

Basic Science for Sustainable Marine Development

PROCEEDING

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Ambon, 3-4 June 2015

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Pattimura University



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1st International Seminar of Basic Science, FMIPA Unpatti - Ambon
June, 3rd – 4th 2015

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Welcoming Address by The Organizing Committee

The honorable, the rector of Pattimura University

The honorable, the vice rector of academic affair, Pattimura University

The honorable, the vice rector of administration and financial affair, Pattimura University

The honorable, the vice rector of planning, cooperation and information affair, Pattimura University

The honorable, all the deans in Pattimura University

The honorable, the key note speakers and other guests.

We have to thank The Almighty God for the blessings that allow this International seminar can be held today. This is the first seminar about MIPA Science in which the Faculty of MIPA Pattimura University becomes the host. The seminar under the title Basic Science for Sustainable Marine Development will be carried out on 3 June 2015 at Rectorate Building, the second floor. There are 250 participants from lecturers, research institute, students, and also there are 34 papers will be presented.

This International seminar is supported by the amazing people who always give financial as well as moral supports. My special thanks refer to the rector of Pattimura University, Prof. Dr. Thomas Pentury, M.Si, and the Dean of MIPA Faculty, Prof. Dr. Pieter Kakissina, M. Si. I also would like to express my deepest gratitude to Dr. Kotaro Ichikawa, the director of CSEAS Kyoto University, Prof. Bohari M. Yamin, University of Kebangsaan Malaysia, Prof. Dr. Budi Nurani Ruchjana (Prisident of Indonesian Mathematical Society/Indo-MS), Dr. Ir. A. Syailatua, M.Sc (Director of LIPI Ambon), and Hendry Ishak Elim, PhD as the key note speakers. We expect that this international seminar can give valuable information and contribution especially in developing basic science for sustainable marine development in the future.

Last but not least, we realize that as human we have weaknesses in holding this seminar, but personally I believe that there are pearls behind this seminar. Thank you very much.

Chairman

Dr. Netty Siahaya, M.Si.

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Opening Remarks By Dean of Mathematic and Natural Science Faculty

I express my deepest gratitude to The Almighty God for every single blessing He provides us especially in the process of holding the seminar until publishing the proceeding of International Seminar in celebrating the 17th anniversary of MIPA Faculty, Pattimura University. The theme of the anniversary is under the title Basic Science for Sustainable Marine Development. The reason of choosing this theme is that Maluku is one of five areas in Techno Park Marine in Indonesia. Furthermore, it is expected that this development can be means where the process of innovation, it is the conversion of science and technology into economic value can be worthwhile for public welfare especially coastal communities.

Having the second big variety of biological resources in the world, Indonesia is rich of its marine flora and fauna. These potential resources can be treated as high value products that demand by international market. Basic science of MIPA plays important role in developing the management of sustainable marine biological resources.

The scientific articles in this proceeding are the results of research and they are analyzed scientifically. It is expected that this proceeding can be valuable information in terms of developing science and technology for public welfare, especially people in Maluku.

My special thanks refer to all researchers and reviewers for your brilliant ideas in completing and publishing this proceeding. I also would like to express my gratefulness to the dies committee-anniversary of MIPA Faculty for your creativity and hard working in finishing this proceeding, God Bless you all.

Dean of Mathematic and Natural Science Faculty

Prof. Dr. Pieter Kakisina, M.Si.

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THE ENVIRONMENTAL MANAGEMENT PHILOSOPHY OF INDIGENOUS PEOPLES IN COASTAL MARINE AREA IN MALUKU

Reveny Vania Rugebregt¹

ABSTRACT

Local wisdom of indigenous peoples in natural resource management contains the values of kindness and wisdom. Customary law community identifies themselves as an integrated part of the universe in relation interrelated, dependent, and influence each other. The most important is to create a relationship that is harmonious, and balanced, so as to create harmony between man and his environment. The problems of natural resource management is a reciprocal relationship between man and his environment. The nature of the indigenous peoples religious life tends magical show visible irrational because it is sometimes considered a mystical, but its activities do not damage the environment but instead maintain and preserve the environment so that there is a balance. Environmental wisdom of indigenous peoples are essentially stems from the system and religious values espoused in the community. The essence contained therein is to give guidance to people to behave in harmony and in tune with the rhythm of the universe, so as to create a balance between the human relationships with the natural environment. But with the development of globalization and development demands that only the pursuit of economic interests, many exploration activities that the government did, not negate and ignore the negative impacts and rid society and indigenous culture in natural resource management. Finally the environmental crisis occurs, so that nature also seemed reluctant to make friends with humans. Government policy in various regulatory although there were sympathetic to the environment but tends to be eliminated by implementing authorities. A new concept of environmental management is green constitution that may have touted so heavily in environmental awareness and total liability become part of every citizen.

Keywords: Local knowledge, environment, and environmental regulation

INTRODUCTION

Indonesia is an island in which the marine area extends over 360 million hectare, almost twice the land area of the country. Consists of about 17.500 island with an area of sea of about 5,8 million km and stretches along line of 81.000 km. Most of the island are small island bestowed with abundant natural resources and environmental services offering huge potentials for economic development. The marine environment-including the oceans and all seas and adjacent coastal can support system and a positive asset that presents opportunities for sustainable development. The coastal area contains diverse and productive habitats important for human settlement, development and local subsistence, and also are vital for many local communities. In this paper, the term of "local communities or indigenous people" refers to what has been term as "*masyarakat adat*", i.e. community based on

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traditional/customary laws. Here inafter, the paper will use the term “adat community” to specifically refer to indigeneous people in Indonesia.

Indonesia has many *adat community* which have existed long before Indonesia's independence. This indigenous people have had control over coastal and marine areas, and have managed natural resources according to their cultural traditions, since time immemorial. In Maluku, one of some archipelagic province in Indonesia, there are groups of indigenous people or customary law community which generally still respect and implement their customary law, especially in management of marine and coastal resources. The customary laws has, for instance, provides guidance to the communities on how to use natural resources wisely and how to ensure the sustainable use of the resources. For decades, marine and coastal areas and their potential were rather ignored, because the orientation of development in Indonesia always put emphasis on the development of big island, especially Java. After the reform era, since 1998, the management of marine and coastal areas has started to be developed quite seriously.

Unfortunately, the government's attention's was not accompanied by a bottom-up approach that involves a population or community living in marine and coastal area. Various policies from both the central and local government have marginalized people who have rights over the areas. Not only marginalized local community, but also many of the policy from the government cause the global climate change. Give permission to companies to exploit the forest, building permits, permits to exploitation and management of coastal and marine areas it is the impact of the environmental crisis that occurred at this time, resulting in natural disasters everywhere. Floods, landslides, sea level rise, precipitation is also an environmental crisis occurs. This Environmental damage is also caused by policy makers who are not observant and aware of the environment. Damage on natural resources has the potential to severely affect communities that are highly depend on the resources. In this regard, coastal communities, which heavily depend on coastal and marine to support their life, will suffer significant losses if this area damage.

This article is aimed to answer the questions of to what extent Local wisdom and the environmental management of indigenous people can play in ensuring sustainable management of natural resources at coastal marine areas.

THE ENVIRONMENTAL MANAGEMENT PHILOSOPHY OF INDIGENOUS PEOPLES IN MALUKU

The largest portion of Indonesia's territory beside consists of the marine area, also have a large number of *adat* communities occupy some of Indonesia's coastal areas. These communities have traditionally controlled coastal and marine areas according to customary-based sea tenures referred to *hak adat kelautan*. The real control over coastal and marine areas by these communities is closely related to the relationship between the communities and the areas and resources within, which has been inherited from the communities' ancestors. The areas under the control of the *adat* communities are characterized by the distinct authorities of the communities.

Through the interaction and adaptation taking place for a very long time, customary coastal and marine communities have created and developed values, patterns of life, institutions, and laws reflecting the harmony with the conditions and availability of natural resources.

In Maluku, related to value, belief and pattern of life of sustainable environment, there is philosophy of a structure of the indigenous people in Maluku. Before the arrival of the Dutch in Maluku, the structure of indigenous people has been known for two large groups, namely

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the so-called (a) ULI SIWA and (b) ULI LIMA. While the composition of the community based on GENEOLIGIS-TERRITORIAL. Generally the settlement of a luma tau called **uku** which includes *aman* or *hena* and led by an **upu**. Uku or also called *kampung* which is close to each other to form an alliance called **uli**, although that uli has the lowest kind, but has a more tangible societal functions. The type of this Uli is led by an **upu latu** and assisted by **kepala soa** (leader of luma tau), **kapitan** (war commander). Negeri² or Village classified **uli siwa** as well as **uli lima** have similarities in certain customs and upholds the ties of brotherhood³. The use of the term for village or *negeri* comes from the Dutch, namely *negorij* (*negeri*). This *negeri* is led by a person who holds and called **latu** which by the dutch replaced with a **raja, patti** or **orang kaya**.

In all the activities of indigenous peoples in Maluku still maintain their traditional which has been handed down for generations. They assume that the customs handed down by ancestors who established alliances customary land (*aman, hena,*) and they hope that customs can be run as a sole lifeline. *Negeri* then be used as a custom union itself, which is a social group that is bounded by a common attachment and in a certain sense, can stand alone. The obligation of "*anak negeri*" for example follow on adat rules, is fundamental and principal, especially who are still alive in the "*Negeri*" (villages) of the Lease and Ceram. As a *negeri adat*, each *negeri* has a special building called "Baileo" ie, as a meeting place of all the elements in the indigenous communities. Baileo also serve as "micro-cosmos", ie as a meeting place for the indigeneous communitites. Can also be used as a place of worship customs, where every activity or traditional ceremonies performed on the "Baileo", because it is in some *negeri* there are special positions in the Baileo.

Traditional knowledge systems (original) is still felt in indigenous communities in Maluku until now, where attachment to natural ecosystems remains a part in public life. This is evident from the shape and activity behaviors tillage still using traditional technology. That nature of Maluku community is "cosmic", ie everything becomes a unity. Man in the cosmic sense is a part of nature, and not be separated from his field. There is no separation between this world and the unseen world was born, so it is necessary to balance. Similarly, there is no separation between humans and other beings. Indigenous peoples in Maluku is looking at customary law as the rules that have been given by the lord of the sky (**upu lanito**), lord of the earth (**ina ume**) or the limits that have been set by protective spirit of *negeri* (**nitu aman**). Therefore any disturbance to the balance above of the constitutes a violation of the law and the legal officer shall take the measures necessary⁴.

There are a lot of local knowledge of indigenous people in Maluku, which is still maintained and preserved and still in use in natural resource management that would not damage the environment. With a philosophy that considers their nature is part of their lives so that there should be a balance in its management. Management of natural resources in the sea, for example. Laut (sea) or Lau to the community in the province of North Maluku is a place to continue their lives. Sea is a gift from the almighty with all its contents. Sea for the local community is a wide range of life outcomes that need to be maintained, as it will prolong their life⁵. Society still adhere to the message of their ancestors that the sea must be maintained. According to popular opinion, the sea is like a woman, so should be treated well and and soft, because if treated roughly and carelessly, then the sea will rage and disastrous.

² *Negeri* is other name for village beside Aman, Hena, Ohoy, etc in most Traditional Villages in Maluku.

³ J.D.Pasalabessy, **Hukum dan Hukum Adat**, Materi Kuliah, Tanpa Tahun

⁴ J. Tjiptabudy, 2011, **Asas Keseimbangan Dalam Pengelolaan Sumberdaya Alam Wilayah Laut dan Pesisir, Dissertation, Makassar, Universitas Hasanudin**

⁵ Ibidem

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Sea is also seen as a good means of communication because it can connect the island with the island. Sea is also regarded as a sacred place, so to go down to sea in activities to earn a living they have to carry out the ceremony held waning "lalohi" ask God to bring abundant results. Local people also assume that among those with fish have a close relationship, such as tuna, in their view, tuna is coming from a woman, so that when tuna fishing must be done properly (ie to be courted like seduce a woman), because if not done it according to their beliefs, the fish will get away from them. From rhyme or *dola Bololo* communities in North Maluku province boasts views of the public about the sea. such as:

"Yau fomatai pasi moro-moro fo naku ise"

Which has meaning:

Yau fo matai pasi = the sea is the place where we live
Moro-moro fo naku pasi = lets we keep together

"Kangela fo hisa ngolo kore sebao magina"

Which has meaning:

Kangela fo hisa ngolo = although it difficult the sea Should we keep.
Kore sebao angina = winds and currents had charge, a job must be carefully
Designed

For the community of indigenous people in Central Maluku, were hereditary implementation of the provisions to protect *petuanan laut* between magical balance in the environment continues to be lived, even though they do not know the exact reasons of the rules on which they run. They are seen more as a rule given by Upu Lanito (lord of the sky), *Ina Ume* (lord of the earth) or the limits that have been set by *Nitu aman* (village Guardian spirit) and *Nitu Upu* (guardian spirit of the family).⁶ To maintain a balance between human and natural resources in this case marine and coastal natural resources in Central Maluku Maluku province, known local wisdom in the management of marine and coastal natural resources in the form of provisions containing prohibitions to take and manage marine and coastal natural resources during the period certain time called *sasi*.

This is a system of customary-based management and utilization of natural resources still recognized and respected in many areas in Maluku. Some ethnic groups in Maluku employ different terms for *Sasi*. For example, the ethnic group of *Kei Besar* employs the term *Yot*, whereas the *Kei Kecil* ethnic group uses the term *Yutut* to refer to *Sasi*.⁷ The practice of the *Sasi* is believed to begin in the fourteenth century. Although the *Sasi* is a set of traditional rules of conduct in general, some people usually consider the *Sasi* as rules to conserve natural resources.⁸ The *Sasi* can also be interpreted as a traditional institution, which not only regulates the use of natural resources, but also reflects a traditional understanding on the relationship between humans, natural environment, gods, ancestors, and spirits. The *Sasi* contains rules related to the management of land, sea, and the natural resources⁹.

⁶ Ibidem, hal 145

⁷ Anonymous, 1991, *Laporan Penelitian Hak Adat Kelautan di Maluku*, Kerjasama Yayasan Hualopu Ambon, Maluku dengan Fakultas Hukum dan Pusat Studi Maluku Universitas Pattmura, Ambon, Unpublished

⁸Eliza Kissya, 2009, *Kewang Negeri Haruku dan Keberadaannya*, presented at Workshop and Seminar "Lembaga Adat Indonesia: Apakah mereka memiliki Peran Dalam Pengelolaan Sumberdaya Perikanan dan Wilayah Pesisir?", ICSF, Dinas Kelautan dan Perikanan, Lombok, Indonesia, 2 – 5 August, Nusa Tenggara Barat.

⁹ Tjiptabudy, 2011, p. 185

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In general, the *Sasi* throughout the Maluku Islands has a similar mechanism, namely '*buka sasi*' (literally means the opening of the *sasi* period) and '*tutup sasi*' (literally means closing of the *sasi* period).¹⁰ The *tutup Sasi* is a declaration of prohibition, indicating that beginning from the moment of declaration no one is allowed to take natural resources freely. The announcement of *tutup sasi* is carried out by the *Kewang* and generally is preceded by a traditional ceremony called the '*panas sasi*' (literally means 'hot *sasi*'). Violation of the declaration will be punished with sanctions in accordance with customary law.¹¹ The *buka sasi* is an announcement indicating the end of the prohibition period. The *buka sasi* is also preceded by the *panas sasi* ceremony. During the *buka sasi* period, the members of communities are allowed to utilize the common resources pursuant to their needs.¹² The duration of the *buka sasi* and the *tutup sasi* depends on the condition of natural resources and the discretion of the *kewang*.¹³

Research in villages in the Ambon and Lease islands, however, reveals a high level of environmental destruction in marine areas controlled by the *adat* communities. The destruction results from various activities, including the use of explosives and potassium in fishing, the destruction of coral reef, and the exploitation of sand and gravel. One factor causing this destruction is the ineffectiveness of *kewang* in these islands. This means that the effectiveness implementation of local wisdom and institutions, such as *kewang* and *sasi*, needs to be revitalized and improved so as to enable such institutions to manage the environment sustainably. In this regard, Ruhulesin argues that *sasi* serves as custom-based institution that might closely correspond to the protection of the environment, while the *kewang* serves to monitor and enforce rules set up in the *sasi*.¹⁴

Indigenous People Customary and Government Policy in Natural Resource Management

Culture refers to the system of values, beliefs, and ideas that social groups make use of in experiencing the world in mutually meaningful ways. Management of environmental for sustainability it is the concept from indigenous people customary. The role of customary and its institutions in natural resource management in Indonesia related to coastal and marine ecosystem, such as *sasi* according to Lucky Adrianto, pointed that all components of fisheries management, perhaps in unwritten form, could be observed in the practices of customary management systems studied : for example, the boundaries of the resource are clearly demarcated ; right holders are clearly identified ; rules for regulating resource use ; system for monitoring use; and for sanctioning of violations are in place ; and there is a fisheries management authority (vested in the customary institution and its chief). Even, the conflicts between custom and constitution are examined more closely here, in Indonesia, the future of indigenous values, than to suggest what responses we might take to influence that future—to create a world that has room for other ways of seeing, thinking, and 'valuing'.¹⁵

Natural resources, including marine natural resources, are the assets of the national economy, which shall be managed pursuant to the Article 33 paragraph (3) of the 1945 Constitution, stating that '*Bumi dan air dan kekayaan alam yang terkandung di dalamnya*

¹⁰ Ibidem, p.186

¹¹ Ibidem, P.187

¹² Ibidem, P.188

¹³ Ibidem, p 184, see also Kissya

¹⁴ Ruhulesin, 1985, p. 358 - 359

¹⁵ D. Groenfeldt, *The future of indigenous values: cultural relativism in the face of economic development*, 2003. FUTURE 35, p 917, www.elsevier.com/locate/futures

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dikuasai oleh negara dan dipergunakan untuk sebesar-besarnya kemakmuran rakyat (The land, the waters and the natural resources within shall be under the powers of the State and shall be used to the greatest benefit of the people). So, according to Hatta, one of the founding fathers of Indonesia, the phrase '*dikuasai oleh negara*' (controlled by the State) does not mean that the State itself functions as an entrepreneur. Instead, the phrase should refer to the State's authority to formulate economic regulations related to natural resources, and at the same time to prevent the exploitation of certain parts of society by the capital owners¹⁶. In principle, the control of the State is the authority of the State to manage natural resources for the greatest benefits of the people, executed by establishing laws that protect the rights of the people. In establishing such laws, one important aspect is the recognition of the *adat* (customary law) community, and their community-based rights. In this regard, Darmansyah praises the enactment of the Regional Government Act of 1999 because the act promotes regional autonomy and decentralization. Under the concept of regional autonomy, decentralized authorities should be based on pluralism of the regions so as to lead not only to the formation of autonomous provinces or regencies/cities, but also to the recognition of customary law community as the genuine autonomous region¹⁷. Certainly, each customary law community has its own autonomous structures, functions, and authorities. Regional autonomy and the recognition of indigenous people should certainly affect the authorities in the management of marine and coastal areas. In this regard, the authorities should be vested not only in the central, provincial, or local governments, but also in the customary law community¹⁸.

In reality, however, the implementation of various laws and regulations related to coastal and marine management is often in conflict with customary law that also regulates the management and utilization of natural resources in coastal areas and the sea. This conflict occurs despite the *adat* communities and their embedded rights have been constitutionally recognized in the Article 18B paragraph (2) of the Constitution, which states that '*Negara mengakui dan menghormati kesatuan-kesatuan masyarakat hukum adat beserta hak-hak tradisonalnya sepanjang masih hidup dan sesuai dengan perkembangan masyarakat dan prinsip Negara Kesatuan Republik Indonesia, yang diatur dalam undang-undang*'. (The State recognizes and respects traditional communities along with their traditional customary rights as long as these remain in existence and are in accordance with the societal development and the principles of the Unitary State of the Republic of Indonesia, and shall be regulated by law).

Political reform before 1998, one could hardly find legislation that assigned authorities to the local government to formulate policies on natural resources management according to local characteristics. Apparently, this situation is in contrast with the Indonesian Constitution, which has established a clear guarantee for the protection of indigenous people's rights. Article 18 of the Constitution (before amendment) state: "*Pembagian daerah Indonesia atas daerah besar dan kecil dengan bentuk Undang-undang, dengan memandang dan mengingat dasar permusyawaratan dalam sistem pemerintahan negara, dan hak asal-usul dalam daerah-daerah yang bersifat istimewa*" (the division of Indonesia's territory into large and small regions is established through acts, taking into account the basis deliberation in the governmental system and the genealogical rights of special region). *The elucidation of the article states that*".....dalam teritori negara Indonesia terdapat kurang lebih 250

¹⁶ Mohammad Hatta, Penjabaran Pasal 33 Undang-undang Dasar 1945, 1977, Jakarta, Mutiara, p. 28

¹⁷ Darmansyah, 2003, *Optimalisasi Pelaksanaan Otonomi Daerah dalam Otonomi Daerah, Evaluasi dan Proyeksi*, Jakarta, Yayasan Harkat Bangsa -Partnership. p. 193.

¹⁸ Art. 2, para. 3 point 2d Government Regulation No. 25 of 2000.

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zelfbesturende landschappen dan olksgammenschappen seperti Desa di Jawa dan Bali, Nagari di Minangkabau, Dusun dan Marga di Palembang dan sebagainya. Daerah-daerah ini mempunyai susunan asli dan oleh karena itu dapat dianggap sebagai daerah yang bersifat istimewa. (in the territory of Indonesia there are approximately 250 *zelfbesturende landschappen* and *olksgammenschappen*, such as *desa* in Java and Bali, *nagari* in Minangkabau, *dusun* and *Marga* in Palembang, and so on. Those regions have the original structures, and therefore can be considered as regions with special characteristic.

The evolution from centralization to decentralization was re-started during the Reform Era, with the enactment by Law (UU) Number 22/ 1999 (the Local Autonomy Law), which was revised with law Number 32/2004. The chance has been opened for a shift in the fisheries governance system, a shift of regime from a top-down to a bottom-up approach, which encourages more participation of the communities through the revitalization of community-based management system. The management system has to consider local custom, local customary practices as well as community involvement. Such as *sasi*, and *kewang* as law enforcement of *sasi* rules, this tradition continues to thrive and survive in protecting the environment. Change of government system and the enactment a variety of products with regard to natural resources, both on land and at sea, does not alter the structure, the duties and authority of *kewang*. *Kewang* remained consistent implementing measures to protect natural resources, although the state constitution does not agree with it. Example case, when the problem occurred in 1997 between the *kewang* Haruku village, which representing people at Haruku Village against PT. Aneka Tambang when they have permission from central government to exploitation gold resources in the *petuanan*¹⁹ Haruku village. On the persistence *kewang* fight rejection the activity of PT. Aneka Tambang at the regional, national and international levels, then at the end PT. Aneka Tambang out of the *petuanan* Haruku village. Another case story, In 2007 when one of the Consultants Company who received permission from the central government and local government conduct a study of sources - geothermal resources in the *petuanan* Haruku village. Rejection by the *kewang* Haruku village published and advocated at the local and central government, have an impact on the cessation of the study. Not because the *Kewang* refused exploitation and research, but the activity is done without good planning and not environmentally and damaging places around the location of the activities.

The need for protection the environmental also of marine and coastal areas arises due the heavy pressures of exploitation. This pressure are the result of and accelerated rate of development, and expanding population and increasing dependence of people on marine and coastal resources. Indonesia have to recognizes the role of the country in the global context, and therefore pays attention to supporting marine and coastal conservation and management to promote its economy, as well as to fulfill the needs of the large coastal population through sustainable use of natural resources.

In this framework, the development should be able to consider various aspects, not only economic aspects but also social and cultural environment as a whole. All development which followed by increasingly degradation environmental need to evaluate. The government should evaluate the failed policies with the various regulations and laws that have been issued, as well as political commitment in order to provide solutions to the existing environment and conflict.

Therefore, even though the law was there and the state has a moral responsibility to guarantee the right but there should be a strong determination of each individual in order to

¹⁹ In Indonesia call *ulayat*, but for Maluku call *petuanan*, according to Saad, 2003, traditional knowledge related to authorities and obligations of community towards the customary law related to land and water in their area.

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maintain the continuity of nature in order to be guaranteed for the life of the community, especially for indigenous people who are familiar with the culture in managing natural resources with wise as well as to minimize and correct the failed government policies, which should also be a solution to the political commitment to the internal conflict that occurred in the state, as said by Acheson that: " although the state has a legal and moral responsibility to conserve rural commons ; to guarantee livelihood rights of local communities by recognizing their customary rights to resources ; to adopt environment-friendly strategies to internalize externalities ; and to correct various form of market, institutional and policy failures, solutions are delayed for want of political commitments and internal conflict²⁰.

This paper has shown that the *adat* communities in Maluku have their own wisdoms and cultures that are highly valuable for the protection of marine ecosystem and coastal areas. The practices of *sasi* and *kewang* in the *adat* communities in Maluku Islands, especially in Ambon and Lease Islands, represent a good example of an effective and sustainable management of natural resources. Without the existence of *Kewang*, which functions as a supervising institution, the destruction of forests, river, coastal areas and marine resources, will not be resolved. In many *adat* communities in the Maluku Province, there are various effective customary rules that regulate how and when the utilization of natural resources may take place.

Accordingly, the integrated resource management and its sustainability are indeed the key words for a good resource management. For this purpose, the availability of necessary legal tools is indeed of paramount importance. The legal tools can give legitimacy to the existence, structure, powers and functions of traditional governance institutions, including the *Kewang* in the island of Ambon and the Lease Islands as a collective management of the preservation of coastal environment ecosystem. One may expect that the future management of natural resources will seriously take into account regional characteristics, for example by applying the bio-region approach and considering the socio-cultural conditions of local communities. The recognition of indigenous people's access and rights to natural resources and of the local wisdom in the acquisition and utilization of natural resources might well be expected as a first move towards better and just natural resource management. In this regard, legal arrangements that respect and accommodate legal pluralism within the society, is inevitable.

Thus, a frame for the implementation of management already exist, but implementation needs stronger political support, with ecosystem and sustainable management principles as the bases. Historically and philosophically, tradition and customary law are considered the manifestation of a nation's soul from generation to generation²¹

Recognition of custom in the regions constitutions was seen as essential to national identity. According to Maluku, the inevitable conflicts between statutory law and customary law were knowingly embraced by the constitution-makers.

CONCLUSIONS

Adat (Customary) laws regulating *sasi* are truly alive among people. *Sasi* contains prohibition on the use of natural resources for certain period of the time to permit particular

²⁰ Kaleekal Thomson, 2009, *Development policies, state interventions and struggles for livelihood rights in coastal communities in Kerala, India : Case study of Cochin clam fishery*, Ocean and Coastal Management 52 (2009), Elsevier Ltd, All rights reserved hal, 586, journal homepage : www.elsevier.com/locate/ocecoaman

²¹ Setiandy, 2008 and wignjodipoero in Lucky Adrianto, at all 2009, dalam *The Indonesia Workshop Report, Customary Institution in Indonesia: Do they have a role in Fishery and Coastal Area Management?* 2- 5 Agustus 2009, Lombok, Indonesia, International Collective in Support of Fishworkers

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flora and fauna to renew itself, to maintain quality and increase the population of that resource. Sasi regulation do not only include the natural environment but also the social and the man-made environment. And the Kewang as the law enforcement is a good police and still relevant for this time. The practices of *sasi* and *kewang* in the *adat* communities in Maluku Islands, represent a good example of an effective and sustainable management of natural resources. Without the existence of *Kewang*, which functions as a supervising institution, the destruction of forests, river, coastal areas and marine resources, will not be resolved. In many *adat* communities in the Maluku Province, there are various effective customary rules that regulate how and when the utilization of natural resources may take place. Accordingly, the integrated resource management and its sustainability are indeed the key words for a good resource management. For this purpose, the availability of necessary legal tools is indeed of paramount importance. The legal tools can give legitimacy to the existence, structure, powers and functions of traditional governance institutions, including the *Kewang*²² So It is important that adat law of sasi is placed in context and adapted so that may continue to be relevant as times change. It is to be hoped that the development experts will assist the growth of sasi regulations so that their essence can be preserved, so the initiatives from below to uphold the prohibitions on the depletion of natural resources are maintained and to use then as much as possible for the prosperity of the people in development that is both environmentally oriented as well as sustainable. A future in which indigenous values can survive and perhaps thrive will depend on pro-active efforts among indigenous groups to define their own development futures reflecting their own cultural values²³.

RECOMENDATIONS

For the recommendation to promote and harmonized coastal and marine zone management, need to :

- inventory of environmental problems/issues (ecological, sosio-economic, physical) related to coastal marine area,
- strengthening sustainability traditional conservation and management practices (*sasi*, Yot, yutut, *kewang* system)
- impact of human activities and pollution
- development of small island management concept base on indigenous people wisdom
- awarness and participatory programmes,
- development and enforcement of relevant legislation,
- development of sustainable alternative ways of income for local communities or indigenous people at coastal marine area

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²³ D. Groenfeldt, Opcit, p. 917

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