Environmental protection of mangrove forest: Affirmation consensus approach

Maskun, A Ilmar, Naswar and Achmad
Faculty of Law, Universitas Hasanuddin, Indonesia.
E-mail: maskun@unhas.ac.id

Abstract: The research focuses on the concretization of unwritten legal transformation into written law on mangroves. Qualitative methods were used to collect and analyze relevant data. The research was restricted in Luwu, Maros, Barru, and Bone regencies. This article also shows the success of the transformation process in Luwu regency in conserving mangrove forests based on the agreement of the society to jointly protect them from destruction and their positive effects will be felt again by the citizens.

1. Introduction
The existence of mangroves plays an active role in environmental balance on local, regional, and international scales [1,2]. At the national level, the Indonesian government is committed to protecting mangrove forests from any kind of damage [3]. At the provincial level, the South Sulawesi Government is fully devoted to environmental protection and management. This is attributed to the fact that between the years 2000 and 2009, the rate of deforestation in the region reached new heights, 50,072.92 hectares per year. For this reason, the regional government became more concerned with the state of the environment [4].

As a remedial course of action, the Provincial Government took efforts to organize and manage the environment, including the coastal area management. Covering 20 districts and cities, the region has an area of ± 25,369.8 km² (± 45% of the area of South Sulawesi), spread along the coastline extending to about 1,973.7 km. Notably, more than 65% of the population of South Sulawesi lives coastal and archipelagic areas with as much as 1,248,378 inhabitants (Men: 731,531 people, Women: 877,971 people). However, the figures show that 80% of the population in the regency is relatively poor despite the fact that they live within the potential resources of promising coastal areas that need to be developed.

The mangrove forest ecosystems continue to experience degradation. A total of 35,052.19 ha in 2010, probably, 48.03% was in good state while the rest had been damaged. The Takalar Regency in Tanakeke Islands is an example of an area in south Sulawesi that can support mangrove. Nevertheless, the forest area has significantly decreased over time. For instance, in 1994 the total area was 4,373.50 Ha while in 1998 it was only 2,488.50 Ha. The
damage is brought about by the conversion of the forests to pond expansion, residential areas, the construction of port and dock facilities, and industrial infrastructure development [5]. The environmental preservation measures have been thwarted while the lives of coastal societies and small islands that depend on it have been threatened.

This study provides an overview of the prevailing state of the mangroves in South Sulawesi, particularly in some districts. The discussions focus on the transformation process, especially within the bounds of norms and legal harmonization. The final discussion focused on the practice of unwritten law that persisted in the society through to the written law in form of village and regional regulations valid in several regencies within the research location.

2. Method
Research data was obtained in the field aimed to strengthen the concept of the transformation of unwritten law to written law. Qualitative methods were used to collect and analyze relevant data. The research was restricted in the Luwu, Maros, Barru and Bone regencies. This is because mangrove destruction was rampant in these four regions. Data was obtained through interviews with respondents with competition in the mangrove sector, the policy makers and the general public.

3. Literature studies towards achieving legal transformation
Kelsen, the author of the hierarchical theory of legal norms (Stufenbau des Recht) argues the hierarchical order and legal customs are tiered and layered [6]. This implies that a lower norm depends on the higher ones for transformation into basic norms that cannot be explored further (Grundnorm). This is because they are hypothetical and fictitious. Basic norm is the highest custom no longer shaped by a higher standard but is rather assumed (presupposed).

To fully understand his theory, it must be related to his other teachings, that is, the pure theory of law (Rheine Rechtslehre). It stated that law arises from the will of power. According to the theory, law comes from a positive legal system made as a general norm and occurs primarily because the judge's decision is perceived an individual norm. Since it is impossible to consider a judge's decision as an individual norm in the arrangement, the understanding of the hierarchy of legal norms is the arrangement of laws and regulations (general rules) [7].

The placement of the rules and regulations in Law No. 12 of 2011 does not mean that the written law is the only tool to test the legislation. An unwritten legal rule (jurisprudence, customary law, or customary law) is part of a positive legal system used to test legislations [8]. In the UK, legislation under the law (delegated legislation) can be tested with reference to common law and general principles such as ultra vires among others. In Netherlands, administrative rules or decisions are tested against the general principles of good governance (algemene beginselen van behoorlijk bestuur).

The testing of legislation should not be based primarily on the improvement but on the setting of its authority [7]. For example, a Regional Regulation that is contrary to a higher-level legislation (except the 1945 the Constitution) may not necessarily be wrong. They may be a violation of the rights and authority of the region guaranteed by the constitution or local government law. In addition, where the district or city Regional Regulations are contrary to the provincial guidelines covering the district or city, the solution will be determined by the provisions of the relevant authority of the province or district/city. If it turns out that the
provincial regulation applies outside its control yet it is contrary to the regency/city regional guiding principles, it must be canceled. In the similarly way, if the district/city Regional Regulation regulates provincial affairs, the regency/city Regional Regulation must be canceled.

In the Indonesian perspective, the legislative assessment mechanism is carried out through a judicial review by the Constitutional Court, the Supreme Court for regulations under the Act on Law, and the legislative review. The assessment can also be executed through the Representatives and the president/regional heads, executive reviews by the president or regional head for Government Regulations, and Regional Regulations that results to changes or cancellation of regulations [9]. The testing mechanism is held to safeguard and ensure the orderly regulation system is not violated. It is also meant to maintain harmony or conformity between laws and regulations to prevent overlapping or contradicting the implementation [10].

Kelsen's theory [11] known in law science includes Reine Rechchtslehre Theory; Grundnorm Theory; and the Stuffenbau des Rechts theory. The basic norm ought to behave as the constitution prescribes, that is, one ought to behave in accordance with the subjective meaning of the constitution of creating authority according to the authority of creating the constitution.

4. Legal transformation of unwritten law into written law: Effective way to save mangrove

The establishment of a legal system has a close connection to the culture of its people. Von Savigny stated that the legal system is part of the society culture. The law is not born of a free act (arbitrary act of a legislator), but it is rather built and found in the soul of the society. Hypothetically, it can be asserted that laws emanate from habits and then made through a legal activity (juristic activity).

In the context of an unwritten legal transformation, it is prudent to put the meaning of transformation in the right perspective. Grammatically, the transformation phrase shows changes in form (form, nature, function, etc.). In this regard, the transformation in this discussion refers to a process of change in form from an unwritten law to a written law in mangroves. In practice, it requires normative to show and support the implementation of these norms.

Transformation is an effort made to create changes in something new and can be achieved through adjustments and changes. In the legal field, transformation is often used in the sense of legal adjustment to the needs of society. Therefore, the process of unwritten legal transformation refers to an attempt making adjustments to the dynamics that occur within the society. Protection of mangroves should be normalized to have legally binding values that will enable all the societies to be devoted to its preservation.

| No. | Regency | Unwritten law | Written law |
|-----|---------|---------------|-------------|
| 1   | Luwu    | Yes           | Yes         |
| 2   | Maros   | No            | Yes         |
| 3   | Barru   | No            | No          |
| 4   | Bone    | No            | Yes         |
The table 1 shows that the normative process of mangrove protection cannot start from the formulation of written law as the case in Maros, Regency and Barru regency. The only exception is Luwu regency. More detailed discussion is illustrated below.

4.1. Luwu

The existence of mangroves in Luwu district, especially the coastal area of Kou, Babang Village, and South Larompong Regency is an integral part of the surrounding societies. The mangrove area is the source of livelihood for the population. Basically, mangroves are protected by the values grown and developed with the society. However, these values began to be eroded by the increasing population growth, translating to increased society needs. People started to abandon the local wisdom and kick-started the exploitation of the existing mangroves. This results lessened the area of the mangrove forests among other adverse effects.

The above incident raised awareness in the people of Babang Village who see the need to revive local wisdom in the protection of the forest. Individuals make mutually agreed provisions to safeguard and conserve mangrove forests to avoid the threat of abrasion and high tide. The agreement made in the grassroots is done with a view of building awareness at the smallest level in protecting the existing forests. One of the efforts to concretize the unwritten legal activities carried out by the villagers was to form the Pasir Putih Environmental Group in 2006. The conservation acts carried out by the group had 3 (three) main objectives. First, to carry out and maintain the preservation of the environment and natural resources including mangrove forests from illegal activities and destruction of coastal and marine ecosystems regulated in the laws and regulations. Second, motivating the society to play an active role in monitoring the activities of utilizing and conserving environmental resources within coastal and marine areas. Third, to enhance cooperation among all the parties competent in environmental conservation efforts and oversee the use of natural resources.

The people of Babang Village agreed to give freedom to the surrounding residents to optimize the potential of the coast and land wisely. If there is a violation of the coastal land use and mangrove destruction either intentionally or not, then there would be sanctions to plant 100 mangrove trees. The embodiment of an unwritten legal transformation in Babang Village regarding mangrove protection was formulated in Village Regulation No. 8 of 2008 on Supervision and Implementation of Coastal and Land Coastal Activities in Babang Village (hereinafter abbreviated as village regulation No. 8 of 2008). The regulation provides cautions for citizens to be wise in coastal and land use in order to avoid damage to mangroves. The following are the contents of the reservations.

a. Provisions discussing mangroves are clearly regulated in Article 3 paragraph 1 of Village Regulation No. 8 of 2008 stating "Anyone who intentionally or unintentionally cuts down mangrove trees will be penalized:

b. It is a requirement to plant mangroves around mangrove trees damaged and supervised by the government or village officials appointed by the Babang Village Chief. The victims are required to report themselves at the village office and can make statements that they will not repeat the same actions in the future and testify before society leaders at the meeting Village.

c. Village officials assigned to supervision or other parties appointed by the village head of Babang, if they provide policies without the knowledge of the village head or the Village
Consultative Body, then the party can be subject to severe sanctions such as putting to practice the provisions in letter a.

d. Provisions for the submission of sanctions in letter above can be accepted if they have three layers or at least three months old.

e. If the perpetrator or person is not able to do the things that have been explained in letters a, b and c, then he can replace or pay a loss of IDR13,000,000.00.

Furthermore, to support the enactment of Village Regulation No. 8 of 2008, the society drafted an agreement about local wisdom in the provision of marriage recommendation in Babang Village. In this agreement, the society believes that every marriage that will be carried out by citizens needs to be accompanied by a commitment to plant mangroves for creating a sustainable environment in Babang Village.

The drafted agreement contains several obligations and restrictions related to environmental conservation efforts. The obligations regulated include:

a. Every village society is obliged to maintain the sustainability of marine and fisheries resources.

b. Every society must have mutual respect for fellow fishermen as a form of brotherhood in maintaining friendship.

c. Every society obeys the agreement of local wisdom formed and mutually agreed upon.

d. Every society must be a witness of any violations and/or criminal acts of maritime and fisheries.

The prohibition preventing everyone from logging mangroves as a place for spawning (breeding) was made. The agreement was the first step of the society to preserve the environment, especially the mangrove forests.

The Regional Regulation also emphasizes the importance of society participation with the aim of preserving mangrove forest ecosystems. Starting from the owner and manager of the farm, fishermen, business entities and related agencies, all have a responsibility in maintaining the mangrove forest area in Luwu Regency. In addition to the Regional Regulation No. 2 of 2007, the Luwu Government also issued Regional Regulation No. 6 of 2015 on the Environmental Protection and Management that strengthens the government's resolve to safeguard mangrove forest areas as an integral part of environmental protection and management. Provisions in this regulation can be considered more comprehensive than the previous ones. This is because it clearly describes the maintenance of mangrove ecosystems carried out through conservation efforts, reserves and preservation of functions to control the effects of climate change.

The control of damage to mangrove ecosystems is also the main focus in this regulation. Damage control mechanisms are efforts meant to prevent, mitigate and restore the ecosystems. The objective in this regard is to ensure the levels of function as material for developing policies for the protection and management of mangrove ecosystems are known in dealing with damage charged to the party that caused the injury. The party must provide information on the damage, isolation of destructive sources, termination of utilization activities, delineation of damage due to activities and carrying out the handling of what has been caused. Whereas in the case of recovery of damage, it is the obligation of each party to utilize the mangrove. Recovery of ecosystem functions is carried out by means of rehabilitation and restoration of the forests.
The availability of regulation on mangrove forest management, starting from village regulations to regional regulations in Luwu regency, is a positive step towards protection. Although the birth of these two Regional Regulations is not based on the Babang Village Regulation, the values and objectives of the Regional Regulation have included problems that form the basis of the provisions in the Regional Regulations of Babang Village.

4.2. Maros

Maros Regency is one of the regions in South Sulawesi Province which has a large mangrove forest, about 457.75 ha, spread in four sub-districts: Marusu, Maros Baru, Lau, and Bontoa (Rony Pranata, et al. 2016). Nevertheless, the high rate of conversion of the land has threatened the mangrove ecosystems in the region. Based on data from BPS and Bakosurtanal, there is an additional pond land area of 1,399.67 Ha and a reduction in the mangrove forests area of 356.45 Ha in the period of 5 years (2009-2014).

Data from the research carried out in this Regency found no specific local wisdom values that provide mangrove protection. Awareness of protecting mangrove forests through regulation, only comes from the legal provisions of the Regional Government in the Maros Regency Regulation No. 3 of 2015 concerning the Conservation, Management and Utilization of Mangrove Forests.

This regional regulation generally manages mangrove forest management plans including: 1) Determination of management policies; 2) Mangrove Forest Management consisting of the establishment of rehabilitation plans, management of protected forests, management of river border mangrove forests, and administration of trench ponds, 3) Structuring of mangrove forests, and 4) licensing for utilization of mangrove forests and supervision and control.

Based on the provisions of this regulation, mangrove management areas are divided into four parts: absolute protected areas, restricted areas, river border areas and trench pond cultivation areas. The division aims at determining activities that can be carried out or those that cannot be done in these areas. The following is a table on the distribution of mangrove management areas in Maros Regency based on the Maros Regency Regulation No. 3 of 2015 concerning the Conservation, Management and Utilization of Mangrove Forests.

| Mangrove Management Area | Activities to Do | Forbidden Activities |
|--------------------------|------------------|----------------------|
| Absolute Protected Area  | Research activities while maintaining biodiversity; | All activities, except research |
| Restricted Area          | Research; Tours; Trench pond cultivation; Fishing; Limited use of wood; Crab fishing; bird cultivation; Medicinal plants cultivation. | Illegal Logging and Industrial Plant Cultivation; |
| River Border Area        | Research and Tourism | Illegal Logging and Industrial Plant Cultivation |
| Trench Pond Cultivation Area | Fish research and cultivation; | Illegal logging. |
For the utilization of mangrove wood in restricted areas, there is a special provision of taking mangrove wood maintaining a minimum stand density. In addition, the ban on logging and or the necessity of rehabilitation in the forest is also applied to areas or locations:

a. Adjacent to the river mouth leading to the sea;
b. Adjacent to fishing grounds;
c. spawning for aquatic organisms for their reproductive cycle activities (spawning ground), care areas for organisms that are young before maturing (nursery ground), an area to find food for an organism (feeding ground) and shelter for fish resources;
d. Adjacent to residential areas;
e. It is an absolute buffer against erosion, flooding, and sea water interference;
f. Having very tight young plants;
g. Functioning as a green belt.

The main focus in forest management is society participation. This is because the most influential parties in the forest condition are coastal societies that gains a lot from mangrove forests. However, in the regional regulations, the preservation, management and utilization of mangrove forests in this region do not contain provisions relating to society participation in safeguarding the forest areas from damage. The lack of involvement of the society definitely has an impact on the society participation, especially the coastal society to take part in the conservation of mangrove forests within Maros Regency.

The lack of involvement of the society and normative norms in the Maros Regency Regional Regulation No. 3 of 2015 resulted in massive destruction. This was seen in the Maros Pancasila Youth Report which indicated a gross violation and destruction of the mangrove forest covering an area of approximately 1 ha to the Sulawesi Regional Environmental and Forestry Complaint Handling Center, and to the South Sulawesi Regional Police. The destruction was carried out in view of converting land into fish and shrimp aquaculture areas, illegal logging of mangrove forests, as well as weak guidance and control. The residents around the coast have no sense of ownership in mangroves, the reason behind their destructive acts. It can be seen that the destruction of mangrove ecosystems for other purposes or damage to mangroves has an impact in fisheries productivity within the coastal areas.

4.3. **Barru**

Barru is one of the regency in South Sulawesi that also has a large mangrove forest area. Based on Regional Regulation No. 12 of 2013 on Area Spatial Plan (RTRW) of Barru Regency of the Forested Coastal Area of approximately 343.78 Ha spread over 4 (four) subdistricts:

1) Mangrove coastal area in Mallusetasi subdistrict is approximately 26.32 ha;
2) Mangrove coastal area in Soppeng Riaja subdistrict approximately 86.80 ha;
3) Mangrove coastal area in Balusu subdistricts approximately 200.08 ha, including the area of the forest in Panikiang Island of approximately 82.830 ha.
4) Mangrove coastal area in Barru Subdistrict approximately 30.58 ha.

According to Asriadi Muin, the TPUPI and TPKPAIH Section Head of the Barru Fisheries Office stated, “in general, mangrove forests in Barru regency was in a damaged state. This was mostly due to land clearing for ponds”. Nonetheless, apart from the existing mangrove damage there are still forest areas that are relatively well preserved. The mangrove area is on Panikiang Island in Balusu Subdistrict. The condition of mangrove forests covering
an area of approximately 82,830 ha in this area is relatively more sustainable than other mangrove forests in Barru Regency. This is, according to Asriadi, because Panikiang Island is an uninhabited island rarely and therefore rarely touched by society activities.

An unwritten law on the protection of mangrove forests was not found in Barru Regency. The absence of specific arrangements that form the basis of the protection of the forests is not only limited to the unwritten law but to the absence of regulations both at the level of the village government and the district government. The Barru Regency Government through the Fisheries Service only carries out a supervisory function on mangrove management.

According to Asriadi, the lack of participation of the Barru Regency government was due to the shifting of the authority to administer forestry affairs which had previously been the authority of the Regency/City government to the Provincial Government regulated in Article 14 paragraph 1 and 2 of Law No. 23 of 2014 concerning Regional Government. This motivated the regency government to delegate its authority in the preservation of mangrove forests to the Provincial Government. The regency/city government should also play a role in managing the mangrove ecosystem located in the area because the local government is well acquainted with the conditions of the forests.

Due to the absence of regulations governing mangrove forest management, the Barru Regency Government has always made conservation efforts, especially in Panikiang Island. The effort is realized by tracking of mangroves to the island. In addition, the Barru Regency Government is also trying to make Panikiang Island a conservation reserve area, even though its determination is still in the form of a Regent Decree. The establishment of this reserve area is basically not focused on the protection of mangrove forests, but rather on efforts to protect wildlife (bats) within the island. This understanding must be improved considering the main focus should be on protecting the forests. If the mangrove forest area can be maintained properly, the animals living in the forest will be preserved.

4.4. Bone
The planning area of Bone Regency is at coordinates 4°13'-5°6 'South Latitude and 119°42'-120°40 'East Longitude with an area of 4,555,900 (four million five hundred fifty five thousand nine hundred) hectares. The protection of mangrove forests in Bone Regency is done by retaining the area of mangroves located in the East Tanete Riattang District, Salomekko District, Kajuara District, Barebbo District, Tonra District, Mare District, Sibulue District, Awangpone District, Tellusiattinge District and Cenrana District. The determination of the location is based on Bone Regency Regional Regulation No. 2 of 2013 on the Spatial Planning for Bone Regency in 2012 - 2023. The mangrove area required in the Perda states the mangrove area is transforming the Regency to a Strategic Area. This means it should set priority to prevent the conversion of mangroves that do not take into account the sustainability of coastal ecological functions of small islands. In addition, the establishment of mangrove areas affirms the prohibition on cutting down mangroves in conservation areas for industrial activities, settlements and/or other activities.

The data shows that massive damage to mangroves continues along the coastline in the region. The nature of local regulations not extracted from the local wisdom in the community causes obstacles to the law of the community that must be obeyed. The loss of the value of local wisdom is the root of continued logging by the community for various purposes, main ponies being opening of farms and settlements.
5. Conclusion
The consensus of citizens in the protection of mangroves set out in written law, both Village Regulations and Regional Regulations, is the "spirit" of mangrove protection as happened and applies in Luwu Regency. The success of mangrove protection in Luwu Regency should be the best example in saving mangrove ecosystems that lessen the threat of environmental damage. The success of building community consensus in Luwu District which was later concrete in the Village Regulations was an accurate strategy in teaching the community to obey the law.

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