

# Current Conditions of Local Subsistence System and Local Knowledge for Environmental Utilization in the Supermonde Archipelago, The Makassar Straits

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## Introduction

The Supermonde Archipelago lies along the western coast of South Sulawesi about one hundred kilometers length, forty kilometers width. The Archipelago is consisted of hundreds of small coral cays (islands) with skirting shallow lagoon. Central subsistence activity around these islands is commercial fishing by local people. In this paper, I will use the term "commercial fishing" to refer to fishing whose whole catches are shipped to Makassar. In other words, the fisheries which are intended to be supply for outside the island by local middlemen. It seems that roughly seventy percents of the male population (not only adult, but also the school age children) are engaging in the fishery matters anyway, around the Archipelago.

Now, fishery environment in vicinities of the Archipelago is getting devastated gradually, but accurately in the last few decades. In this area, fishing activities are narrowed down to two spheres; that is, one for the domestic market and the other for export. To get fisheries effectually, fishing bomb and fishing poison are exploited. The present paper is written with the aim of showing current conditions of local

subsistence system among fishing communities in the Supermonde Archipelago. Special attention to socio-economic background and discourse about local logic in regard to maritime environment or ecosystem in a certain fishing community will be paid. This paper will try to sketch concisely circumstances of the front, where destruction of the sea and exploitation of natural resources are going on.

In addition to above, I would like to define my position in this paper. Although I am not an expert on environmental destruction or resource management, I think that an attempt to resolve such kinds of matters cannot effect without outlook for socio-economical background inside community. I myself have a viewpoint which has sympathy with local logic of utilization for natural resources apart from my personal ecological recognition. If I ask to local people how they think about environmental conservation or resource management which is on the verge of fatal danger, they would answer in this way. "But, if we stop using fishing bomb or fishing poison, how can we get money?". It is really sorry that I have to confess I never find out any answer for this counter question up to now. I simply keep thinking over what kind of alternative could be there.

It is really difficult to find out a settlement, which is appropriate for every occasion, of resources management and environmental destruction. In this paper, I just would like to try to show general condition of a certain community involving environmental destructive fishing matters. It is easy to criticize an action which causes unfavourable results, but it is also important to grasp that what kind of situation there was. I hope this paper could show an example for local context toward utilization of natural resources. Then, an alternative way to subsist should be considered, if it is really necessary.

## General information on research location

*Sukun* Island is a small vegetated coral island<sup>1</sup>. Highest point is only one meter above sea level and 4.9 square-kilometers areas. We can see so many of breadfruit trees (*Sukun*, *Artocarpus alitis*), which are allegedly planted by the ancestors. Others are coconut palm trees, horseradish trees (*kelor*, *Moringa oleifera*), water apple trees (*jambu air*, *Syzycium aqueum*) and banana trees. Some shrubs for herbal medicine or ceremonious use are also found as a hedge. When fruits are ripe, they harvest and eat them. There is no field or even a small-scale kitchen garden for vegetables or grains for domestic use. Nobody engages in agriculture on the island. They draw water to drink from wells, but it is very salty in dry season. As of now, it is wives of shopkeepers or female retail dealers who go to marketplaces in Makassar in order to stock grains and vegetables or daily commodities. Otherwise, peddlers

<sup>1</sup> For convenience, I give a fictitious name to a certain island in the Supermonde Archipelago.

(*pa'biseang*) come to the island to sell rice or a few kinds of crops from agricultural villages of Sulawesi mainland.

The island is situated in the southern part of the Supermonde Archipelago. From Makassar, it takes only an hour by boat to get there. It is said that before modernization of transportation, it took more than eight hours to reach Makassar from the island by *perahu*, small double outrigger boat with triangle sail. At that time, the population seldom went to Makassar except shopkeepers or those who engage in maritime products transaction. After motorization era in first half of 1980s, small-scaled peddlers started to go to Makassar twice or more in a week to stock up on commodities.

### Examination into social background

*Sukun* island has about 3,500 populations with plural ethnic groups such as Makassar, *Bugis*, *Mandar* and *Bajau*. Four ethnic groups has experienced intermarriages for generations, so ethnic boundaries are ambiguous now. Added to this, there used to be Chinese merchants' community and Melayu community on the island. It is easy to find descendants of each Chinese and Melayu group who claims their lineage. Some characteristic discourses are often mentioned, if they want to prove their ethnic authenticity. Of course, manipulation for ethnic identity is easy to be occurred, and there is a subtle difference even within a family when one explains his/her ethnic identity. For example, a son says he is a Makassar, and his mother says she is a descendent of Chinese and *Bajau*. But, his father is immigrant from Java, whose mother is Java and father is descendent of Arab. A son's ground for his ethnic authenticity is that he has been brought up in Makassar society following its tradition. Such a discourse, however, is not firm. It depends on a state of affairs. According to the elderly people, there has never been any kind of ethnic conflicts on the island as long as they remember. It is very interesting that there is not any sign of existence of hierarchy between ethnic groups. Neighbor island have almost same ethnic construction, and maintain same social stability.

Their logic of power politics inside the island is very clear. Those who success in business (in this context, success in fishing business) and have experienced pilgrimage to Mecca once or more get a certain status to a certain degree. I wonder such a local logic of social status has relation with drastic forage of maritime environment around the island. Once one got the title of haji, consequently, she/he has to keep oneself shown off proudly. If a wedding ceremony of relatives is held, they are required to put a special cap for haji on their head with gorgeously dressed, of course willingly or should rather say delightfully. Even they go to *kios* (kiosk) to buy *kangkung* (*Ipomoea aquatica*, water convolvulus) for lunch or tobacco, they never fail to put on a special cap. If one's mother returns from pilgrimage, her children will call her *ibu haji*, neither mama nor mother. It is thought to be impolite, if honorific title is omitted from name. Prob-

ably, it is difficult for them to stop keeping dressed plausibly, even though they lead an extravagant life far beyond their daily income. Even if any doubt remains about relations between resources management and display of wealth, however, what is important is the fact that only income by fishing bomb and fishing poison can afford such a kind of expenditure. It means that income per fishing is enough large if only favoured with good condition.

On the island, about fifty people would go to pilgrimage every year. It is incredible number for such a small fishing community. Even in 1998, the year of *krismon* (*krisis moneter*), more than thirty people did manage to go. Sometimes they sell their fishing boat to squeeze funds to go to pilgrimage. Others get a part of funds from lottery group (*arisan naik haji*). To engage in commercial fishing, especially in dynamite fishing for domestic market, however, is the most effective way to obtain the funds in the shortest way.

There is a further points which needs to be clarified. It is possible that commercial fishing for domestic market could be a factor that endangers maritime environment in the Supermonde Archipelago. As I pointed out above, profit from commercial fishing is so large that many owners and captains of fishing boat want to engage in dynamite fishing. And there would appear problem. The more fishing boats engage in dynamite fishing, the cheaper market price of fish in Makassar becomes because of oversupply. After deduction costs for expedition and distribution for each member on fishing boat, only a small money is left at captain's hand. However, no one can say when fluctuation of market price happens and vice versa. They have to keep going dynamite fishing.

To inquire further into the concerns of relation between religious value and social status of *haji*, however, would likely lead this paper to another dimension. As I said at the outset that careful examination on socio-economic background is inevitable, we are now able to see enough situations for this paper.

### Fisheries as subsistence

In *Sukun* Island, we can find two types of fishing activities as I mentioned above; namely, distant expedition for export oriented maritime products and offshore fishing for domestic markets. Targets of the former are, even though there is not any reliable documented record about historical activities of Sukun Islanders, said to be *trepang* (sea cucumber), tortoiseshells, shark fins and so on. Expeditions for such highly valued maritime products are seemed to be centuries long subsistence of the island combining fisheries with trading. After Chinese traders came to live on Sukun Island, many inhabitants go aboard with their ship to collect maritime products for eastward of Sulawesi. Such a catch has been exported to Java, China, Singapore or Hongkong by Chinese traders. Up to now, these kinds of highly valued maritime products are important for local traders in the is-

land.

*Trepang* expedition is still one of subsistence of the people. They go around from coastal area to island, like Southeast Sulawesi, Maluku, and small islands in Java Sea or Flores Sea to buy processed *trepang*. Mostly such a trip is conducted by individual or small members. They load various kinds of commodities on their ship to exchange *trepang* or another maritime products, if local suppliers want to do. They work as *trepang* broker local fisherman and exporter of maritime products in Makassar. There are several handicraft-person on the island, for example, who process tortoiseshells into souvenir as subcontractor of shopkeepers in Makassar.

On the other hand, offshore fisheries are central subsistence on the island today. Most of the fisheries of offshore fishing are shipped to markets in Makassar. Even though a husband follows commercial fishing boat, he obtains his share in cash. His household will be given fish which have no market value. It still remains a custom that owner of fishing boat share a small portion of fisheries to several neighbours, such a local leader, poor neighbours, and the old as a compliment. Selling price in Makassar is not always higher than that of the island, but there are constantly more demand and moiré consumers outside the island. In *Sukun* Island, there are more than thirty fishing boats which involving in dynamite fishing expedition. It is absolutely impossible to absorb whole the catch of them inside the island. Moreover, outside the island, it is usual to deal fish by cash transaction, so fishermen never fail to get cash income.

Household income on the island is not stable in general, because it depends on a few conditions as weather, current, or good luck. Retailing fish for daily consumption is paid by credit inside the island. Sometimes fish peddler feels embarrassed to collect money, if his relatives are his customers. Such a kind of discourse is used as an excuse for fishermen who sell their catch to local middlemen in the island. As the population on the island knows each other well, it supposed to be embarrassing matter to lower the price. If a prospective consumer is the experienced pilgrimage, accordingly, it is natural that negotiation is not satisfactory for both. After measuring the catch, local middlemen bring them to markets in Makassar next day, then fishermen receive return.

There are a few of fish peddlers inside the community, but they do not always go fishing. Usually they go to sea by *perahu* to buy fisheries from fishermen from another island. Otherwise, they buy fish at *bagan perahu*, traditional fishing boat (fishing platform) with attached fishing net under hull, owned by neighboring islands, too. If they do not operate *bagan perahu* because of bad weather or around full moon nights, it is possible for the peddlers to fail to buy fish<sup>2</sup>.

<sup>2</sup> Preparing for such a situation, they use fermented preserved food, named *cao*. The ingredients are *ikan mairi* or *ikan lure*, cooked rice, salt and molted rice to help fermentation. It is said that *cao* is introduced by Chinese merchants sometime around the turn of last century or before to the Archipelago

The important point to note in this section is that most of fish are intended to trade outside the island, even though the fisheries by offshore fishing. Then, two issues are to be explored; first, how the subsistence on the island is related with outer economic system, secondly, what kind of influences on environment by fishing is found. These questions are clarified in the next section.

### Current fishing system

On the *Sukun* Island, the target of the offshore fishing is narrowed down to several kinds of maritime products for domestic markets and international markets. Target fish for the former is for example, *ikan rappo-rappo* (*Caesio erythrogaster*), *tengro* (*Tylosurus melanotus*), *tembang* (*Clupea longiceps*) and so on. Most of them are kind of sardines, herrings and horse mackerel. Fishing for international markets pursues highly valued fish as serranidae (groupers, as generic name, *ikan sunu* and *ikan kerapu*), which inhabit around coral reef in 10-30 meters depth offshore sea of the island.

### Fish for domestic markets

It is widely exploited fishing bomb, or fishing dynamite to catch a fish for domestic markets. The best season for dynamite fishing is from May to August, and from October to January. With one trial of fishing bomb, fishery is expected one hundred baskets of *rappo-rappo*, *tembang* or *tengro*. The average of sum total of catch is about three tons per expedition. Profit is about three millions rupiah, and distribution for contracted fisherman is approximately three hundred thousand rupiah<sup>3</sup>. Through one expedition, bomb shooting is conducted at least five times. Average duration of operation is for a week, and a number of crew is fifteen to twenty. The way of acquisition of fishing dynamite is complicated and obscured.

Usually operation is carried out at one night sailing distant to the westward offshore of the Supermonde Archipelago. Construction of crewmembers is one captain *juragang* (or owner-captain, *punggawa*), one cook, one engineer and the rest are contracted fishermen (*ABK*, *anak buah kapal*). Fishing boat is equipped two or three wooden or tin boxes, two meters cube respectively, to keep fish fresh and frozen. There are sufficient of large ice blocks inside the box until return to harbor. Therefore, these fishing boats are called *kapal pa'es*, which is connected Indonesia term *kapal* for ship and Makassar vernaculars *pa'es* for ice block user. It is not yet available to equip electric refrigerator on board. Their alleged tonnage of *kapal pa'es* is ten, while taken an objective view, estimated at three to five ton at most.

Occasionally *kapal pa'es* conducts dynamite fishing in near offshore sea from the island. In this case, they take a local speedboat with narrow and hollowed wood hull.

<sup>3</sup> Every fishing boat has different way of distribution of profit. Distribution is determined by skill and experiences.

*Joloro* is its vernacular name, which is rapidly spread among fishing communities along coastal area of South Sulawesi since early 1990s. Some of *joloro* is its high speed which owes its structural device, eleven meters length and two meters width without the keel. The time required to Makassar from *Sukun* Island is reduced by half, for only thirty minutes ride. It seems reasonable to suppose that fishing area of *Sukun* Islanders is expanded. Some of their favourite location is situated about forty kilometers from the island. Its average speed per hour is around twenty kilometers. Actually, common use of dynamite fishing.

Once fishing bomb is thrown, an explosion sound is heard in the offshore sea. Then, every boat including *joloro* without dynamite fishing equipment, which happens to hear the sound nearby, has right to participate collecting fainted fish by bomb. After collecting fish, captain of bomb shooting boat calculates the amount of fish, and immediately he has to distribute it among participating boats as rewards on board. In general, one third of collected fish by participant is given. For example, if a participant boat collects thirty baskets of fish, she will be given ten baskets.

Sometimes small fishing boat such as *joloro* is waiting for bomb shooting trial on the sea. *Joloro* is not always involving in dynamite fishing, while others in poison fishing. After encountering the chance and getting his share, the owner promptly steers his *joloro* to beach in front of middleman's house on the island. It may be said that spread of modern tool for transportation has accelerated adaptation of people on the island for market mechanism. People who engage in fishing have come to always mind time to shipment for Makassar.

It is next to impossible to find a *joloro* which does not load compressor to enable long diving for collecting fainted fish whether she involves in dynamite fishing or poison fishing. Both are required to dive for comparative long time. Any delay or hesitation for cost of equipment or implement is recognized to bring about earnings differential among the community. Although that, everyone does not necessarily make up his mind to invest in equipment.

For the last few decades, as increasing number of offshore fishing boat convert traditional style of fishing into dynamite fishing, tendency toward fall of market price seems to be inevitable. It is clear that oversupply of fish is one of the reasons for this. In early 2000, there happened an ironical incident worthy of mention. Because of high season for dynamite fishing, several *pa'es* went to expedition and got tolerable fishery. They returned to Makassar and wanted to sell it. At that time, however, fish markets in Makassar had so much of supply that got rotted. But, the plan turned to be failed. A boat from somewhere in East Kalimantan came to *Sukun* Island in order to sell dried fish with bargain price. It is needless to say that the boat was also *pa'es* from the opposite side of the Makassar Straits. It revealed that oversupply of fish happened here and there where dynamite fish-

ing is exploited. After all, owner of *pa'es* on the island preserved his fish in salt and sold it in the vicinity of his house.

To win time competition of shipment, it is natural to invest in equipment as mentioned above, especially a high-performance engine for fishing boat. Therefore, some of them get a loan from bank or relatives. Otherwise, they tie up with middlemen in Makassar to give supply of fishing equipment in kind or cash. Several examples in the last few paragraphs have shown that fishing activities on *Sukun* Island is closely entangled with market economy. Once they enjoy making easy profit by participating dynamite fishing, it is difficult to withdraw from it. There still exists a patron-client relationship in fishing communities in the Supermonde Archipelago. It has changed in substance, however, compared with decades ago. Patrons have got stronger control over their clients. Endless stream of loan is shown to their clients to keep their living standard. It seems one of strategy to keep their clients that to distribute fuel for ship and compressor by lower price than retail dealers. It is matter of money that takes precedence over all other for both patrons and clients.

#### **Fish for international markets**

In this section, I will focus on systematically arranged process for export of highly valued fish, such as *ikan sunu* to vicinity countries. According to fishermen on *Sukun* Island, it was around early 1990s that *ikan sunu* fishing was popular among fishing communities in the Supermonde Archipelago. Local office oversea trading company was also established in Makassar to work shipment process smoothly. This happened almost simultaneously with spread of *joloro*.

At first, *ikan sunu* fishing was conducted by placing bamboo maid fishing trap (*bubu*), a box-shaped bamboo basket with funnel-shaped mouth inward. The trap is a traditional fishing tool around the coastal area of South Sulawesi. Actually, it is hard to get bamboo on vegetation of islands, and peddlers from North Galesong County visit the area to sell traps. In order to lay the trap firmly on coral reef, crashed block of coral is used as a weight. Therefore, some local NGOs warned fishing communities in the coastal area against exploiting *bubu*. They explained that using *bubu* would bring about destruction of maritime environment, emphasizing that if corals reefs was damaged, not only *ikan sunu* would stop inhabiting, but also other kinds of fish were declining. On the other hand, another economical reason has emerged from transaction front which urged to replace *bubu* to alternative ways: one is very simple manual fishing with line and hook, and the other is using fishing poison.

The reason for this sudden instruction for conversation is that in order to keep damages on scales of *ikan sunu* as little as possible. Once *ikan sunu* is captured inside *bubu*, it struggles to escape from trap, and in consequences scales are damaged to reduce its value. Usually, *ikan sunu* are ex-

ported by air in a state of suspended animation all the way fish tank in seafood restaurants in neighbourhood countries. Thus, the less damaged scales in appearance are, the higher market price is marked.

Fishery owners who keep appropriate number of clients can take handline fishing, which is thought to be ecologically safe. He owns big mother ships to load about thirty small single outrigger boats with attachable power. They go to remote location of offshore sea. Then, they scatter respectively and concentrate on handline fishing. Mother ship is equipped fish tank which circulates seawater through drainage. It is indispensable to keep fish alive.

After expedition, whole the catch are kept in floating platform (*karamba*) temporarily nearby local middleman in the island. After consulting market of fish, oversea head office tells order for amount of shipment to local office. Then, directions for transport of ikan sunu are ordered by radio- phone. As soon as the order is communicated, local middle- man starts to ship selected fish are sorted by size and weight. After injected to get asleep until the destination, the fish are packed in plastic case. Within a day, medically fainted fish are exported to international markets by air.

In general, those who use fishing poison steer *joloro*'. The most popular way to catch *ikan sunu* by fishing poison is to pour the solution into crevice or hole around coral reef area. Consequently, the fish are lost consciousness to be caught. They buy fishing poison (potassium chloride), whose cost is deducted from daily haul of each owner, at office of their patron middleman. It is allegedly said that fishing poison salesman visit coastal communities in the Supermonde Archipelago. According to people on *Sukun* Island, it is difficult to know what is their purpose and identity by appearances, but they find out immediately who is involving poison fishing. Thus, it is supposed that the salesman starts to negotiate in secret. But, I have no definite information on distribution channel of fishing poison and history of its utilizations on the island. It is expected to refrain from talking about poison fishing, although one often catches a sight of piles of containers for fishing poison inside the island.

There is one thing to be paid attention carefully. Most of fishermen, whether he exploits fishing poison or not, understand very well a danger of fishing poison and its result. It is not a danger for maritime environment, however. It is a slight danger for his apprehension by patrolling authority. Once in a while, an unfortunate fisherman is arrested by police on board on the ground for committing dynamite fishing or poison fishing. In spite of this, the rest of the fortune would not mind. They know that he is just made an example and released sooner or later.

Moreover, growing number of fishermen are suffered by submarine sickness. Quite a lot fishermen died on board before they were carried back to the island. Otherwise, a physical handicap remains to him, and they cannot go fishing any-

more but stays at home. It is natural that his teenage son supports household replacing his father. His son in school age, more often than not, will follow fishing boat as a guard for compressor to earn a small part of family budget. Of course, his wife would engage in small business such as selling cakes or snacks, peddling daily commodities, or sponsoring *arisan* to gain a small commission. In case of *Sukun* Island, such wives and widows are given priority in distribution of *IDT* (*Inpres Desa Tertinggal*). It is really regrettable accident, but it is likely to happen as long as they involve in commercial fishing, too. As it is getting harder and harder to find highly-valued fish, they have to stay underwater much longer time than before. It is reasonable to suppose that overfishing and destruction of inhabiting environment deserve this tendency.

Considerable number of fisherman's wife join lottery group to win an aggregate sum of money. It is funny but ironic that some wives borrow money to draw lot weekly or every ten days. Probably, both of husbands and wives simply cannot stop relying on it.

### Social discourse inside fishing community

Let us devote a little more space to examining local logic for environmental conservation and resources management concisely. At the beginning of this paper, I quoted the counter- question of a fisherman; how can we earn money if we stop using fishing dynamite or fishing poison?. On the other hand, some fishermen recognize that disturbance of maritime ecosystem will bring about such a destructive fishing way. They proclaimed that they never engaged in dynamite fishing or poison fishing at least since they came to know the results. Therefore, they engage in gill net fishing, casting net or handline. Of course, such activities are said to be ecologically safe, and they can earn enough money to live a simple life. Although that, we have to notice this point; that is, as long as such a choice for subsistence are derived of their traditional local knowledge, it would not matter anything. But if there were an intervention of outsiders' intention or NGO activities for environmental conservation, a kind of social antagonism would emerge.

For examples, some outsiders came to *Sukun* Island I order to enlighten the population about the danger for exploitation of dynamite and poison for fishing under the slogan for environmental conservation. It turned to be an unexpected scale of repulsion from the opposite side. A certain local supporter for the enlightenment group is also got dragged into the affair. Some of local population who stand by the outsiders' side. Actually, never want to emerge serious antagonism between the opposition. They never mean to criticize such kinds of fishing directly. Because they know that each person has his own way of earning money. We can often find the similar incidents where environmental destruc-

## Conclusion

So far, in this paper, current condition of the local subsistence system in a certain fishing community is shown concisely. Mainly, two topics are focused and depicted; one is dynamite fishing, and the other is poison fishing. As I mentioned earlier in this paper, special attention to socio-economic background of the community is paid in relation to environmental destruction.

The tendency for environmental conservation and philosophy of resource management is likely to become dogmatism. The purpose of this paper is not to criticize such a tendency, but just to report concisely the current condition of environment in the Supermonde Archipelago. The point I wish to put special emphasis upon is that there are no all-powerful counter-measure for environmental problem.

When we think about issues of resource management in endangered environment, it is important to face it with great composure. The solution is not to stop what is called exploitative activities. If we do not consider socio-economic background, which entangles supply side for low material, and, at the same time, reconsider propensity of consume, we are turned to be just an ecological egoist. First of all, we have to recognize there are a lot of people who struggle to live by exploiting natural resources at each stage of transaction.

Fishermen have to keep supplying maritime products to terminal consumers. They do not have alternative ways, because they are completely entangled in current economic system by accumulative debt. If we say discontinuance of so-called exploitative fishing, it is natural to think alternative way to survive in cooperation. As I pointed out earlier, social logic of power politics inside community should be also carefully considered in regard to necessity for easy profit from dynamite fishing or poison fishing. It would leave room for variety of further discussion, actually. Nevertheless, it is reasonable to think that to be conscious of the fact would offer the key to find an alternative activity.

In this paper, I intended to discuss the matter showing concrete examples, however, it could not go beyond general discussion on environmental matters. It should be concluded, therefore, that problems concerned with environment are not to be solved without mutual understanding between those who follow local logic of exploitation and those who concerned about resource management. No matter how self-evident, it is really important and difficult to put it into practice. At the very last, I would like to comment upon underground connection of commercial fishing. It is quite sensitive matters to refer in this paper, then I refrained from even a passing reference.

## Acknowledgements

I am greatly indebted to all the people on the *Sukun* Island for helpful assistance and uncountable amount of interviews. This paper is based on my field research on hu-

man mobility in the Makassar Straits intermittently from August 1998 to January 2000 in *Sukun* Island, under permission and kind cooperation of *Lembaga Ilmu Pengetahuan Indonesia (LIPI)* and *Universitas Hasanuddin*. This research was supported in part by JSPS (Japan Society for Promotion of Science), fiscal year 1998/1999 and 1999/2000.