

Social Economics Characteristics Of Coastal Small-Scale Fisheries In Tegal City, Indonesia

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Abstract: Many complex issues faced the livelihoods of small-scale fishermen in the town of Tegal, including problems of exploiting coastal resources, fish resource decline, changes in the contour of the coastal area, fuel crisis issues, urbanization, all of which put pressure on coastal areas. This study aims to describe the socio-economic characteristics of small-scale fishermen in the City of Tegal. Specifically, the purpose of this study was to determine the profile of respondents, analyzing the economic, social, health and education status. Location of the research was in the Muarareja village, a typical small-scale fishermen village on the coast of Tegal City, Indonesia. The research was conducted from July 2013 to March 2014. Sampling was taken purposively. The samples in this study consisted of 64 fishermen. The data was collected directly by using the questionnaire. Data were analyzed using descriptive statistics. The results show that small-scale fishermen in the town of Tegal is in good condition in terms of economic, social, health, and education status, or in other words the fishermen were on a high level of welfare.

Key words: coastal area, social economics characteristics, small-scale fisheries

1. INTRODUCTION

In Indonesia, the fishermen population is dominated by small-scale fishermen (95%), who are traditional fishermen (Murdiyanto 2011). This situation also exists in the town of Tegal, a city located on the coast, where fishermen operating in the territorial waters of Tegal are small-scale fishermen. The presence of small-scale fisheries contributes significantly for the coastal communities in employment opportunities and also generates local revenue for Tegal city Government. Small-scale fishermen are characterized as fishermen who operate traditional fishing equipment, have limitations in providing production factors for fishing, and have fishing grounds not far from the beach (Murdiyanto 2011), so their operations are limiting to the areas around the coast. Most of these small-scale fishermen are considered at a low welfare standards of living. According to KKP-Ministry of Marine and Fisheries Affairs Indonesia (2012) the number of poor fishermen reach 7.87 million people or 25.14 percent of overall the national poverty.

experience pressures due to various factors. The region's carrying capacity has been exceeded due to the pressures of economic or human activities that make the area vulnerable as a result of increased human population from year to year (Fauzi and Anna, 2010). Wahyudi (2010) explained there has been a decrease in mangroves coverage and an increase in sedimentation in the river that flows through the city of Tegal. This condition would disrupt fisheries production activities and will indirectly have an impact on the lives of small-scale fishermen because the location is highly dependent on environmental conditions such as the waters conditions. Fishing activities undertaken by fishermen on the northern coast of Central Java are apparently very dense and fish resources are already being overfished (Fauzi and Anna 2010). This will naturally raises the problem of uncertainty in the livelihoods of small-scale fishermen. Lately, the issue of fuel price increases and the lifting of fuel subsidies also affect the fisheries sector. Diesel fuel is the primary fuel for the boat engines. A rise in fuel prices will bring a great influence to the fisheries sector, especially for coastal fishing communities. For fishermen, fuel is important component because its influences the operation cost. Therefore, small-scale fishermen who have limited capital are devastated by this fuel increase. This might result in the fishermen not being able to go to sea and will ultimately decrease their income. It could also cause an increase in unemployment and poverty in fishing families. In addition, the location of small-scale fishermen fishing grounds are very close to the Port of Tegal, therefore, the fishermen also have to compete with other fishermen who operate large boats and large-scale fishing gear in the coastal waters of Tegal. All the issues that have been described earlier require an analysis of the socio-economic portrait of the local community to understand their impact. On the other hand, many management initiatives often fail because they forget the importance of understanding the social and economic characteristics and understanding the needs of small-scale fishermen (Bene, 2003). A study of the socio-economic factors of small-scale fishermen in Tegal City was expected to be able to describe Tegal City's fishermen's welfare level.

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2. MATERIALS AND METHODS

2.1 Location

Tegal City is located between 109°08' - 109°10' E and 06°50' - 06°53' S. Administratively, Tegal City borders the Java Sea in the North, Tegal Regency in the South and East, and Brebes Regency in the West. This study was conducted between July 2013 and March 2014. The location was in Muarareja Village, Tegal City, Central Java Province, Indonesia. The location was selected because this village was a typical small-scale fishermen village on the coast of Tegal City. Most of the people work as small-scale fishermen, and in addition in Muarareja there is a Fish Auction Center (*Tempat Pelelangan Ikan-TPI*).

2.2 Data Collection

The respondent samples were taken randomly using the purposive sampling. The criteria of the samples were small-scale fishermen, having boats with a size under 5 GT, and having fishing grounds around the coastline. The respondents who were chosen as samples were 64 small-scale fishermen who worked around Muarareja area. All the 64 fishermen (100%) who were respondents in this study were male and married. The data collection tool in this study was a questionnaire which is adopted from Yafiz's research (2011). The questionnaire contained information of respondent profile and eleven statements consisting of social, economic, health, and educational status. Data were also collected from government agencies such as the village office, the sub-district office, Tegal City Statistical Bureau, and the Tegal City Agricultural and Marine Agency. The data were analyzed using descriptive statistics.

3. RESULTS AND DISCUSSION

3.1 Demographic Respondents

All the 64 fishermen (100%) who were respondents in this study were male and married. The youngest respondent was 28 and the oldest 65 years old. The average age was 46.13 years with an 8.75 standard deviation. This was consistent to the average age of fishermen in Sinh Long *et al.*'s study (2011) which was between 42 and 43 years old and the average in Cinner and Pollnac's study (2004) which was 45 years old. Most of the fishermen, 93.8%, had elementary school education. This reflects the general educational level among fishermen. Pana and Sia Su (2012) in their study mentioned that the common educational level for fishermen in Palawan, Filipina, was elementary school. The number of family members (the family size) in the fishermen's household was 5.14, equivalent to 5 people per fishermen. This was true for 39 fishermen (60.94%). This finding was consistent to the data from the Tegal City Statistical Bureau (2013) which stated that the average number of family members in Muarareja Village was 4.26 persons per household.

3.2 Economic Conditions

3.2.1 Income profile

From the fishermen's income profile, most of respondents had incomes above the Tegal City Minimum Regional Pay (*Upah Minimum Regional-UMR*) which is IDR 860,000. Tegal City's Minimum Regional Pay was established according to the Governor of Central Java's decree in 2013 with a value of IDR 860,000 per month equal to 70.67\$ (1\$ = IDR 12,000). There

were 21 fishermen or 32.81% who had incomes between IDR 860,000 and IDR 1,719,000. There were 43 respondents or 67.18% of fishermen who had incomes of above IDR 1,720,000. This shows that the income of the fishermen from fishing was above the standard minimum pay set by the Tegal City Government.

3.2.2 Rice consumption

70.31% of the fishermen or 45 respondents consumed more than 480 kg of rice per annum. Rice consumption of above 480 kg/year showed that the fishermen and their families have properly fulfilled their basic food needs. Rice consumption of above 480 kg/year could be categorized as above the poverty line (Sayogyo 1977 in Yafiz 2011). Only 29.69% of the small-scale fishermen or 19 respondents consumed less than 380 kg of rice per year. This group of fishermen is categorized as extremely poor category. This is in line with the statement of Pana and Sia Su (2012) who stated that the income received from catching fish was usually utilized to fulfill their basic needs, i.e. food, of the fishermen and their families. Fishermen primarily would fulfill their families' most basic needs (food, housing, and health) according to Maslow theory (Cinner and Pollnac 2004). After the basic needs are fulfilled, then the fishermen would consider in fulfilling other needs. Fishermen would take part in a more significant role in their social lives such as managing coastal fishery if only they were not completely occupied by fulfilling their families' basic needs.

3.2.3 Housing condition

The respondents lived in decent houses and which can be categorized as permanent buildings. All (100%) of the respondents stayed in houses which have tile roofs, brick walls, and ceramic floors. For people in developing countries, housing conditions reflect their social status in the community (Pollnac and Crawford, 2000 in Cinner *et al.* 2004). The condition of a house could be determined from the materials used to build it. The housing condition of fishermen in Tegal City showed in a good condition. If the fishermen's houses are permanent buildings, they could be classified as prosperous. In contrast, the description of fishermen's housing in many developing countries is having bamboo walls, dirt floors, and thatch roofs (Ahmed *et al.* 2013).

3.2.4 Ease to obtain job

There were 54 fishermen (84.38%) who stated that they could quickly get jobs because many alternatives job positions were available in this area, and the jobs matched their requirements. The remaining 10 respondents (15.62%) were of the opinion that it was fairly easy for them to get jobs in the area where they lived. In general, they chose to be fishermen because the job could provide enough income to fulfill their family needs. In addition, most of the respondents lived in the coastal region which was close to the coastal waters; therefore, the most probable job would be fishing at sea. Culturally, going to sea has deep-rooted history in their lives, making them very proud as fishermen.

3.3 Social Condition

3.3.1 Fishers' migration

Exactly 85.94% or 55 fishermen have never moved to another place. This shows that most of the fishermen feel that the place where they currently live is able to support their

livelihoods. They do not have the urge to move to another place because their current location provides adequate income for their families. This makes sense when seen from the fishermen's monthly income compared to Tegal City's Minimum regional Pay; it is adequate. Only 9 fishermen (14.06%) have ever moved once or twice. The percentage is quite small compared to the percentage of fishermen who have never moved away. Permanent migration does not happen in fishermen communities in places where their source of livelihood is enough for them to support themselves and their families. Even if there is migration, it is temporary (Cinner and Pollnac 2004; Jones *et al.* 2010). It happens seasonally because of the changes in seasons.

3.3.2 Religious life

Most of the fishermen stated that religious tolerance is fair (30 respondents, 46.88%) and some stated that the tolerance is high (28 respondents, 43.75%). This means that the fishermen are able to perform their religious rituals according to their beliefs without any disruptions. Only a very small number of people, 6 respondents (9.38%), believe that religious tolerance is lacking. The Indonesian people are religious. They have always practiced religious tolerance since the olden times. People can practice their religions without any disturbances. According to Kusnadi (2010), the actualization of the patron – client is an effort to maintain harmony so that the negative effects of social disparity among fishermen could be minimized. Religion has no effect on their jobs if there is a strong familial and community bond among the fishermen (Rashed-Un-Nabi 2006).

3.3.3 Safety

Most of the fishermen, 70.31% (45 respondents), felt that Tegal City is safe; they had never once been a victim of a crime. Nineteen fishermen (29.68%) felt that they felt quite safe in Tegal City in the area where they live. This means that they were once a victim of a crime or violence. Social conflict which the fishermen community experience in other places including fights for fishing ground rights (Ahmed *et al.* 2013) had never happened in Tegal City. The sense of safety is important for the fishermen because it determines whether the fishing activities around the coastline can proceed without any disturbances. If they do not go to sea, they will not have any income to take home.

3.4 Health Status

3.4.1 Family member health

There were 48 fishermen (75%) who said that their family's health was good. This means they were rarely sick or have ever been sick. This is related to the nutritional need fulfillment. Their need for basic nutrition was fulfilled, therefore, their health was good. Only one person (1.56%) said that the health condition of his family was poor or in other words, they were often sick.

3.4.2 Ease in obtaining health care

Most of the fishermen, 58 respondents or 90.63% said that it was quite easy to obtain healthcare. Only 6 respondents (9.38%) said that it was fairly easy to get healthcare. The Tegal City statistics stated that the numbers of Community Health Centers or clinics were adequate and their distance was fairly close to where the fishermen live. The presence and

accessibility of healthcare facilities were very important to the fishermen and their families because it facilitates them in having their health checked. Generally, health problems were related to nutritional status or sanitation because if healthcare facilities were inadequate, these would be caused health problems in the fishermen community (Ahmed *et al.* 2013).

3.5 Educational Status

3.5.1 Attaining education

There are three components in enrolling a child into a certain level of education: school fees, the distance to school, and the enrolment procedure. The respondents (56 persons or 87.50%) expressed that they could afford their children's school fees. Only 8 persons (12.50%) stated that it was difficult for them to pay their children's school fees. 36 respondents (56.25%) stated that the distance to school was the average 1-3 km. 43.75% or 28 persons acknowledged the distance to school more than 3 km. According to enrolment procedures, 40 people or 62.50% confirmed that it was easy to sign up at a school, and 24 people or 37.50% considered it fairly easy to enroll in a school. Statistical data show that the number of schools from kindergarten level to senior high school level in Tegal City is adequate. The adequate number of schools available in Tegal City enables the fishermen's children to have a higher level of education than their parents. This contrary to the the condition of the fishermen community in Bangladesh where they do not believe there are any benefits for their children of having a higher level education. They prefer their children to follow in their footsteps as fishermen (Ahmed *et al.* 2013).

3.5.2 Skill level

The standard used here is the skills in the fishery field such as their ability to make fishing equipment, to operate boats, to operate the fishing equipment, and to fix boats. Exactly 70.31% of the fishermen (45 respondents) had at least 2 kinds of skills. Eight respondents (12.50%) had 3 skills and 11 respondents (17.18%) had only one skill. Competence or skills/techniques in fishery is considerably important to have in order to increase their expertise in their daily job as fishermen. Skills aside from catching fish are needed in order to get extra income when fish is scarce. The unstable condition of fisheries in the northern waters of north of Java strongly affect fishing activities undertaken by small-scale fishermen, usually due to bad weather and high waves. This is why fishermen develop patterns of survival to maintain their existence in the northern coast of Java, including Tegal City.

4. CONCLUSION

As demonstrated in the analysis of economic conditions, most respondents received an income higher than regional minimum pay, they could fulfill their basic nutritional needs, most of their houses were within the permanent building category, and most of them could find job easily. Considering social conditions, majority respondents felt safe, secure, and comfortable living in this areas, because there had been no disturbances that might cause turmoil in the community, as well as, there was high religious tolerance among the fishermen. Analysis of health condition showed that fishermen and their families were in good health condition and it was easy for them to obtain healthcare. From the educational status, majority respondents indicated that they could send their children to obtain

education at all levels; furthermore, most fishermen had minimal two kinds of skills needed in their daily activities as fishermen. The results of this study demonstrated the importance of social economics impacts to the small-scale fishermen and their family as a part of the community. In general, the analyses proved that small-scale fishermen, in terms of their economic, social, health, educational status, were in a high-welfare level.

5. RECOMMENDATION

Understanding social economics characteristics of small-scale fisheries will facilitate successful planning and managing sustainability fish stocks and coastal waters environment. To guarantee sustainability of coastal fisheries in the Tegal city, some management action such as new policies, regulations, strategies which involve fishermen, government, marine agency, the community, NGOs must be considered by stakeholders to ensure that all stakeholders comply with conservation objectives. In addition, there is a special need assistance to strengthen the independence of fishermen by providing skills or other beneficial activities that are useful in generating income during periods when they could not go to the sea due to bad weather. Providing working capital in ways that would not burden the fishermen is also a means to increase catch productivity.

REFERENCES

- [1] B. Murdiyanto, "Perikanan Tangkap: Dulu and Sekarang," New Paradigm in Marine Fisheries: Pemanfaatan and Pengelolaan Sumberdaya Perikanan Laut Berkelanjutan, T.W. Nurani, D.Simbolon, A. Solihin, S. Yuniarta, eds., Departemen Pemanfaatan dan Sumberdaya Perikanan, Bogor: IPB, pp.33-44, 2011.
- [2] [KKP] Kementerian Kelautan dan Perikanan-Ministry of Marine Affairs and Fisheries, "Keppres 10 / 2011, Solusi Perbaiki Nasib Nelayan," Siaran Pers: 11/04/2012, available at <http://www.kkp.go.id/index.php/mobile/arsip/c/7633/Keppres-102011-Solusi-Perbaiki-Nasib-Nelayan/?cat...>, July 11, 2012.
- [3] A. Fauzi and S. Anna, "Social Resilience and Uncertainties: The Case of Small-scale Fishing Households in the North Coast of Central Java," MAST, vol.9, no. 2, pp. 55-64, available at http://www.marecentre.nl/mast/documents/Mast2010_9.2_Fauzi_Anna.pdf, November, 2010.
- [4] Wahyudi, "Assessment of Coastal Vulnerability to Coastal Erosion in the Tegal Regency, Central Java, Indonesia," available at <http://www.its.ac.id/personal/files/pub/4253-wahyudi%20citros-oe-Dr.%20WahyudiAssesment%20of%20the%20coastal%20Vulnerability%20to%20Coastal%20Erosion.pdf>, November 14, 2010
- [5] C. Bene, "When Fishery Rhymes with Poverty: A First Step Beyond the Old Paradigm on Poverty in Small-scale Fisheries," World Development, vol. 31, pp. 949-975, 2003
- [6] M. Yafiz, "Perbaikan Kesejahteraan Nelayan Melalui Usaha Perikanan Di Kabupaten Rokan Hilir Provinsi Riau," PhD disertation, Sekolah Pascasarjana, Bogor Agricultural University (IPB), Bogor, Indonesia, 2011.
- [7] L.X. Sin and N.T. Long, "Status and Perception of Coastal Small-Scale Trawling Fishers in the Mekong Delta of Vietnam," International Journal of Fisheries and Aquaculture, vol. 3, no.2, pp. 27-35, February 2011.
- [8] J.E. Cinner and R.B. Pollnac, "Poverty, Perception and Planning: Why Socioeconomics Matter in the Management of Mexican Reefs. Ocean & Coastal Management," vol. 47, pp. 479 - 493, 2004
- [9] M.C.F Pan and G.L. Sia Su, "Perception and adaptation capacities of fishermen on climate change: The case of Palawan, Philippines," Journal of Applied Sciences in Environmental Sanitation, vol. 7, no. 3, pp. 153-160, 2007.
- [10] [BPS] Badan Pusat Statistik Kota Tegal, "Kota Tegal dalam Angka (Tegal in Figures) 2013," Tegal (ID): Badan Pusat Statistik Kota Tegal, 2013.
- [11] N. Ahmed, S. Rahman, S.W. Bunting, and C. Brugere, "Socio-Economic and Ecological Challenges of Small-Scale Fishing And Strategies For Its Sustainable Management: A Case Study of The Old Brahmaputra River, Bangladesh, Singapore Journal of Tropical Geography, vol.34, pp. 86-10, 2013, doi:10.1111/sjtg.12015.
- [12] E.V. Jones, T.S. Gray, and C. Umponstira, "Small-scale Fishing: Perceptions and Threats to Conserving a Livelihoods in the Province of Phang-nga, Thailand, " EnvironmentAsia, vol. 3, no. 1, pp. 1-7, 2010.
- [13] Kusnadi, "Kebudayaan Masyarakat Nelayan," Makalah dalam Kegiatan Jelajah Budaya tahun 2010 dengan tema Ekspresi Budaya Masyarakat Nelayan di Pantai Utara Jawa. Penyelenggara Balai Pelestarian Sejarah dan Nilai Tradisional. Kementerian Kebudayaan dan Pariwisata di Yogyakarta tanggal 12 - 15 Juli 2010, available at <http://www.javanologi.info/main/themes/images/pdf/>, 2010
- [14] M. Rashed-Un-Nabi, M.A. Hoque, R.A. Rahman, S. Mustafa, M.A.Kader, "Fishermen's Perception and the Estuarine Set Bag Net Fishery in Bangladesh," International Journal of Rural Studies (IJRS). vol. 13, no. 2, pp. 1-16, 2006.