The effect of Cikarang Bekasi Laut Project to fisherman livelihood

E Siswono¹, Martini¹ and N Scorviana H¹

¹ State University of Jakarta, Jakarta, Indonesia

Corresponding author: ekosiswono41@yahoo.co.id (E Siswono)

Abstract. The purpose of this research is to evaluate the main effect of inland waterways, Cikarang Bekasi Laut (CBL) and Boro Boro project at Huripjaya estuaries, Bekasi. The purpose of this study, is to see the relationships between coastal fishermen and local investors and their workers as a migraine in managing marine resources, thus resulting in a decrease in fish catches by fishermen. This study uses a concurrent embedded model combination method (unbalanced mixture) where qualitative research methods as the primary method and quantitative methods as a secondary method. The purpose of using this combination method is that the data will be more complete, meaningful and accurate. The results of the study, based on the results of in-depth interviews and focused discussions, concluded that there was no agreement between the interests of traditional fishermen and project managers. It was shown that he did not pay attention to the fate of fishermen, but lately, information from the Head of the Kadus Dua had begun to record about 100 fishermen as prospective workers in one of the Cikarang Listrikindo projects. However, for other traditional fishermen do not know their fate, so the involvement of the local government.

1. Introduction

The socio-economic and cultural conditions of fishermen, in general, can be explained, that tends to be closed and the development of mindset is still influenced by their ancestral habits. New things about how to catch fish in the sea are still done with an old pattern until now carried out for generations. Their daily routines are more likely to receive modest catches and no other effort can be used to sustain a better life.

Meanwhile, there are coastal fishermen in Hurip Jaya Village, North Bekasi, providing information, that the lives of local fishermen over the past three years face the problem of declining fish catches. One of the causes of the problem is the presence of factory waste in the Cikarang Bekasi Laut River Basin (CBL), even though it has been carried out by 20 meters wide beachside, but in the rainy season solid black waste and sludge and a pungent odor during the dry season. In addition, there is a pilot project by installing "baro-baro" from the coastline to the sea for about 500-800 meters, the Cikarang Listrikindo Project installation has been built with coal fuel increasing pollution in the estuary resulting in the constriction of coastal fishermen's movement when fishing, so that the impact felt by fishermen is getting harder to get fish.

Based on the description above, it is clear that the problems faced by coastal fishermen in the village are very complex. Among them, can be seen from the socio-economic and cultural perspective in a multi-dimensional perspective, where alleged interaction relationships are less harmonious between the interests of coastal fishermen and project managers in managing marine resources, namely local
investors. Looking at the various problems above, it is important to conduct a comprehensive study to find out what steps are carried out by coastal fishermen, to get their rights as fishermen to project management related to reduced fish catch? Furthermore, it can be seen, how are the relationships between fishermen and local investors in managing marine resources? Are these relationships able to support the interests of fishermen in a better direction or vice versa that the interests of the fishermen are actually pushed by the interests of the local investors which ultimately harm the fishermen with the decreasing results fish catch?, What efforts have been made by the local government in the face of a decrease in their catch? The questions above can be answered if research is carried out in depth by looking at various aspects of the study in a multi-disciplinary manner through this research.

The purpose of this study is to map the relationships between the management of marine resources, thus resulting in a decrease in fish catches of fishermen. The relationships in question are suspected to occur interactions between the two are not harmonious, thus impacting the survival of local fishermen. Activities related to several projects whose waste looks at the CBL Estuary are thought to have resulted in a decrease in fish catches which in turn has an impact on the economic needs of the fishermen who are still uncertain of their fate. The urgency of this study can reveal the mindset of fishermen to revitalize business activities in addition to fishing based on creative economy business by activating the skills of fishermen.

Findings or innovations that will be included in the research include: (1) through intensive training can influence the mindset of ways other ways to earn income other than fishing, and through training are expected, the life of fishermen is not dependent on the results of fishing; (2) through limited group discussion of FGD (Focus Group Discussion) between local fishermen and instructors related to the material presented, knowledge can be obtained regarding creative economy business, and obtaining capital support from local government through related institutions; (3) the results of this study can be used as a basis by the local government to take policies in the context of managing marine resources involving many stakeholders that have been missed.

2. Materials and Methods

2.1. Material

The field to be examined in this study, according to the issue of humanitarian economic-social and cultural revitalization, in which the fisheries sector has been living a life of fishermen on the one hand, but on the other hand is not balanced with adequate knowledge in addition to the knowledge obtained down hereditary, so that they are trapped in a life that is very dependent on the results of fishing. Looking at these empirical facts, this research focuses more on issues related to the concept of thinking about revitalizing the local traditions of the fishermen. One of the causes is a lack of knowledge outside of fishing in the sea, where the tradition of catching fish in the sea becomes a pile. The concept of revitalization of local traditions, where the fishing community in the setting of this study is the people of Hurip Jaya Village, Bekasi Regency, West Java, want to be revitalized (revitalization), in order to further increase the level social economically and culturally by opening themselves one of them through intensive training both from the local government and from the private sector in collaboration with the local government. Revitalization of local fishermen traditions can also be through the fulfillment of initial needs such as improving primary needs (clothing, food, shelter), improving nutrition and family health, revitalizing housewives for fishermen for fisheries-based creative businesses, and so on.

Related to the issue of the revitalization of local traditions through efforts to increase the potential of fishermen in order to improve a decent life as fishermen, it can be seen from the results of research by [3] who took the case in Batudaka Island Cluster Palu. Based on the results of his study, it was found that the needs of muthlak fishermen must be fulfilled such as docks, additional boats, fish shelters including auction sites, fishing markets and other supporting facilities such as clean water, electricity, drainage, landfills, educational facilities and alternative livelihoods for sustainability of the livelihoods of fishermen. The work program implemented based on the needs of the community is in accordance with the existing potential in order to strengthen the social system their economy, and culture, including family food security, counseling, and training in the manufacture of fishery-based products as well as counseling livestock development and food security through superior forage planting.
Slightly different from the results of the research above, the nature of evaluative research aims to evaluate the program after the government issued the Mina Rural Business Development Program (PUMP) to overcome poverty in the fishing sector [1]. The aim is to describe the evaluation of the implementation of the PUMP program in Bendar Village, Juwana District, Pati Regency and problems that occur in the field and the following solutions so that the extent to which the PUMP program can alleviate the poverty of the fishing community in the village. The PUMP program is a program to overcome poverty in the form of cash assistance of 100 million rupiahs that must be spent in the form of fishing gear, repairing nets, buying machines or repairing machinery, so that it is hoped that through this PUMP program can create prosperity. The results obtained, that the PUMP program can be implemented, but the level of community welfare does not change significantly because the awareness of its members to advance the Joint Business Group (KUB) is still less active.

Besides that, there is a problem that the last few months have happened “fight” between local investors and fishermen in managing marine resources. These symptoms are similar to those carried out [2] in a preliminary note giving a statement, that the main problem of fishermen and marine resources is like what was put forward simply by the World Bank & The Food and Agriculture Organization, "too many fishers chasing too few fish". As a result, arrest efforts are not running efficiently, which is reflected in global losses per year to reach the US $50 billion. Various approaches to the management of marine resources are then introduced and adopted to further reduce losses. On that basis, Rusli's research wants to try to criticize these approaches by placing traditional fishermen as the starting point for analysis. The researcher argues that traditional fishermen have less place in various frameworks for approaching marine resource management. Meanwhile, on the other hand, traditional fishermen make a large contribution to the welfare of most of the world's population, from the socio-economic side, employment, to health. Based on the results of his research, it was concluded that the marine resource management system basically follows the pattern that occurs in the management of land resources, namely in terms of seeing the roles and functions that can be carried out by the community. Fishermen communities generally have the most adaptive resource management system with sea conditions and the types of marine biota they can use. As a result of these long and intense relationships with stakeholders, they have developed a series of technologies that are best suited to local conditions. However, advances in knowledge, technology, integration of the local economic system into the world economic system (commercialization) and the hegemonic nature of the western knowledge system (in addition to various other processes) have led to massive disclaimers of local practices ranging from planning, implementation program evaluation does not involve fishermen. Local practices in marine resource management are replaced by more "new" and more "good" systems that have a scientific basis. However, the "new and good" approach turned out to have caused a massive crisis of marine resources (fish catches). The last efforts taken were to revitalize local practices within the framework of co-management.

Unlike the results of Rusli’s research, namely the research conducted on the development of coastal communities in managing marine resources in Samatiga District, West Aceh District. In the initial description related to the backwardness of some coastal communities when compared to the potential of coastal resources that are owned can be examined from various aspects, one of which is from the behavior of fishermen and other coastal communities in managing coastal resources. This research reveals various factors related to the behavior of coastal communities in managing coastal marine resources in Samatiga District. The results of his study concluded that: (1) the characteristics of the community in managing coastal resources included in the category of traditional coastal communities, using fishing technology and processing of simple fishery products can be classified as successful, because fishermen have written regulations made by fishermen groups commanded by the sea commander to manage coastal resources; (2) the socio-cultural dynamics of coastal communities, informal leadership of fishermen, quality of empowerment programs, facilitator competencies, and supporting quality have a significant positive influence on fishermen's behavior. Socio-cultural dynamics and the quality of empowerment programs have a positive effect on welfare even though the effect is not real but important in maintaining the balance of coastal ecosystems that have an impact on

---

1 Afrizal (2013).
the lives of fishermen; (3) the development of coastal communities in this study leads to an increase in the quality of life of fishermen from their families through integrated coastal resource management by accommodating the interests of ecological, socio-cultural and the economy is emphasized on the working mechanism of extension systems, social systems, and physical environmental systems. Even so, the synergy between the government, the private sector, and related parties are still needed to develop coastal communities that are able to maintain the condition of coastal resources for welfare.

Based on the description above, it can be explained that the scope of the emphasis of this research with previous research is clearly different. However, it can be used as a comparison to find out the problem opportunities that have not been revealed on the one hand in the previous research to find the state of the art in the field of science that will be examined on the other relevant side.

2.2. Method
This study uses a method of concurrent embedded model combination (unbalanced mixture) where qualitative research methods as the primary method and quantitative methods as a secondary method. The purpose of using this combination method is that the data obtained included in the analysis will be more complete, meaningful and accurate.

The subject of the study in this study was the local population who resided in the research area, namely Hurip Jaya Village. Based on preliminary data obtained, that Hurip Jaya Village consists of three hamlets, namely: (1) Hamlet I (consisting of Kampung Cabang Empat and Setia Mekar); (2) Hamlet II (consisting of Kampong Sembilangan and Kampung Tanah Baru); (3) (consisting of Kampung Pondok Dua and Kampung Gedong Jaya). In this study, all hamlets in Hurip Jaya Village were used as the setting of this study by paying attention to the village's affordability to be studied, so that all residents living in the village can be used as the subject of this research and at the same time become the core informant of this research. Whereas the key informants were local village officials, including village heads, hamlet heads, heads of neighborhood associations and heads of neighborhood associations and community leaders who were considered to know the life of coastal fishermen in Hurip Jaya Village.

3. Results and Discussion

3.1. Results
Administratively, Pantai Hurip Jaya Village is included in the Babelan District, Bekasi Regency. This village is directly adjacent to Muara Gembong Subdistrict, and in the west separated by the Cikarang Bekasi Laut River to the estuary. Most of the population is 90% more adventurous as traditional fishermen or coastal fishermen, the rest as fish farmers, food stall traders, daily necessities, and as security employees of the State Gas Company, as well as Pertamina workers.

Based on observations obtained information, that there is a group of coastal fishermen for Dusun I, three coastal fishermen groups in Dusun II and a group of coastal fishermen for Hamlet III. Each group consists of 20 fishermen, wherein 2018 received outboard motorbike engines with a capacity of 9.5 pk and 13.5 pk from the Ministry of Fisheries and Maritime Affairs. According to information from one of the informants, Pak Hasim was 59 years old (not his real name), saying that:

```
...... help with the outboard motor, among others, ......traditional fishermen's fishing can catch fish in a location farther away than usual. Besides that for more catches than before. This means giving a large area of fish catch, but how to catch more and more fish. As an illustration, that the average yield every day ... between three to 4.5 kilograms ......... it's all because the waste pollution is farther away ......
```

Based on the information above, it can be analyzed that coastal fishermen indirectly show a lack of attention to the central government's objectives. Because according to the fisherman, it was too late to help the motorbike as what was stated by Pak Mukrim 45 years (not his real name), that:
actually, the engine of the outboard motorbike was late, how come it is only now and why is it now being given ....... the pollution problem from the waste in the estuary has long been happening. Whereas in the beginning the Cikarang River in Bekasi Laut ....... the time of the regent Pak Abdul Fatah in 1973-1983 if not .......one of the initial goals of building CBL is very good, namely to get regular water supply for rice fields and minimize annual big floods .......kilometers from the beach .......has mixed with mud and stinging smell .......thus, so that the fish will live, ...... crocodile just can't live in the river .......

Slightly different from the statement of 42-year-old Mang Mugi (not his real name), in relation to what strategy to anticipate the decline in fish catch so far, and he said that:

I'm a coastal fisherman and the number of fish catches is not much, to handle us ......yes I want it or not to add capital to buy catches such as nets, nets, waring so that the catch is more ...... very different from the previous time that I experienced during the 90s there was no waste effect ...... A day can produce 5 kg shrimp and mixed products like fish can also be more than 10 kg, but the catch here is only a little or even less than 1 kg for shrimp, and sometimes a day can get nothing.

In addition to the above information, there are also parents as fishermen who encourage their children to become workers in the State Gas Company (PGN) and Pertamina as security officers or security guards. As a statement from Mang Udi, 40 years as the Chairperson of the neighborhood unit in the Hamlet I, said that:

from some fishermen's children who have finished school, their people have been encouraged to become workers in Pertamina not far from this village ....... there are many points. But at the very least ......as a security guard (security guard) only. The problem is that you want to apply to a high position as well as your education level, most of you only finish elementary, middle and high school. For security only a minimum of high school. If the others are on average above D3 for the experts .......

Looking at the information above, it can be analyzed that the life of coastal fishermen has long since been pushed and threatened to lead to a life that is worrying, and there are some of them have switched to pond fishermen by cultivating milkfish, shrimp and seaweed. They generally do not work on their own land but belong to residents outside the village as laborers with a profit-sharing system. But most of the coastal fishermen are still eager to catch fish while pursuing various businesses outside the work of fishermen to meet the needs of their families. Besides, the strategies that have been carried out so far have been obtained from several informants, namely that: (1) they work as construction workers according to the villagers' requests not far from their homes; (2) some of them worked as fish collectors from coastal fishermen who later sold around the village and some were sold to middlemen; (3) a small portion of those who live on the edge of the road open food and beverage stalls and grocery businesses containing daily necessities, such as the need for nine basic commodities.

Based on the description above, that the strategy undertaken by fishermen has nothing to do with efforts that touch the creative economy business, for example with seaweed ingredients being foodstuffs that are ready to be marketed, so that in the future there needs to be further research on cultivation efforts seaweed to be used as fast food that is typical of Hurip Jaya Village, through training concerning the assuring of housewives through creative economy efforts.

3.2. Discussion
Based on the results of the focus group discussions between several core informants with key informants, above questions related to pollution in the CBL River Estuary so that one of the impacts is the decline in catches of fishermen. One of the key informants, Mr. Usup 41 years (not his real name) gave an explanation, that:
Sorry, I'm starting to answer. About the problem is pollution in the estuary, it actually happened already for a long time, less than nineties if I'm not mistaken and as far as I remember, at that time fishermen were not as many as now and there aren't many projects like this now. So the pollution at that time was due to the waste being dumped on the CBL River. Well now, coupled with the existence of projects like now the pollution is increasing, as we see now in the estuary.

The explanation above was positively welcomed by other core informants and one responded to the answer from the key informant, Pak Urip 45 years (as a traditional fisherman, and not his real name) and said, that:

Thank you for this opportunity and I agree with Mr. Usup who explained the pollution from waste before and after the recent projects, adding to the difficulty when we go to sea. As far as I know the CBL River is made in the eighties, the aim is to irrigate the rice fields and to reduce floods during the rainy season. But, after the nineties, kok being the proper waste disposal of factories there was built along the river. Now it feels as a result of the pollution of the waste, including the fish on the move. Thank you.

Based on the discussion above, it can provide an illustration that fishermen, in general, have known the cause of the decrease in their catch. But they do not have the legal power to act to voice their rights as citizens and must complain to whom for their fate so far. The local government seems not to know this problem.

Then the discussion continued, by opening the question that still has to do with the problem of waste pollution, have fishermen so far been protesting against the local government, at least to the village or sub-district head? One of these informants representing fishermen, Pak Said 51 years old (not his real name) answered:

Sorry I'm answering, on the question of whether we are fishermen. We fishermen have never protested this incident, namely that there is a problem, namely pollution from waste along the CBL River to the mouth. My answer, we have never protested to the head of the village, to the sub-district, and it's useless sir. We protested because we knew there would be no response. With the protests from us we feel ignored. Actually, that is our rights as citizens who claim our rights as a member of the fishing community.

From the explanation above, it provides an illustration that as a citizen of a fishing community even though they have never voiced their rights so far, but actually demand attention and actions from the local government. Although their voices have never been done, they actually ask attention from the authorities to get a solution to the problems that are being faced by the fishing community, so that they get certainty in the future what they have to do to improve the reduction of fish catches.

The discussion continued, asking about what strategies traditional fishermen had done in connection with declining catches caused by sewage pollution and several projects that limited the space when they wanted to find fish? On the question, from the key informant also as Head of Hamlet I, 40-year-old Pak Slamet (not his real name) said that:

Thank you for the question, that I, as Kadus I, are certainly obliged to pay attention to the fate of these friends as fishermen, by striving for their fate through dialogue with operational projects engaged in electricity with fuel, coal, namely Cikarang Listrikindo Project under PT. MAN. Based on the dialogue, in short, we were asked to record as many as 100 people to work on the project, and we have already recorded who entered the candidate, then already sent to the personnel. Now, we are waiting for the answer. So,
After hearing the answer from the Head of the Subvillage I, there were discussion participants who added to the question regarding what strategies had been carried out by fishermen, so Mang Udel, 39 years old (not his real name) as a fisherman representing core informants, replied, that:

........ the strategy or strategy that I did was, besides remaining as a fisherman ........ I opened it small stalls next to my house with not too large capital ........ I bought snacks for snacks, bananas, tofu and tempeh to be used as snacks for fried foods, mambo ice and cigarettes for sale retail ...... and for the past three months, my wife has sold uduk rice and supplement ........ alhamdullilah goes as expected, sometimes it doesn't have to be ........ just the name is trading, which obviously can be to fulfill the family life

Still continuing the question regarding what strategies were carried out by fishermen. There was an addition from one of the discussion participants, namely Mr. Said 51 years (not his real name) to answer:

........ I want to add in connection with the strategy that I have done so far, among others, so far I have switched to fish farmers, but my child is doing this and I but as a traditional farmer every day after dawn fishing for fish as usual ......It's okay, it still gets fish for a kilo to two kilograms. While my child works and oversees other people from outside the village, and as a laborer to do that ........ I still too, watch after going to sea ........ that's what I did all this time......

lastly, that the questions in the discussion related to the phenomenon of the decline of fish catches of fishermen. In the future, what activities are appropriate with the skills of the fishing community? ... The question was received by the discussion participants, one of whom answered, namely Chairman of the Village 43 years, said that:

........ in my opinion suitable activities are counseling or training in accordance with the skills of the fishermen ........ and I cannot mention the material that is suitable for the skills of the fishermen and what the activities are ........ most, not activities that can improve welfare and can produce money ........ here the results can rely on milkfish, shrimp and seaweed ........ maybe that's what I can say.

Based on information obtained through group discussions, it can provide information that so far traditional fishermen face difficulties due to shrinking catches, have carried out various strategies in meeting their daily needs. These strategies have been going on for a long time and all the protests that have been carried out on this phenomenon have so far not received attention from the local government. One of the efforts was carried out a dialogue with the operations of the Cikarang Listrikindo Project under the banner of PT. Mega Agung Nusantara (MAN) has agreed to record prospective workers who will later work on the project.

From this information, a temporary conclusion can be drawn that there has been no meeting point regarding the fate of traditional fishermen in the future. The lack of attention from the government regarding the life of the fishing community indicates that the relations between the parties concerned about the management of marine resources with coastal fishermen are less harmonious. It can be proven, the lack of coordination between the local government and private parties in the management of marine resources. From the administrative side regarding licensing, there may already be an agreement between the local government and the private parties, but in relation to waste pollution there has never been supervision in the field with the AMDAL method (Analysis of Environmental Impacts). This proves that pollution caused by factory waste and projects has actually been going on for a long time.

If this goes along with the passage of time, until whenever their lives prosper? Therefore, one of the treatments offered to traditional fishermen is to conduct creative economic training based on badeng and seaweed cultivation as a typical food of Hurip Jaya Village in anticipation of a decrease in sea fish catches. This is possible to be carried out with regard to milkfish and seaweed which have been carried
out by fish farmers who have good prospects in the Southeast Asian market. Therefore, going forward through further research after this research, the next year's budget can be implemented. The steps of cultivating milkfish and seaweed have been carried out by the fish farmers, it is possible to carry out considering that both milkfish and seaweed seeds are not difficult to obtain.

3.3. Importance

Based on the description above, it can be concluded that:

Traditional fishermen in Hurip Jaya Village have been bearing the burden of life for a long time, around 1990 began to decrease fish catches. This is due to the presence of sewage from factories that flow along the Cikarang River in Bekasi Laut. But at that time, the catch of fishermen's fish had not been as severe as the past three years, because of the catch they could still save for other purposes.

After 2014-2015, it was marked by the operation of several projects, one of which was under the banner of PT. MAN (Mega Agung Nusantara) which is the Cikarang Listrikindo Project where it uses coal fuel and builds "baro-baro" approximately 800 meters from the coast to the sea which is planned to be used to transit the coal fuel. This resulted in a narrowing of the movement of coastal fishermen when searching for fish. The fish move to places farther from the coast, in the end, the fisherman must go further to get the fish.

The cause of the decline in fish catches of traditional fishermen, the pollution of sewage from several factories and projects in the CBL River Estuary, resulted in the fishermen's life getting heavier so that various strategies had to be carried out by fishermen to live their lives. Among the strategies that can be explained, among others: some traditional fishermen turn jobs into fish farm workers who are around their homes. In addition, there were those who became masons on the day after they caught fish, encouraging their children not to become fishermen but to become security workers at Pertamina and the State Gas Company in Dessa Hurip Jaya. For those who have land near the main road of the village, try to open small shops with little capital. If the capital is not too large, for them, they will open stalls for basic commodities for their daily needs.

Through the Head of the Hamlet, I conducted a dialogue with the parties managing the marine resources, namely the Cikarang Listrikindo Project, the results of which were asked to record fishermen as many as 100 people turned into workers on the project. Until the end of this study, they are still waiting for the results of the data collection. This is done by the Head of the Hamlet I to implement strategies that must be carried out to improve the welfare of those who have difficulty obtaining fish catches.

Acknowledgments

The holding of seminars international thanks to the collaboration between the seminar executive secretariat and the seminar participants. Therefore, both personally and institutionally, I would like to thank you for the opportunity to attend this international seminar, so that participating in this seminar will be a valuable experience for future progress.

References

[1] Meitasari D. 2018. Evaluasi Implementasi Kebijakan Pemerintah Dalam Mengatasi Kemiskinan Masyarakat Nelayan (Studi Kasus Nelayan Tradisional Desa Bendar, Kecamatan Juwana, Kabupaten Pati). Institut Pertanian Bogor. Bogor. Indonesia.

[2] Cahyadi R. 2012. Nelayan dan pertarungan terhadap Sumber Daya Laut https://media.neliti.com/media/publications/174943-ID-none.pdf.

[3] Shofyatun AR. 2018. Pengelolaan Sistem Sosial-Ekologi Pesisir Pulau-Pulau Kecil Untuk Peningkatan Pendapatan Masyarakat : Studi Kasus Gugus Pulau Batudaka Kabupaten Tojo Una-Una. Institut Pertanian Bogor. Bogor. Indonesia.