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# SOCIOECONOMIC ANALYSIS OF TARAKAN ISLAND COASTAL COMMUNITIES

**Sulistya Rini Pratiwi**
Economic, Universitas Borneo Tarakan, Indonesia
email: sr.pratiwi@borneo.ac.id
*Correspondence:* sr.pratiwi@borneo.ac.id

**Abstract:** The purpose of this study was to determine description of socioeconomic conditions and the magnitude of the value of coastal community willingness to pay in the efforts to overcome the impact of coastal abrasion in Tarakan City. The qualitative descriptive analysis method with the Miles & Huberman analysis design was used to determine the social conditions of coastal community. The method used in calculating the willingness to pay public services was the Contingent Valuation Method (CVM). The results of the analysis obtained that the education level of the coastal community belonged to the medium category, with low income levels. The amount of willingness to pay the public services for the efforts to repair the coastal damage is in average of IDR 83,077. Based on the value of the scenarios offered, this value indicates the high participation of the coastal community in the efforts of repairing damage.

**Keywords:** Marine economics, Natural resource management, Sustainable development, CVM.

## INTRODUCTION

Characteristics of the coastal community formed by the dynamic nature resource where they were working at, so to get the maximum results, fishermen of the coastal community must move around to other fishing spots. More over, the high risk of their fishing efforts put their live in harsh and uncertainty environment when fishing (Apollonio, 1994; California Environmental Associates, 2018; Robertson, Midway, West, Tillya, & Rivera-Monroy, 2018; Kyvelou & Ierapetritis, 2020).

The low of Human Resources and equipment for fishermen affected the fishing method, their lack understanding of the technology made the fishing quality and quantity have not improved (Mahmud, Islam, Parvez, & Haque, Impact of fishery training programs on the household income of the rural poor women in Bangladesh, 2017; Madariaga & Hoyo, 2019). One of the efforts that can be done to increase their income was increasing the catch production (Ratna, Munanzar, Albra, & Arifin, 2018; Szuwalski, Jin, Shan, & Clavelle, 2020).

Taking for example, the fishing was not only limited to catch fishes, but also catching other marine creatures such as octopuses, squids, lobsters, crawfishes, mussels and so forth. The problem was the catch very limited, and sometimes was not entirely sold, rather for their own consumption with their family. Another thing that contributed to worsen their welfare was their habits or lifestyle (UNCTAD, 2017; Shaffril, Samah, Samsuddin, & Ali, 2019)

The general social and economic characteristic of the coastal community was working in the marine sector such as fishermen, fish farmers, sand mining and sea transport (Putten, Metcalf, Frusher, Marshall, & Tull, 2014; Widjajanti, Antariksa, Leksono, & Subadyo, 2018). In terms of education level, most of the coastal community have low education level (Zamroni, Apriliani, Yusuf, & Kurniasari, 2019; Kyvelou & Ierapetritis, 2020). The environmental settlements condition of the coastal community, especially the fishermen's, was not well arranged and seemed dirty. With the socio-economic conditions of the community which were relatively low welfare, so in a long term the pressure on coastal resources will be greater than before to meet the needs of the coastal community (Nurzaman, Shaw, & Roychansyah, 2020).

## MATERIALS AND METHODS

This study used a qualitative method. The qualitative data analysis was inductive, the analysis was based on the data obtained. According to Miles & Huberman (2014) (Miles, Huberman, & Saldana, 2014)the analysis consists of three activities that occur simultaneously, namely: a data reduction, a data presentation, drawing conclusions / verifications. The data were obtained from in-depth interviews with respondents and the observations to fishermen and environmental conditions. The respondents of this study is the coastal community who live in these coastal

Villages: Amal, Juata Laut, Karang Anyar, and Selumit. The analysis of the willingness of the coastal community in the efforts to recover the environment due to the coastal abrasion using contingency valuation techniques.

Contingent Valuation Method (CVM) is a survey-based methodology to estimate how a person / community evaluates goods, services, and comfort. This method has been widely used to estimate the value of something not traded on the existing market, while the revealed preference method cannot be used (Aizuddin, Sulong, & Aljunid, 2014; Sajise, Samson, Quiao, Sibal, Raitzer, & Harder, 2021).

**RESULTS AND DISCUSSION**
**Results**

Respondents in this study is the coastal communities who live in the Village Amal Beach, Sea Juata Village, Karang Anyar village Selumit Turkish and Turkish. Characteristics of respondents in this study is important because by knowing the characteristics of respondents, it will know the object of study better. The number of respondents in this study were 100 people. There are certain criteria in describing the characteristics of respondents as follows:

**Table 1**
**Demographics and Characteristics of Respondents (N = 100)**

| Characteristics | Mayoritas | Persentase |
|---|---|---|
| Gender | MALE | 71 |
| | FEMALE | 29 |
| AGE | <35 | 52 |
| | 36 – 55 | 45 |
| | >55 | 3 |
| EDUCATION | Elementary school | 13 |
| | Middle School | 23 |
| | High school | 49 |
| | S1 | 15 |
| Number of family members | 2 – 4 | 43 |
| | 5 – 7 | 52 |
| | >7 | 5 |
| INCOME | <IDR 1.000.000 | 43 |
| | IDR 1.100.000 – IDR 3.000.000 | 52 |
| | >IDR 3.100.000 | 5 |

Based on the results of previous surveys, it is known that various efforts have been made by the government and the Environmental Service to prevent damage to coastal areas due to abrasion (Ruslan, Goh, Hattam, Edwards-Jones, & Moh, 2022). As for the effort in question, the researcher has listed it as a type of option or as a respondent's choice based on their ability to pay (Pratiwi, Purnomo, & Usman, 2020; Leasiwal, 2017).

The amount of money that respondents are willing to pay to overcome the impact of coastal abrasion in Tarakan City varies widely, ranging from IDR 0 to IDR 250,000 per year, depending on the type of option or type of prevention chosen. The WTP value to overcome the impact of coastal abrasion which is most chosen by the respondents is the WTP value of IDR 0 per year with the Status Quo option, which is 33%, while the other WTP values chosen by the

respondents vary widely. Respondents who are willing to pay around IDR 40,000–IDR 60,000 per year with 29% Vegetation option, IDR 40,000–60,000 IDR per year with 15% Mangrove Maintenance option, IDR 180,000–250,000 IDR per year with Vegetation option, Building Design and Breakwaters by 13%, ranging from IDR 100,000–IDR 135,000 per year with 5% Vegetation and Mangrove Maintenance options, ranging from IDR 75,000–IDR 100,000 per year with 4% Breakwater options, and ranging from IDR 100,000–IDR 135,000 per year with the option of Vegetation and Breakwaters by 1% of the total 100 respondents.

**Tabel 2**
**Distribution of Respondents Based on WTP Value**

| Option | Option Value (WTP) (IDR) | Presentase (%) |
|---|---|---|
| Status quo | 0 | 33 |
| Vegetasi vegetation | 40.000 – 60.000 | 29 |
| Mangrove maintenance | 40.000 – 60.000 | 15 |
| Breakwater | 75.000 – 100.000 | 4 |
| Vegetation and mangrove maintenance | 100.000 – 135.000 | 5 |
| Vegetation and breakwaters | 100.000 – 135.000 | - |
| Mangrove and breakwater maintenance | 150.000 – 200.000 | 1 |
| Vegetation, building design and breakwaters | 180.000 – 250.000 | 13 |
| | | 100 |

Source: Primary data processed, 2022

The general conditions of the respondents were at the low level of welfare. The fishermen with poor education level generally have not touched the modern technology, the education level of the fishermen was directly proportional to the technology purchased by them, thus the productivity level of their catch was also very low (Triyanti & Firdaus, 2016). For them, education have nothing to do with their profession. In their fishing activities, experiences were the only needed. They were only required to understand the place and weather conditions supporting their activities.

## Discussion
### Human Resources

According to the coastal community, the education have not played any important role. This was influenced by their current facilities and infrastructure that have not supported their livelihood. Thus they prefered to work. More over, the fishermen conditionally forced their children to be the labour in order to improve the family economy or at least to reduce the family burdon.

Working as fishermen mostly required the muscle or energy, so education was not the main issue in their field. However, education became an obstacle when they want to change their working field into the other working field with more promising income that can meet their daily needs.

In fact, the level of education is one of indicators to evaluate the quality of

human resources (Liu, Alharthi, Atil, Zafar, & Khan, 2022). To those with low education level, it affected the catch productivity and automatically affected the income (Kar, 2021). The low income was one of the characteristics of the poor (Fabinyi, et al., 2022).

## Health Access

The majority of the coastal community in Tarakan City can access the government health insurance. However, for them the insurance levy was quite costly because its monthly levy was IDR. 25,500, -. This amount seemed little for those whose better economic conditions, but for most people in the coastal community it seeemed costly. Moreover, the monthly insurance levy was multiplied as the number of family members. On the other hand the average income level of Idr.3,000,000,-.

The survey results showed that the health problems of the coastal community were more prevalent affected the eye, skin, muscle, digestive, intestinal worms, mal nutrition, boat accidents, drowning, and some of bad habits such as drinking alcohol, smoking, and not maintaining hygiene (Toyoshima, et al., 2022).

## Fishermen Lifestyle

Fishermen income of the coastal community derived from the catch activity was always exhausted and nothing left for their routine expenses. Besides that, there were the school expenses for the children and other social expenses. The coastal community mostly built wooden house on stilts. Most of the houses were built on the water. The average number of the family members was around 5 to 7 people. This indicated that there are around 5-7 family members whose lives depended on the breadwinner of the family who worked as a fisherman. This was one of the reasons why fisherman families faced difficulty in fulfilling their daily needs.

The other factors were big waves, strong winds, rains, sickness, and or damaged equipment. Sometimes the community social activities also could not be avoided in the name of solidarity such as a family party or someone who got an accident. when fishermen unable to go fishing, there were no income automatically on that day.

## Value of Willingness to Pay (WTP) Offered

Based on the previous survey results, it was known that various efforts have been conducted by the local goverment and the Environment Agency to prevent any damage to the coastal areas due to the abrasion. Those efforts have been enlisted in the survey as an option for the respondents to choose based on their ability to pay.

The amount of willingness to pay by the respondents to overcome the impact of coastal abrasion in Tarakan City was varied greatly. The range was from Idr 0 - Idr 250,000 per year, depending on the type of prevention chosen. The most chosen WTP value to overcome the impact of the coastal abrasion by the respondents was the IDR 0 per year with the Status Quo option of 33%. While the other WTP values chosen by respondents were varied greatly. Mitigation efforts

through vegetation planting are the most chosen scenarios. In addition to the value of affordable wtp, respondents argued that planting vegetation was quite easy to do, amount IDR 50,000,-. Another study found the same thing related to this vegetation scenario selection (Pratiwi, 2016; Cunningham, et al., 2015; Barwise & Kumar, 2020). The calculation result of the average maximum willingness to pay of the coastal community was IDR 61,075 per year.

## CONCLUSIONS

The Coastal community life in Tarakan City in the economic aspect was still far from the expected feasibility. This was because of the life style and low human resources. The result of the WTP analysis showed that the average value of the maximum willingness to pay of the coastal community in the efforts to overcome the impact of the coastal abrasion in Tarakan City was Idr 61,075. Judging from the socio-economic conditions of the coastal community, the average value of the WTP was considered good. This indicated that they pay some attention to the problem of the coastal damage. The involvement of the government and stakeholders was still expected in realizing the efforts to prevent the coastal abrasion.

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