Local wisdom Mane’e and its impact on fish resources and environment in Nanusa Islands, North Sulawesi, Indonesia

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Abstract

Mane’e is one of the local wisdoms in coral reef fisheries management that is still conducted in Nanusa Islands, North Sulawesi, Indonesia. Mane’e means a statement of agreement of local community to perform an activity together and rituals to prepare fishing equipment and carry out fishing operations together on the basis of cooperation, solidarity and unity. But mane’e itself is actually a series end of a customary law process called Eha, which means as a warning not to do or a ban for all public to take natural resources during certain time. Fishing gear is very traditional, made of forest rope (creeping plant), then joined in a row to around 3-4 km long and wrapped with young coconut leaves. The gear is set circle to a reef flat as location of mane’e in the morning at high tides. Both ends of the rope are pulled toward the coast so the fish could be trapped in the middle of the lagoon at the lowest tide. Mane’e ceremony is conducted at nine sites and each has its own name. Ranne site on Intata Island has been established by the regency government as a tourism icon mane’e festival and open to the public. Mane’e through Eha system’ actually has a positive impact on compliance with local communities. But the intervention of outsiders has give negative impact in the form of changes in beliefs and social structure, fishery resources damage and the environment deteriorations.

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Introduction
Coral reefs and their associated marine life constitute one of the great natural treasures of Indonesia, both their quality and quantity, covering approximately 50,000 square kilometers of corals; the second largest of the world coral after the Australian Great Barrier Reef, but its biodiversity is the richest in the world (Edinger et al. 1998; Chou, 2000). Indonesia is also located at the center of the world’s coral reef diversity (De Vantier et al. 1998; Cesar, 1998; Suharsono, 2001). This wealth in biodiversity emphasizes Indonesian’s importance in global efforts to conserve marine resources and preserve biodiversities (Bappenas, 1993).

Coral reefs play an important role to the human life, such as source of food, medicines and raw materials for industry, tourism beaches, education and research. They are also a potential source of foreign exchange from divers and other marine tourists. In addition, they provide a natural barrier against wave erosion, spawning ground, nursery ground and feeding ground for various commercial coral fish species (Reppie and Pratasik, 2011).

UnFortunately, the development activities in the coastal areas in recent years have given various significantly negative impacts on the quality of coral reef resources in Indonesia. Many studies reported that the quality of coral reefs in Indonesia is declining rapidly (Cesar, 1998; Chou 2000), and only 29 percent of Indonesian coral reefs are in good to excellent conditions (Suharsono et al., 1997; Cesar, 1996, 1998; Djohani, 1998; Chou, 2000). One of the primary extractive activities on reefs is fishing.

Many efforts have been done to secure the coral reef ecosystem of Indonesia, such as the establishment of conservation and rehabilitation regulations and its implementation programs; but those efforts have not worked well in the field and have faced a variety of problems.

The implementation of management instruments in many places of the world are not effective, law seems to be violated, and impact assessment procedures are rarely followed, conflict interests become worse and worse and traditional rights swept away (White et al., 1994). Therefore, the environmental deterioration has extended in many places.

Community-based programs are important to be considered as an alternative to combat cyanide and blast fishing, besides law enforcement and surveillance (Reppie and Lalamentik, 2000); or looking at the integrated efforts that involve all societies, such as using indigenous knowledge to improve coastal fisheries management. Mane'e is one of the indigenous coral reef fisheries management that is still conducted in Nanusa Islands, North Sulawesi, Indonesia (Reppie et al., 2007). The study was aimed to make description of Mane'e system and evaluate its impact on fish resources and environment. This information could be used as an alternative for establishment of responsible fisheries or coral reef biodiversity conservation.

Methods
The research was conducted in Kakorotan Island, Nanusa Islands, in May 2013 during Mane’e ceremony. Primary data were collected through direct observations, interviews with traditional leaders, religious leaders, educators and village leaders; other data were obtained through a video recording of Mane’e ceremony implementation.
Results and discussion

Geography

Nanusa Islands, also called Porodisa (means paradise), are Volcano Islands located in Residence of Talaud Islands, North Sulawesi. Geographically, these islands consist of four very small inhabited islands, i.e. Miangas Island, (northern outer part), Marampit Island, Karatung Island and Kakorotan Island, where the Mane’e is still practiced. Whereas the uninhabited islands are Garat Island (local law protected island (Kalpataru-environment price recognition), Mangupung Island, Intata Island and Malo Island as plantation islands of local community. Kakorota n Island and Intata Island were one island in the past, but swept away by big tsunami disaster in 1914.

Mane’e was performed in all islands but the society structure and belief has changed with time, so that only local community in Kakoratan Island has still strictly held their customary law system. Other important terrestrial natural resources beside local plantations are climber crabs (Birgus latro) and moleo bird (Macrocephalon sp.).

Local Wisdom

Mane’e is one of indigenous fisheries management which has been conducted from generation to generation by the local people since 16th century in Nanusa Islands of North Sulawesi (Reppie et al., 2006). Mane’e means a statement of agreement of local community to perform an activity together; rituals to prepare fishing equipment and carry out the fishing operations together; or fish harvest ceremony together. Mane’e can also be interpreted as an activity to implement fishing operations on the basis of cooperation, solidarity and unity.

Mane’e itself is actually a series end of a customary law process called Eha’ which means that as a warning not to do or a ban on all public to take natural resources during certain time (closing harvest season or periodic closures).

There are two kinds of Eha’. First, land Eha’: closing season for harvesting natural resources on the islands, like coconut, banana, cassava, sweet potatoes and other land natural resources. Second, sea Eha’: closing fishing season and fishing ground, and forbidding people to enter some beaches and its coral reef waters. Eha’ is established by local customary institution together with village government and religion institution.

The Basic Principle

The traditional knowledge of this Eha’, is mainly based on trust and community compliance, not greedily exploiting the limited natural resources on very small islands as Nanusa Islands. Eha’ guard for law enforcement called mangangeha will be chosen a number of men from ten Tribe Heads for one year. Anyone who violates the rule will be punished by moral sanction, body corporate or some money fee which is decided by customary law institution. Local community believes that any violation would cause some natural calamity in their village.

Mane’e Location

Mane’e ceremony is conducted at nine sites and each has its own name, Lenggoto, Ale’e, Apan and Dansunan in Kakorotaotan Island, Ranne (national
Implementation Time of Mane’e
Implementation of mane’e is once a year at each site in May to June. Fishing gear will be deployed at the sea during a high tide (spring tide), usually the day after the new moon or the full moon, and its time is determined through traditional rituals of Mane’e.

Fishing Gear
Fishing gear used in Mane’e ceremony is very traditional, made of forest rope - a type of creeping plant which is easy to grow in the forest of Nanusa Islands, then joined in a row to form a rope around 3 - 4 km in length and wrapped with young coconut leaves. Preparation of Mane’e ceremony requires 3 - 4 days before the main event. Ratumanua (traditional leader) duty is to ask the Lord to be granted the ease and a lot of catches during the mane’e event.

Process of Mane’e ceremony
During this event, there is all collected in a relationship together; there is no difference, either religious differences or life status. Process of Mane’e ceremony is conducted through nine stages, including prayers to the Lord for all the work going well and blessed, as follows: 1) Maraca Pandagi (cutting the forest ropes); 2) Mangolom Para (requests to God); 3) Matuda Tampa Pane’ea (go to the location of the ceremony); 4) Mamabi U’Sammi (making fishing gear); 5) Mamoto U’ Sammi (casting the fishing gear); 6) Mamole U’ Sammi (pull the gear to ashore); 7) Manganu Ina (take or catch the fish); 8) Matahia Ina (dividing the catch); and 9) Manarimma Alama (thanksgiving to God)

Fishing Process
Fishing gear is set circle to a reef flat as location of mane’e by a small boat using paddles in the morning when the sea being high tides. The free divers with hand-made goggles follow the line in certain distance to guide the fish school from the deep into the center of shallow lagoon while the tide is going out. The free divers should identify sharks and guide them out from the circle line, because the people believe that it is a bad sign for local community in future. Both ends of the rope are pulled towards the coast to minimize the circle of rope so that the fish are trapped in the middle of the lagoon at the lowest tide.

When waters is shallow enough, fishing will be started, firstly by the head of the customary law, and then special guests or government officers, religion leaders and followed by local community and visitors; using simple gear or by hand. The catch consists of coral fishes and their associates, such as Serranidae (groupers), Scaridae (parrotfishes), Haemulidae (sweetlips), Acanthuridae (surgeonfishes), Balistidae (triggerfishes), Siganidae (spinefoot), Carangidae (trevallies), Barracudas and some time turtles.

The Impact to Fish Resources and Environment
Mane’e tradition, especially in Ranne site in Intata Island has been established by the Government of Talaud Islands Regency as a tourism icon (mane’e festival) and open to public, while eight other locations are closed to the outsiders. The catch of mane’e activity in recent years tended to decline, both number and size. This shows that there has been a trend of declining the quality of the aquatic environment around the mane’e site. Many young fish were trapped in the lagoon at the lowest tide. Mane’e activities in each year as a tourist attraction are attended by thousands of people. When fishing takes place, then the seagrass beds and coral reefs are broken because of being trampled by visitors.

After the mane’e ceremony had completed, then the garbage due to human activities spread in Intata Island and its surrounding waters. Anchor of the carrier vessels also have a great opportunity to destroy the corals and pollute the waters with fuel oil waste or other liquid wastes. Harvesting creeping plant (forest rope) each year will affect the coastal ecosystems of Mangupung Island. Cutting young coconut leaves may also be slowing the production capability of coconut itself.
**Mane’e** activities, as ceremonies customary law, are often intervened by people outside. The location of **Mane’e** Ranne, as a national tourist attraction, is usually visited by officials of central government, and the local government who feels concerned to arrange the **mane’e** activities which sometimes breaks the rules of local customary law.

**Mane’e** effective time is predetermined by the customary law, but the outsiders can impose a delay or accelerate the implementation in association with official visit, so that it could finally forced mane’e ceremony to be conducted at the expense of customary law. Many other customary rules are often not followed by the visitors. These conditions eventually led to changes in beliefs and social structure of local communities; because it is believed that if there is a violation of customary law, there will be a catastrophe in their village later. The implementation of national mane’e ceremony in Ranne site of Intata Island is often not genuine local customs any more, and thus, the meaning of local wisdom could degrade because of the outsiders’ intervention.

**Conclusion**

**Mane’e** through **Eha system’** actually has a positive impact on compliance with local communities, so that they are not greedy to exploit the limited natural resources in very small islands. But the intervention of outsiders who do not comply with customary law believed by the local community will have a negative impact in the form of changes in beliefs and social structure, fishery resources damage and environmental deteriorations. The development of Intata island tourisms must be done with three approaches, prosperity approach (welfare approach), security approach and environment approach.

**References**


