

Political Ecology Analysis on Marine Ornamental Fish Eco-labelling in Les Village, Bali, Indonesia

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ABSTRACT

Eco-labeling initiates the change in marine ornamental fishing pattern in North Bali by promoting environmental awareness and raising issues regarding inequality in the social, economic, political, and ecological dimension of marine ornamental fish fisherman's livelihood. There are several actors involved in the eco-labeling issues which are state, non-governmental organization (NGO), private sectors and fishermen. This paper aimed to analyze the characteristic of actors, their interest and impacts on marine ornamental fish trade, and their certification of eco-labeling by using actor-approach analysis. This research used mixed methods of both qualitative in nature and quantitative in approach. This study revealed that exporters had the most powerful influence on price and demand controller in Les Village's marine ornamental fish trade, while middlemen (the representative of exporters in village level) were on the second. Middlemen had the control over Les Village's fishermen income, with such regulation that fishermen only captured a number of fishes and certain type of fishes ordered by the middleme in a day, thus limiting the fishermen's income. The state could be alineated from the Les Village's marine environmental

movements as well as state's role in the marine ornamental trade as it has unclear interest in marine ornamental fish trade, even though Marine and Fisheries Services Buleleng and Industry and Commerce Services Bali Province attempted to look for a position role in the trade.

Keywords: Eco-labelling, ornamental fish fisher, political ecology, politicized environment

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INTRODUCTION

Djamali and Mubarak (1998) stated that Indonesia's waters had the richest diversity of marine ornamental fish, also known as marine aquarium fish, among other exporting countries with approximately 254 species recorded. The number of marine ornamental fish is predicted to be 1.5 billion fishes inhabiting over the nine managed areas; with more than 200 million fishes potentially inhabiting five of the areas (Mallawa, 2006). Globally, marine aquarium fish trading is currently the largest living animal trade. Every year, between 2.0 and 2.4 million marine ornamental fish are collected for the marine aquarium trade, and 1471 different species of fish are traded globally (Wabnitz et al., 2003). Marine ornamental fish exports in Indonesia is a multimillion-dollar business that lacks the attention it desperately needed. The amount of marine ornamental fish exported from Bali, Indonesia in the first quarter 2015 reached 3 million dollars. In the last five years, the data showed that ornamental fish export amount has increased by almost USD3 million and reaching USD10 million in 2010. It is definite that Indonesia controlled 7.5% of the new ornamental fish trade in the world.

Marine ornamental fish (i.e., coral reef fish) are more valuable than fish for human consumption (Guzina, 2013). The retail value for a kilogram of coral reef fish intended for the aquarium trade is worth between USD500 and USD1800, while the price of marine fish for human consumption ranges from USD6 to USD16.50 per

kilogram (Wabnitz, 2003). The ornamental fish industry has encouraged thousands of coastal fishermen to earn extra money by collecting the ornamental fish for the aquarium trade (Lilley & Lilley, 2007). According to Department of Industry and Commerce Bali Province, 90% of Indonesia's marine ornamental fish are exported to Germany, China, Hong Kong, and European Countries.

More than 70% of the world's total fishing comes from developing countries including Indonesia, and more than half of them are from small-scale fisheries (FAO as cited in Hall et al., 2010; Oloruntuyi 2010). Most of the tools and materials used for fishing utilized by Indonesian small-scale fishermen contributed to destructive fishing. The main contribution of destructive fishing from the ornamental fish fishery is the use of cyanide throughout the decades. The use of cyanide for fishing has been practiced in many countries in the Indo-Pacific region, except Australia, the Caribbean, and Hawaii (Barber & Pratt, 1998). Particularly in Les Village, Bali, Indonesia, the use of cyanide for over past several decades by marine ornamental fishermen brought severe damage to the coral reefs in the fishing area. As Lilley and Lilley (2007) pointed, in spite of claims of the introduction of laws and increased frequency of patrols by law enforcement officers, on the contrary, the use of potassium cyanide (locally known as "potas" - burns with a blue/purple flame) to catch fish is still extensive in Indonesia. Damaged coral reefs were spotted in Les Village in early 2000. It was marked with

bleached and fragile reefs, and a decline in the number and type of ornamental fishes in the fishermen's fishing area. The decline in ecological capability contributed a significant reduction to the fishermen social and economic condition. These circumstances impoverish poor small-scale fishermen in every way possible. In contrast, fishermen use cyanide to facilitate them to meet the growing demand for ornamental fish market.

Besides endangering the coral reef and its biota, cyanides also carry risks to human health, particularly to those who come into direct contact with it (Guzina, 2013). Mild cyanide exposure can cause nausea and gastritis (common symptoms) while larger doses can be lethal (Scheer & Moss, 2011). Cyanide is toxic when inhaled, ingested or absorbed through the skin. Accidental cyanide poisoning in fishing communities has occurred, but not as frequently as it might have been expected (Helfman, 2007). The utilization of cyanides on marine ornamental fishes could increase the number of captured fishes, increasing fishermen's performance to meet the middlemen and exporters orders. For middlemen and exporters, they see an increase in number of fishes as an increase in their profit from the sale without taking into consideration the consequences of what fishermen used for the capturing. Bryant and Bailey (2005) said, as a politicized environment, environmental change was associated with cost and benefits and the unequally distributed part among actors.

Marine ornamental fisheries in Les Village faces major struggles primarily involving the utilizing of cyanides and the increase of demand in fisheries since the emergence of global markets for marine ornamental fish back in the 1980s. In the early 2000, an NGO (named Yayasan Bahtera Nusantara) stepped into the picture and worked on raising fishing awareness among Les Village's fishermen. With the help of Yayasan Bahtera Nusantara, fishermen participated in the environmental movement, from joining the training until practicing to make artificial coral reefs, in order to grow back the coral reefs and recreating the habitat for fishes, thus allowing Les's fishermen to construct their nature once again. The Les Village's marine environment changed for better after years of the environmental movement took place. The coral reefs started to grow and the fishes were coming back since their habitat was well built. Yayasan Bahtera Nusantara brought Les Village's marine ornamental fisheries to another level of community-based governance fisheries.

Eco-label was introduced to Les fishermen by Marine Aquarium Council (MAC) right after they started eco-friendly fishing by Yayasan Bahtera Nusantara. MAC program was meant to promote the sustainability of marine ornamental fish populations and coral reef ecosystem through the market mechanism (Rachmadaran, 2010). The introduction of eco-label as market instruments was strengthened by Ward and Philip (2009) that concluded eco-labeling as a system set up under the incentive

of market mechanisms to encourage product notifying, that was produced by taking into account the ecological sustainability. The eco-label certification for marine ornamental fish trade chains from fishermen, middlemen until exporters in Les Village, with “whose sustainability” is in question.

Environmental movement is not a neutral process, however, it has political sources, conditions, and ramification that impinge on existing social-economic inequalities and political process (Bryant & Bailey, 2005; Bryant, 1992). The marine ornamental fisheries in Les Village had been politicised since the beginning of the trade as well as their environment. Therefore, it would be appropriate to analyze Les Village’s marine ornamental fisheries from the political ecology point of view by using actor-oriented approaches. Actor-oriented approaches have emerged in political ecology studies in order to understand how the behavior of actors operating at a variety of scales influence local interaction with resources (Bury as cited in Peluso, 1996). Similarly, examination of government policies in Indonesia illustrated the utility of actor-oriented research.

METHODS

Study Site

Les village was purposely selected because of the environmental changes experienced by its marine ornamental fishermen and it has been certified by MAC. The study was carried out over a period during October-November 2015 using a mixed methods

research approach (Creswell, 2003). Les Village is in Buleleng District, North of Bali Island, Bali Province, Indonesia, with 2 km of coastline. The beaches in Les village are composed of chunk-sized rocks, gravel, and greyish-black sand. Les village resident’s livelihood mostly depends on fishing since their land is very dry and not fertile enough for agriculture. Buleleng regency has the poorest people in Bali according to UNEP (2004) data including Les Village where it has more than 7000 people, 1500 of whom work as fishermen, either full time (around 60%) or part time.

Data Collection

The study used both qualitative and quantitative methods, carried out in a participatory manner and undertaken cooperatively with local fishermen and community groups, Non-Governmental Organizations, local enterprises, and exporters. Primary data was obtained directly on the field with several methods, such as participant observation, where researchers directly conducted a prolonged visit and involved in marine ornamental fishermen’s life. Concurrently, questionnaire method was used to measure the characteristics of 30 fishermen. In-depth interview of the key informant was done using semi-structured questions as this research involved multilevel actors. Then, several actors (like exporter, NGO, importers, and Marine and Fishery Services Buleleng, Industry and Trade Services Bali) were considered based on their relevance and convenience. In-depth interview can help narrow down

the research. Last but not least, focus group discussion was conducted together with several actors that were involved in eco-label in Les Village, such as marine ornamental fish fishermen and relevant NGO that complement them. Secondary data was obtained from documents review by Industry and Trade Services Bali, Marine and Fishery Services Buleleng, and several NGOs.

Household data from Les Village were chosen on the basis of marine ornamental fishermen background, experience on the impact of coral reefs bleached and loss of numbers of fishes, loss of fishery-based livelihoods because of the destructive fishing on the previous decades, and status of village fishery institutions. Household surveys (N=30 in Les Village) were combined with semi-structured interviews and focus group discussion with multiple actors.

Interviews with the members of the village's marine ornamental fishermen group (Kelompok Nelayan Soansari) were conducted, and focus group discussions were held in the third weeks of the research time, to elicit views of the fishermen and middlemen along with the social-ecology conditions on the marine ornamental trade. The focus group discussion was carried out for two times and attended by 19 marine ornamental fishermen (half of Kelompok Nelayan Soansari member) and 3 middlemen that live in Les Village. The views of NGOs, bureaucrats from relevant government departments, fish traders, and representatives of the fishers' federation were collected separately.

RESULTS

The History of Marine Ornamental Fish Fisheries in Les Village

Pra Eco-labeling Period. Tabel 1 presents and explains the periods of Les Village's marine ornamental changes. Back in 1980s, marine ornamental fishermen in Les Village used nets as a traditional way of capturing fishes. However, an increasing demand in early 1990 prompted the fishermen to look for ways to improve the number of their catch. It was the Javanese ornamental fishermen that introduced Les Village's fishermen to use cyanide for fishing. In 1985, Les Village's fishermen officially switched their traditional fishing to cyanide fishing because it was more helpful in meeting the increasing demand of ornamental fish market (Guzina, 2013; Muswar & Satria, 2011; Sentosa, 2004). Fishermen discovered that cyanide made fish lethargic, thereby making them easier to catch (Muswar & Satria, 2012; Guzina, 2013). Imk (personal communication, November 17, 2015) one of Les fishermen stated, "We thought it was the best way to make a lot of money, so we followed without thinking".

Fishermen were concentrating on meeting their household needs and increasing their income yet unwittingly exploited their own mother nature to fulfill the market demand (Bryant & Bailey, 2005). They began to have a taste of environmental deterioration caused by cyanide usage for fishing in in the 2000s. The use of cyanide negatively impacted the local marine environment as live coral coverage fell

Table 1

The history of marine ornamental fish development from 1980s-Now in Les Village, Bali

Year	Period	Definition
1980s	Pra eco-labeling period	The beginning of marine ornamental fish fishing in Les Village
1990s		Marine ornamental fish was having bigger demand, and fishermen started to use cyanide
2000	Transition period	One decade after using cyanides, coral reefs coverage decreasing to only 25%, which effected fish availability.
2001		An environmental movement emerged from a local NGO, Yayasan Bahtera Nusantara. They were using a market instrument to push fishermen to change their way of fishing, started with stopping the use of cyanide.
2002		This movement was welcomed by fishermen, furthermore, this movement formed a fishermen's cooperation, called " <i>Kelompok Nelayan Ikan Hias Soansari</i> ".
2005		Eco-certification was implemented as a recognition for fishermen's changes from using cyanide to free cyanide fishing, by MAC. Eco-label was expected to boost marine ornamental fish selling price.
2006	Eco-labeling period	MAC certified marine ornamental fish trade chain from fishers to middlemen and exporters.
2008		Unfortunately, MAC certification expired and MAC as a third party of the eco-labeling prompt to collapse.
Until now	Post-certification period	Marine ornamental fisheries in Les Village still exist with free-cyanide fishing.

Source. Data processing from key informant interview, secondary data, and in-depth interview with fishermen

below 10%, the ornamental fish population decreased to under 20% and the population of all species decreased to an estimated of 10% of their 1986 population (Frey, 2012). This condition brought down fishermen's income and smashed their social life. Lack of government consideration created a sense of abandonment among marine ornamental fishermen. Fishermen said that government was only punishing them because of the cyanide use, nevertheless gave no instructions or solutions on how

to change their fishing practice, toward catching abundant of fish and at the same time competent to sustain the environment adequately. Ina (personal communication, November 7, 2015) sgared the following:

I was often caught using cyanide to catch fish, I was taken to the police station to be punished. Usually, I am punished with standing by the flag in the daylight for several hours. Every time I got arrested, I always argued with the police, whether there is another tool or how to catch fishes without

using cyanides? But they never answered and gave no solution. They simply only punished us psychically.

Transition period. The transition period was a time span through the moment when Les Village's fishermen were experiencing their damaged marine environment going through the environmental movement. It is continued since the movement being cooperationalized into Kelompok Nelayan Ikan Hias Soansari and being certified as eco-labeled actors.

Continuous supervision in Les Village was done among fishermen based on customary rules called awig-awig to ensure the practice of environmentally friendly fisheries. Awig-Awig is a customary regulation that made by local fishermen, followed by them, and supervised by themselves and it is legitimated by the Head of Customary village. It is based on the agreement between local fishermen who are members of fishermen groups whom are expected to effectively monitor the fishermen's practice in fishing so that the environment will be preserved. One of Awig-Awig regulation is prohibition to catch fish using bombs, potassium, poison, trawling tigers and other hazardous chemicals. This rule aims to preserve marine biota and ensure sustainability. Violations of the regulation by certain parties will be subjected to customary law.

Eco-friendly fisheries practice is also considered as one of the respect and gratitude of fishermen who are Hindu in majority to Hyang Widhi (the Creator for the Hindu

religion) which contributed to the success of the program in Les Village. Nonetheless, the NGO's initiative was considered a success as well. The fundamental change of mindset by fishermen is one of the parameters of this success. As Frey (2012) stated in his thesis, this transformation was not only the transformation of reef yet transformation of mind. The manifestation of Les Village marine ornamental environment changes adopted a community based management as 21 respondents (personal communication, November 22, 2015) agreed to the following : *"The most important thing is mutual consciousness because if we spoil the reefs, we ruin the sea, we will again hurt ourselves. we need the sea weepers (indigenous Balinese sea keepers) to continue implementing such environmentally friendly fisheries. Self-awareness from the fishers themselves"*. While the remaining respondents (personal communication, November 22, 2015) reinforced the above statement, stating that:

"The rules to be enforced are a combination of the rules of the central government (in this case the Ministry of Marine Affairs and Fisheries), the customary rules of Bali, and the rules of village authority in which all three should work together in accordance."

The transformation process (concluded in Table 2) experienced by Les Village's fishermen can be categorized as double-loop learning process. Frey (2011) stated that there are three levels of learning process; single-loop learning, double-loop

Tabel 2

Transformation prior to eco-labelling

No.	Changes	Before	After
1	Harvesting methods	Using a spray containing cyanide	Using only nets, without any chemical equipment
2	The social organization of production (include production and Trade Chain)	Marine ornamental fish production chain before and after eco-labeling are the same. The difference was only in the pattern of market demand. Fishermen caught as many fish as they could.	Fishermen only capture the number and type of fishes according to the market demand by middlemen.
3	Effect on the Ecosystem	Ecosystem was destroyed by this exploitative manner of fishing.	Ecosystem is improving
4	The welfare of the fishermen	Finance assured	Finance is threatened

Resource: In-depth interviews with informants

learning, and the triple-loop learning. As the learning outcomes, single-loop learning provides a chance to meet or improve the environment and preserve biodiversity, and to increase incomes (Armitage et al., 2008). However, at this level of learning, there is no fundamental change in community norms and beliefs as well as in the habits of stakeholders. While participation of fishermen in making changes for better marine environment was an evident of fundamental change in behavior (Berkes as cited in Frey, 2012) which is the highlight of double-loop learning process. Armitage et al. (2008) formulated institutional and organizational frameworks that emphasized double-loop learning process, characterized by establishing confidence, risks taking in expanding learning opportunities, the need

for transparency to test embedded values, active engagement in society, and high levels of community participation. The formation of the cooperation of the Kelompok Nelayan Ikan Hias Soansari was one of the indication that double-loop learning process was implemented in Less Village during the environmental movement.

For comprehensive learning, the Less Village's fishermen put efforts in building their confidence and were willing to take risk of having their income reduced in order to change into a more environmentally friendly ornamental fishing patterns. The supervision of eco-friendly fisheries practices demanded the openness and active involvement of fishermen. This did not only show the high participation of fishermen in the implementation of environmentally friendly

fisheries but also showed the application of triple-loop learning process.

To date, the fishermen of Les Village has begun to feel a significant change to Les Village's marine environment. Following the implementation of environmentally friendly fisheries, all respondents expressed satisfaction: "since 2001, we no longer use *pota* and coral reefs are already good now. Reef fish that have not been there for a long time are coming back now. Yes, even though our income does not increase, we will not revert to the same fishing methods again. Many of our friends have ever dealt with police because of "motas" (catching fish with potassium). The most important thing is if we have both the same nature, Hyang Widhi will give dharma (goodness) later."

Introduction of Eco-label

From ecological modernization viewpoint, eco-label is an answer to ameliorate better environment that is often used as a synonym for strategic environmental management, industrial ecology, eco-restructuring, and so on (see Hawken, 1993; Ayes as cited in Buttel, 2000). This certification scheme appeared in response to governance and setting up an environmentally friendly fisheries sector (Gulbrandsen, 2009; Ward & Philips, 2009). These current circumstances bring marine ornamental fish trade towards new patterns. Fishing pattern from capturing fish as much as possible was turned to capturing based on market order by middlemen. After the introduction of eco-label, the middlemen and exporters exploited their power to control fishermen's market hence their

income. Fishermen is co-opted with this new legitimate and sustainable governance eco-labeling. Premium price offered by eco-labeling is an improbability. Moreover, Guzina's (2013) assessment resulted in, surprisingly, no statistical significant increase in revenue (using t-nets) after environmental transformation for Les Village's marine ornamental fish fishermen (both using compressor and none). The price disparity between fishermen and exporters on the economic dimension is unbeneficial to the fishermen. In addition, the inability of fishermen to participate in determining the price attributes to the lack of political ability of fishermen in the trade. This unequal profit distribution is a proof of politicized environment and clarifies that actors' power is manifested as control over access linked to marginalization of weaker grass root (fishermen) which also latter, leaves them vulnerable to episodic environmental changes (Bryant & Bailey, 2005).

The Actors Involved

Bryant and Bailey (2005) stated in their book entitled "The Third World Political Ecology", politicized environment showed that environmental degradation was inseparable with economic and politic context, whereas the environmental problem was not only technical issues. To understand the actors involved in the marine ornamental fishing, the first step was to identify the actors who have access and control over the fishermen eco-labeling of Les Village's marine ornamental fish and the power relations built between the actors. Referring

to Bryant and Bailey (2005) regarding this matter, the actors to be analyzed are: (1) the role and interest of the actors towards the use and mastery of natural resources; (2) roles and interests of actors that are distinguished by their motives and actions, and (3) the role and interaction of actors in natural resource conflicts.

The marine ornamental fish trade chain starts from the producers (fishermen) to the distributors (middlemen, exporters), and ends up with the end user. In this case, the state will be represented by Industry and Commerce Services Bali Province and Marine and Fishery Services Buleleng Regency, while environmental NGOs are enacted by Yayasan Bahtera Nusantara, The Indonesian Nature Foundation (LINI), and MAC. Businessmen are represented by

Middlemen and Exporters. Nevertheless, exporters, importers, and retailers are the multinational business. Those actors were classified according to their interest, ideology, network, and arena. This classification is best explained using “Theory of Access” by Ribot and Peluso (2003). Access is understood as the most basic of the bundle of rights in a resource, which is the right to benefit from the resource. Yet, following Ribot and Peluso (2003), access is also broadened to include the ability to derive benefits from a resource. In reference to marine ornamental fish trade, access mentioned is the access to markets that affects the ability to benefit from resources in many ways. The ability to commercially benefit from a resource can depend more on accessibility of owner

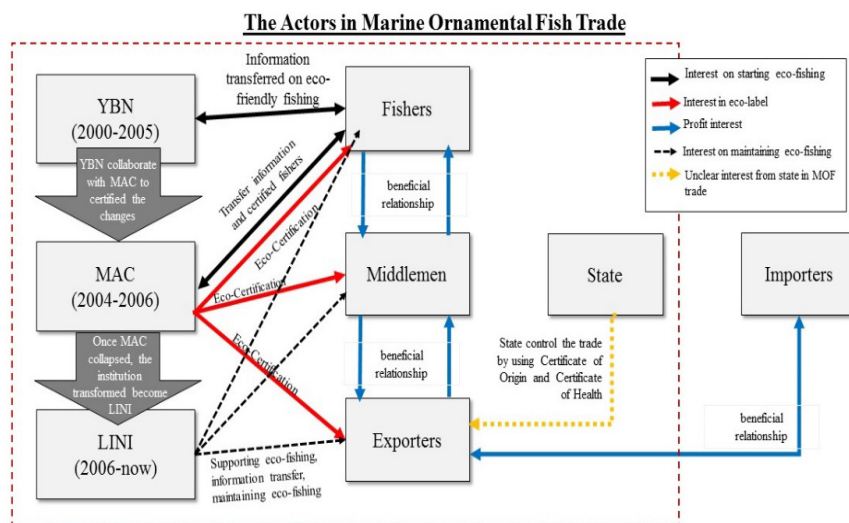


Figure 1. The actors' bundle and web of power in marine ornamental fish trade

to markets than one's right to it, as shown in Figure 1.

Business actors play a crucial role in the marine ornamental fisheries as they leave big impact on ecological change. In fact, the business actors are often blamed as the drivers of ecological changes with the main clause, market demand. In this study, the ecological changes of Les Village caused by the demand from international markets pass through the hands of business, exporters to collectors/middlemen. There is a tendency that the business actors working with the fishermen to incorporate the global capitalist market in keeping with the needs and interests of capitalist enterprises. Bryant and Bailey (2005) noted that a further implication for business operating within the global capitalist system was that the system encouraged them to acquire natural resources and labor as cheaply as possible in the quest to minimize production costs. In the case of Les Village, the ecological changes resulting from the use of cyanide occurred as a result of the instigation of demand by business actors. Then, the emergence of eco-labeling cannot be disconnected from the role of business actors, as seen from the vision of fishermen and NGOs in choosing to apply eco-labeling. Remember, their vision was to penetrate the global green market. The bitter reality that must be swallowed by the fishermen is that indirectly, with or without eco-labeled instruments, fishermen are placed in self labor position to meet the market demand.

Middleman, the double role actors whom previously were marine ornamental

fishermen, experienced social mobility upwards since they have enough capital and relationship with the exporters. With this background, middlemen gained fishermen's trust to sell their fishes. Although they were not in a patron-client relationship, due to the low risk of fishing, fishermen still can borrow money or capital from the middlemen. On the other hand, middlemen have a strong relationship with exporters in which gives them the power as exporters to determine the price of fishes. Middlemen have power to negotiate with the exporters thus making them more powerful than fishermen. In other words, middlemen could gain more profit than fishermen in this trade. On certification scheme, they are certified as the eco-friendly middlemen that support the sustainable fishing.

Exporters played the role of business actors in Les Village's environmental changes. According to Bryant and Bailey (2005), there was a tendency that this actor act as a connector between the third world countries (such as Indonesia) as a resource producer with developed countries as a consumer country. In other words, this actor could be called a procurer in the handling of marine ornamental fish. Their interest was benefits, and concomitant support on sustainable fishing only to keep their company on the track of business as usual. Borrowing a phrase, "putting the foxes in charge of the chicken coop". An exporter, CC (personal communication, January 1, 2018) revealed the following:

"As a businessman, I obviously follow the market demand to

survive. If the buyers asked for eco-labeled products, I will give them the eco-labeled products. And no buyers were asking for that."

Revelation of CC was certainly surprising and raised more questions regarding the matter. In fact, the business actor run the marine ornamental fishes trade without the need to report, record, and legalize ornamental fish exports to the Indonesian government, because there is no regulation governing these yet so far. This loophole caused Indonesia to experience a loss of marine resources for more than 20 years and still counting. Only until Indonesian government starts taking this matter seriously, this issue may persist.

Although on paper, both middlemen and exporter are the supporters for marine environment sustainability, they still mix up all of the fishes captured by fishermen and give no attention to separate the eco-friendly fish from other fishes for efficiency of time and economic reason. Moreover, they would never give incentive to Les Village's eco-friendly fishermen.

There are three NGOs that are very closely related to the Les Village's fishermen, namely Yayasan Bahtera Nusantara, LINI, and AMC. Yayasan Bahtera Nusantara is the first NGO to penetrate Les fishermen community and introduce a new way of catching ornamental fish. This pattern of catching is then certified by MAC as an eco-label. Based on Bryant and Bailey (2005), there are several kinds of environmental NGOs: 1) NGO's that seek to mobilize their political power to influence environmental

policy at the state level, to business level; 2) NGO's that exert political influence through direct action notably related to the support of conservation and development project, and these type of NGO's are operated by the grass roots; 3) NGO's that seek political influence designed to raise public awareness on environmental issues.

Based on the three jurisdictions of NGOs above, the three NGOs working with the Les fishermen can be categorized. Yayasan Bahtera Nusantara with its real action obviously referring to the second type of NGO. This type is also referred to as NGOs perceived environmentalism. In contrast to MACs that have the interest to certify, it tends to resemble type 3, which is a populist type. Slightly different from others, LINI which until now still accompanies the fisher of Les has their own type, which is anthropocentrism. LINI focuses more on the development of fishermen's community where Les fishermen are at the end of the marine ornamental fish's trade, in fact, they themselves are the determinants of Les fisheries governance. Those who decide on their fishing patterns, whether environmentally friendly or not, or following the awig-awig rules or not.

Fishermen are categorized as the grassroots actors in this trade chain. Combining Ribot and Peluso's (2003) statement on access to Bryant and Bailey (2005) actors approach concluded that how powerful actors may derive power from an ability to control environmental resources of the weaker grassroots actors, and how the grassroots become marginalized and

especially vulnerable to environmental degradation. Fishermen in Les, their interest was simply as to earn money for life. With low education background, they are easy to affect by the new technique that makes their life become easier. Sadly, cyanides firstly introduced to Les fishers. They exploited their environment driven by the market demand. They were the actors that did the direct destruction of their nature. From the trade area, fishermen have no power even access to the trade. Fishermen only a fish catching-machine that was controlled by business actors like middlemen and exporters. In this case, the state does not exist to protect their rights.

In 1982, Les fishermen started the marine ornamental fishing which unfortunately used an environmentally unfriendly method, spraying cyanide. This was damaging to Les' fishery environment and its economic impact greatly hit Les fishermen in the early 2000s. This severe environmental damage was not enough to invite the attention of the government to intervene to assist marine ornamental fishermen. The state is only present as a law enforcement party forgetting its role as a protector. As environmental damage got worse, a local NGO, Yayasan Bahtera Nusantara then took a bold step to break down the destruction. Yayasan Bahtera Nusantara seemed to be well aware that fishers were the fishery spearhead, thus making fishers a central point that must be addressed in addition to the environment.

DISCUSSION

Dilemma of Eco-labelling

Incidentally, environmental changes in Les Village was also attributed to market demand ordered by business actors like the middlemen and the exporters. This study revealed that the exporters were the most powerful in determining fish price and demand controller in Les marine ornamental fish trade, while the middlemen came second. For marine ornamental fishermen, they only captured a number and certain type of fishes according to order by middlemen in a day hence limiting their income. Yet, this scheme was totally different with pelagic fishermen that could catch and sold as much as fishes they wanted. For pelagic fishermen income depending on their sales and how they marketed their fishes. No such power controlled on the number and type of fishes that could be catch and sold in a day. This particular control impinged on the social economics of the Les Village's marine ornamental fishermen.

Regulations that have so far touched fishermen of marine ornamental fish is the regulation that prohibits the use of cyanide to catch ornamental fish. The effect is on the fishermen in which the number of fishes they captured reduced as well as their income. In the trade chain, the exporters are the most *de facto* and *de jure* benefactors as they can freely take fish from fishermen with the price they set themselves, while the fishermen have no power to do anything.

Based on Figure 1, fishermen, middlemen, and exporters are three actors that have profit interest in the environmental

changes and the marine ornamental fish trade. While NGOs play important roles in Les Village's marine environmental rehabilitation and conservations. The state has an unclear interest in the marine ornamental fish trade, even though Marine and Fisheries Services Buleleng and Industry and Commerce Services Bali Province attempted to look for a position and role in the trade. Marine ornamental fish trade is real but was not put under any regulation by the state, in fact, it is controlled by private parties or businesses. This has been going on for decades and has not been revealed until now. The Certificate of origin, used as a "filtering" tool of ornamental fish that is issued throughout the country is not enough. Such as the recognition by the Bali Provincial Office of Industry itself, that this certificate is voluntary and not compulsory, as its requirement depends on the ordering market. Only one-third of the international market uses this as a condition for trade. How about the other two third? It can freely be traded from Indonesia and abroad.

The marine ornamental fish trade in Indonesia is limited only by Certificate of Origin and health certificate from custom, without proper data collection. Clearly, the marine environment was damaged by market demand, then repaired by community initiatives along NGOs support, then certified by third parties as a form of appreciation to the fishermen, but the certification lasts only for 2 years right after the time when the fishermen implement environmentally friendly fisheries. Other than the certificate, the fishermen did not

get any other type of incentives, nor the right to freely determine the price of fish, nor the right to earn more income than that of determined by private parties. In fact, this fishery product trade is not recorded by the state.

Regulations that have so far touched fishers of marine ornamental fish is the regulation that prohibits the use of cyanide to catch ornamental fish. Consumer layers consist of importers, retailers, and end user of marine ornamental fish. The effect is on the fishers. Exporters are the most *de facto* and *de jure* benefactors. Exporters can freely take fish from fishers with the price they set themselves, while fishers have no power to do anything.

The marine ornamental fish trade in Indonesia is limited only by Certificate of Origin and healthy certificate from custom without any proper data collection. What is clear that the environment was damaged by market demand, then conserved with community initiatives by NGO's support, subsequently certified by third parties as a form of appreciation and legitimation for Les fishermen, middlemen, and exporters. Unfortunately, the certification body only lasts 2 years, after which the Les fishermen permanently do environmental friendly fisheries until now, although the fishermen do not get any incentives from the market, as well as do not get the right to freely determine the price of fish like pelagic fishermen. Les fishermen do not get any right to earn more income than that determined by middlemen and exporters.

Thus, the study concludes that there has been a marine ornamental fish shadow trade in Indonesia. If likened to a simple short story, the country is supposed to be the owner of a house with fruitful mango trees.

CONCLUSION

This research has provided insights into the eco-labeling process as an initiative to combat illegal, unreported, and unregulated fishing in marine ornamental fish trade and has succeeded in changing the damaged environment into a better condition. Eco-labelling leveled up fishermen social status from destroyer into savior. But, these social changes indicated no significant increase in fishermen revenue. Price disparities between marine ornamental fish fishermen and the other trade chain actors caused marginalization of fishermen. In fact, fishermen's catches and income are still determined by the middlemen, creating tensions to fishermen and cornering them into a dead end. Overall, this study is concluded with several important points as follows:

Eco-labelling brought a new wave to economic, social, and ecological changes in Les Village. Coral reef cover becomes one of the ecological indicators in successful ecological changes, from only 10% in earlier 2000, then spread and reach 75% of coverage in 2006 and still counting (LINI, 2008). This good news is followed by the increase of social mobility of fishermen. They are no longer stamped as the destroyer and turn to the savior of the ecology. However, these two changes later on initiated the

changes in fishermen's income scheme, from getting paid by their entire catch to only getting paid for the ordered catch. The quantity and type of fishes orders are maintained from exporters, and forwarded by middlemen to fishermen. These changes impinged on fishermen's economy and for augmentation, there was no incentive gained by the fishermen from eco-friendly fishing.

Undoubtedly, eco-labeling transformation brings a lot of changes in many aspects of fishermen's live. This affected by the business actors considering their role in the marine ornamental fish trade where they rule the trade based on market mechanisms and market demand. This ruling has a direct impact on ecology as well as economic aspects; an indirect impact on the social and political aspects of Les Village. Politically, the fisherman was the most affected actor because they were the grass root and powerless in this marine ornamental fish trade chain. Their income did not change for better, they received no incentives and they had no power at all in the fish's price determination. The role of each actors involved in the marine ornamental fish trade was identified and classified based on political ecology aspect. Business actors as the ruling actor, run the whole trade, benefited the most and caused marginalization of fishermen, the Indonesian government, as well as the eco-labeling itself. Cursory, business actors enjoyed the benefits, while fishermen and Indonesian experienced the obstacles of eco-lable fisheries. In conclusion, for a successful ecological transformation, Les Village's

local community must work together with the NGO side by side. It is necessary to see how it works and how the values are embedded in Les Village's fishermen community.

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