

Decentralization of fisheries management in Indonesia

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Abstract

Decentralization is highly considered as an alternative to make better fisheries management. This is due to that decentralization appears as a means for increasing the efficiency and equity of development activities and services delivery, and also for promoting local participation and democracy. The evolution of decentralization of fisheries management policy in Indonesia showed that the decentralization was gradually developed from deconcentration and delegation to devolution form. After Reform Era, devolution form of decentralization has been implemented due to the enactment of UU 22/1999 (the Local Autonomy Law), where local government has gained the amount of new authorities concerning marine-fisheries management. By such devolution, however, the community based management system, which is rooted from traditional fishing communities, is recognized. The effectiveness of the community based management system for the marine resources sustainability is caused by the bottom up planning and participative approach that led to the increasing of the local fishers' sense of stewardship over the resources. Even though this kind of decentralization practice has been dealing with several problems, this is still a better way rather than centralization. This paper identifies some agendas are being encountered both in the central and the local level. This is related to the need of improvement of the legal framework, the capacity building of the local government, and the revitalization of the local institution.

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1. Introduction

Currently, decentralization of fisheries management is highly considered as an alternative to overcome the problem of resources depletion. As commonly accepted, the resources depletion is because of the practices of the centralization of marine fisheries management. The centralization of fisheries management was characterized by the existence of national policy that all marine waters are state property, to be managed centrally, through the provincial, regency, and village offices of the central government, for the benefit of the entire nation [1], such as in Indonesia. This centralization regime was actually derived from Western industrialized nations that neglected common property regimes in fisheries [2]. Moreover, in post-colonial societies

throughout the world new legislation has been enacted which redefines the right of the state whereas water resources have been nationalized in the interest of the state. Decolonization was often accompanied by the nationalization of resources, and then post-colonial governments continued the centralization policies of the colonist by making state-property out of common property [2,3].

The critical matter of the centralized policy is that all waters become de facto open access, even though they were de jure regulated, such as Indonesia in which are regulated through fishing zone based on size of fishing vessel. Certainly, these centralized policies lead to the resources depletion. This happened due to high cost of centralized management enforcement, which means unlikely to conduct fisheries management without role and responsibility of local people in which marine and coastal ecosystem large and widely diverse. Meanwhile, actually many fisheries community management systems (CBFMs), which have amounts of traditional rules or local wisdom, which contains valuable norms how to

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wisely treat natural marine resources, are found. They are implemented based on defined geographical areas and controlled access. In addition, they are self-monitored by local fishers, and enforced by local moral and political authority [4,5]. These are the great strengths of such systems and what they have to contribute to co-management designs [6]. Nevertheless due to centralization policy they are being undermined.

Those conditions, which led to create open access regime, pushed the rise of “free competition” in marine waters among fishermen crossing different economic scale (class), ethnical and cultural background, and others. As a result, resources depletion (such as over fishing, destruction of mangrove and coral reef) and social conflict were inevitable, and it certainly threatens marine fisheries sustainability in the future.

However, currently in some Asian developing countries there are political systems changes toward a decentralist pattern that certainly imply marine-fisheries management model. By definition, decentralization is any act in which a central government formally transfers powers to actors and institutions at lower levels in a political-administrative and territorial hierarchy [7]. In Indonesia, decentralization has been proceeded by the establishment of *Undang-Undang* 22/1999 on Local Government, which then called the Local Autonomy Law. By this law, local government has got the bundles of new authorities concerning marine-fisheries management. As mentioned in this law as far as 12 miles water sea area from shoreline is under provincial government authority, and within those 12 miles there are 4 miles under the authority of the local or district government (articles 4 and 10). These authorities include: (a) exploration, exploitation, conservation, and marine resources management within the authority water area, (b) administrative management, (c) zone management, (d) law enforcement of local regulation or central government regulations that are deconcentrated to local government. Indonesia, therefore, is still dealing with amounts of agendas how to institutionalize and establish their marine fisheries management in decentralized ways.

However, decentralization becomes the most appropriate form of fisheries governance in which enables local governments to fundamentally control local fishing by community based management system [8]. Decentralization is also justified as a means for increasing the efficiency and equity of development activities and services delivery, and also for promoting local participation and democracy [7]. The efficiency and equity benefits of decentralization come from the presence of democratic processes that encourage local authorities to serve the needs and desire of their constituents [7]. However, a democratic decentralization is a promising means of institutionalizing and scaling up the popular participation that makes community based natural

resources management effective [7]. Concerning democratic values of decentralization, Seddon (1999) argued, “sub national governments’ proximity to their constituents will enable them to respond better to local needs and efficiently match public spending private needs only if information flows between citizens and local government. On the other hand, the process of decentralization can itself enhance the opportunities for participation by placing more power and resources at a closer, more familiar, more easily influenced level of government” [9]. Accordingly, decentralization theoretically gives more opportunities for local people to participate in a decision making process due to the nearness of social distance between policy maker and the people, who must feel the policy influence. Certainly, because the community participation in the decision-making process theoretically leads to increasing efficiency and equity in natural resources management and use, in terms of marine-fisheries management, CBFMs are potentially recognized, revitalized, and developed well. Nevertheless, beside the potential positive impact of decentralization as explained before, decentralization may lead to conflict, particularly when they involve the transfer of natural resources management and use powers [7].

This paper is organized in four parts, starting with an analysis of the evolution of decentralization of fisheries management in Indonesia, and then followed by analysis of the fisheries management system under the new decentralization policy. It then proceeds to analyze the policy implication in trying to identify the legal framework, capacity building, and revitalization of local institutions that are necessary for implementation of the decentralization of fisheries management.

2. Evolution of decentralization policy in fisheries sector

Indonesia is an archipelago of more than 18,100 islands. The economy relies heavily on its natural resources. The fisheries sector, moreover, although still in an early stage of development, plays an increasingly important role in the national economy, especially as a source of income and employment opportunities, foreign-exchange earnings, source of animal protein for local diet and rural development. With its 5.8 million square kilometers of seas and the coastal line stretching more than 81,000 km, Indonesia is blessed with abundant rich aquatic resources. Various economically important species are endowed in the Indonesian waters including shrimp, tuna, skipjack, giant perch, eastern little tuna, king mackerel, squid, coral fishes such as grouper and spiny lobster, ornamental fishes, shellfish and seaweed. Indonesia also has a vast area of brackish water, lakes, reservoirs, rivers, and freshwater ponds, which are very suitable for aquaculture development.

Those characteristics of various marine resource endowments need an appropriate governance system, so the resource sustainability can be maintained. Decentralization is one of the governance types that in fact had been implemented since long time ago. Decentralization can be defined as the transfer of authority and responsibility for public functions from the central government to subordinate or quasi-independent government organizations or even the private sector and community associations [10–13]. Moreover, there are three types of administrative decentralization: *deconcentration*, *delegation*, and *devolution* [10,12]. *Deconcentration* is the transfer of decision making authority and management responsibilities to local government but it is still under the supervision of central government ministries. This form is often considered the weakest form of decentralization and is usually strongly implemented in unitary states. *Delegation* is the transfer responsibility for decision-making and administration of public functions to semi autonomous organizations whereas central government retains the right to take power back. *Devolution* is the transfer of authority for decision-making, finance, and management to quasi-autonomous units of local government with corporate status and without reference back to central government. It seems to be a political decentralization. Devolution requires national legislation and supporting regulations [12]:

- (a) grant specific local-level units corporate status,
- (b) establish clear jurisdiction and functional boundaries for such units,
- (c) transfer defined powers to plan, make decisions, and manage specified public task to such units,
- (d) authorize such units to employ their own staff,
- (e) establish rules for the interaction of such units with other units of the governmental system of which they are a part,
- (f) permit such units to raise revenue from such specifically earmarked sources as property tax, public utility charges, etc.,
- (g) authorize such units to establish and manage their own budgetary, accounting, and evaluation systems.

Concerning decentralization of fisheries management in Indonesia, therefore, a tracing of the evolution of decentralization can be divided into three periods: post-independence period, New Order period, and Reforms period.

2.1. Post-independence period (1945–1966)

The beginning of decentralization policy in fisheries sector can be traced from the enactment of legal products of Indonesian Government in 1951. Within this year, the central government established five

Table 1
Decentralization policy of fisheries management in the post independence period (1945–1966)

Series of policies	Titles
Government Regulation No. 31/1951	Decentralization of inland fisheries to Western Java
Government Regulation No. 43/1951	Decentralization of inland fisheries to Southern Sumatera provincial government
Government Regulation No. 46/1951	Decentralization of inland fisheries to Central Sumatera provincial government
Government Regulation No. 49/1951	Decentralization of inland fisheries to Northern Sumatera provincial government
Government Regulation No. 59/1951	Decentralization of inland fisheries to Yogyakarta Special Autonomous Provincial government

Government Regulations (*Peraturan Pemerintah*), as shown at Table 1.

With these Government Regulations, the central government decentralized some authorities to provincial governments to manage inland fisheries in their respective provinces by referring to annual plan authorized by the central government and the guidelines issued by the Ministry of Agriculture (article 1). It means that the fisheries regulations of the province had to be approved by the Ministry of Agriculture. In fact, to develop some activities, such as training and education of government fisheries specialists, the provincial government also had to get approval from the central government (article 18). This, therefore, shows that even though the decentralization was implemented, the central government had still strong position to control the provincial government. Even, fisheries research activities was under the central government authority, so if the provincial governments attempted to develop inland fisheries research, the approval from the central government was required (article 5). Nevertheless, the provincial governments were granted full authorities on some points: to regulate and manage the availability and distribution of fish seedlings, and to maintain the buildings, land, and equipment handed over by the central government. Besides getting these physical things, the provincial governments also had to handle debt and credit related to decentralized authorities. Meanwhile, to support the decentralization process, the central government provided the personnel to be employed as the provincial government officer status.

On decentralization of marine fisheries, the central government enacted Government Regulations No. 64/1957. This Government Regulations identified some authorities of the provincial government as follow:

- (a) To conduct extension services of fishing technology based on scientific research (article 1.1).
- (b) To develop fishing communities and to encourage the development of fishers association, and to monitor and guide such association (article 1.2).
- (c) To release regulations of marine fisheries in their province (article 3).
- (d) To carry out fisheries training course for the fisheries specialist (*mantra perikanan*) by referring to the ministry of agriculture's guidelines, and also to hold training course for crew captain and motorist (article 5).
- (e) To regulate and monitor fishes auction activities, and in case of any fishers association fulfilling the government requirements, the fish auction will be taken over by the fishers association (article 7).

According to article 35, to support the decentralization process, the central government placed the personnel at the service of the provincial government. Then, further assignment to these personnel was under the authority of the provincial government.

During the Post-Independence period, the position of the central government was still strong because the decentralized authorities to the provincial government could be run with the central government approval only. This means that decentralization policy at that time was characterized as a weak decentralization.

2.2. New order period (1966–1998)

The government policy under the New Order was characterized by a centralization regime. In a centralism regime, the marine and fisheries were managed by the central government. It happened due to the Basic Provisions of Local Government Law No. 5/1974 that asserted the local government did not have jurisdiction over marine and fisheries resources. In addition, the Fisheries Law No. 9/1985 doesn't clearly mandate fisheries to neither the local government nor local people. Nevertheless, even though the centralism became the dominant approach to run economic development and fisheries management, there were some decentralized policies on marine and fisheries affairs. One of them is the Spatial Planning Law No. 24/1992 that mandates the local government to conduct marine spatial planning, whereas the others are presented at Table 2.

By referring to the decentralization type, these policies seem to be ranging between "delegation" and "deconcentration" category, rather than "devolution". However, they are ineffective in regard to govern marine

fisheries sector. There are several critical important factors leading to such conditions. *Firstly*, even if the central government shared authorities to the provincial government, the central government still has the power to withdraw those delegations. It happened due to political atmosphere at which the provincial government was forced to comply with what the central government decided, even if it was under provincial government authority. It means that the central government is in stronger position than the local government while a top down approach of management became more dominant, and ultimately the local initiatives were getting less important. *Secondly*, the establishment of Spatial Planning Law No. 24/1992 is important for implementing decentralization of coastal management, but unfortunately this law has not been followed immediately by detail government regulations that should be promulgated by the Ministry of Home Affairs [14]. As a result, decentralization of coastal management did not work well. *Thirdly*, there were no clear delineation of territorial boundary between the central and the local government in fisheries management. This condition led to difficulties to set necessary fisheries management approaches that are suitable for existing conditions in terms of ecological, social, political, and economic aspects, except for running the items mentioned by those above regulations. *Fourthly*, even if each district had *Dinas* or fisheries service office, they could not effectively function as the managers of resources rather than providing recommendations for users to get license from the provincial government. It means that the role of local government in fisheries management was depended on the willingness of central government only. *Fifthly*, there was no recognition of traditional marine tenure or traditional fisheries management practices as a consequence of *Undang-Undang* No. 5/1979 (the Rural Governance Law). This Rural Governance Law intended to make uniformity of the rural governance system and certainly led to neglecting customary system in terms of administrative and resources governance. Accordingly, there were no responsibility, participation, and sense of stewardship of local people to conserve and protect marine resources from destructive activities. Under these conditions, marine resources were not well managed and finally resources depletion becomes inevitable.

With respect to the protection of small scale fisheries, the central government had have means by issuing the Minister of Agriculture decree No. 607/1976 on zoning for capture fisheries. It has been promulgated to overcome social conflicts arising from the trawling era between traditional fishers and modern fishers. According to this decree, there are four zones as shown by Table 3.

Nevertheless, this regulation seems to be an ideal policy but it is not working well. The main reason is that

Table 2
Decentralization policy of fisheries management in the new order period (1966–1998)

Series of policies	Titles	Content
Government Regulation (Act) No: 15/1990	Fisheries enterprise	(a) Delegating the provincial governors to issue Fisheries Enterprise Certificate (<i>Izin Usaha Perikanan</i> or <i>IUP</i>) and the license for catching fish (<i>Surat Penangkapan Ikan</i>) to fisheries companies that engage in fishing activities in the provincial area by using non-motorized boats, outboard engine boats, inboard engine boats of less than 30 gross ton and or those boats that have an engine of less than 90 horsepower, which are without foreign worker and capital. (b) Delegating the provincial governors to issue <i>IUP</i> to fisheries companies that develops fresh water, brackish water, and mari-culture does not employ foreign workers nor use foreign capital (article 10).
Government Regulation No: 8/1995	Decentralization of Part of Authorities to 26 Districts of Pilot Project	The local government have part of authorities in fisheries sector: (a) Testing and application of technology (b) Assessment of fisheries resources (c) Development of production (d) Guidance of productions input development (boats, gears, seeds, feeds, and medicines (e) Issuing certificate of enterprise (f) Guidance of fisheries business (g) Development of the quality of fisheries product (h) Development of market information (i) Development of fisheries infrastructure (j) Fishermen housing, and manpower development (k) Auction
Ministry of Agriculture Decree No. 509/Kpts/IK.120/7/95	A Guideline of Fisheries Partnership System	Governor or Chief of District/regency are appointed to decide the qualification of fishermen who are allowed to become the partners.
Ministry of Agriculture Decree No. 51/Kpts/IK.250/1/97	<i>Fish Aggregating Device (FAD)</i>	Management of FAD within 3 miles is under authority of the district government, while between 3–12 miles is under authority of provincial government.
Directorate General of Fisheries Decree Number: HK. 330/Dj. 8259/95	Size, location, and method of fish catching of Napoleon wrasse (<i>Chellinus urdulates Ruppel</i>) type	(a) Local collector companies, as intended by article 3, point 2 b, are obliged to have certain collecting licenses issued by the Chief of Provincial Fisheries Service or appointed officer (article 10 point 1) (b) When engaging in aquaculture business, as mentioned in article 11, local collector companies are obligated to get collection license from the Chief of Provincial Fisheries Service after getting recommendation from the Chief of District Fisheries Services (article 12, point 1). Both Provincial and District Fisheries Services are in charge of controlling and surveillance of this policy in their jurisdiction area (article 13).
Directorate General of Fisheries Decree Number: 14128/Kpts/IK.130/XII/1998	Operational Direction of Integrated Quality Management System	Within 7 business days the Chief of Provincial Fisheries Services should delegate supervisors of fisheries product quality, who are placed in Provincial Fisheries Service Office, initially examine fisheries processing units belonging to the requester.

the central government face difficulties to enforce it, particularly because of the limitation of finance and personnel to carry out monitoring and surveillance activities. Transaction costs for such centralistic enforcements are also high. The enforcement failure led to

the marine resources had been de facto open access again, and this condition certainly caused resources depletion and social conflicts among fishers. This is an evidence that centralization fails to create an effective and efficient fisheries management.

Table 3
Zoning system for capture fisheries

Zones	Coverage	Rules
Zone I	0–3 miles	Restricted to fishing vessels of more than 5 GT or 10 horsepower
Zone II	3–7 miles	Restricted to fishing vessels of more than 25 GT or 50 horsepower
Zone III	7–12 miles	Restricted to fishing vessels of more than 100 GT or 200 horsepower
Zone IV	12–200 miles	Restricted to pair trawl except in Indian Ocean

Note: Based on the Minister of Agriculture Decree No. 607/1976.

2.3. The reform era (since 1999)

The Reform era has began since the establishment of the Ministry of Marine Affairs and Fisheries (MMAF) and the Local Autonomy Law. After the reform era of 1999, there had been a staunch political decision of former President Abdurahman Wahid to establish the Ministry of Marine Affairs and Fisheries (MMAF). Prior to that reform era fisheries sector was under the coordination of the Ministry of Agriculture.

In order to implement marine and fisheries development, Presidential Decree No. 177/2000 identified the duty and functions of MMAF. The main duty of MMAF is to assist the President in conducting some of the government tasks in marine and fishery field, and handle some functions including: (a) establishment and monitoring of the local autonomy implementation plan which covers giving guidance, counselling, training, leading, and supervision in maritime and fishery fields; (b) management and implementation of plans for protection of natural resources of the seas within the 12 miles of marine and fishery field; (c) setting Authorization/Licensing standards for the region in marine and fishery fields; (d) dispute resolution among provinces in marine and fisheries; (e) holding the authority beyond 12 miles of marine area; (f) national policy over exploitation, conservation, management and natural resources benefiting in the maritime outside 12 miles, including *Nusantara* water area and maritime land and also Exclusive Economic Zone of Indonesia (EEZI) and continental base; (g) policy formulation and regulation of sea borders; (h) standardizing decision and seashore, coast, and small islands management; and (i) authorization activities in maritime and fishery in the sea area outside 12 miles, including *Nusantara* water area and sea base, also EEZ and continental base.

With this reforms era, the decentralization of marine and fisheries sectors, however, has been widely promoted to correct what practiced in the New Order. The basic legal framework for the decentralization is the enactment of *Undang-Undang* (UU) No. 22/1999 on the Local Government, so called the Local Autonomy Law. With this law, local government has a set of new authorities on marine-fisheries management. As mentioned in this law, as far as 12 miles of water sea area

from the shoreline is under provincial government authority, and within the 12 miles, there are four miles under the authority of the local or district government (article 3 and 10). These authorities include: (a) exploration, exploitation, conservation, and marine resources management within the authorized water area, (b) administrative management, (c) zone management, (d) law enforcement of local regulation or central government regulations that are deconcentrated to local government. The elucidation of article 10 states that the territorial sea does not restrict traditional fishing rights, but rather traditional fishers may go fishing elsewhere. This is quite different from the situation before that when all coastal areas were under central government authority.

To implement the Local Autonomy Law, the central government had released a government regulation, namely *Peraturan Pemerintah* (PP) 25/2000 that identified a detailed description of authorities of both central and provincial government over marine and fisheries affairs. Table 4 shows these authorities according to both PP 25/2000 and UU 22/1999. In order to accelerate implementation of decentralization, the central government established some regulations, as identified at Table 5.

Nevertheless, during the more than 3 year of implementation of the decentralization policy, there were some problems and negative effects on marine fisheries management. These problems are usually related to false perception and misunderstanding of the meaning of “management authority” as mentioned in the Local Autonomy Law. Some local governments and people assume the term “authority” has a similar meaning of “sovereignty” over territorial water, which are 12 miles for provincial authority and 4 miles for district authority [15]. Therefore, some social conflicts among fishers arose after the establishment of the Local Autonomy Law which are often assumed to be the consequence of such misperception, even though such conflicts have actually occurred long time ago prior to the Local Autonomy Law. Many other factors actually have led to the increasing of the fishers’ conflicts, such as technological gap (conflict of class), ecological orientation gap (conflict of orientation), and also ethnical heterogeneity (conflict of primordial) [15]. Accordingly,

Table 4

Authorities of multilevel government on marine and fisheries sector according to UU 22/1999 (the Local Autonomy Law) and PP 25/2000 (Government Regulation)

Government level	UU 22/1999	PP 25/2000
The Central Government (Beyond 12 miles)	Not mentioned	(a) To set policy and management of exploration, conservation, management, and utilization of marine resources beyond 12 miles. (b) To set policy and regulation of management and utilization of valuable goods and wrecked ship beyond 12 miles of sea water. (c) To set a policy and regulation of marine borders which includes sea water autonomous areas borders and borders based on the international marine law. (d) To set a measure of coastal and small island management. (e) To enforce law in seawater both beyond and within the 12 miles that correlates with specific and international matters.
The Provincial Government (4–12 miles)	(a) Exploration, exploitation, conservation, and marine resources management within the authority water area. (b) Administrative management.(c) Zone management.(d) Law enforcement of local regulation or central government regulations that are deconcentrated to local government.	(a) To manage sea waters under provincial authority. (b) To explore, exploit, converse and manage marine resources in provincial sea water area. (c) To conserve and manage the local specific biodiversity and fisheries protection in provincial sea water. (d) To issue business license on marine culture and capture fisheries in provincial sea water. (e) To monitor the utilization of fisheries resources in provincial seawater.
The District Government (0–4 miles)	(a) Exploration, exploitation, conservation, and marine resources management within the authority water area. (b) Administrative management. (c) Zone management. (d) Law enforcement of local regulation or central government regulations that are deconcentrated to local government.	Not mentioned

the opinion of that fishers conflicts are significantly influenced by the local autonomy is not reliable. But, this misperception is supposed to be a critical matter of the Local Autonomy Law, so public opinion has been brought to call for the withdrawal of this law.

This happened because of the minimum effort of the central government in promoting public communication concerning the implementation of the Local Autonomy Law. The socialization or public communication programs are necessary to make the local people understand well what intended by the law. In addition, the central government has been too late to follow up the Local Autonomy Law through promulgating more detailed regulations, which more clearly defined the district government authorities. As a result, each district's interpretation over the law are varied, so that it causes implementation of decentralization is far from what expected by the Local Autonomy Law. What has happened to Indonesia actually seems to be similar to

what Pomeroy and Berkes (1997) pointed out, that in the national level, the devolution of fishery management authority from central government to local governments and organizations is an issue that cannot be easily resolved. These problems should be well understood in order to set more conducive institutional arrangement of decentralization.

Aside those problems, there are some problems related to institutionalization of marine fisheries decentralization to be dealt with at the local level [16], as follow:

- (a) The local governments lack qualified human resources on coastal and marine affairs, so that becoming basic constraints in attempting sustainable marine fisheries management.
- (b) The local governments tend to aim at too high goals of economic growth or quick yielding economic activities as the highest priority, and consequently

Table 5
Decentralization policy of fisheries management in the reform period (1999–present)

Series of policies	Titles	Content
Government Regulations (act) No: 54/2002	Fisheries enterprise	<p>(a) To delegate provincial governors to issue Fisheries Enterprise Certificate (<i>Izin Usaha Perikanan</i> or <i>IUP</i>), the license for catching fish (<i>Surat Penangkapan Ikan</i> or <i>SPI</i>), and the license for fishes transport vessel (<i>Surat Ijin Kapal Pengangkut Ikan</i> or <i>SIKPI</i>) to fisheries companies that engage in fishing activities in the provincial area by using non-motorized boats, outboard engine boats, inboard engine boats of between 10–30 gross ton and or those boats that have an engine of less than 90 horsepower, which are without foreign worker and capital.</p> <p>(b) To delegate provincial governors to issue IUP to fisheries companies that develop fresh water, brackish water, and mariculture not employing foreign workers nor using foreign capital.</p> <p>(c) To delegate regency chiefs or mayors to issue Fisheries Enterprise Certificate (<i>Izin Usaha Perikanan</i> or <i>IUP</i>), the license for catching fish (<i>Surat Penangkapan Ikan</i> or <i>SPI</i>), and the license for fishes transporter vessel (<i>Surat Ijin Kapal Pengangkut Ikan</i> or <i>SIKPI</i>) to fisheries companies that engage in fishing activities in the provincial area by using non-motorized boats, outboard engine boats, inboard engine boats of less than 10 gross ton and or those boats that have an engine of less than 30 horsepower, which are without foreign workers and capital.</p> <p>(d) To delegate to regency chiefs or mayors issue IUP to fisheries companies that develops fresh water, brackish water, and mariculture not employing foreign workers nor using foreign capital.</p>
Minister of Marine Affairs and Fisheries Decree No. 41/2000	Guideline of Sustainable Community Based Small Island Management	<p>(a) The state recognizes the existence of customary law based resources management in small island.</p> <p>(b) The local government (provincial or District) have authorities in strategic planning, zoning, resources assessment, giving a name of island, and issuing a certificate of small island management.</p> <p>(c) Local people must participate in surveillance activities.</p>
Ministry of Marine Affairs and Fisheries Decree No. 58/2001	A Guidance of community based surveillance system (<i>siswamas</i>) on marine and fisheries resources management	<p>(a) The state pushes the role of local institution in promoting <i>siswamas</i>.</p> <p>(b) The local government have a compulsory to facilitate empowering the people group of surveillance actors.</p>
Minister of Marine Affairs and Fisheries Decree No. Kep.09/Men/2002	Intensification of Aquaculture	The Local government have role to cooperate, coordinate, and synchronize among government offices and stakeholders in providing production means, capital, management (planning, evaluation, controlling) and extension services.
Minister of Marine Affairs and Fisheries Decree No. Kep. 10/Men/2002	A Guideline of Integrated Coastal Management Planning	The local government have authority to hold spatial planning of coastal area.

too much pressure over the resources happens.

- (c) Marine fisheries data and information are limited because the local governments are hesitant to gather and submit such data to the provincial government, whereas in fact fisheries data and information are necessary for formulating fisheries management. It happens due to poor compliance of district government to request of the higher-level government.
- (d) In the district area, facilities and infrastructure for technological development are limited; accordingly they become constraints to technological improvement of small-scale fishers.

3. Fisheries management system under the new decentralization policy: Lombok Barat case

Lombok Barat is regency in Nusatenggara Barat Province that encompasses the mainland and 18 small islands (Fig. 1). Total area of Lombok Barat Regency is 3001.64 km², with a land area of 1649.15 km² and sea area of 1352.49 km², whereas the coastline length is 327.27 km. Lombok Barat Regency has two main waters, namely: Java Sea in the northern part and Indian Ocean in the southern part. The potential of fisheries resources is 33,270 tons per year wherein the



Fig. 1. Map of Lombok Barat □ Nusatenggara Barat Province.

exploitation rate is around 76%. In addition, the potency of aquaculture consists of 873 hectares for brackish water culture and 2236 hectare for mari culture such as pearl, seaweed, and dragon fish. The actual utilization reaches 53.4% and 80.7% for brackish water culture and mari culture, respectively [17].

3.1. Formal local fisheries management

Responding to the enactment of UU 22/1999 (*the Local Autonomy Law*), which decentralized marine affairs to the local government, the Lombok Barat Regency government (LBRG) released some local fisheries management regulations: (a) *Peraturan Daerah (Perda)* No. 14/2001 and (b) *Peraturan Daerah (Perda)* No. 15/2001. The former is about *Usaha Perikanan* (fisheries enterprise) containing licensing arrangement. With this regulation, each fisheries company engaging in fisheries in Lombok Barat regency, both of capture fisheries and aquaculture; have to get *Izin Usaha Perikanan (IUP)* or a fisheries enterprise certificate. The *IUP* is granted to the fisheries enterprise that is not using foreign capital and foreign employees. Within *IUP*, the area, quantity and size of fishing vessels, and fishing gears, and aquaculture location are signed up. According to article 8, *IUP* is not applicable for those:

- (a) Fishing activities held by traditional fishers with non-motorized boats or outboard-engine, or in-board engine boats which are less than five gross ton and/or less than 15 horse power;
- (b) Inland aquaculture held less than two hectares;
- (c) Brackish water culture less than four hectares and or with density of 50.000 fries per hectare;
- (d) Mari culture held in less than 0.5 hectare; and
- (e) Fisheries activities for scientific purposes.

Following the issuing of *IUP*, the LBRG imposes a retribution fee, which is based on the enterprise and technology types, for all fisheries company and individual fisheries enterprises. This retribution fee is allocated to cover administration and management cost, including checking and measuring of enterprise site, monitoring, surveillance and controlling cost.

Meanwhile, *Perda* No. 15/2001 was issued to regulate resources fee. The resources fee is a fee withdrawn over fish products either from capture fisheries or aquaculture held by the fishers who got *IUP*. The value of resources fee for the capture fisheries is 2.5% of the catch value, whereas for aquaculture is 1% of the harvested value based on production and constant price. The production and constant price are fixed by *Kepala Dinas Kelautan dan Perikanan* (the Regency Marine and Fisheries Office Chief) and the Mayor. This resources fee then becomes one of the sources of LBRG income for local development. The resources fee is important to ensure that the entire people enjoy the benefits of the resources [18].

This is the first opportunity for LBRG to regulate local fisheries whereas before the Reforms period, the fisheries management was held by the provincial government on behalf of the central government or under deconcentration form. Nevertheless, the current decentralization of fisheries management to the local government level has been implemented without any guidelines from the central government concerning how a proper policy should be formulated. Moreover, the central and the provincial governments have not formulated a series regulations associated with the Local Autonomy Law yet, which are necessary for operating decentralization. Therefore, LBRG has been in “trial and error” concerning the local fisheries policy. So far, the LBRG’s policies are not problematic, even in promoting the rise of community based fisheries management the LBRG’s policies are in positive way.

Nevertheless, in attempting to promote marine conservation through marine natural tourism park (MNTP) in Lombok Barat, the central government is still reluctant to share the authority to the local government. MNTP is still under the authority of the *Balai Konservasi Sumberdaya Alam* (Station for Natural Resources Conservation), which belongs to the Ministry of Forestry, even though according to the Local Autonomy Law marine conservation is one of the local government authorities. Moreover, the authority of the Ministry of Forestry over MNTP is also questioned by the Ministry of Marine Affairs and Fisheries, which attempts to take over such authority. Therefore, such institutional conflict among the ministry offices and between the central government and the local government certainly interrupts the process of devolution of fisheries management to the local government.

3.2. Devolution to the local institutions

The rise of local institution of fisheries management or called community based fisheries management in Lombok Barat actually constituted the local fishers response to the monetary crisis and the national reform from 1998, which was marked by the dismissal of Soeharto from his presidential position. Such reform movement led to the unaccountability of the government authority, including the authority to enforce formal rules in fisheries. Accordingly, the local people initiated to revitalize the local institution called *awig-awig*, which was applicable in these areas long time ago. *Awig-awig*, which means “a local rule”, was part of the cultural system of the Lombok people. Nevertheless, the term “*awig-awig*” itself actually stemmed from a Bali term, because of the Bali Empire’s occupation of Lombok in the past. The Bali people, however, in *Banjar* or pastoral life, culturally had been bounded to the tradition, which was formulated as *awig-awig*, the unwritten customary law that should be obeyed by all *Banjar* community [19]. Proposals to establish *awig-awig* in Lombok Barat arose following the recognition of increasing local use of destructive fishing practices, especially bombing or dynamiting, a practice which originally stems from Japanese troops’ practice during the colonization period in Gili, Lombok Barat beginning 1942. Aside overcoming destructive fishing practices, the establishment of *awig-awig* is also devoted to protect traditional fisheries and keep traditional culture related to fisheries.

Awig-awig, however, is an institutional capital for fisheries management. Institutional capital is the stock of rights and rules within resource management decisions [20]. Common institutional characteristics of community based management identified by Ruddle, which are clear territorial boundary, rules, authority, and sanctions, [8], are applicable to *awig-awig* system. There are four types of *awig-awig* established by the local people in different area, Kecamatan Tanjung, Gangga, Pemenang, Bayan, and Kayangan, as summarized by Table 6. Using Ostrom’s framework [21], these *awig-awig* are practiced both as operational and collective rule. Among those *awig-awig*, *Lembaga Masyarakat Nelayan Lombok Utara (LMNLU)* has the higher level function to subordinates others and become representative of the fishers in northern part of Lombok Barat. The interesting point is that what the local fisher ruled is compatible to the formal rules. Nevertheless, concerning physical sanctions without resulting a death is still questioned because this such sanction is supposed to be violating the human right value and out of the formal rules as well. Nevertheless, there is no warning to the authority of *awig-awig* to withdraw such sanctions.

The result of *awig-awig*, however, is very meaningful for the marine resources sustainability, because *awig-*

awig was effective to overcome destructive fishing practices. This means that such *awig-awig* become “rule-in use” as Ostrom [21] called. The effectiveness of most *awig-awig* was caused by the bottom up planning and participative approach that led to the increasing of the local fishers’ sense of stewardship over the resources. Furthermore, the various *awig-awig* rules made the local fishers easier to enforce them because of the suitability of such rules to specific communities, in terms of culture and social structure of the local people, and their ecosystem. Nevertheless, *awig-awig* implementation has been dealing with some problems related to operational supports, such as the availability of speed-boats, communication facilities, and so on. In addition, sometimes accountability of the traditional authority was questioned by the members like what happened in Gili Indah that then led to unenforceability of zoning rules. The main cause of unenforceability of zoning system was that *awig-awig* was supposed to be an interest of tourism rather than fisheries, so a conflict between people who engage in tourism and traditional fishers who felt marginalized by tourism through *awig-awig* was becoming inevitable. Nevertheless, overall *awig-awig*, particularly on prohibition of destructive fishing, have been effectively enforceable.

One important point is that existence of *awig-awig* is recognized by the LBRG. Even, the LBRG officially recognized through signing up to the written document of *awig-awig*, especially in Gili Indah village. The LBRG realized that devolution to the local people was meaningful to make the effectiveness of monitoring, controlling, and surveillance. The LBRG felt that the role of *awig-awig* was helpful in attempting to overcome the destructive fishing practices. The local government recognition of *awig-awig* showed that there was devolution to the local people to manage their coastal area. Nevertheless, such devolution actually occurred after the local people established *awig-awig*, as their self-governance over the marine resources, in response to the political instability during the Reform era. This means the devolution was fought for by the local people rather than granted by the local government, even though the Local government eventually recognizes the role of such self-governance.

4. Policy implications

To make effectiveness of decentralization of fisheries management in Indonesia, however, several agendas should be taken into accounts in the multi level; central government level, local government level, and community level.

Firstly, in the central government level, one of the most important points of agendas is the improvement of legal framework. At least there are two legal aspects needed

Table 6
Awig-awig system in Lombok Barat (2000–present)

Type	Rules	Sanctions	Compatibility to the formal laws
<i>Awig-Awig Gili Indah</i> in Kecamatan Pemenang	(a) Zoning system. (b) Prohibition of destructive fishing practices. (c) The mechanism of authorization for appropriation activities.	Fine, and damaging seaweed culture	(a) The Fisheries Law No. 9/1985: ◆ Fine of Rp. 25 million ◆ Confinement of 6 months to 10 years (b) The Environmental Law No. 23/1997: ◆ Confinement of 10–15 years ◆ Fine of Rp. 500 million to Rp.750 million
<i>Awig-Awig Kelompok Nelayan Pantura</i> in Kecamatan Kayangan	(a) Prohibition of fishing by dynamite, trawl net, and <i>seret</i> net (gillnet) in <i>awig-awig</i> area. (b) Closed season system.	Fine, and confiscating fishing gear	(a) Fisheries Law No. 9/1985: ◆ Fine of Rp. 25 million ◆ Confinement of 6 months to 10 years (b) Environmental Law No. 23/1997: ◆ Confinement of 10–15 years ◆ Fine of Rp. 500 million to Rp. 750 million (c) Provincial Regulation of NTB No. 5/1996 ◆ Fine of Rp. 50,000.00 ◆ Confinement of 6 months
<i>Awig-Awig Sari Laut</i> in Kecamatan Bayan	Prohibition of fishing by dynamite, potassium, trawl net	Fine, and physical sanction without resulting a death	(a) The Fisheries Law No. 9/1985: ◆ Fine of Rp. 25 million ◆ Confinement of 6 months to 10 years (b) The Environmental Law No. 23/1997: ◆ Confinement of 10–15 years ◆ Fine of Rp. 500 million to Rp. 750 million (c) The Provincial Regulation of NTB No. 5/1996 ◆ Fine of Rp. 50,000.00 ◆ Confinement of 6 months
<i>Awig-awig LMNLU</i> in Kecamatan Tanjung, Pemenang, Kayangan, and Bayan	Prohibition of fishing by dynamite and potassium	Fine, physical sanction without resulting a death, and burning fishing gear and boat	(a) The Fisheries Law No. 9/1985: ◆ Fine of Rp. 25 million ◆ Confinement of 6 months to 10 years (b) The Environmental Law No. 23/1997: ◆ Confinement of 10–15 years ◆ Fine of Rp. 500 million to Rp. 750 million

to make decentralization more effective; how to detail the Local Autonomy Law and how to legitimize local institutions. The former is necessary to overcome the problem of misunderstanding among districts and among provincial governments over the content of decentralization of fisheries management. For districts and provincial governments, UU 22/1999 and PP 25/2000 are not clear enough to implement decentralization. This was because, currently the central government has not formulated a detailed regulation yet that clearly delineate a boundary of the fisheries management decentralization containing what local government are obliged or prohibited to do in order to result in expected decentralization practices. Therefore, this condition leads to the difficulties for the central government to control the local governments in respect to achieve the goals of decentralization of fisheries management as intended by the law. Therefore, the main necessary agenda is to formulate and promulgate a detailed delineation of district and provincial governments authority that constrain these local government to comply the rules of decentralization as intended by the

Local Autonomy Law. Moreover, a detail guideline for the local governments about how to implement decentralization is also necessary, particularly the technical guidelines by which the local government is able to manage the marine resources and to initiate the collaboration with other local government. Such guidelines is important to overcome the problem caused by the trans boundary issue, such as in fisheries management of migratory species.

Aside this agenda, the central government is necessary to harmonize their legal products. What happened in marine natural tourism park (MNTP) project of Lombok Barat, indicates the conflict of interest over marine and fisheries among the central government units and between the central government and the local government still occurs. If the central government want to comply with the Local Autonomy Law, the authority of MNTP development should be devolved to the local government.

Meanwhile, the latter is an agenda to insisting state legitimization of local institutions. This reform should be taken because among legislation products, especially

related to the fisheries sector, there is no explicit recognition to the local institutions. For example, The Fisheries Law (*UU Perikanan* No. 9/1985), which is the highest rank of legal product on the fisheries sector, still prevails whereas in fact this Fisheries Law consists of articles containing centralistic approaches. Meanwhile, the Local Autonomy Law has started to recognize the existence of traditional fishers by allowing them to catch fish anywhere without restricted zones, but the term of “traditional fishers” is not so clearly defined that lead local government and fishers confused. Accordingly, to overcome those problems, a revision of the Local Autonomy Law must be taken, particularly to clarify the term of “traditional fishers” as cited in the elucidation of article 10. In addition, an amendment of Fisheries Law (*UU Perikanan* 9/1985) is necessary as an adjustment way to decentralization, by explicitly legitimizing for the existence of community based management systems.

Regarding to develop a proper legal framework for decentralization, Japan case can be a good lesson to be learned, especially about state’s recognition to the local institutions. Japan, however, has a long historical background in the process of establishment fisheries law [22].

Secondly, the decentralization of fisheries management implies dividing the fisheries into manageable units, fishing zones, for which the different administrative divisions are responsible. The local governments, however, are required to create a clear policy and local management with respect to the sustainable fisheries management in coastal water areas. Therefore, the local governments should assess marine fisheries resources, in terms of ecological, economic, and socio-cultural aspects, as a way to set local fisheries management with a community based orientation. Then, this step is followed by the willingness to collaborate with communities and other local organizations with respect to the rise of community based fisheries co-management (CBFC) model in district or regency area. The concept of CBFC covers people centered, community-oriented, resources based, and partnership based [23]. In case of any community-based management system, which is proved as an effective system to manage the resources, the local government is necessary to recognize and devolve the authority to the local fishers to handle management functions, that is usually covering a small area, whereas then the local government hold a facilitative function concerning fisheries management. Accordingly, the local governments must have the capacity to implement such policy, and adequate capacity building includes the following aspects: administration skill, political savvy, adaptability [24], and expertise skill. Administrative skill is required to deal with the complexity of institutional arrangement. It covers management skill in terms of financial, human

resources, hardware, and program development. Political savvy is also needed to operate bureaucratic structures, form strategic alliances, and influence higher policy level [25]. Another requirement is adaptability, which is needed to deal with the external changes or shocks. The last one is expertise skill, which is necessary to assess the local fisheries resources and their environment, to formulate fisheries policy, and resolve the problems. In addition, however, a political will of local government to support fisheries sector will be a necessary condition for success of new fisheries management. It requires a sophisticated vision of local government regarding the important of resources based economic development which fisheries sector is included.

Thirdly, in the community level, revitalization of local institution became important as a key of decentralization. Revitalization is about empowerment and cultural rediscovery, as well as revival local institution [3]. There are two dimensions of the local institutions revitalizations: political and technical dimension. The political dimension is about how to empower local fishers to express their aspirations, to keep their interests, and to affect and respond policies related to the fisheries sector. One of the characteristics of small-scale fishers is inability to affect the policy [25]. This empowerment is important even if Indonesian fishers have had such kind of associations, such as HNSI (*Himpunan Nelayan Seluruh Indonesia—Indonesian Fishers Association*) and KUD (*Koperasi Unit Desa—Village Unit Based Cooperative*). Nevertheless, both associations cannot be working well because they were established by centralistic or top down ways—as a part of political process during the New Order under Soeharto’s regime. Therefore, nowadays, the emergence of the alternative fishers association, which is more rooted from local people, become necessary.

Meanwhile, the technical dimension consists of the local rules and knowledge concerning fisheries management. As well-known, local fishers devise management rules and practice fisheries management on the basis of local wisdom or indigenous knowledge that are actually able to achieve fisheries sustainability at the local level. *Awig-awig* in Lombok Barat as described previously, have represented such kind of local institution that contain indigenous ecological knowledge. However, this indigenous knowledge is still largely dependent on local social mechanism [26]. Nevertheless, this indigenous knowledge has been often contrasted with the modern knowledge, even though recently the integration between indigenous and modern knowledge is considered to be promoted.

Because the partnership among users recently is promoted, revitalization of local institution can be directed to the rise of community based co-management (CBFC) model. The formulation of CBFC model should consider a uniqueness of local social condition, because

no one model can be properly implemented for all case of institutional arrangement of fisheries management. However, in some cases, giving more responsibility to the local fishers for management without the corresponding transfer of skills related to information gathering and presentation, critical assessment, or negotiation, resulted in increasing of transaction costs of management [27].

Nevertheless, all of the revitalization process must consider both ecological and social aspects in strengthening resilience [28]. As Berkes et al. (2002) stated “systems may be ecological resilient but socially undesirable or they may be socially resilient but degrade environment. Here, we are concerned with the combined systems of humans and nature, with emphasis on social-ecological resilience” [26].

5. Concluding remarks

The evolution of decentralization of fisheries management in Indonesia showed that the decentralization was gradually developed from deconcentration and delegation to devolution. After Reform Era, devolution form of decentralization has been implemented due to the enactment of the Local Autonomy Law. Even though this kind of decentralization practice has been dealing with several problems, this is still the best way for the improvement of fisheries management system. This is due to that decentralization appears as a correction for the negative impact of centralization policy. In practice, centralization, however, is often followed by centralization of decision-making, shifts in system of knowledge to be “scientific” rather than indigenous knowledge, and nationalization of resources, which undermine and even dismantle local institution [3]. Otherwise, decentralization is justified as a means to promote the efficiency and equity of development activities, and also for promoting local participation and democracy [7]. Theoretically, this policy can accelerate the rise of community based management system. This hypothesis is becoming true with the case of *awig-awig*, which has grown under recognition of the local government. It means that decentralization is proven as a key variable for strengthening community based fisheries management system [29].

To strengthen decentralization of fisheries management, both problems at the central and the local level must be solved. The central government should be consistent through leaving the reluctance to share the authorities with the local government and improving the legal framework and policy process with respect to the spirit of decentralization. On the other side, at the local level, the role of the local government must be enhanced to facilitate a rise of mutual collaboration with local people in achieving better fisheries manage-

ment. Therefore, the mutual trust among the central government, the local government, and the local people is necessary condition for the decentralization of fisheries management.

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