social and Ecological Issues*. Washington, D. C.: Beijer International Institute of Ecological Economics and The World Bank
- Harsono, Budi (1975). *Hukum Agraria Indonesia Bagian I Jilid I*. Jakarta: Jembatan
- Harsono, Djati (2009). *Implementasi Kebijakan Sisten Informasi dan Manajemen Pertanahan Nasional (SIMTANAS) di Kantor Pertanahan Kabupaten Jepara*. *Master of Administration Thesis*. Semarang: Univeristas Diponegoro
- Hooker, Michael Barry (1978). *Adat Law in Modern Indonesia*. Kuala Lumpur: Oxford University Press

- Hooker, Michael Barry (1975). *Legal Pluralism: An Introduction to Colonial and Neo-Colonial Laws*. Oxford: Oxford University Press
- IUCN (2004). *Managing Marine Protected Areas: A Toolkit for the Western Indian Ocean*. Nairobi: IUCN Eastern African Regional Programme
- Jagers, Robert J. and Mock, Lynne O. (1995). *The Communalism Scale and Collectivistic-Individualistic Tendencies: Some Preliminary Findings*. *Journal of Black Psychology* 21 (2), 153-167
- Kartodiprodo, Sudiman (1971). *Hukum Nasional: Beberapa Catatan*. Bandung: Bina Cipta
- Kaye, Stuart (1995). *Australia's Maritime Boundaries*. Wollongong Papers on Maritime Policy No. 4. Wollongong: Centre for Maritime Policy, University of Wollongong
- Kementerian Kehutanan (2011). *Statistik Kehutanan Indonesia 2010*. Jakarta: Kementerian Kehutanan
- Kementerian Kehutanan (2006). *Statistik Kehutanan Indonesia 2006*. Retrieved on 2.3.2012 from http://www.dephut.go.id/informasi/statistik/2005/Statistik_2005.htm
- Kementerian Kelautan dan Perikanan (2011). *Kelautan dan Perikanan dalam Angka 2011*. Jakarta: Kementerian Kelautan dan Perikanan
- Khaerudin (2012). *Ketimpangan Penguasaan Lahan Menjadi Persoalan*. Retrieved on 13.3.2012 from <http://bisniskeuangan.kompas.com/read/2012/01/06/01513865/Ketimpangan.Penguasaan.Lahan.Menjadi.Persoalan>
- Kinch, Jeff (2003). *Marine Tenure and Rights to Resources in the Milne Bay Province, Papua New Guinea*. In: *Proceeding of 2nd Pacific Regional Conference on Customary Marine Tenure and Rights to Resources*, Brisbane, 7-9 September
- Kisya, Eliza (1993). *Sasi Aman Haru-Ukui: Tradisi Kelola Sumberdaya Alam Lestari di Haruku*. Jakarta: Yayasan Sejati
- Lestari, Sri (2010). *Memotret Kondisi Hutan Indonesia*. Retrieved on 2.3.2012 from http://www.bbc.co.uk/indonesia/berita_indonesia/2010/06/100609_hutanindo.shtml
- Lev, Daniel S (1985). *Colonial Law and the Genesis of the Indonesian State*, *Indonesia* (40), 57-74
- Lindblom, Charles E. (1959). *The Science of "Muddling Through"*. *Public Administration Review* 19(2), 79-88
- Lise, Wietze (2007). *An Econometric and Game Theoretic Model of Common Pool Resource Management: People's Participation in Forest Management in India*. New York: Nova Science Publishers, Inc.
- Malm, Thomas (2001). *The Tragedy of the Commoners: The Decline of the Customary Marine Tenure System of Tonga*. In: *Proceeding of Symposium and Workshop on Managing Common Resources: What is the Solution*, Lund, 10-11 September
- Manurung, Managam (2011). *Keterangan Saksi Ahli Sidang Pengujian Undang-Undang No. 4 tahun 1996 tentang Hak Tanggungan atas Tanah beserta Benda-Benda yang Berkaitan dengan Tanah*. In: *Mahkamah Konstitusi Republik Indonesia (ed.). Risalah Sidang Perkara No. 70/PUU-VIII/2010 perihal Pengujian Undang-Undang No. 4 tahun 1996 tentang Hak Tanggungan atas Tanah beserta Benda-Benda yang Berkaitan dengan Tanah*. Jakarta: Mahkamah Konstitusi Republik Indonesia, 4-11. Retrieved on 29.5.2012 from http://www.mahkamahkonstitusi.go.id/Risalah/risalah_sidang_Perkara%20No.%2070.PUU-VIII.2010,%20tgl.%2015%20Maret%202011.pdf
- Marten, Gerald G.; Matsuda, Yoshiaki; Bardach, John; Comitini, Salvatore and Hardjolukito, Sutanto (1982). *A Goal Analysis of Alternative Tuna Fishery Arrangements between Indonesia and Japan*. *Ocean Management* 8, 125-150
- Martini, Sely (2009). *Land Use Planning in Indonesia*. Presentation for Assignment of SPRING 093042 Land Use Planning Course, SPRING Master Programme 2009-2010, Faculty of Spatial Planning, Technische Universität Dortmund
- Marzali, Amri (2002). *Hukum Adat dan Komersialisasi Hutan*. In: *Suhendar, Endang; Sunito, Satyawan; Sitorus, M. T. Felix; Satria, Arif; Agusta, Ivanovich and Dharmawan, Arya Hadi (eds.). Menuju Keadilan Agraria: 70 Tahun Gunawan Wiradi*. Bandung: Yayasan Akatiga, 95-123
- Matindas, Rudolf W.; Puntodewo and Purnawan, Bebas (2004). *Development of National Spatial Data Infrastructure in Indonesia*. In: *Proceeding of FIG Working Week 2004, Athens, May 22-27*

- Melhado, Oscar (2007). *Optimal Taxation in the Forestry Sector in the Congo Basin: The Case of Gabon*. IMF Working Paper 07/253. Washington: International Monetary Fund
- Mudita, Imam (2011). *GNSS-RTK Network Technology Impact Assessment for Land Surveying at Badan Pertanahan Nasional Republik Indonesia (BPN RI): A Report*. In: *Proceeding of Asia Geospatial Forum 2011, Jakarta, 17-19 October*
- Muldjabar, Muhammad Satria (2010). *Implementasi Undang-Undang Pemerintahan Daerah serta Prinsip-Prinsip Good Governance oleh Kepala Daerah dalam Penyelenggaraan Hak Otonomi*. Retrieved on 6.11.2010 from <http://jurnal.unhalu.ac.id>
- Mulolwa, Augustine (2002). *Integrated Land Delivery: Towards Improving Land Administration in Zambia*. Ph.D theses Delft University of Technology. Delft: Delft University Press
- Mulrennan, Monica E. And Scott, Colin H. (2000). *Mare Nullius: Indigenous Rights in Saltwater Environments*. *Development and Change* 31, 681-708
- Mulyani, Anny and Las, Irsal (2008). *Potensi Sumber Daya Lahan dan Optimalisasi Pengembangan Komoditas Penghasil Bioenergi di Indonesia*. *Jurnal Litbang Pertanian* 27(1), 31-41
- Mustakim (2011). *Revisi UU Pengelolaan Wilayah Pesisir Rampung Awal 2012*. Retrieved on 10.1.2012 from <http://www.kbr68h.com/berita/daerah/7999-revisi-uu-pengelolaan-wilayah-pesisir-rampung-awal-2012>
- NOAA (2012). *Ocean*. Retrieved on 30.6.2012 from <http://www.noaa.gov/ocean.html>
- Neale, David (2006). *A Note on Marine Administration in Small Island Developing States (SIDS)*. In: FIG (ed.). *Administering Marine Spaces: International Issues*. Copenhagen: International Federation of Surveyors
- Ng'ang'a, Sam; Sutherland, Michael; Cockburn, Sara and Nichols, Sue (2004). *Toward a 3D Marine Cadastre in Support of Good Ocean Governance: A Review of the Technical Framework Requirements*. *Computers, Environment and Urban Systems* 28, 443-470
- Ng'ang'a, Sam; Nichols, Sue; Sutherland, Michael and Cockburn, Sara (2001). *Toward a Multidimensional Marine Cadastre in Support of Good Ocean Governance*. In: *Proceeding of International Conference on Spatial Information for Sustainable Development, Nairobi, 2-5 October*
- Novaczek, Irene; Harkes, Ingvild H. T.; Spacua, Juliaty and Tatuhey, Marcus D. D. (2001). *An Institutional Analysis of Sasi Laut in Maluku, Indonesia*. Bayan Lepas: ICLARM-The World Fish Center
- OECD (2010). *Tax Policy Reform and Economic Growth*. Retrieved on 28.12.2010 from <http://dx.doi.org/10.1787/9789264091085-en>
- Ostrom, Elinor (1990). *Governing the Commons: The Evolution of Institutions for Collective Action*. Cambridge: Cambridge University Press
- Park, Malcolm McKenzie (2003). *The Effect of Adverse Possession on Part of a Registered Title Land Parcel*. Ph.D theses University of Melbourne. Melbourne: University of Melbourne
- Parlindungan, Adi Putera (1980). *Komentar Atas Undang-Undang Pokok Agraria*. Bandung: Alumni
- Pattipawae, Justus (2010). *Sejarah Terbentuknja Negeri Paparu*. Retrieved on 16.10.2011 from <http://negeripaperu.blogspot.com/2010/05/sejarah-terbentuknja-negeri-paperu.html>
- Pemerintah Negeri Siri Sori Islam (1928). *Mengadakan Atoeran Sasi Goena Hadsil Hadsil Anak Negeri dalam Patoeanan Negeri Siri Sori Islam*. Siri Sori Islam: Pemerintah Negeri Siri Sori Islam
- Perdan, Slobodan (2004). *Introduction to Sustainable Development*. In: Azapagic, Adisa; Perdan, Slobodan and Clift, Roland (eds.). *Sustainable Development in Practice: Case Studies for Engineers and Scientists*. Chichester: John Wiley & Sons Ltd.
- Pink, Sarah (2006). *Photography*. In: Jupp, Victor (ed.). *The SAGE Dictionary of Social Research Methods*. London, Thousand Oaks and New Delhi: SAGE Publications, 222-224
- Poernomo, Soen'an Hadi (2009). *DKP Increase Competitiveness SECTOR Marine and Fisheries for the Welfare of the People*. Retrieved on 5.11.2010 from <http://www.dkp.go.id>
- Presiden Republik Indonesia (2010). *Buku III Lampiran Peraturan Presiden Republik Indonesia No. 5 tahun 2010 tentang Rencana Pembangunan Jangka Menengah Nasional Tahun 2010-2014: Pembangunan Berdimensi Kewilayahan: Memperkuat Sinergi Pusat-Daerah dan Antar Daerah*. Jakarta: Kementerian Perencanaan Pembangunan Nasional/Badan Perencanaan Pembangunan Nasional
- Program Studi Pendidikan Sejarah STKIP Setia Budhi Rangkasbitung (2011). *Tinjauan Historis Pemerintahan Desa*. Retrieved on 1.6.2012 from <http://pensa-sb.info/tinjauan-historis-pemerintahan-desa/>

- Raffles, Thomas Stanford (1817). *The History of Java Volume 1*. London: Black, Parbury and Allen
- Rajabifard, Abbas; Williamson, Ian and Binns, Andrew (2006). *Marine Administration Research Activities within Asia and the Pacific Region – Towards a Seamless Land-Sea Interface*. In: FIG. *Administering Marine Spaces: International Issues*. Copenhagen: International Federation of Surveyors
- Ruddle, Kenneth (1998). *The Context of Policy Design for Existing Community-based Fisheries Management Systems in the Pacific Islands*. *Ocean and Coastal Management* 40, 105-126
- Sadjarwo (1960). *Speech at Plenary Session of House of legislation on 12 September 1960*. In: Harsono, Boedi. *Hukum Agraria Indonesia Bagian I Jilid I*. Jakarta: Jembatan
- Saraswati, Sri Muningggar and Musthofid (2002). *Indonesia's Concession Areas Exceed the Country's Total Area*. Retrieved on 5.2.2012 from <http://www.minesandcommunities.org/article.php?a=1842>
- Sing, Ko Tjay (1971). *Beberapa Catatan Tentang dan Sekitar Undang-Undang Pokok Agraria*. In: Faculty of Law of University of Diponegoro (ed.). *Bunga Rampai Hukum*. Semarang: Faculty of Law of University of Diponegoro
- Sitorus, M. T. Felix (2002). *Lingkup Agraria*. In: Suhendar, Endang; Sunito, Satyawan; Sitorus, M. T. Felix; Satria, Arif; Agusta, Ivanovich and Dharmawan, Arya Hadi (eds.). *Menuju Keadilan Agraria: 70 Tahun Gunawan Wiradi*. Bandung: Yayasan Akatiga, 25-40
- Soefaat (2004). *Tata Ruang di Indonesia Pra 1950*. In: Hardjatno, N. Jenny M. T. and Harta, Febi (eds.). *Sejarah Penataan Ruang Indonesia 1948-2000: Beberapa Ungkapan*. Jakarta: Departemen Perumahan dan Prasarana Wilayah, II.2-1-II.2-4
- Soejitno, Irawan (1976). *Teknik Membuat Undang-Undang*. Jakarta: Pradnya Paramita
- Soekanto, Soerjono (1979). *Masalah Kedudukan dan Peranan Hukum Adat*. Jakarta: Akademika Pressindo
- Soemardjono, Maria S. W. (2002). *Undang-Undang Agraria, Menyelesaikan Pekerjaan Rumah*. In: Suhendar, Endang; Sunito, Satyawan; Sitorus, M. T. Felix; Satria, Arif; Agusta, Ivanovich and Dharmawan, Arya Hadi (eds.). *Menuju Keadilan Agraria: 70 Tahun Gunawan Wiradi*. Bandung: Yayasan Akatiga, 85-94
- Stuedler, Daniel; Rajabifard, Abbas and Williamson, Ian (2004). *Evaluation of Land Administration System*. *Land Use Policy* 21, 371-380
- Stoter, Jantine (2004). *3D Cadastre*. Ph.D theses Delft University of Technology. In: *Publication on Geodesy 57*. Delft: Netherlands Geodetic Commission
- Strain, Lisa; Rajabifard, Abbas and Williamson, Ian (2006). *Marine Administration and Spatial Data Infrastructure*. *Marine Policy* 30(4), 431-441
- Sudiyat, Imam (2008). *Sejarah Politik Hukum Adat*. In: Setiady, Tolib (ed.), *Intisari Hukum Adat Indonesia*. Bandung: Alfabeta
- Sutherland, Michael and Nichols, Sue (2006). *Issues in the Governance of Marine Spaces*. In: FIG (ed.). *Administering Marine Spaces: International Issues*. Copenhagen: International Federation of Surveyors
- TCLF (2009). *What are Cultural Landscapes?* Retrieved on 2.1.2010 from <http://tclf.org/landscapes/what-are-cultural-landscapes>
- Ting, Lisa and Williamson, Ian (1999). *Cadastral Trends: A Synthesis*. *The Australian Surveyor* 44(1), 46-54
- UN (2001). *Indicators of Sustainable Development: Guidelines and Methodologie*, 2nd edition. New York: United Nations
- UN (2007). *Indicators of Sustainable Development: Guidelines and Methodologies*, 3rd edition. New York: United Nations
- UN-ECE (1996). *Land Administration Guidelines*. Geneva: UN-ECE
- UN-ECE (1989). *Standard Classification of Land Use*. Document CES/637. Geneva: United Nation Economic Commission for Europe
- UN-Habitat (2003). *The Challenge of Slums: Global Report on Human Settlements 2003*. London and Sterling, VA: Earthscan
- Uphoff, Norman (1986). *Local Institutional Development: An Analytical Sourcebook with Cases*. West Hartford, CT: Kumarian Press

- UPTB Kependudukan, Keluarga Berencana dan Catatan Sipil Kecamatan Saparua (2008). Hasil Pendataan Keluarga Berencana Dirinci per Desa di Kecamatan Salahutu. In: Badan Pusat Statistik Kabupaten Maluku Tengah (ed.). *Salahutu dalam Angka tahun 2008*. Masohi: Badan Pusat Statistik Kabupaten Maluku Tengah, 53-54
- UPTB Kependudukan, Keluarga Berencana dan Catatan Sipil Kecamatan Saparua (2007). Hasil Pendataan Keluarga Berencana Menurut Jenis di Kecamatan Saparua. In: Badan Pusat Statistik Kabupaten Maluku Tengah (ed.). *Saparua dalam Angka tahun 2007*. Masohi: Badan Pusat Statistik Kabupaten Maluku Tengah, 35
- Verburg, Peter H.; Sopeboer, Welmoed; Veldkamp, A.; Limpiada, Ramil and Espaldon, Victoria (2002). *Modelling the Spatial Dynamics of Regional Land Use: The CLUE-S Model*. *Environmental Management* 30(3), 391-405
- Williamson, Ian; Enemark, Stig; Wallace, Jude and Rajabifard, Abbas (2010). *Land Administration for Sustainable Development*. Redlands, CA: ESRI Press
- Williamson, Ian (2000). *Best Practices for Land Administration Systems in Developing Countries*. In: *Proceeding of International Conference on Land Policy Reform, Jakarta, 25-27 April*
- WCED (1987). *Our Common Future*. Oxford: Oxford University Press
- Woolley, R. N. And Pidd, M. (1981). *Problem Structuring: A Literature Review*. *The Journal of the Operational Research Society* 32(3), 197-206
- WWF (2011). *Coral Triangle: Species*. Retrieved on 11.10.2011 from <http://www.worldwildlife.org/what/wherework/coraltriangle/species.html>
- Yin, Robert K. (2003). *Case Study Research: Design and Methods*, 3rd Edition. Thousand Oaks, London and New Delhi: SAGE Publications
- Ylitalo, Esa (1998). *Forest Taxation in Finland: A Review of the System Currently in Use*. Helsinki: Finnish Forest Research Institute
- Zevenbergen, Jaap (2002). *Systems of Land Registration: Aspects and Effects*. Ph.D theses Delft University of Technology. In: *Publication on Geodesy 51*. Delft: Netherlands Geodetic Commission
- Zevenbergen, Jaap; Augustinus, Clarissa and Antonio, Danilo (2012). *Designing a Land Records System for the Poor: Secure Land and Property Rights for All*. Nairobi: UN-Habitat
- Zuprianto (2011). *Di Inhil, Bakal Dibangun Gudang dan Balai Besar Kopra*. Retrieved on 8.10.2011 from <http://riaubisnis.com/index.php/daerah/indragiri-hilir/65-indragiri-hilir/3121-di-inhil-bakal-dibangun-gudang-a-balai-besar-kopra>

Appendix A Tables and Charts

A.1 Customary Spatial Unit Administration in Ambon Lease Region

Table A.1: Customary Spatial Unit Administration in Ambon Lease region

	Description	Tulehu	Latuhalat	Siri Sori Islam	Paperu
I. Fundamental Framework of Spatial Unit Administration					
1	Institutional Framework				
a.	Policy and Legal Framework				
-	Customary governance basis	<ul style="list-style-type: none"> - Spatial Unit Administration acts - Regional Governance Act of 2004 - Provincial Decree No. 14 of 2005 - Municipal Decree No. 3-17 of 2006 	<ul style="list-style-type: none"> - Spatial Unit Administration acts - Regional Governance Act of 2004 - Provincial Decree No. 14 of 2005 - Municipal Decree No. 3, 16 and 18 of 2008 	<ul style="list-style-type: none"> - Spatial Unit Administration acts - Regional Governance Act of 2004 - Provincial Decree No. 14 of 2005 - Municipal Decree No. 3-17 of 2006 	<ul style="list-style-type: none"> - Spatial Unit Administration acts - Regional Governance Act of 2004 - Provincial Decree No. 14 of 2005 - Municipal Decree No. 3-17 of 2006
-	Land customary rules	<ul style="list-style-type: none"> - Decree of Agrarian State Minister/Head of National Land Agency No. 5 of 1999 - <i>Sasi Kepala Air</i>, restriction for converting springs into any other type of Land Use - <i>Sasi Kelapa</i>, restriction for harvesting coconuts in specific period and for cutting down coconut trees 	<ul style="list-style-type: none"> - Decree of Agrarian State Minister/Head of National Land Agency No. 5 of 1999 - <i>Sasi Kelapa</i>, restriction for harvesting coconuts in specific period and for cutting down coconut trees (abolished) 	<ul style="list-style-type: none"> - Decree of Agrarian State Minister/Head of National Land Agency No. 5 of 1999 - <i>Sasi Kelapa</i>, restriction for harvesting coconuts in specific period and for cutting down coconut trees 	<ul style="list-style-type: none"> - Decree of Agrarian State Minister/Head of National Land Agency No. 5 of 1999 - <i>Sasi Kelapa</i>, restriction for harvesting coconuts in specific period and for cutting down coconut trees (partly effective)

Table A.1 (contd.): Customary Spatial Unit Administration in Ambon Lease region

	Description	Tulehu	Latuhhalat	Siri Sori Islam	Paperu
1	a. - Land customary rules (contd.)	<ul style="list-style-type: none"> - <i>Sasi Pala</i>, restriction for harvesting nutmegs in specific period and for cutting down nutmeg trees - <i>Sasi Bambu</i>, restriction for cutting down bamboo within specific period - <i>Sasi Atap</i>, restriction for cutting down young leaves of sago palm trees for building roofs 		<ul style="list-style-type: none"> - <i>Sasi Pala</i>, restriction for harvesting nutmegs in specific period and for cutting down nutmeg trees 	
				<ul style="list-style-type: none"> - <i>Sasi Atap</i>, restriction for cutting down young leaves of sago palm trees for building roofs - <i>Sasi Kenari</i>, restriction for harvesting walnut in specific period - <i>Sasi Durian</i>, restriction for harvesting <i>durian</i> in specific period - <i>Sasi Daun Ketupa</i> - <i>Sasi Kayu</i>, restriction for cutting down tree and its branches in <i>ewang negeri</i> - <i>Sasi Cengkeh</i>, restriction for cutting down clove tree that is not yet dry 	

Table A.1 (contd.): Customary Spatial Unit Administration in Ambon Lease region

	Description	Tulehu	Latuhalat	Siri Sori Islam	Paperu
1	a. - Land customary rules (contd.)				- <i>Sasi Hasil Hutan</i> , restriction for exploiting forest products such as nutmeg, palm sago and cocoa before they are ready to be harvested (partly effective)
	- Marine customary rules		- <i>Sasi Udang</i> , restriction for harvesting prawns except using arrows or <i>tango</i>		
		- <i>Sasi Teripang</i> , restriction for harvesting sea cucumbers in specific period	- <i>Sasi Teripang</i> , restriction for harvesting sea cucumbers in specific period	- <i>Sasi Teripang</i> , restriction for harvesting sea cucumbers in specific period	- <i>Sasi Teripang</i> , restriction for harvesting sea cucumbers in specific period (ineffective)
		- <i>Sasi Lola</i> , restriction for harvesting top shell (<i>Trochus niloticus</i>) in specific period	- <i>Sasi Lola</i> , restriction for harvesting top shell (<i>Trochus niloticus</i>) in specific period	- <i>Sasi Lola</i> , restriction for harvesting top shell (<i>Trochus niloticus</i>) in specific period	
		- <i>Sasi Ikan Hias</i> , restriction for fishing fancy fishes in specific period			

Table A.1 (contd.): Customary Spatial Unit Administration in Ambon Lease region

	Description	Tulehu	Latuhalat	Siri Sori Islam	Paperu
1	a. - Marine customary rules (contd.)	<p>- Unwritten rules such as restriction to exploit marine resources without permission from chief and Kewang except by using small boat, restriction to fish bombing</p> <p><i>Kewang</i>, operational but not respected by people</p>	<p>- Unwritten rules such as restriction to exploit marine resources without permission from chief and Kewang except by using small boat, restriction to fish bombing, restriction to mine beach sand</p> <p><i>Kewang</i>, operational: 2 land <i>kewang</i> for collecting customary contribution and 6 marine <i>kewang</i>, which is included within formal government structure</p> <p>Through family education and customary ceremony Courses offered by the customary government</p>	<p>- <i>Sasi Labuan</i>, restriction for fishing in <i>labuan</i> except when <i>kawang</i> fish has entered <i>labuan</i></p>	<p>- <i>Sasi Labuan</i>, restriction to use modern diving equipment, fishing rod, fine fishing net and motorboat on the exploration and exploitation of <i>labuan</i> (abolished between 1994-1995, re-introduced in 1996 but ineffective)</p> <p>Unwritten rules such as restriction to exploit marine resources without permission from chief and Kewang except by using small boat, restriction to fish bombing, restriction to dive using diving regulator</p> <p><i>Kewang</i>, partly effective</p>
	b. Organisational Framework	Through family education and customary ceremony Facilitated by the existence of University of Darussalaam Ambon		Through family education and customary ceremony	Through family education and customary ceremony
	c. Human Resources Development Framework				

Table A.1 (contd.): Customary Spatial Unit Administration in Ambon Lease region

	Description	Tulehu	Latuhalat	Siri Sori Islam	Paperu
2	Technical Framework				
a.	Data Acquisition				
-	Land Administration	<ul style="list-style-type: none"> - Customary territory: None since the wall map made by students of University of Darussalaam under Student Community Service finalised by relative positioning of objects on map - <i>Dati</i> land: None since the <i>Register Dati</i> finalised in 1814 - Customary territory: None - Individual right: None, only verbal agreement-based 	<ul style="list-style-type: none"> - Customary territory: None, wall map was made by referring to Indiesia's atlas - <i>Dati</i> land: None since the <i>Register Dati</i> finalised in 1814 - Customary territory: None, wall map was made by referring to Indiesia's atlas - Individual right: None, only verbal agreement-based 	<ul style="list-style-type: none"> - Customary territory: None - <i>Dati</i> land: None since the <i>Register Dati</i> finalised in 1823 and updated in 1923 - Customary territory: None - Individual right: None, only verbal agreement-based 	<ul style="list-style-type: none"> - Customary territory: None - <i>Dati</i> land: None since the <i>Register Dati</i> finalised in 1823 and updated in 1923 - Customary territory: None - Individual right: None, only verbal agreement-based
b.	Data Management				
-	Land Administration	<ul style="list-style-type: none"> - Customary territory: wall map 1:13,000 - <i>Dati</i> land: paper-based <i>Register Dati</i> (land book-like) - None 	<ul style="list-style-type: none"> - Customary territory: wall map scale 1:3,000 - <i>Dati</i> land: paper-based <i>Register Dati</i> (land book-like) - Customary territory: wall map scale 1:3,000 - Individual right: None 	<ul style="list-style-type: none"> - Customary territory: None - <i>Dati</i> land: paper-based <i>Register Dati</i> (land book-like) - None 	<ul style="list-style-type: none"> - Customary territory: None - <i>Dati</i> land: paper-based <i>Register Dati</i> (land book-like) - None
-	Marine Administration				

Table A.1 (contd.): Customary Spatial Unit Administration in Ambon Lease region

	Description	Tulehu	Latuhalat	Siri Sori Islam	Paperu
2	Data Presentation				
	- Land Administration	- Customary territory: wall map 1:13,000	- Customary territory: wall map scale 1:3,000	- Customary territory: None	- Customary territory: None
	- Marine Administration	- <i>Dati</i> land: Paper-based <i>Register Dati</i> (land book-like)	- <i>Dati</i> land: Paper-based <i>Register Dati</i> (land book-like)	- <i>Dati</i> land: Paper-based <i>Register Dati</i> (land book-like)	- <i>Dati</i> land: Paper-based <i>Register Dati</i> (land book-like)
3	Financial Framework	None	None	None	None
	- Marine Administration	Private donation from the Chief since 2006	Financed by the State's treasury and <i>negert's</i> Locally-Generated Revenue (LGR)	Self-financiation through the auction of <i>labuan</i> , contribution fees and fines	Self-financiation through the contribution fees and fines
II. Spatial Unit Administration					
1	Use				
	a. Characterisation	Done by the ancestor, maintained up to recently	Done by the ancestor and by the customary government on late 1990s	Done by the ancestor, maintained up to recently	Done by the ancestor, maintained up to recently
	b. Forecasting	Done by the ancestor, mainly focus on sustainable yield of natural resources	Done by the ancestor and by the customary government on late 1990s	Done by the ancestor, mainly focus on sustainable yield of natural resources	Done by the ancestor, mainly focus on sustainable yield of natural resources
	c. Planning				
	- Land Zoning	- Dense settlement	- Well-organised Settlement	- Dense Settlement	- Well-organised Settlement
		- Customary Governance Zone including Customary Government Office, Baileo and Mosque	- Customary Governance Zone including Customary Government Office, Baileo and Church	- Customary Governance Zone including Customary Government Office, Baileo and Mosque	- Customary Governance Zone including Customary Government Office, Baileo and Church
		- Customary Business District			

Table A.1 (contd.): Customary Spatial Unit Administration in Ambon Lease region

	Description	Tulehu	Latuhalat	Siri Sori Islam	Paperu
1	c. - Land Zoning (contd.)	<ul style="list-style-type: none"> - Formal Government Service Area - Tourism Area - Cultivated Area: <i>Parusa, Ewang</i> that is converted into any other types of Land Use - Non-Cultivated Area: <ul style="list-style-type: none"> a. <i>Wasi Amang</i>, preserved forest b. <i>Ewang</i>, primary forest or watershed buffer forest c. Customary Monumental Areas 	<ul style="list-style-type: none"> - Formal Government Service Area - Tourism Area - Cultivated Area: <i>Parusa, Ewang</i> that is converted into any other types of Land Use 	<ul style="list-style-type: none"> - Tourism Area - Cultivated Area: <i>Parusa, Ewang</i> that is converted into any other types of Land Use - Non-Cultivated Area: <ul style="list-style-type: none"> a. <i>Tamitar</i>, preserved forest b. <i>Ewang</i>, primary forest or self-reforested area c. <i>Negeri Lama</i>, location of the first settlement of ancestor of citizen of <i>negeri</i> 	<ul style="list-style-type: none"> - Tourism Area - Cultivated Area: <i>Parusa, Ewang</i> that is converted into any other types of Land Use - Non-Cultivated Area: <ul style="list-style-type: none"> a. <i>Tamitar</i>, preserved forest b. <i>Ewang</i>, primary forest or self-reforested area c. <i>Negeri Lama</i>, location of the first settlement of ancestor of citizen of <i>negeri</i>
	- Marine Zoning	<ul style="list-style-type: none"> - Non-Cultivated Area: <ul style="list-style-type: none"> a. <i>Labuan</i>, specific area for conserving specific natural or man-made resources, associated with specific customary rules for area's exploitation (2 out of 7 <i>labuan</i> could be identified) b. Shallow waters, associated with specific customary rules for area's exploitation 			

Table A.1 (contd.): Customary Spatial Unit Administration in Ambon Lease region

	Description	Tulehu	Latuhalat	Siri Sori Islam	Paperu
1	c. - Marine Zoning (contd.)	- Cultivated Area with specific restrictions	- Cultivated Area, shallow waters with specific restrictions	- Cultivated Area: <i>Labaan</i> , shallow waters associated with specific customary rules for area's exploitation, auctioned on specific period of year	- Cultivated Area, shallow waters with specific restrictions
1	d. Development	Done by customary government and/or individual	- Tourism Area Done by customary government and/or individual		
	e. Monitoring and Evaluation	Done by <i>Kewang</i>	Done by <i>Kewang</i>	Done by <i>Kewang</i>	Done by <i>Kewang</i> (ineffective)
2	Tenure				
a.	Registration				
-	Type of land tenure	- Communal Land Right - <i>Tanah Dati</i> - <i>Tanah Dati Pusaka</i> - Usufructuary Right for kiosks and <i>Parusa</i> on <i>Tanah Dati</i> , <i>Tanah Dati Pusaka</i> or Communal Land	- Communal Land Right - <i>Tanah Dati</i> - <i>Tanah Dati Pusaka</i> - Usufructuary Right for other types of land utilisation besides for settlement purposes over <i>dati</i> , <i>dati pusaka</i> or communal land	- Communal Land Right - <i>Tanah Dati</i> - <i>Tanah Dati Pusaka</i> - Usufructuary Right for Settlement and other type of land utilisations on <i>Tanah Dati</i> , <i>Tanah Dati Pusaka</i> or Communal Land	- Communal Land Right - <i>Tanah Dati</i> - <i>Tanah Dati Pusaka</i> - Usufructuary Right for Settlement and other type of land utilisations on <i>Tanah Dati</i> , <i>Tanah Dati Pusaka</i> or Communal Land
-	Type of marine tenure	- Individual Freehold for dwelling - Communal Marine Unit Right	- Individual Freehold for dwelling - Communal Marine Unit Right	- Communal Marine Unit Right	- Leasehold on Communal Land - Individual Freehold for dwelling - Communal Marine Unit Right

Table A.1 (contd.): Customary Spatial Unit Administration in Ambon Lease region

	Description	Tulehu	Latuhalat	Siri Sori Islam	Paperu
2 a.	- Type of marine tenure (contd.)	- Automatic Usufructuary Right for traditional activities - Usufructuary Right for other activities with permission from chief and Kewang	- Automatic Usufructuary Right for traditional activities - Usufructuary Right for other activities with permission from chief and Kewang, as well as from (formal) Agency of Marine Affairs and Fisheries of Municipality of City of Ambon	- Automatic Usufructuary Right for traditional activities	- Automatic Usufructuary Right for traditional activities
-	Land unit definition	2D land unit bounded by fence or low wall or benchmark for representing <i>negert's</i> boundary	2D land unit bounded by fence or low wall or benchmark for representing <i>negert's</i> boundary	2D land unit bounded by fence or low wall or benchmark for representing <i>negert's</i> boundary	2D land unit bounded by fence or low wall or benchmark for representing <i>negert's</i> boundary
-	Marine unit definition	- Customary marine territory: 3D marine unit bounded by the imaginary line representing the edge of the sea trench - Marine unit with usufructuary right: 3D marine unit bounded by the imaginary planes defined by its permitted use	- Customary marine territory: 3D marine unit bounded by the imaginary line representing the edge of the sea trench - Marine unit with usufructuary right: 3D marine unit bounded by the imaginary planes defined by its permitted use	- Customary marine territory: 3D marine unit bounded by the imaginary line representing the edge of the sea trench - Marine unit with usufructuary right: 3D marine unit bounded by the imaginary planes defined by its permitted use	- Customary marine territory: 3D marine unit bounded by the imaginary line representing the edge of the sea trench - Marine unit with usufructuary right: 3D marine unit bounded by the imaginary planes defined by its permitted use

Table A.1 (contd.): Customary Spatial Unit Administration in Ambon Lease region

	Description	Tulehu	Latuhalat	Siri Sori Islam	Paperu
2	a. - Land unit registration	Done by British in 1814	Done by British in 1814	Done by the Dutch in 1823, updated by Dutch in 1923	Done by the Dutch in 1823, updated by Dutch in 1923, next update is planned in 2023
	- Marine unit registration	Only effective for Usufructuary Right for other activities with permission from chief and Kewang in the form of verbal agreement	Only effective for Usufructuary Right for other activities with permission from chief and Kewang in the form of verbal agreement	Only effective for Usufructuary Right for activities of <i>labuan</i> and other activities with permission from chief and Kewang in the form of verbal agreement	Only effective for Usufructuary Right for other activities with permission from chief and Kewang in the form of verbal agreement
3	a. Valuation	Income Analysis, with the value of natural and/or man-made resources as the valuation benchmark	Income Analysis, with the value of natural and/or man-made resources as the valuation benchmark	Income Analysis, with the value of natural and/or man-made resources as the valuation benchmark	Income Analysis, with the value of natural and/or man-made resources as the valuation benchmark
	b. Taxation	None	None	None	None

Table A.1 (contd.): Customary Spatial Unit Administration in Ambon Lease region

	Description	Tulehu	Latuhalat	Siri Sori Islam	Paperu
III. Spatial Unit Cadastre					
1	Regulatory Cadastre	The rules were once written in 2006 but lost	The rules had not been written yet by the previous regimes, while the new regime has been proposing the enactment of negeri's decrees regarding the customary governance in general and the Customary Spatial Unit Administration in particular to the House of Representatives of City of Ambon	The rules are written in the form of <i>negeri's</i> decree dated from 1908 and maintained by the Chief	The written rules are kept in Siwalima Museum in City of Ambon
2	Legal Cadastre	Maintained as analogue <i>Register Dati</i>	Maintained as analogue <i>Register Dati</i>	Maintained as analogue <i>Register Dati</i>	Maintained as analogue <i>Register Dati</i>
3	Fiscal Cadastre	None	None	None	None
4	Multipurpose Cadastre	None	None	None	None

Sources: Author's construct

A.2 Ecological Impact

Land Use Change

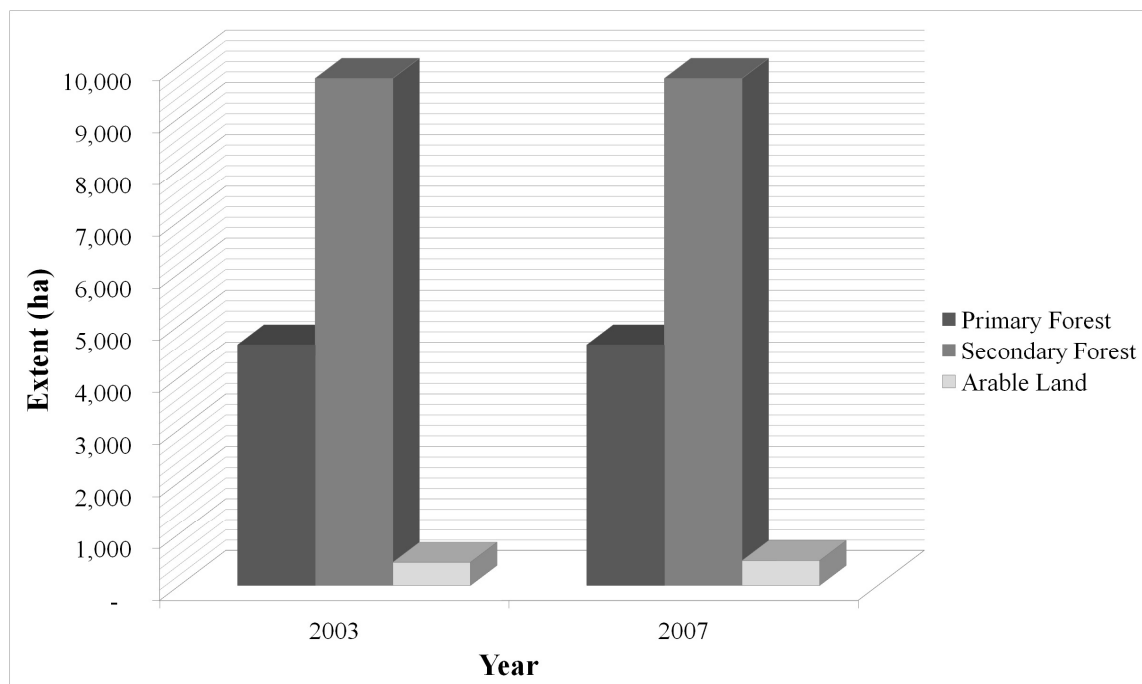


Figure A.1 Extent of primary forest, secondary forest and arable land in Saparua Island in 2003 and 2007 (Sources: Badan Pusat Statistik Kabupaten Maluku Tengah 2007: 38, Badan Pusat Statistik Kabupaten Maluku Tengah 2003: 38, Dinas Pertanian Tanaman Pangan Kabupaten Maluku Tengah 2003a: 39-40, Dinas Pertanian Tanaman Pangan Kabupaten Maluku Tengah 2007a: 39-40, Dinas Pertanian Tanaman Pangan Kabupaten Maluku Tengah 2003b: 41 and Dinas Pertanian Tanaman Pangan Kabupaten Maluku Tengah 2007b: 41)

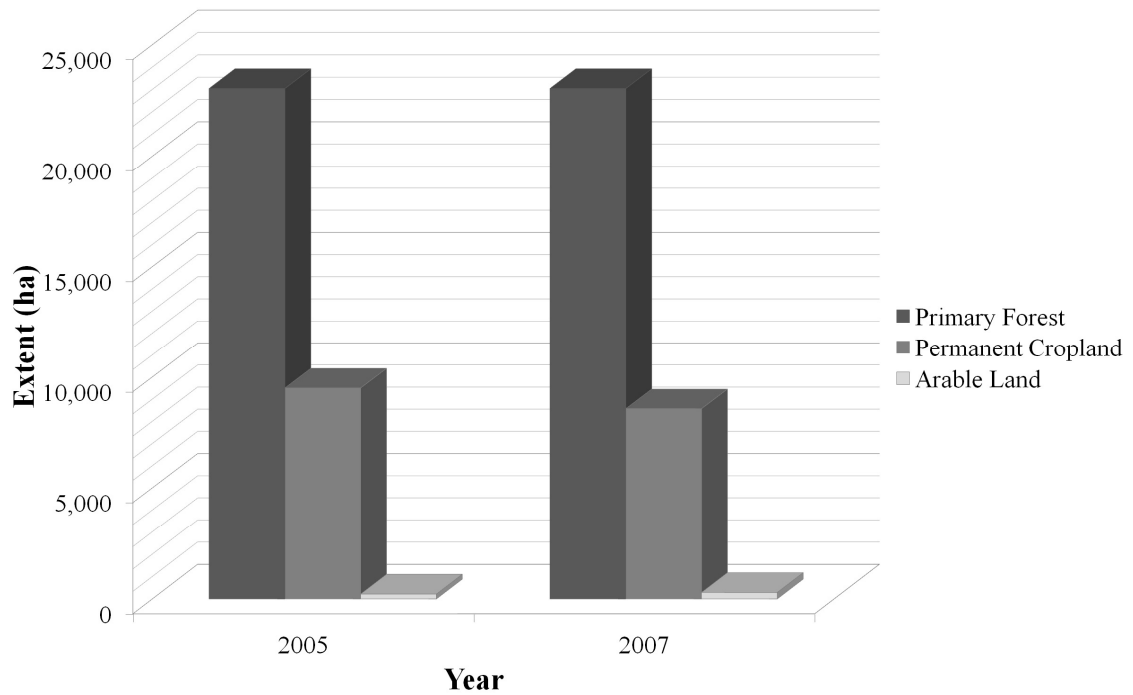


Figure A.2 Extent of primary forest, permanent cropland and arable land in Municipality of City of Ambon in 2005 and 2007 (Sources: Dinas Kehutanan Provinsi Maluku 2006: 273-274, Dinas Kehutanan Provinsi Maluku 2008: 280-281, Dinas Pertanian Provinsi Maluku 2006: 252-267, Dinas Pertanian Provinsi Maluku 2008: 260-276, Dinas Pertanian Provinsi Maluku 2006: 220-250 and Dinas Pertanian Provinsi Maluku 2008: 231-258)

A.3 Economic Impact

Table A.2: Permanent Cropland Production in Saparua Island in 2003 and 2007

	2003 ^a				2007 ^b			
	Area Har-vested (ha)	% from Indone-sia Har-vested Area ^{a, c}	Produc-tion (tonnes)	% from Indone-sia Total Produc-tion ^{a, c}	Area Har-vested (ha)	% from Indone-sia Har-vested Area ^{b, c}	Produc-tion (tonnes)	% from Indone-sia Total Produc-tion ^{b, c}
Coconut	907.00	0.03%	1,086	0.01%	1,025.00	0.04%	1,086.00	0.01%
Clove	2,394.00	0.57%	221	0.19%	2,129.00	0.70%	221.00	0.27%
Nutmeg	381.00	0.71%	129	0.58%	408.00	0.56%	129.00	1.38%
Cocoa	240.00	0.02%	722	0.13%	842.00	0.09%	722.00	0.01%
Total	3,922		2,158		4,404		2,158	

Source: ^aDinas Perkebunan Kabupaten Maluku Tengah 2003b: 43, ^b2007b: 43 and ^cFAO 2011



Figure A.3 Coverage of area harvested for and the production of permanent cropland in Saparua Island in 2003 and 2007 (Dinas Perkebunan Kabupaten Maluku Tengah 2003b: 43, 2007b: 43 and^cFAO 2011)

Table A.3: Permanent Cropland Production in Salahutu District in 2006 and 2007

	2006 ^a				2007 ^b			
	Area Harvested (ha)	% from Indonesia Harvested Area ^{a, c}	Production (tonnes)	% from Indonesia Total Production ^{a, c}	Area Harvested (ha)	% from Indonesia Harvested Area ^{b, c}	Production (tonnes)	% from Indonesia Total Production ^{b, c}
Coconut	330.25	0.01%	478.50	0.00%	330.25	0.01%	19.00	0.00%
Clove	721.00	0.24%	77.50	0.12%	721.00	0.24%	166.20	0.21%
Nutmeg	99.50	0.14%	12.75	0.15%	99.50	0.14%	26.50	0.28%
Cocoa	63.00	0.01%	2.50	0.00%	68.00	0.01%	2.50	0.00%
Total	1,213.75		571.25		1,219		214.20	

Source: ^aDinas Pertanian Kabupaten Maluku Tengah 2007b: 245-246, ^bDinas Pertanian Kabupaten Maluku Tengah 2008b: 70 and ^cFAO 2011

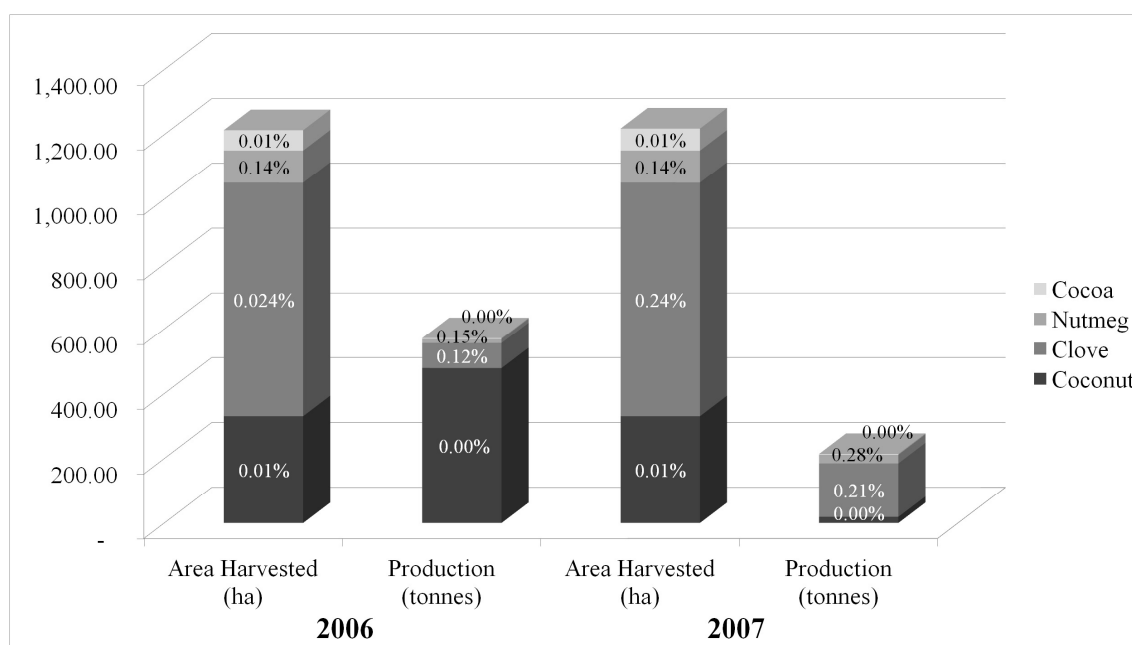


Figure A.4 Coverage of area harvested for and the production of permanent cropland in Salahutu District in 2006 and 2007 (Dinas Pertanian Kabupaten Maluku Tengah 2007b: 245-246, Dinas Pertanian Kabupaten Maluku Tengah 2008b: 70 and FAO 2011)

Table A.4: Vegetable Plantation Production in Saparua Island in 2003 and 2007

	2003				2007			
	Area Harvested (ha)	% from Indonesia Harvested Area	Production (tonnes)	% from Indonesia Total Production	Area Harvested (ha)	% from Indonesia Harvested Area	Production (tonnes)	% from Indonesia Total Production
Corn	62.00	0.00%	12.40	0.00%	69.00	0.00%	18.20	0.00%
Cassava	200.00	0.02%	140.00	0.00%	110.00	0.01%	318.00	0.00%
Sweet Potato	48.00	0.03%	240.00	0.01%	11.00	0.01%	33.00	0.00%
Groundnut	58.00	0.01%	46.40	0.00%	59.00	0.01%	46.20	0.00%
Bean	43.00	0.03%	25.80	0.00%	45.00	0.03%	32.50	0.00%
Spinach	2.00	0.00%	1.75	0.00%	23.00	0.05%	71.00	0.05%
Cabbage	2.00	0.00%	0.40	0.00%	12.00	0.02%	33.00	0.00%
Chilli	0.00	0.00%	0.00	0.00%	16.00	0.01%	37.00	0.00%
Tomato	0.00	0.00%	0.00	0.00%	16.00	0.03%	43.00	0.01%
Cucumber	3.00	0.01%	1.00	0.00%	23.00	0.04%	64.00	0.01%
Eggplant	3.00	0.01%	0.30	0.00%	27.00	0.06%	35.00	0.01%
Total	420		470.55		436		790.90	

Source: Dinas Pertanian Tanaman Pangan Kabupaten Maluku Tengah 2003a: 39, 2003c: 40, 2007a: 39, 2007c: 40 and FAO 2011

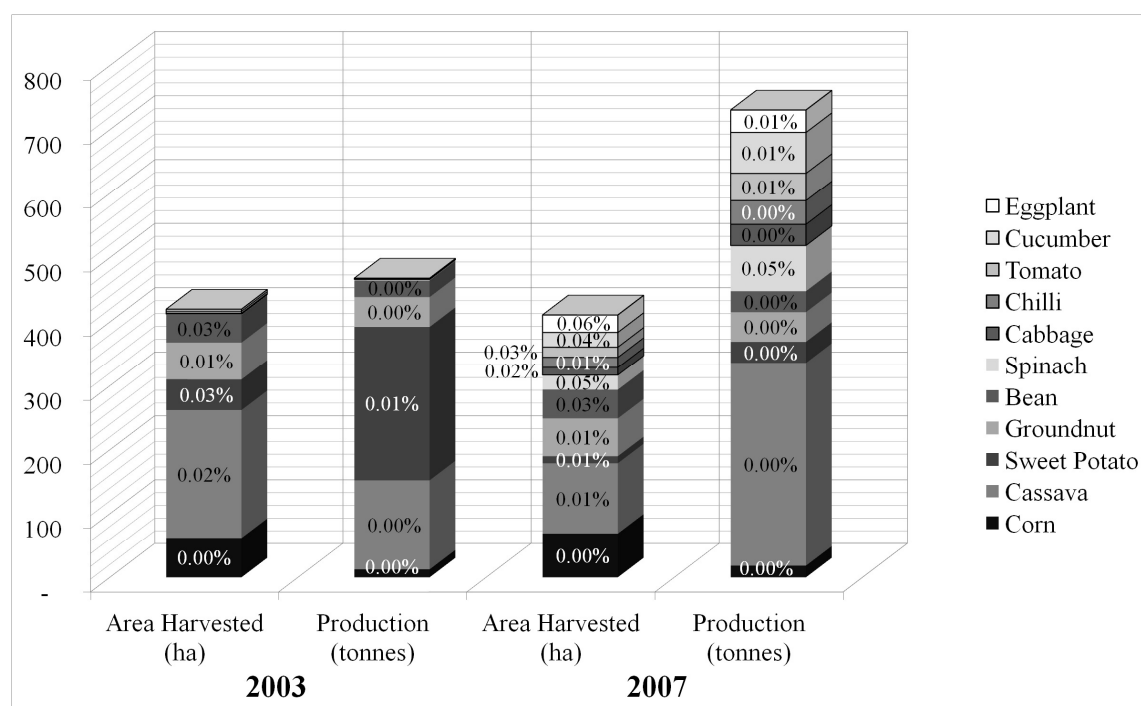


Figure A.5 Coverage of area harvested for and the production of vegetable plantation in Saparua Island in 2003 and 2007 (Dinas Pertanian Tanaman Pangan Kabupaten Maluku Tengah 2003a: 39, 2003c: 40, 2007a: 39, 2007c: 40 and FAO 2011)

Table A.5: Fruit Plantation Production in Saparua Island in 2003 and 2007

	2003 ^a		2007 ^b	
	Production (tonnes)	% from Indonesia Total Production ^{a, c}	Production (tonnes)	% from Indonesia Total Production ^{a, c}
Banana	23.60	0.00%	15.50	0.00%
Mango, Mangosteen, Guava	87.70	0.01%	41.90	0.01%
Orange	42.60	0.00%	3.50	0.00%
Papaya	121.70	0.00%	5.20	0.00%
Pineapple	42.00	0.00%	1.90	0.00%
Total	317.60		68.00	

Source: ^aDinas Pertanian Tanaman Pangan Kabupaten Maluku Tengah 2003b: 41, ^b2007: 41 and ^cFAO 2011

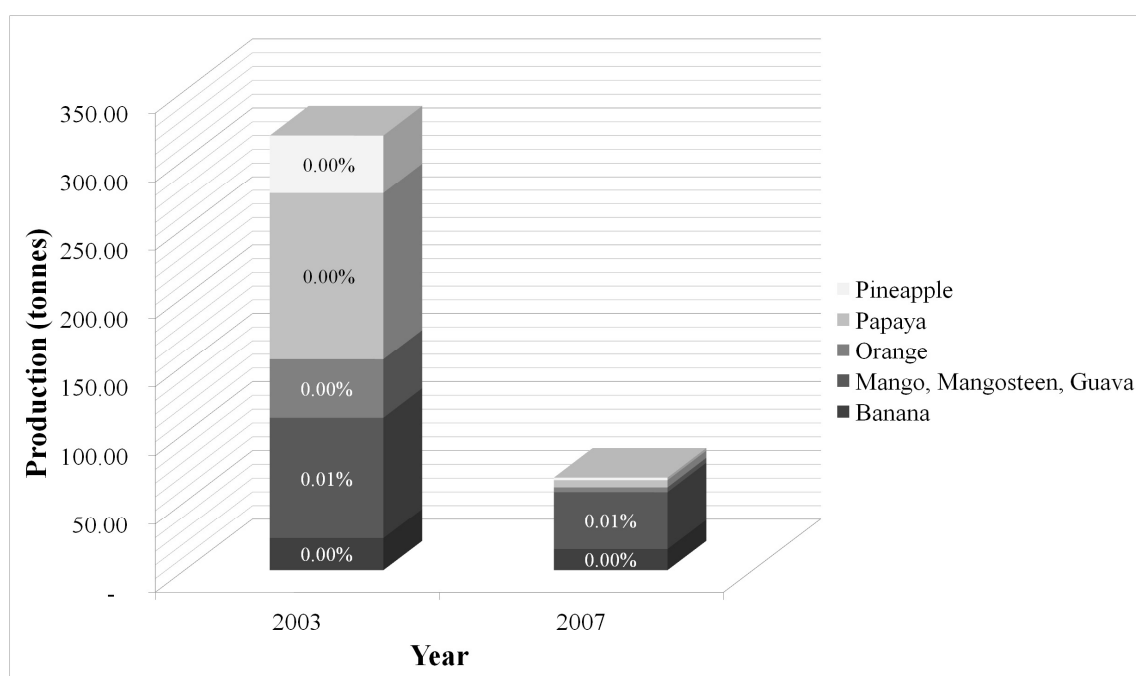


Figure A.6 Production of fruit plantation in Saparua Island in 2003 and 2007 (Dinas Pertanian Tanaman Pangan Kabupaten Maluku Tengah 2003b: 41, 2007: 41 and FAO 2011)

Table A.6: Vegetable Plantation Production in Salahutu District in 2006 and 2007

	2006 ^a				2007 ^b			
	Area Harvested (ha)	% from Indonesia Harvested Area ^{a, c}	Production (tonnes)	% from Indonesia Total Production ^{a, c}	Area Harvested (ha)	% from Indonesia Harvested Area ^{b, c}	Production (tonnes)	% from Indonesia Total Production ^{b, c}
Corn	43.00	0.05%	344.00	0.12%	5.00	0.00%	43.20	0.00%
Cassava	48.00	0.00%	6,720.00	0.03%	96.00	0.01%	1,228.80	0.01%
Sweet Potato	13.00	0.01%	338.00	0.02%	28.00	0.02%	67.20	0.00%
Groundnut	27.00	0.00%	108.00	0.01%	28.00	0.00%	8.40	0.00%
Spinach	14.30	0.03%	3.30	0.00%	12.00	0.03%	2.16	0.00%
Chilli	13.30	0.01%	44.00	0.00%	13.30	0.01%	44.00	0.00%
Tomato	14.30	0.03%	234.00	0.04%	15.00	0.03%	243.00	0.04%
Cucumber	14.30	0.02%	305.00	0.05%	23.50	0.04%	108.10	0.02%
Eggplant	12.10	0.02%	431.00	0.12%	32.40	0.07%	265.68	0.07%
Total	199.30		8,527.30		253.20		2,010.54	

Source: ^aDinas Pertanian Kabupaten Maluku Tengah 2007f: 231-236, ^bDinas Pertanian Tanaman Pangan Kabupaten Maluku Tengah 2008a: 65-66 and ^cFAO 2011

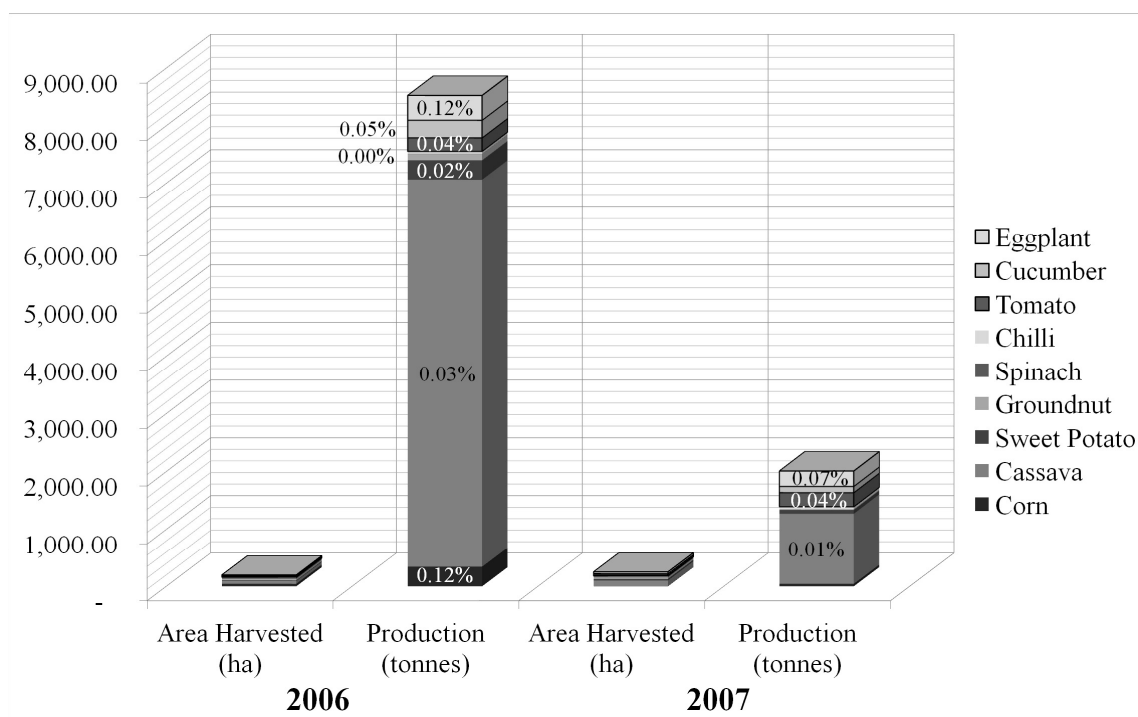


Figure A.7 Coverage of area harvested for and the production of vegetable plantation in Salahutu District in 2006 and 2007 (Dinas Pertanian Kabupaten Maluku Tengah 2007f: 231-236, Dinas Pertanian Tanaman Pangan Kabupaten Maluku Tengah 2008a: 65-66 and FAO 2011)

Table A.7: Fruit Plantation Production in Salahutu District in 2006 and 2007

	2006 ^a		2007 ^b	
	Production (tonnes)	% from Indonesia Total Production ^{a, c}	Production (tonnes)	% from Indonesia Total Production ^{a, c}
Banana	0.60	0.00%	17.20	0.00%
Mango, Mangosteen, Guava	191.60	0.01%	138.90	0.01%
Orange	4.20	0.00%	2.80	0.00%
Avocado	5.90	0.00%	6.00	0.00%
Pineapple	11.00	0.00%	4.60	0.00%
Total	213.30		169.50	

Source: ^aDinas Pertanian Kabupaten Maluku Tengah 2007c: 237-241, ^bDinas Pertanian Tanaman Pangan Kabupaten Maluku Tengah 2008b: 67-68 and ^cFAO 2011

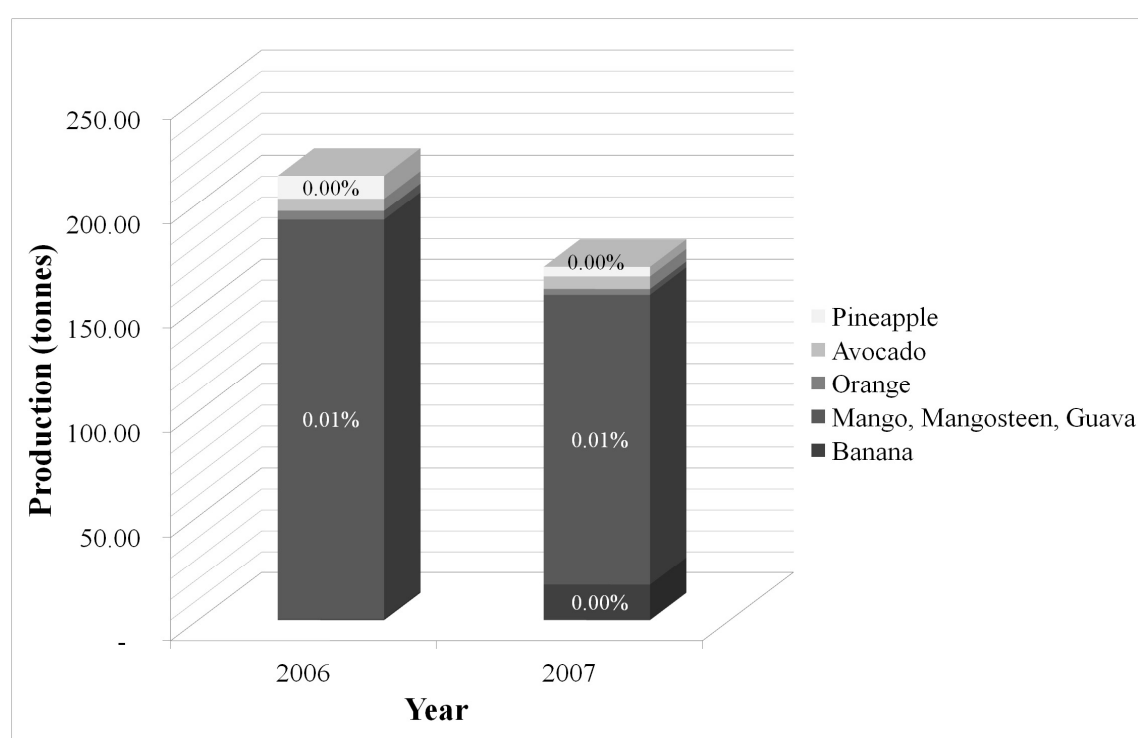


Figure A.8 Production of fruit plantation in Salahutu District in 2006 and 2007 (Dinas Pertanian Kabupaten Maluku Tengah 2007c: 237-241, Dinas Pertanian Tanaman Pangan Kabupaten Maluku Tengah 2008b: 67-68 and FAO 2011)

Table A.8: Vegetable Plantation Production in Nusaniwe District in 2004 and 2007

	2004				2007			
	Area Harvested (ha)	% from Indonesia Harvested Area ^{a, c}	Production (tonnes)	% from Indonesia Total Production ^{a, c}	Area Harvested (ha)	% from Indonesia Harvested Area ^{b, c}	Production (tonnes)	% from Indonesia Total Production ^{b, c}
Corn	32.50	0.04%	48.75	0.02%	35.16	0.00%	53.07	0.00%
Cassava	124.00	0.01%	1,488.00	0.01%	144.69	0.01%	1,791.42	0.01%
Sweet Potato	14.75	0.01%	126.85	0.01%	15.96	0.01%	138.48	0.01%
Groundnut	18.00	0.00%	18.00	0.00%	19.49	0.00%	19.68	0.00%
Spinach	1.65	0.00%	3.75	0.00%	2.03	0.00%	4.14	0.00%
Chilli	3.00	0.00%	3.75	0.00%	3.24	0.00%	4.08	0.00%
Tomato	2.00	0.00%	21.45	0.00%	2.46	0.00%	23.79	0.00%
Cucumber	2.00	0.00%	35.50	0.01%	2.46	0.00%	39.38	0.01%
Eggplant	1.90	0.00%	23.00	0.01%	2.35	0.00%	25.54	0.01%
Total	199.80		1,769.05		227.84		2,099.58	

Source: ^aDinas Pertanian dan Peternakan Kota Ambon 2004: 55-58. 60; ^bDinas Pertanian and Peternakan Kota Ambon 2008: 52-55. 57 and ^cFAO 2011

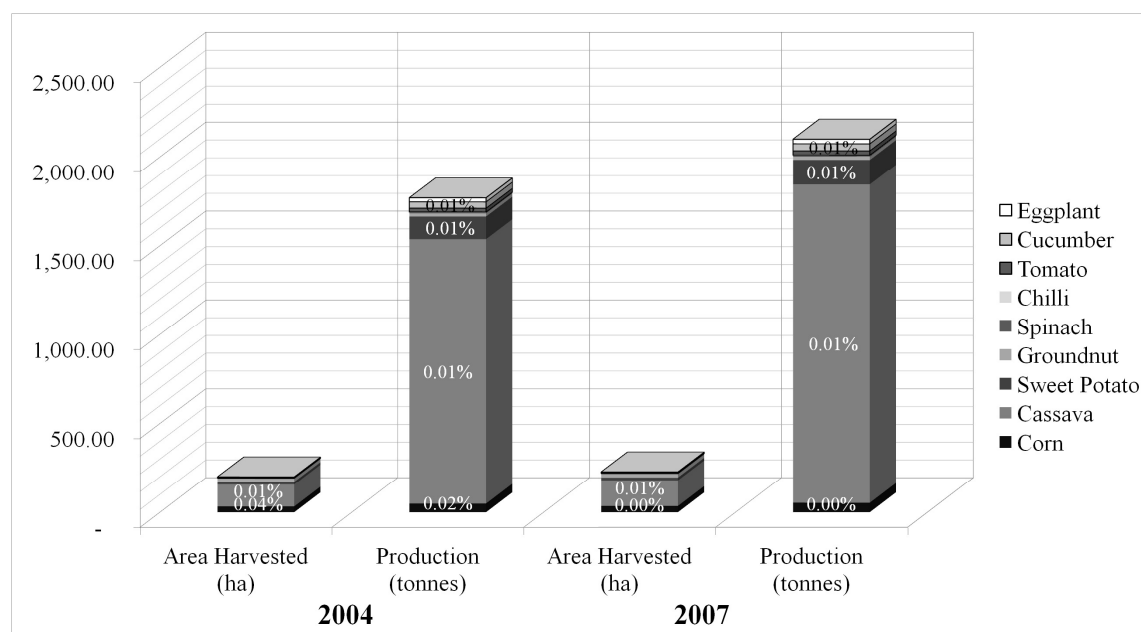


Figure A.9 Coverage of area harvested for and the production of vegetable plantation in Nusaniwe District in 2004 and 2007 (Dinas Pertanian dan Peternakan Kota Ambon 2004: 55-58. 60; Dinas Pertanian and Peternakan Kota Ambon 2008: 52-55. 57 and FAO 2011)

Table A.9: Fruit Plantation Production in Nusaniwe District in 2004 and 2007

	2004 ^a		2007 ^b	
	Production (tonnes)	% from Indonesia Total Production ^{a, c}	Production (tonnes)	% from Indonesia Total Production ^{a, c}
Banana	14.70	0.00%	10.14	0.00%
Mango, Mangosteen, Guava	83.76	0.01%	101.63	0.01%
Orange	20.20	0.00%	24.62	0.00%
Papaya	4.88	0.00%	6.20	0.00%
Avocado	27.62	0.01%	33.69	0.02%
Pineapple	10.50	0.00%	12.59	0.00%
Total	161.66		188.87	

Source: ^aDinas Pertanian dan Peternakan Kota Ambon 2004: 59, ^bDinas Pertanian and Peternakan Kota Ambon 2008: 56 and ^cFAO 2011

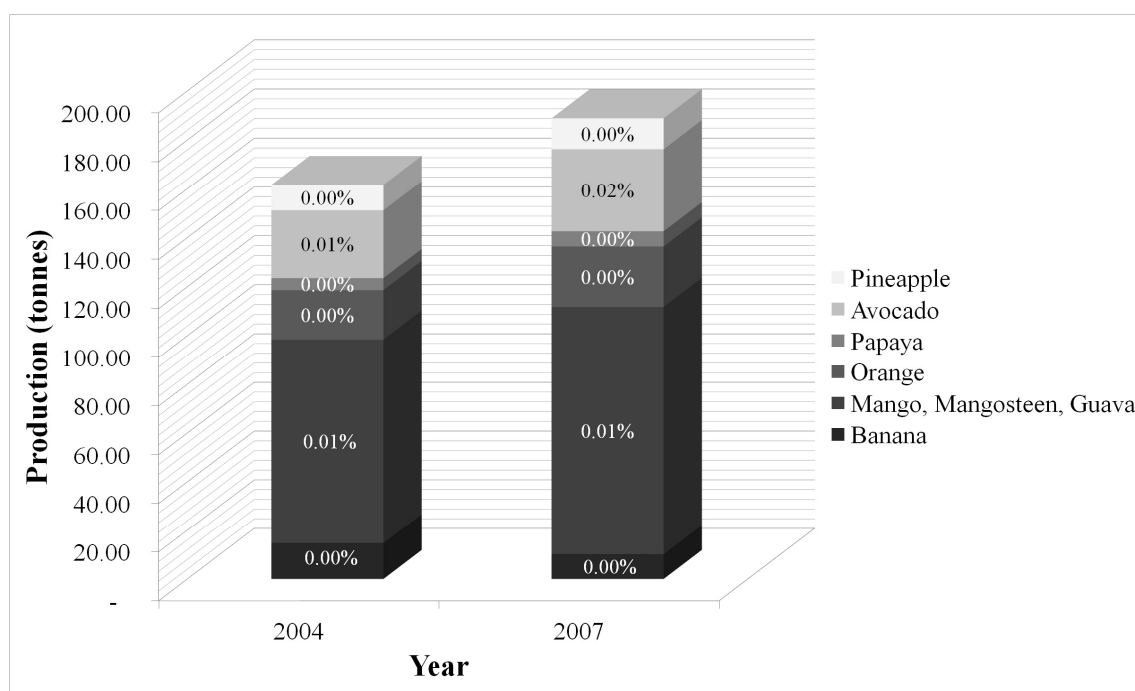


Figure A.10 Production of fruit plantation in Salahutu District in 2006 and 2007 (Dinas Pertanian dan Peternakan Kota Ambon 2004: 59, Dinas Pertanian and Peternakan Kota Ambon 2008: 56 and FAO 2011)

Table A.10: Wild fisheries Sector Production Value in 2003, 2004, 2006 and 2007

District	Value (IDR)			
	2003	2004	2006	2007
Salahutu	-	-	23,024,436,300 (EUR 1,918,703) ^b	35,935,436,300 (EUR 2,994,620) ^c
Saparua	6,216,175,000 (EUR 518,015) ^a	-	11,844,919,000 (EUR 987,077) ^b	-
Nusaniwe	-	17,706,969,000 (EUR 1,475,581) ^d	-	27,459,591,000 (EUR 2,288,299) ^c

Sources: ^aDinas Kelautan dan Perikanan Kabupaten Maluku Tengah 2003b: 51, ^bDinas Kelautan dan Perikanan Kabupaten Maluku Tengah 2007b: 286-287, ^cDinas Kelautan dan Perikanan Kabupaten Maluku Tengah 2008: 77, ^dDinas Perikanan dan Kelautan Kota Ambon 2004: 62 and ^eDinas Perikanan dan Kelautan Kota Ambon 2008: 60

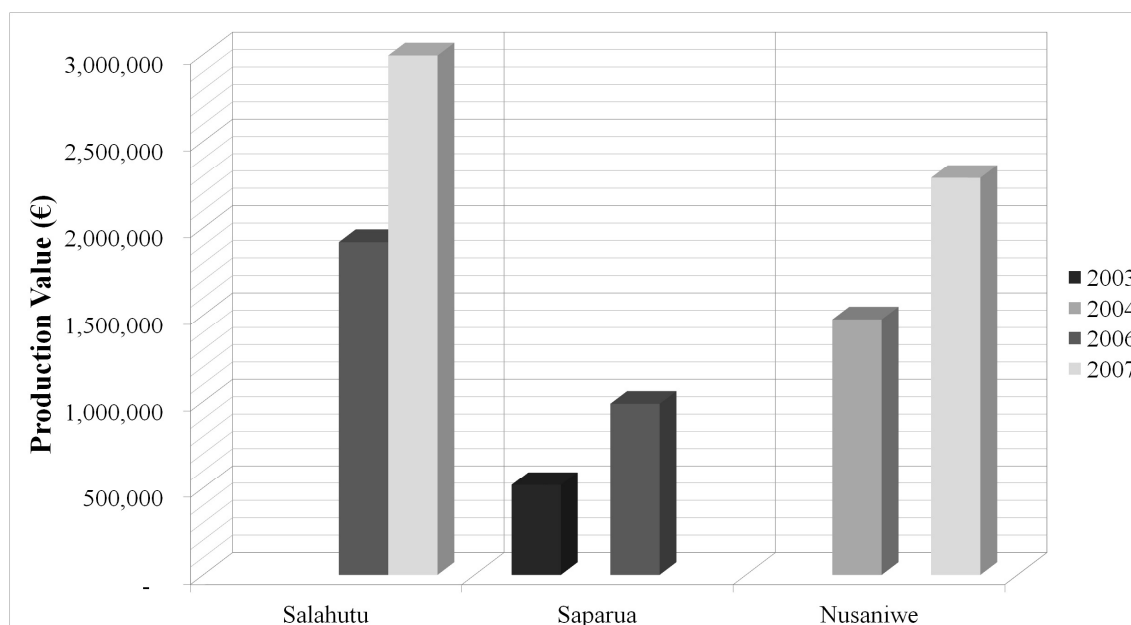


Figure A.11 Production value of wild fisheries sector in Saparua Island, Salahutu District and Nusaniwe District (Dinas Kelautan dan Perikanan Kabupaten Maluku Tengah 2003b: 51, Dinas Kelautan dan Perikanan Kabupaten Maluku Tengah 2007b: 286-287, Dinas Kelautan dan Perikanan Kabupaten Maluku Tengah 2008: 77, Dinas Perikanan dan Kelautan Kota Ambon 2004: 62 and Dinas Perikanan dan Kelautan Kota Ambon 2008: 60)

A.4 Social Impact

Table A.11: Poverty level of family in Saparua Island in 2003, 2006 and 2007

	2003 ^a		2006 ^b		2007 ^c	
	No. of Family	%	No. of Family	%	No. of Family	%
Pre-Prosperous	2,349	31.07%	2,559	32.31%	2,610	32.25%
Prosperous Level I	1,710	22.62%	1,321	16.68%	1,335	16.50%
Prosperous Level II	2,972	39.31%	3,580	45.21%	3,694	45.65%
Prosperous Level III	419	5.54%	357	4.51%	352	4.35%
Prosperous Level III+	110	1.46%	102	1.29%	101	1.25%
Total	7,560		7,919		8,092	

Sources: ^aBadan Kependudukan dan Keluarga Berencana Nasional Kabupaten Maluku Tengah 2003: 35, ^bDinas Kependudukan, Keluarga Berencana dan Catatan Sipil Kabupaten Maluku Tengah 2007: 162-163 and ^cUPTB Kependudukan, Keluarga Berencana dan Catatan Sipil Kecamatan Saparua 2007: 35

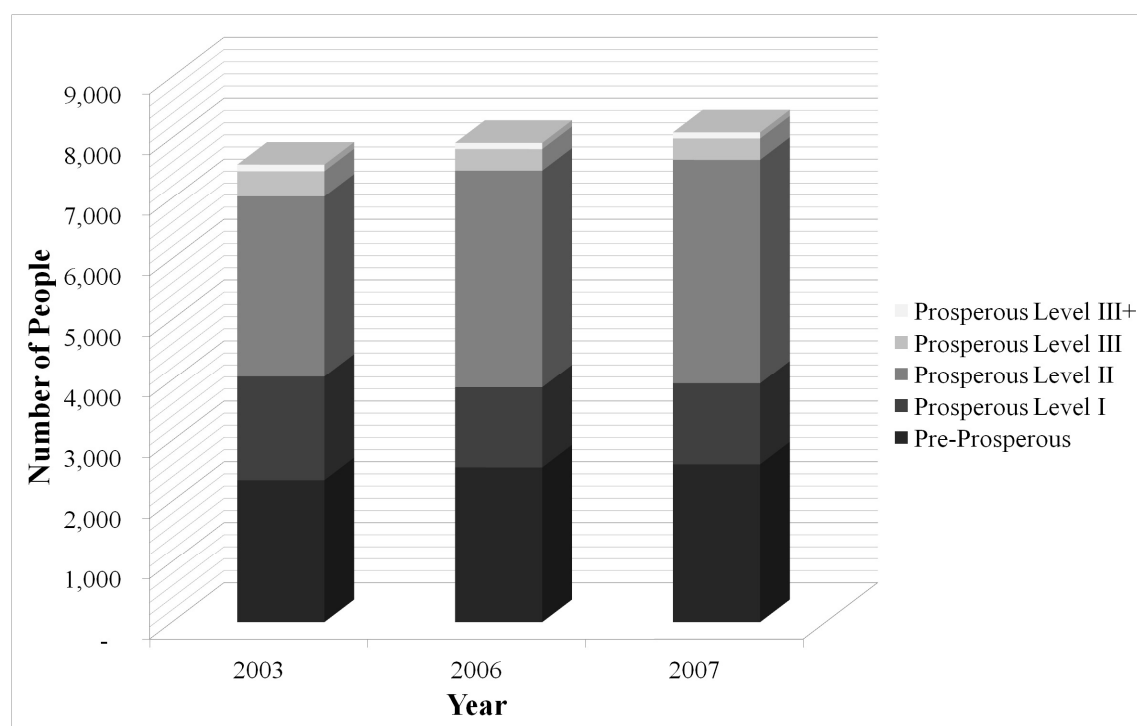


Figure A.12 Description of the poverty level of people in Saparua Island in 2003, 2006 and 2007 (Sources: Badan Kependudukan dan Keluarga Berencana Nasional Kabupaten Maluku Tengah 2003: 35, Dinas Kependudukan, Keluarga Berencana dan Catatan Sipil Kabupaten Maluku Tengah 2007: 162-163 and UPTB Kependudukan, Keluarga Berencana dan Catatan Sipil Kecamatan Saparua 2007: 35)

Table A.12: Poverty level of family in Salahutu District in 2006 and 2007

	2006 ^a		2007 ^b	
	No. of Family	%	No. of Family	%
Pre-Prosperous	2,324	25.99%	1,938	21.40%
Prosperous Level I	2,165	24.21%	3,053	33.72%
Prosperous Level II	3,620	40.48%	3,318	36.64%
Prosperous Level III	709	7.93%	643	7.10%
Prosperous Level III+	125	1.40%	103	1.14%
Total	8,943		9,055	

Sources: ^aDinas Kependudukan, Keluarga Berencana dan Catatan Sipil Kabupaten Maluku Tengah 2007: 162-163 and ^bUPTB Kependudukan, Keluarga Berencana dan Catatan Sipil Kecamatan Salahutu 2008: 53-54

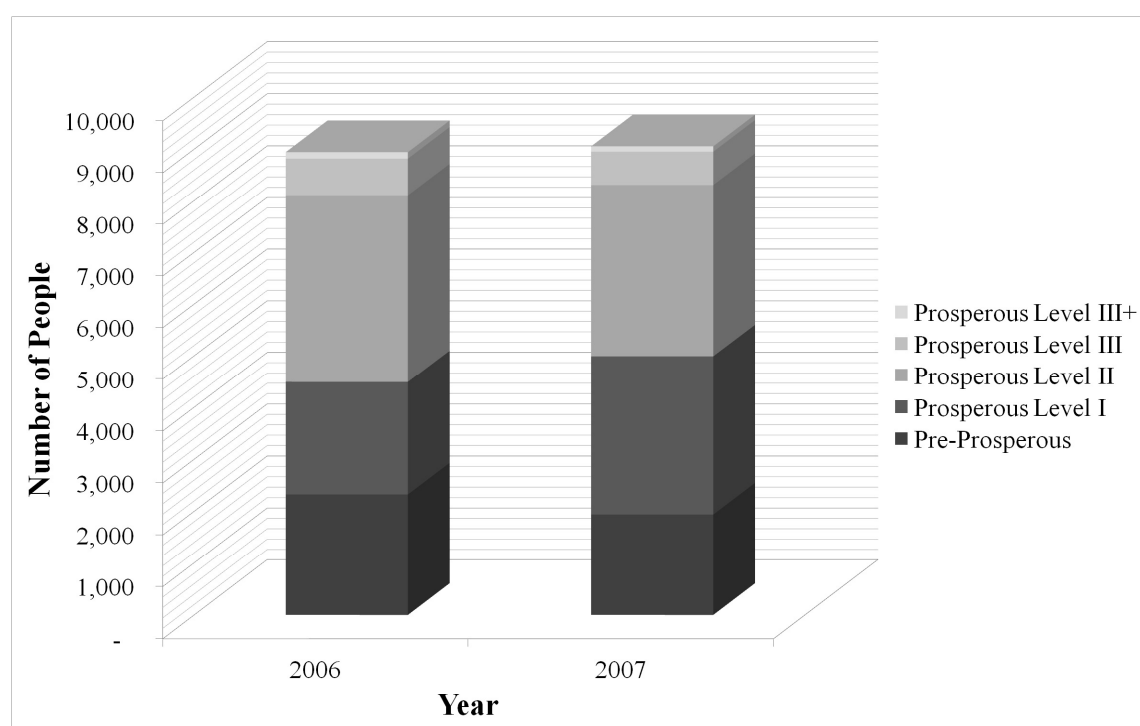


Figure A.13 Description of the poverty level of people in District Salahutu in 2006 and 2007 (Sources: Dinas Kependudukan, Keluarga Berencana dan Catatan Sipil Kabupaten Maluku Tengah 2007: 162-163 and UPTB Kependudukan, Keluarga Berencana dan Catatan Sipil Kecamatan Salahutu 2008: 53-54)

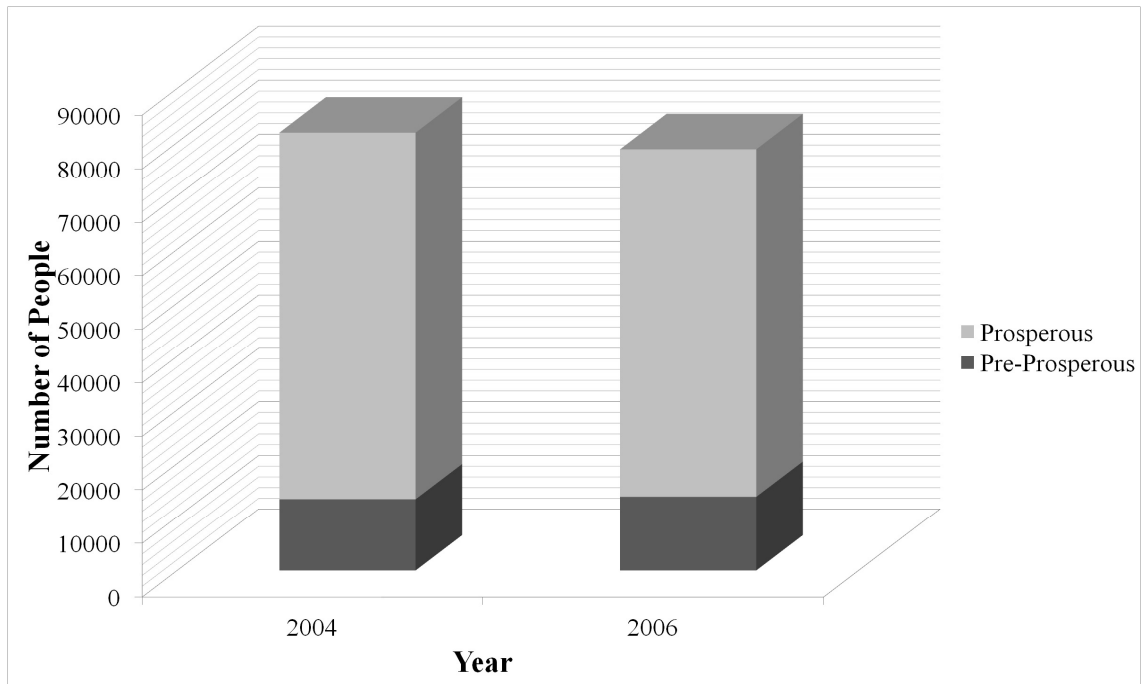


Figure A.14 Description of the poverty level of people in District Nusaniwe in 2006 and 2007 (Sources: Badan Kependudukan dan Keluarga Berencana Nasional Kota Ambon 2004: 25)

A.5 Recommendation

See next page.

Table A.13: The commissions of the House of Representatives, the ministries and the non-ministerial governmental institutions, which are expected to get involved within the above mentioned amendment process, and their expected role

House of Representatives		Ministry		Non-Ministerial Institution	
Commission	Role	Name	Role	Name	Role
Commission II for domestic governance, regional autonomy, state apparatus and agrarian affairs (<i>Komisi I bidang pemerintahan dalam negeri, aparatur otonomi daerah, aparatur negara dan agraria</i> in Indonesian)	Domestic governance, regional autonomy, state apparatus and agrarian affairs	Secretary of State (<i>Kementerian Sekretariat Negara</i> in Indonesian)	Administering amendment process	National Land Agency (<i>Badan Pertanahan Nasional</i> in Indonesian)	Agrarian affairs
		Ministry of Interior Affairs (<i>Kementerian Dalam Negeri</i> in Indonesian)	Domestic governance and regional autonomy		
		State Ministry of Empowerment of State Apparatus and Bureaucratic Reform (<i>Kementerian Negera Peningkatan Aparatur Negeri dan Reformasi Birokrasi</i> in Indonesian)	Empowerment of state apparatus		
Commission III for legal affairs and laws, human rights and security (<i>Komisi III bidang hukum dan perundang-undangan, hak asasi manusia dan keamanan</i> in Indonesian)	Legal affairs and laws and human rights	Coordinating Ministry for Political, Legal and Security Affairs (<i>Kementerian Koordinator Bidang Politik, Hukum dan Keamanan</i> in Indonesian)	Policy and legal aspect of Spatial Unit Administration		
		Ministry of Legal Affairs and Human Rights (<i>Kementerian Hukum dan Hak Asasi Manusia</i> in Indonesian)	Legal aspect of Spatial Unit Administration and provision of equal access to Spatial Unit		

Table A.13 (contd.): The commissions of the House of Representatives, the ministries and the non-ministerial governmental institutions, which are expected to get involved within the above mentioned amendment process, and their expected role

House of Representatives		Ministry		Non-Ministerial Institution	
Commission	Role	Name	Role	Name	Role
Commission IV for agriculture, plantations, marine affairs, fisheries and food affairs (<i>Komisi IV bidang pertanian, perkebunan, kehutanan, kelautan, perikanan dan pangan</i> in Indonesian)	Agriculture, plantations, marine affairs, fisheries and food affairs	Ministry of Agricultural Affairs (<i>Kementerian Pertanian</i> in Indonesian)	Agricultural affairs		
		Ministry of Forestry (<i>Kementerian Kehutanan</i> in Indonesian)	Forestry affairs		
		Ministry of Marine Affairs and Fisheries (<i>Kementerian Kelautan dan Perikanan</i> in Indonesian)	Marine affairs and fisheries		
Commission V for transports, telecommunications, public works, public housing, village development and disadvantaged region (<i>Komisi V bidang perhubungan, telekomunikasi, pekerjaan umum, perumahan rakyat, pembangunan pedesaan dan kawasan tertinggal</i> in Indonesian)	Transports, telecommunications, public works, public housing, village development and disadvantaged region	Ministry of Transportation (<i>Kementerian Perhubungan</i> in Indonesian)	Transportation	Geospatial Information Agency (<i>Badan Informasi Geospasial</i> in Indonesian)	Spatial information management
		Ministry of Public Works (<i>Kementerian Pekerjaan Umum</i> in Indonesian)	Spatial Planning		
		Ministry of Communication and Informatics Affairs (<i>Kementerian Komunikasi dan Informatika</i> in Indonesian)	Spatial Information management		
		State Minister of People's Housing (<i>Kementerian Negara Perumahan Rakyat</i> in Indonesian)	Housing		

Table A.13 (contd.): The commissions of the House of Representatives, the ministries and the non-ministerial governmental institutions, which are expected to get involved within the above mentioned amendment process, and their expected role

House of Representatives		Ministry		Non-Ministerial Institution	
Commission	Role	Name	Role	Name	Role
Commission VII for energy, natural and mineral resources, research and technology and environment (<i>Komisi VII bidang energi, sumber daya mineral, riset dan teknologi dan lingkungan</i> in Indonesian)	Energy, natural and mineral resources, research and technology and environment	Ministry of Energy and Mineral Resources (<i>Kementerian Energi dan Sumber Daya Mineral</i> in Indonesian)	Energy and mineral resources	National Institute of Aeronautics and Space (<i>Lembaga Penerbangan dan Antariksa Nasional</i> in Indonesian)	Spatial information management
Commission VIII for religion and social affairs and the empowerment of women (<i>Komisi VIII bidang agama, sosial dan pemberdayaan perempuan</i> in Indonesian)	Social affairs and the empowerment of women	State Ministry of Research and Technology (<i>Kementerian Negara Riset dan Teknologi</i> in Indonesian) State Ministry of Environmental Affairs (<i>Kementerian Negara Lingkungan Hidup</i> in Indonesian) Coordinating Ministry for People's Welfare Affairs (<i>Kementerian Koordinator bidang Kesejahteraan Rakyat</i> in Indonesian)	Technical aspect of Spatial Unit Administration Environment People's welfare		
		Ministry of Social Affairs (<i>Kementerian Sosial</i> in Indonesian) Ministry of Education and Cultural Affairs (<i>Kementerian Pendidikan dan Kebudayaan</i> in Indonesian)	Social affairs Educational and cultural affairs		
		State Ministry of Women Empowerment and Child Protection Affairs (<i>Kementerian Negara Pemberdayaan Perempuan dan Perlindungan Anak</i> in Indonesian)	Women empowerment		

Table A.13 (contd.): The commissions of the House of Representatives, the ministries and the non-ministerial governmental institutions, which are expected to get involved within the above mentioned amendment process, and their expected role

House of Representatives		Ministry		Non-Ministerial Institution	
Commission	Role	Name	Role	Name	Role
Commission IX for demographic affairs, health, manpower and transmigration (<i>Komisi IX bidang kesehatan, tenaga kerja dan transmigrasi</i> in Indonesian)	Demographic affairs, manpower and transmigration	Ministry of Manpower and Transmigration (<i>Kementerian Tenaga Kerja dan Transmigrasi</i> in Indonesian)	Human resources capacity building and transmigration		
Commission XI for finances, national development planning, banking and non-bank financial institution (<i>Komisi XI bidang keuangan, perencanaan pembangunan dan lembaga keuangan bukan bank</i> in Indonesian)	Finances and national development planning	Coordinating Ministry for Economic Affairs (<i>Kementerian Koordinator bidang Perekonomian</i> in Indonesian)	Financial affairs	Financial and Development Supervisory Board (<i>Badan Pengawasan Keuangan dan Pembangunan</i> in Indonesian)	Financial affairs
		Ministry of Treasury (<i>Kementerian Keuangan</i> in Indonesian)	Financial affairs		
		State Ministry of National Development Planning (<i>Kementerian Perencanaan Pembangunan Nasional</i> in Indonesian)	Development planning		
		State Ministry of Development of Disadvantaged Region (<i>Kementerian Negara Pembangunan Daerah Tertinggal</i> in Indonesian)	Development planning		

Sources: Author's construct

Appendix B Key Informant List

B.1 Negeri Latuhalat

Table B.1: Key informant list for the sub-case of Negeri Latuhalat

Name	Status	Time of Interview	Location	Type of Interview
Salhuteru, Mozes	The chief of Negeri Latuhalat	6 June 2011 at 11 am -12 pm EIT	The office of the chief of Negeri Latuhalat, Latuhalat, Municipality of City of Ambon	Direct Personal Interview
		6 January 2010 at 2 - 3 am CET	Dortmund	Telephone Personal Interview
		22 June 2009 at 10 - 11 am EIT	The office of the chief of Negeri Latuhalat, Latuhalat, Municipality of City of Ambon	Direct Personal Interview

Sources: Author's construct

B.2 Negeri Tulehu

Table B.2: Key informant list for the sub-case of Negeri Tulehu

Name	Status	Time of Interview	Location	Type of Interview
Alan	Motorcycle driver and native of Negeri Tulehu	7 June 2011 at 10 am - 12 pm EIT	Negeri Tulehu and Negeri Tengah-Tengah, Municipality of Maluku	Direct Personal Interview
Djunaedi, Asril	The non-native and young environmental activist of Negeri Tulehu	17 June 2011 at 7 - 8 pm EIT	The residence of Asril Djunaedi, Tulehu, Municipality of Central Maluku	Direct Personal Interview
		17 June 2011 at 8 pm - 12 am EIT	The residence of Asril Djunaedi, Tulehu, Municipality of Central Maluku	Direct Group Interview
Lestaluhu, Abdul Rahim	The native and young and customary activist of Negeri Tulehu	7 June 2011 at 8 -9 am EIT	The residence of Abdul Rahim Lestaluhu, Tulehu, Municipality of Central Maluku	Direct Personal Interview
		17 June 2011 at 1 - 2 pm EIT	The building of Faculty of Fisheries and Marine Science, University of Darussa-laam Ambon, Tulehu, Municipality of Central Maluku	Direct Personal Interview
		17 June 2011 at 8 pm - 12 am EIT	The residence of Asril Djunaedi, Tulehu, Municipality of Central Maluku	Direct Group Interview
Lestaluhu, Ibrahim	The native and young and customary activist of Negeri Tulehu	17 June 2011 at 8 pm - 12 am EIT	The residence of Asril Djunaedi, Tulehu, Municipality of Central Maluku	Direct Group Interview
Ohorella, John Saleh	The chief of Negeri Tulehu	25 June 2011 at 12 - 2 am WIT	Homann Hotel, Bandung	Direct Personal Interview
		21 June 2009 at 10 - 11 am EIT	The residence of the chief of Negeri Tulehu	Direct Personal Interview
Ohorella, Salim	The native and young and customary activist of Negeri Tulehu	17 June 2011 at 8 pm - 12 am EIT	The residence of Asril Djunaedi, Tulehu, Municipality of Central Maluku	Direct Group Interview
Zaenuddin, Muhammad	The native of Negeri Tulehu	10 June 2011 at 1 - 2 pm EIT	The residence of Abdul Rahim Lestaluhu, Tulehu, Municipality of Central Maluku	Direct Personal Interview

Sources: Author's construct

B.3 Negeri Siri Sori Islam

Table B.3: Key informant list for the sub-case of Negeri Siri Sori Islam

Name	Status	Time of Interview	Location	Type of Interview
Pattisahusiwa, Jhony Karim	The chief of Negeri Siri Sori Islam	18 June 2009 at 8 - 10 pm EIT	The residence of the chief of Negeri Siri Sori Islam, Siri Sori Islam, Municipality of Central Maluku	Direct Group Interview

Sources: Author's construct

B.4 Negeri Paperu

Table B.4: Key informant list for the sub-case of Negeri Paperu

Name	Status	Time of Interview	Location	Type of Interview
Gross, Kurt	The owner of Cape Paperu Resort and Spa	19 June 2009 at 4 - 5 pm EIT	Cape Paperu Resort and Spa, Paperu, Municipality of Central Maluku	Direct Group Interview
Lawalata, Christian	The chief of Negeri Paperu	9 June 2011 at 8 - 10 pm EIT	The residence of the chief of Negeri Paperu, Paperu, Municipality of Central Maluku	Direct Group Interview
Pattipawae, T.	The customary socialite of Negeri Paperu	9 June 2011 at 8 - 10 pm EIT	The residence of the chief of Negeri Paperu, Paperu, Municipality of Central Maluku	Direct Group Interview
Pattiselano, Charles	The secretary of government of Negeri Paperu	19 June 2009 at 10 - 11 am EIT	The office of chief of Negeri Paperu, Paperu, Municipality of Central Maluku	Direct Group Interview
Soukotta, Agus	The native of Negeri Paperu	18 - 20 June 2009	Paperu, Municipality of Central Maluku	Direct Personal Interview
		18 June 2009 at 8 - 10 pm EIT	The residence of the chief of Negeri Siri Sori Islam, Siri Sori Islam, Municipality of Central Maluku	Direct Group Interview

Sources: Author's construct

B.5 Ambon Lease Region

Table B.5: Key informant list for the cross-case of Ambon Lease region

Name	Status	Time of Interview	Location	Type of Interview
Padja, Muhammad	The resident of City of Ambon	22 June 2009 at 5 - 6 pm EIT	Jami Mosque Ambon, Municipality of City of Ambon	Direct Group Interview
Seba, Julius	The head of Division of Land Tenure and Registration of the Regional Office of National Land Agency of Province of Maluku	6 June 2011 at 2 - 3 pm EIT	The Regional Office of National Land Agency of Province of Maluku, Municipality of City of Ambon	Direct Personal Interview
Siahaya, Ferry	The head of District of Saparua	18 June 2009 at 4 - 6 pm EIT	The residence of the head of District of Saparua, Saparua, Municipality of Central Maluku	Direct Personal Interview
		18 June 2009 at 12 - 2 pm EIT	The office of the head of District of Saparua, Saparua, Municipality of Central Maluku	Direct Personal Interview

Sources: Author's construct

Appendix C Interview Schedule

C.1 Spatial Unit Administration

Spatial Unit Use

Characterisation

- What is the basic input on the Spatial Unit Use planning?

Forecasting

- How is the preferred and unfavoured future of Spatial Unit Use measured?

Planning

- Is there any Spatial Unit Use plan?

Development

- How is the Spatial Unit Use plan implemented?
- Who is responsible for the implementation of Spatial Unit Use plan?

Monitoring and Evaluation

- How is the implementation of Spatial Unit Use plan monitored and evaluated?
- Who is responsible for the monitoring of the implementation Spatial Unit Use plan?

Spatial Unit Tenure

Type of Tenure

- What are the available Spatial Unit Tenure on land and sea?

Spatial Unit Definition

- How is the Spatial Unit on land and sea defined?

Spatial Unit Registration

- How is the Spatial Unit on land and sea registered?

Spatial Unit Value

Valuation

- How is the Spatial Unit on land and sea valued?

Type of Tenure

- How is the Spatial Unit on land and sea taxed?

C.2 Spatial Unit Cadastre

- How are the regulatory, legal, fiscal and multipurpose cadastres maintained?

C.3 Fundamental Framework of Spatial Unit Administration

Institutional Framework

Policy and Legal Framework

- What is the legal basis for customary Spatial Unit governance?
- Is there customary rule on Spatial Unit Administration on land and sea?

Organisational Framework

- What organisation is responsible for the Spatial Unit Administration?

Human Resources Development Framework

- How are the human resources educated in the scope of Spatial Unit governance, Management and Administration?

Technical Framework

Data Acquisition

- How is information regarding Spatial Unit Administration on land and sea collected?

Data Management

- How is information regarding Spatial Unit Administration on land and sea managed?

Data Presentation

- How is information regarding Spatial Unit Administration on land and sea presented?

C.4 Impact on Sustainable Development

Ecological Impact

Proportion of Forest

- How does the Spatial Unit Administration affect the proportion of forest?

Arable and Permanent Cropland Coverage

- How does the Spatial Unit Administration affect the coverage of arable and permanent cropland?

Land Use Change

- How does the Spatial Unit Administration affect the Land Use change?

Land Degradation

- What is the role of Spatial Unit Administration on preventing land degradation?

Sustainable Forest Management

- What is the role of Spatial Unit Administration on the sustainable management of the forest?

Proportion of Marine Protected Areas

- How many marine protected areas is existing?
- What is the role of Spatial Unit Administration on sustaining marine protected areas?

Coverage of Coral Reef Ecosystem

- Is there any coral reef ecosystem?
- What is the role of Spatial Unit Administration on sustaining the coral reef ecosystem?

Economic Impact*Production of Land and Marine Sector*

- How does the Spatial Unit Administration affect the production of land and marine sector?

Employment and Sectoral Diversification

- What is the employment opportunity offered by the Spatial Unit Administration System?
- How many sector of Spatial Unit Administration System is existing?

Poverty

- How does the community define poverty?
- How many citizens is categorised as the poor?
- What kind of profession does offer opportunity to live a life above the poverty line?

Social Impact*Access to Spatial Unit*

- How does the Spatial Unit Administration regulate the access to Spatial Unit?

Gender Equality

- Does Spatial Unit Administration System treat women and men equally on accessing the Spatial Unit?

Function of Spatial Unit

- Is Spatial Unit Administration able to sustain the function of Spatial Unit?
- How does Spatial Unit Administration sustain the function of Spatial Unit?

Customary Values Preservation

- Is Spatial Unit Administration able to sustain the customary values?
- How does Spatial Unit Administration sustain the customary values?