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PREVENTIVE REGULATIONS TO REMOVE ENVIRONMENTAL DAMAGE TO MANGROVE ECOSYSTEM IN EAST KALIMANTAN, INDONESIA

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Abstract

Mangrove was an important resource in maintaining coastal ecosystem sustainability, as part of the of coastal and river basin integral management. Quality criteria was put in mangrove ecosystem deterioration as a protection form, it was legal protection in environmental legal aspects. This research conducted by legal approach. Article 21 paragraph (3) Law Number 32 of 2009 concerning Environmental Protection and Management in accordance with Law Number 27 of 2007 concerning Management of Coastal Areas and Small Islands. Furthermore, preventive efforts in East Kalimantan based on legal frameworks, of Balikpapan City Regional Regulation Number 12 of 2012 concerning Regional Spatial Planning.

Keyword: Legal Protection, Preventive Efforts, Mangrove Ecosystem

INTRODUCTION

Indonesia was one of the countries with the largest mangrove forests in Southeast Asia. Indonesia had mangrove forests covered 2.9 million hectares area of 4.9 million acres or nearly 59.8% of the total area which exist with mangrove forest in Southeast Asia. But in the past 10 years (1990-2000) extensive mangrove forests decline was occurred in Indonesia by 17%.

Through the Ministry of Environment and Forestry data in March 14 of 2017, Indonesia had the largest mangrove ecosystem in the world and had the highest biodiversity. With 95 coastlines, 181 km², Indonesia had a mangrove area of 3,489,140.68 ha's (in 2015). This amount was equivalent to 23% of the world's mangrove ecosystem, from the whole total area of 16,530,000 ha's. Mangrove ecosystem in Indonesia, covered 1,671,140.75 ha's area in good condition, while 1,817,999.93 ha's area was in damaged condition (data of the

Director of Essential Area Management, 2017). For mangrove damage, based on Kiara's data in 2013, 422,263 ha's of mangrove forests were converted into oil palm plantation. Among them were located in Bangka Belitung island (9287,663 ha's), Enggano Bengkulu Island (7,500 ha's), Mentawai Island, West Sumatra (73,500 ha's), Langkat North Sumatra (20,100 ha's), Bawal Island West Kalimantan (3,500 ha's), and Seram Island Maluku (30,000 ha's).

In 1990, extensive mangrove forests in coastal Indonesia reached 3.5 million ha's in the year 2000 decreased to 2.9 million ha's. The number of farmed land opened in mangrove forest area. If those cases on and on, the next result will be abrasion, loss of wildlife or habitat that marine life needed, it caused by the mangrove forests support.

Generally, mangrove forests were in critical circumstances, because few things caused extensive mangrove forests on the wane among others by the settlement activities, fishponds, forest concession activities or irresponsible.

Based on Ministry of Environment and Forestry (Kementerian Lingkungan Hidup dan Kehutanan/KLHK) data, extensive mangrove forests were in critical condition access 903.916, 88 ha's of land outside the forest area and 767.223, 87 ha's in the area. In total there were 3,497,478.90 ha's of mangrove forests in Indonesia (2014). If a program relied on KLHK 2015-2019, program yearly was only able to recover 400 ha's of mangrove forests. In the previous period, 2010 until 2014, the realization of the mangrove rehabilitation program only reached 31,675 ha's. Critical land in forest areas that potential developed so social forestry with the function of cultivation.

METHODS

The purpose of the research will have primarily to analyze and discussed the exist of protective legislations rules and its results in raising mangrove biodiversity resources value to fully support livelihood population.

RESULT AND DISCUSSION

The position of the mangrove ecosystem is important, for coast, marine biota and the surrounding community life. Article 33 of the 1945 Constitution of the Republic of Indonesia, basically the mangrove can be used as much as possible for people prosperity in Indonesia, but there is a limit to its utilization, namely in accordance with carrying capacity in mangrove ecosystem environment. This is because the people who live around the mangrove area, have the right in getting a good and healthy environment. This right to a good and healthy environment, which is ruled by Article 21 Law concerning Environmental Management Protection, is that there are

preventive measures in the form of criteria for quality standards for damage to mangrove ecosystems. These preventive efforts will minimize mangrove damage.

Daniel *et al.* (2011) confirmed that mangrove forest which sustainably managed provides carbon sequestration and storage. In addition to protecting coastal areas from the abrasion of mangroves can absorb emissions released from the ocean and air. Absorption of exhaust emissions is maximized because mangroves have a breath root system and the unique structure of coastal plants. One of the excess amount will result the carbon in the atmosphere is the disruption of the energy balance between the earth and the atmosphere, thus triggering global climate change. The increase in carbon elements in the form of carbonic acid (CO₂), exhaust gases (CO), methane (CH₄) and greenhouse gases in alarming quantities has triggered global warming.⁽¹⁾

Indonesia is one of the world's great mangrove nations, which is 22.6% of the total global mangrove area. However, the Indonesian mangrove area has been degraded from 4,2 millions in 1980 to only 3,1 millions in 2011.⁽²⁾ Mangrove forests are ecologically and economically important and among the most carbon-rich ecosystems in the tropics.^(3,4) Mangrove forest plays a vital role in the biogeochemical carbon cycle and climate regulation and to contributing potentially in reducing greenhouse gas emissions and facilitating counterbalance anthropogenic CO emissions.^(5,6,4)

Mangrove forests in North Sumatra exist in the east coastal of Sumatra Island generally in Karang Gading and Langkat Timur Laut Wildlife Reserve (KGLTLWR) and threatened due to anthropogenic activities rapidly such as

¹⁹ conversion for aquaculture, oil palm plantation, filling and use of mangrove for urban development.⁽⁷⁾

Indonesia has declared its commitment to reduce emissions by 26-41% in 2020 (Boer et al. 2009).⁽⁸⁾ More than 50% of the emission reduction target is intended to come from the land-use, land-use-change and forestry sector (LULUCF). The conversion of tropical forest including mangrove forest led to increasing GHG emission by landuse/land-cover changes and the drivers of deforestation and forest degradation.^(9,10) Due to large geographic coverage in Indonesia, potential reduced emissions from land-based sector are implemented in provincial and regency levels through Regional Action Plan for Greenhouse Gas Emissions Reduction (Rencana Aksi Daerah Penurunan Gas Rumah Kaca/RAD GRK).²⁵

It has been reported that preventing mangrove loss has the potential of reducing global emissions for a cost of roughly at ²⁵ less than \$10 ton CO₂, where the Asia and Oceania region 2 has the largest potential emissions offset supply.⁽⁶⁾ This recent study suggest that protecting mangrove for their carbon was an economically feasible scheme.⁽⁶⁾ In this context, Indonesia plays an important role to reduce GHG emission from mangroves, since largest mangrove area in the world existing in Indonesia.¹

The rehabilitation of the damaged mangrove ecosystem can be done by restoration efforts. Restoration is defined as an effort to recover the degraded forest area to the original condition or close to it.⁽¹¹⁾ But it needs to be emphasized that community involvement may be a key factor in intensifying the potential for successful mangrove restoration.⁽¹²⁾

¹ The logical reasons for this argument are (a) more often agencies have limited budget to implement their planned restoration effort and manage it. They can leverage their small budget from the community contributions of cash, labor, physical resources and management input, (b) any restoration effort against the community's wish may result in a potential backlash and a unsuccessful program.

Legislation

The 1945 Constitution of Republic of Indonesia

In Article 33 paragraph (3) of the 1945 Constitution of the Republic of Indonesia which reads "Earth, water and natural wealth contained therein are controlled by the state and used as much as possible for the people prosperity". In this article it seems clear how the concept of the right to control of the state against natural resources. The statement in the Constitution of the Republic of Indonesia concept cannot be separated from the magnitude of the natural resource potential of Indonesia.

State control rights stated in Article 33 Paragraph (3) of the 1945 Constitution position the state as the regulator and guarantor of people's welfare. The function of the state cannot be separated from one another, meaning to release a business field on natural resources to cooperatives, the private sector must be accompanied by special forms of regulation and supervision, therefore the obligation to realize the greatest prosperity of the people can still be controlled by the State.

State control rights in Article 33 Paragraph (3) of the 1945 Constitution, justify the state to seek natural resources relating to public utilities and public services. On the basis of philosophical considerations (the basic spirit of the economy is joint effort and kinship),

strategic (general interests), politics (preventing monopolies and oligopolies that are detrimental to the economy of the country), economy (efficiency and effectiveness), and for the general welfare and prosperity people.

Based on the above formula, it turns out that it contains some of the same elements. From understanding these various equations, the definition of state ownership rights is that the State through the government has the authority to determine the use, use and rights of natural resources within the scope of regulating, managing, and supervising the management and utilization of natural resources.

Therefore, the natural resources that are important to the state and control the needs of many people, because it is related to public benefit (public utilities) and public services (public services), must be controlled by the state and run by the government. Because these natural resources must be able to be enjoyed by the people justly, affordably, in an atmosphere of prosperity and general prosperity that is just and equitable.

The right to control this country is realized in authorities possessed form by the state towards natural resources and environment. This authority has a vital role in good environmental management realization framework. So, with good environmental management, and supported by regulations, Indonesia can greatly get benefit from potential natural resources owned and live comfortably in a good and healthy environment.

¹⁵ In Article 28 H paragraph (1) of the Constitution of the Republic of Indonesia in 1945 which states that every person has the right to live physically and mentally prosperously, live, and get a good and healthy environment and is entitled to health

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services. The environment is a unity of space with all things, the power of circumstances and living things including human beings and their behavior that affect the survival of the life and welfare of humans and other living things.

5

Law Number 5 of 1990 concerning Conservation of Natural Resources and Ecosystems

Related to the authority of mangrove utilization, there are several provisions in this law, namely in Article 3 that reads "Conservation of living natural resources and their ecosystems, aiming at the realization of the preservation of living natural resources and the balance of the ecosystem so that it can better support efforts to improve the welfare of the community and the quality of human life". Then, Article 21 states that "Every person is prohibited from taking, cutting down, possessing, damaging, destroying, maintaining, transporting, and trading protected plants or their parts alive or dead." It is Article it is clear that we are prohibited from carrying out destruction against plants that are protected and have a good function and role for the environment which in this case is Mangrove.

Then related to the use of mangroves in Article 26 says "Sustainable use of living natural resources and their ecosystems is carried out through activities, utilization of environmental conditions of natural conservation areas, utilization of wild plants and animals." Article 27 which reads "Utilization of environmental conditions of natural conservation areas carried out while maintaining the sustainability of the area's functions", and Article 28 which reads " Then the use of wild plants and animals is carried out by taking into account the continuity

of potential, carrying capacity and diversity of plant and wildlife species.”

Later, related with prohibition and penal provisions contained in this Act under Article 33 Paragraph (3) of Article 40 Paragraph (2) stating that "Everyone is prohibited from conducting activities⁵ which are incompatible with the function of the zone of utilization and other zones of the national park, the forest park, and the nature tourism park. "In Article 40 Paragraph (2) stating that "Anyone who knowingly violates the provisions as referred to in Article 21 Paragraph (1) and Paragraph (2) and Article 33 Paragraph (3) shall be punished with imprisonment for a maximum of 5 (five) years and a fine of not more than Rp. 100,000,000.00 (one hundred million rupiah).”

From these Articles it is clear that the use of mangrove forests must also pay attention to the rules and impacts on the environment and the function of the mangrove forest itself, both ecological functions and economic functions, with the existence of this law the sustainability of the function of the mangrove forest area can run well so that the ecosystem in it stay awake.

²⁷
Law Number 5 of 1994 concerning the Ratification of the United Nations Convention Diversity (United Nations Convention on Biodiversity)

The mangroves contain biodiversity in it, for the sustainability of the evaluation process of maintaining the balance of the ecosystem. The standard quality of damage to the mangrove ecosystem, in order to safeguard the biodata species in mangroves, is threatened by environmental dan²⁷e. For this reason, the ratification of Law Number 5 of 1994 concerning the Endorsement of the United Nation Convention Diversity is important in

maintaining the sustainability of ecosystems.

²
Law Number 41 of 1999 concerning Forestry

In Article 10 Paragraph (2) reads "Forest management as intended includes activities for the implementation of forestry planning, forest management, research and development, education and training, and forestry counseling, and supervision.”

Article 21 writes "Forest management as intended includes forest management activities and preparation of forest management plans, forest utilization and use of forest areas, forest rehabilitation and reclamation, and forest protection and natural conservation supervision". In this law, there are some efforts to manage forests and restrictions that aim to maintain sustainable forest preservation and not be damaged.

In Article 24 related to the protection and conse²ation of nature, it is stated that the implementation of forest protection and nature conservation aims to protect forests, forest areas and their environment, so that the protection function, conservation function, and production function are achieved optimally and sustainably. What is meant by forest protection in Article 47 Paragraphs (1) and (8) Protection of forests and forest areas is an attempt to prevent and limit damage to forests, forest areas, and forest products caused by human actions, livestock, fire, natural resources, pests and diseases and maintain and safeguard the rights of countries, communities and individuals over forests, forest areas, forest products, investments and devices related to forest management.

In this case the community must participate too in supervising acts of forest destruction as referred to Article 60 paragraph (2) namely the community and/or individuals participating in forestry supervision and in Article 69 paragraph (1) which states that the community is obliged to participate in maintaining and guarding forest areas from disturbance and destruction. Therefore we must participate in the role of guarding and supervising mangrove forests, actions that are often carried out by humans is minimal if a mining business is carried out in the area of mangrove forests, in this law there is a prohibition in Article 38, namely in protected forest areas mining with an open mining pattern and its criminal provisions in Article 78 paragraph (6) Anyone who deliberately violates the provisions referred to in Article 38 Paragraph or Article 50 Paragraph (3) letter g, is threatened with a maximum imprisonment of 10 (ten) years and fines of a maximum of Rp. 5,000,000,000.00 (five billion rupiah).

If humans do damage and do not protect the forest, then of course it will have an impact on not achieving the goal of protection which indirectly reduces the function of protection, the function of conservation and forest production itself which in this case is mangrove.

Law Number 27 of 2007 concerning Management of Coastal Areas and Small Islands

Related to the use of mangroves in coastal areas and the prohibition provisions have been regulated in this law. In Article 2 which reads "The scope of the regulation of the Coastal Zone and Small Islands covers the transitional area between terrestrial and marine ecosystems affected by changes in land and sea, to the land covering the

administrative area of the district and towards the sea as far as 12 (twelve) nautical miles measured from the coastline "and in Article 5 reads "Management of Coastal and Small Islands covers activities of planning, utilization, supervision and control of human interaction in utilizing Coastal and Small Islands Resources and the natural processes in a sustainable manner efforts to improve the welfare of the Community and maintain the integrity of the United Republic of Indonesia."

Coastal Zone and Small Islands Management as referred to in Article 5 is obliged to do by integrating activities between Government and Regional Government, Inter-Regional Government, between sectors, between government, business, and society, between terrestrial ecosystems and marine ecosystems and, between science and management principles.

In the case of coastal area utilization rights as contained in Article 1 Paragraph (18) which reads "Coastal Water Concession Rights, hereinafter referred to as HP-3, are rights to certain parts of coastal waters for maritime and fisheries businesses, as well as other businesses that related to the utilization of Coastal and Small Islands Resources that cover the sea level and the water column to the surface of the seabed at certain limits ", then in Article 16 Paragraph (1) which states that the utilization of coastal waters is given in the form of HP-3, The HP-3 covers the exploitation of the sea surface and the water column up to the surface of the seabed, and in Article 17 Paragraph (1) HP-3 is given in a certain area and time, the Giving of HP-3 is required to consider the interests of Coastal and Island Ecosystem preservation -Small Islands, Indigenous Peoples, and national interests as well as the right of

peaceful crossings for foreign ships. And in Article 17 18 HP-3 can be given to individual Indonesian citizens, legal entities established under Indonesian law or Indigenous Peoples.

Then related to the prohibition stipulated in the law, namely in Article 35 Letter (e), it is prohibited to use methods and methods that damage the mangrove Ecosystem which is not in accordance with the characteristics of the Coastal Zone and Small Islands, and in letters (f) and (g), conversion is prohibited Mangrove ecosystems in cultivation zones or zones that do not take into account the sustainability of the ecological functions of coastal and small islands and cut down mangroves in conservation areas for industrial activities, settlements, and/or other activities.

So from the Article in terms of the use of coastal areas for mangrove ecosystems must pay attention to the continuation of the ecological functions of coastal areas and the prohibition to cut mangroves for various purposes. If the prohibition in Article 35 letters (e), (f), and (g) is violated, then in this law there is a criminal provision governing Article 73 paragraph (1) sentenced to a minimum of 2 (two) years imprisonment and a maximum of 10 (ten) years and a fine of at least Rp.2,000,000,000.00 (two billions rupiah) and a maximum of Rp.10,000,000,000.00 (ten billions rupiah).

Law Number 32 of 2009 concerning Environmental Protection and Management

In this Act has been explained related to the Standard Criteria for Mangrove Damage, in Article 1 which states that to determine the occurrence of environmental damage, the standard criteria for environmental damage are

determined. The standard criteria for environmental damage include the standard criteria for ecosystem damage and the standard criteria for damage caused by climate change. Related to the discussion in this book, there are arrangements in Article 21 paragraph (2) letter (d), namely the standard criteria for damage to ecosystems include the standard criteria for mangrove damage.

Implementing Regulation

Government Regulation Number 45 of 2004 concerning Forest Protection

This Government Regulation Number 45 of 2004 concerning Forest Protection is one of the Government Regulations mandated by Law Number 41 of 1999 concerning Forestry related to forest management issues. Forest management activities include forest management and the preparation of forest management plans, forest utilization and use of the area, forest rehabilitation and reclamation and forest protection and nature conservation.

Its authority is in the hands of the Central Government and/or the Regional Government, or in the hands of the BUMN in the forestry sector (if there is delegation of authority from the Central Government). Its activities are in Conservation Forest Management Units/Units (KPHK), Protection Forest Management Units (KPHL) and Production Forest Management Units (KPHP), in this Government Regulation also regulated regarding forest protection with specific objectives set by the Minister of Forestry, which includes activities research and development, education and training as well as religion and culture.

The main objective of forest protection is to protect forests, forest products, forest areas and their environment so that 3 (three) forest

functions are achieved optimally and sustainably. To achieve this goal is carried out with 2 (two) principles, namely preventing and limiting damage to forests, forest areas, and forest products, as well as maintaining and safeguarding the rights of states, communities and individuals over forests, forest areas, forest products, investments and equipment relating to forest protection activities.

In this Government Regulation, it regulates 4 (four) causes of damage to forests, forest areas and forest products, namely humans, livestock disturbances, natural resources, pests and diseases. Therefore humans are the cause of forest destruction which in this case is a mangrove forest must have an awareness of the importance of protecting the environment or maintaining mangrove forests that have an important role for life.

Then there are several articles try to regulate or make limits on illegal logging practice, namely Article 135 regulates the obligation to complete a certificate of legal validity of forest products in forest products and Article 14 forest utilization can only be done after permission from the authorized official. Another important article is that the customary law community is the executing party and is responsible for forest protection activities for the forest area that it manages. The customary law community in question is the indigenous people whose reality is still exist and their existence is recognized.

13
Presidential Regulation Number 73 of 2012 concerning the National Strategy for Mangrove Ecosystem Management

In Presidential Regulation Number 73 of 2012 concerning the National Strategy for Mangrove Ecosystem Management, it is a regulation that focuses on more strategies to manage

mangrove ecosystems, in Article 1 paragraph (3) states that sustainable mangrove ecosystem management is all efforts to protect, preserve and sustainably use through integrated process to achieve the sustainability of mangrove ecosystem functions for the welfare of the community, and what is meant by the Mangrove Ecosystem in Article 1 paragraph (2) is the unity between mangrove vegetation communities associated with fauna and micro organisms so that they can grow and develop in areas along the coast especially in areas tides, lagoons, river estuaries that are protected by sandy mud or mud substrate to form a sustainable environmental balance.

The Article explains that to carry out sustainable mangrove ecosystem management which is an integral part of coastal area management integrated with Watershed Management, coordination, integration, synchronization and synergy across sectors, agencies and institutions are needed. The implementation of forest protection aims to protect forests, forest products, forest areas and their environment, so that the protection function, conservation function, and production function are achieved optimally and sustainably.

The principles of forest protection include preventing and limiting damage to forests, forest areas and forest products, which are caused by human actions, livestock, fire, natural resources, pests, and diseases, maintaining and safeguarding the rights of states, communities and individuals over forests, forest areas, forest products, investments and devices related to forest management.

The National Mangrove Ecosystem Management Strategy (SNPEM) in Article 1 paragraph (1) is an effort in the form of policies and programs to

28 realize sustainable management of mangrove ecosystems and sustainable prosperous communities based on available resources as an integral part of the national development planning system.

This SNPEM has the objectives as stated in Article 2 paragraph (1) that is to synergize the policies and programs of mangrove ecosystem management which cover the fields of ecology, socio-economic, institutional, and legislative regulations to ensure the sustainable function and benefits of mangrove ecosystems for the welfare of the community. To implement this SNPEM, the National Mangrove Ecosystem Management Team was formed, hereinafter referred to as the National Coordination Team, the National Coordination Team in the steering team was chaired by the Coordinating Minister for Economic Affairs, and the implementing team was chaired by the Minister of Forestry.

Balikpapan City Regional Regulation Number 12 of 2012 concerning Regional Spatial Planning

40 Article 1 paragraph (18) states that Protected Areas are defined areas with the main function of protecting environmental sustainability which includes natural resources and artificial resources. Article 37 paragraph (1) states that the Urban Area Spatial Plan includes protected area and cultivation areas. Protected areas as referred to in Article 37 paragraph (1) letter (a) include, protected forests, areas that provide protection for subordinate areas, local protection areas, green open spaces, natural reserve areas and cultural heritage, natural disaster-prone areas, marine conservation areas and coastal and wildlife refuge areas.

Mangroves 37, included in the local protection area as referred to in Article 41 paragraph (1) letter (d) mangrove forested area/mangrove. In addition, those related to mangroves in Article 45 paragraph (1) letter (a) describe the intended Marine and Coastal Conservation Areas include, Mangrove and Marine Protection Zones (DPML). Mangrove 37 and Marine Protection Zones (DPML) as referred to in paragraph (1) letter (a), consist of Mangrove Protection Core Regional Sub-Zone (DPM), located in the sea and coastal area of Teritip Village, East Balikpapan Subdistrict, covering an area of approximately 52 ha. Marine Protected Area (DPL), located in the sea and coastal area of Teritip Village, East Balikpapan District, covering an area of approximately 24 ha.

Then mangrove is also a tourist area in Balikpapan as mentioned in Article 54 paragraph (3) The natural tourism area in question includes the Kemantis Mangrove tourism area in Kariangau Village, West Balikpapan Subdistrict, Margomulyo Mangrove tourist area in Margomulyo Village, West Balikpapan Subdistrict, Mangrove tourism area DPML at Teritip Village, East Balikpapan District.

In Article 77 paragraph (5) describes the general provisions of zoning regulations for mangrove forested/mangrove border areas as referred to include, permitted small-scale agricultural activities, permissible forestry activities, industrial activities not permitted, no trade activities allowed, activities not allowed offices, are allowed to limit the activities of hospitality services with KDB up to 50%. In connection with the Criminal Provisions stipulated in this Local Regulation 11 Article 109 paragraph (1) to (3), anyone who violates the provisions referred to in this Regional

Regulation, shall be sentenced to a maximum of 6 (six) months imprisonment or a maximum fine of Rp.50,000,000 (fifty millions rupiah), then the criminal act in question is a violation, in addition to a criminal threat, it can also be threatened with criminal sanctions in accordance with the laws and regulations that govern it.

³¹
Decree of the Minister of Environment Number 201 of 2004 concerning Standard Criteria and Guidelines for Mangrove Damage Determination

Ministerial Decree is a technical rule that explains a lot of the standard criteria for mangrove damage. In Article 2 it is explained that the Determination of the Mangrove Damage Standard Criteria is applied to the Mangrove Beach and Mangrove River Signatures outside the conservation area.

²⁰
Regulation of the Coordinating Minister for Economic Affairs (Permenko) Number 4 of 2007 concerning Policies, Programs, and Performance Indicators for National Mangrove Ecosystem Management (Stranas Mangrove)

The implementation of National Strategy for mangroves through the establishment of activities and action plans for ministries/agencies with a time limit of two months from the date of stipulation. There are four important values in this program namely ecology, social, economic, institutional and legislation. Permenko is intended as a guideline and reference for the government, provincial and district/city governments and other parties in managing mangrove ecosystems in accordance with the characteristics of their respective regions.

With this program, a good target for mangrove ecosystem cover in 20145 was 3.49 million ha. While the 2015

³⁹
Ministry of Environment and Forestry data shows that mangrove ecosystem coverage has been damaged 1.82 million ha with a good condition of 1.67 million ha.

CONCLUSION

Preventive efforts as legal instruments for pollution and environmental destruction especially damage of the mangrove ecosystem in the Article 21 Paragraph (3) of the Law Number 32 of 2009 concerning Environmental Protection and Management. Limitations of physical and/or mangrove biodiversity, carried out as control of the buffer of life and natural wealth of high value.

However, current condition of mangrove forests on Indonesia's coast is in a poor condition. There are 2 (two) major factors that cause damage to mangrove forests in Indonesia, namely human factors and natural factors. Human factors are the most dominant factor causing damage to mangrove forests. Excessive exploitation by logging mangrove forests is often carried out by the community. In addition, in terms of excessive land use, it often happens to open new land by utilizing land overgrown with mangrove forests. Regulations are less strong, overlapping and dissonance between regulations make mangrove forests threatened with sustainability. In addition, natural factors have an impact on the destruction of mangrove forests, which is caused by abrasion and plant pests. Preventive efforts of the above mangrove damages, with Law Number 27 year 2007 concerning on Management of Coastal Areas and Small Islands. Furthermore, preventive efforts at East Kalimantan based on legal frameworks, of Balikpapan City Regional Regulation Number 12 of

2012 concerning Regional Spatial Planning. This regulation integrate with national strategy of mangrove ecosystem management as a form of

policy and management program of sustainable mangrove and prosperous society.

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