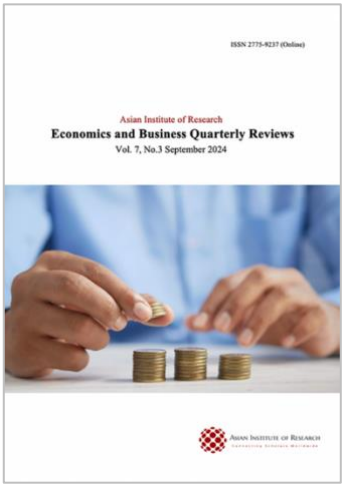

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The Fundamental Problems of Improving the Socio-Economic of Small-Scale Fisheries

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Abstract
The collaborative research determined the basic obstacles and difficulties small-scale fisheries face to improve socio-economic quality and become more prosperous. The purpose was to explore the factors causing poverty despite providing aid and subsidies in the form of knowledge life skills and empowerment programs. Data were collected through in-depth interviews and focus group discussions on all phenomena and analyzed qualitatively. The results showed that the fishermen were lazy, resigned, apathetic, lacked initiative, irrational, and worked instinctively. Moreover, the attributes were identified as completely inconsistent with the efforts to improve the quality of life. In conclusion, without a rational work ethic, high discipline, hard work, material orientation, thrift, and savings, it is impossible to improve the quality of life.

Keywords: Ethos, Poverty, Fishermen, Socio-Economics

1. Introduction

The fundamental background for the research is the difficulty faced by small-scale fisheries in becoming prosperous. This is observed from the four-year empowerment program implemented in three different locations, including Deliserdang, Tanjung Balai, and Central Tapanuli. The program was in the form of workshops conducted by inviting fish cultivation experts to transfer knowledge on brackish and pond fish cultivation, life skills, equipment, seeds, feed, and basic daily needs with periodic monitoring. Moreover, the empowerment programs implemented by related agencies, the government, and corporations to alleviate the poverty of small-scale fisheries were also evaluated. From the context of the analysis conducted, the efforts implemented had not been able to improve the dignity of small fishermen. Therefore, this research essentially focused on determining the fundamental external and internal factors causing the poverty of small-scale fisheries in 12 different locations within North Sumatra Province.

The Republic of Indonesia State Fisheries Management Area (*Wilayah Pengelolaan Perikanan Negara Republik Indonesia* [WPP-NRI])[1] of North Sumatra Province is classified into two groups. The first, WPP-NRI 571, covers the waters of the Malacca Strait including Langkat, Medan, Deli Serdang, Serdang Bedagei, Tanjung Balai, Asahan, Labuhanbatu, and Batubara with moderate use (Damanik, Lubis, and Astuti, 2016). Meanwhile, the second, WPP-NRI 572, covers the waters of the western Indonesian Ocean Sumatra including Central Tapanuli, Sibolga, Mandailing Natal, and South Nias identified to have overfishing (Suman, Irianto, Satria, and Amri, 2016; Koeshendrajana, Rusastra, and Sukadi, 2019). The areas are the main fishing centres in North Sumatra Province and are selected as the location for this research. Unfortunately, the socio-economic life of the owners of small-scale fisheries in the area was categorized as "below the poverty line" or "extreme poverty."

The fishermen in Indonesia are nationally divided into capture and cultivation groups. In 2022, those in the catch group were 3,033,941 consisting of 2,401,540, at sea and 632,401 in inland waters (Satria, 2009b). Meanwhile, the aquaculture group had 2,120,312 consisting of 266,602 cultivating at the sea, 401,304 in brackish water, and 1,332,507 in the freshwater (Marine and Fisheries Ministry (*Kementerian Kelautan dan Perikanan* [KKP], 2022). Although the source is questionable, 60-80 percent are small-scale fisheries categorized to be poor and below the poverty line (Anwar, 2019; Damanik, Suhana, and Prasetiamatati, 2008; Nurjaya, 2009; Solihin, 2020; Central Bureau of Statistics (*Biro Pusat Statistik* [BPS]), 2023; KKP, 2023).

Indonesia is one of the largest fishing countries in the world dominated by small-scale fisheries. It is also a maritime and island country where people capture fish as a source of income and foreign exchange, and to improve national food and nutritional security. However, the fishermen are in extreme poverty even though the maritime country has 2/3 of its territory covered by sea, lakes, and rivers which are expected to support prosperity (Satria, 2009a; Shahputra, 2023; Ambari, 2023b; 2023c). Most of the small-scale fisheries live in coastal slum areas with houses on stilts, poor sanitation, limited sources of clean water, several school dropouts, and are shackled by debt. The general habit is to catch fish based on instinct (Kusnadi, 2002; 2006), ecological changes (Helmi and Satria, 2012) and subsistence orientation (Mubyarto, 1984).

The activities are also often conducted using ships that are less than 5 Gross Tons (GT) (Arsandi, Afriyanto, and Kumalasari, 2022). Several assistance, workshops, policies, regulations, and social assistance have been launched in the area but the transfer of knowledge, family financial management, health, relevant tools, equipment, and even houses are poor for most fishermen (Ambari, 2023a; Imron, 2006; Kusnadi, 2009). It was observed that the groups of fishermen are contributors to the highest poverty rate as well as the lowest social strata in the country (Mubyarto, 1984). Therefore, the trend led to the need to answer the question "What's wrong with Indonesian small-scale fisheries today?"

Poverty is perceived from different dimensions, including the economic, social, cultural, and political aspects (Nugroho, 1995). However, it is most easily explained based on economic dimensions which are synonymous with the material inability to live prosperously. In the cultural dimension, poverty is a certain response to life, including wastefulness, hopelessness, helplessness, and apathy. Politically, it is defined as the marginalization of poor groups at the bottom of the social structure and subsequent exemption from the decision-making process. Socially, the concept is explained as poor living standards, behaviour, and way of thinking that is less oriented toward prosperity (Acheson, 1981). Meanwhile, the parameters of poverty differ in each country but are based on three prerequisites of disability which include the lack of (1) material to fulfil clothing, shelter, food, education, and health, (2) participation in society, and (3) minimum income. It is also differentiated by ownership of infrastructure and family, including several limited facilities. The two important points related to poverty are vulnerability and helplessness which are the tendency of poor people to experience difficulties in dealing with emergencies (Nugroho, 1995).

[1]The Republic of Indonesia State Fisheries Management Area (*Wilayah Pengelolaan Perikanan Negara Republik Indonesia* [WPP-NRI]) is a fisheries management area based on the diversity of marine resources, seabed morphology, regional characteristics, ecology, and sea boundaries which are used as the basis for sustainable fisheries management. The numbering and naming are adjusted to the International Maritime Organization (IMO), International Hydrographic Organization (IHO), and Food and Agriculture Organization (FAO)

The basic needs approach recommended by the World Bank (Baah et al., 2023) classified poverty into two groups, including (1) absolute for those with income below US$ 1 or IDR 15,000 per day and (2) medium for US$ 2 or IDR 30,000 per day. This approach provides a poverty line (*Garis Kemiskinan* [GK]) where each person is categorized as poor when the daily income is less than US$ 2 or IDR 30,000. More specifically in Indonesia, GK is the sum of monthly per capita expenditure on the Food Poverty Line (*Garis Kemiskinan Makanan* [GKM]) and non-food Poverty Line (*Garis Kemiskinan non-Makanan* [GKNM]). Therefore, poverty is divided into four categories, including (1) absolute for the inability to fulfil primary needs, (2) relative for the lack of capacity due to uneven development, (3) cultural based on negative habits, and (4) structural which is associated with the inability to utilize existing resources.

The average income of small-scale fisheries is estimated at IDR 750,000-2,000,000 per month which is far below the average gross demographic product (GDP) of IDR 5,183,333 per capita per month or the equivalent of IDR 62,200,000 per capita per year set in 2023. It is also significantly under the GK standard of IDR 535,547 per person per month or the equivalent of US$ 2.16 per person per day set by the World Bank. Meanwhile, the poverty line per household per month is IDR. 2,592,657 which is inversely proportional to the average monthly income, indicating the average fisherman in Indonesia reflects a poor society. According to the Central Bureau of Statistics (2021), people with expenditures below IDR 10,739 per person per day or IDR 322,170 per person per month are categorized as extremely poor. This further led to the inference that the fishermen were average in extreme poverty (Imron, 2003; Kusnadi, 2008). The exchange rate index (*Nilai Tukar Nelayan* [NTN]) which measures the catches compared to household production and consumption needs shows a deficit of 98.66, thereby showing the increase in income is not commensurate with expenditure (Retnowati, 2011; Manadiyanto, 2002).

The causes of poverty include all limitations of employment, education and knowledge, social injustice, water and food resources, infrastructure, government support, health, prices, conflict or unrest as well as climate change or natural disasters. The continuation of poverty has the potential to lead to crime, unemployment, limited access to education, poor health, death, chaos, and even bankruptcy. Therefore, this research explores the poverty among the fishermen in 12 locations within North Sumatra. Poor fishermen were defined as those with the lack of capacity and power to fulfil the necessities of life based on two indicators, including basic needs such as food, clothing, and shelter, and (2) limited access to others in the form of health, sanitation, clean water, transportation, and education.

In the book, *Sustainable Fishery Systems, Charles (2001) emphasizes an integrated, interdisciplinary approach to building sustainable fisheries. This holistic system focuses on structure, operations, and dynamics based on six dominant themes in "sustainable fisheries," including sustainability, uncertainty, complexity, conflict, fishing rights, and the nature of management. The integration of the three reflects external and internal factors influencing welfare in the fisheries sector. Therefore, this research aimed to improve the quality of life for small-scale fisheries and alleviate poverty for a more prosperous life by discovering the fundamental problems*.

2. Method

The focus of this research was on small-scale fisheries catching fish at marine in 12 different locations within North Sumatra, including Central Tapanuli, Sibolga, Mandailing Natal, South Nias, Langkat, Medan, Deli Serdang, Serdang Bedagei, Tanjung Balai, Asahan, Labuhanbatu, and Batubara. It was conducted qualitatively according to social research (Bryman, 2012) with a mixed approach (Creswell, 2014; Schutt, 2016). The main purpose was to explore the most basic external and internal factors causing poverty among small-scale fisheries. The literature review was conducted through four sequential stages, including (1) reading abstracts to determine relevance based on databases, (2) evaluating relevant publications, (3) categorization according to analysis and type of problem, as well as (4) most cited publications based on e-books, e-journals, reports, or official web (vom Brocke, 2015).

Data was collected through observation, in-depth interviews, questionnaires, and focus group discussions. Moreover, reflective data was enriched by watching, asking, and examining during the collection process (Kozinets, 2010). Observations were also made to look closely at the household, economic, and social conditions

of small-scale fisheries in all locations. The in-depth interviews were intended to extract comprehensive information from 25 randomly determined informants. Furthermore, a questionnaire containing 15 questions with 4 options according to the Likert Scale (Bertram, 2007) as well as 2 qualitative statements was distributed to 250 informants. Each factor and attribute was described by designating a value or score according to the response provided by the informant to obtain and determine the most dominant factor influencing poverty among small-scale fisheries.

A focus group discussion was held for one day in Medan on July 29, 2024, inviting 35 representatives from the research location. All informants were allowed to express opinions, life experiences, complaints, and hopes. Moreover, the questions focused on obtaining information on basic obstacles limiting fishermen from transforming into prosperous communities. All the data and information were considered narrative text, a series of events, and chronologically based on the competency of informants and were transcribed verbatim, categorized, and tabulated manually. A qualitative and interpretative analysis was applied to provide conclusions and recommendations for further research. It is important to state that the research was conducted throughout 2023-2024.

3. Results and Discussions

In Indonesia, North Sumatra covering an area of 72,981.23 km2 is the fourth largest province after West, East, and Central Java. The province is located at 10-40° North Latitude and 98°-100° East Longitude, and is flanked by two bodies of water, the Malacca Strait on the east coast and the Indonesian Ocean on the west coast. Topographically, it is mountainous with the west coast observed to be a steep ravine, the east coast is a sloping area, and the central part is the Bukit Barisan Mountains which extend from Aceh in the north to Palembang in the south. Moreover, the volcanic earthquake that hit the mountains formed the Lake Toba caldera. There are also the Nias Islands off the Indonesian Ocean as far as 283 km from Medan which is the provincial capital.

The east coast is a sloping area with several large and long rivers originating from the Bukit Barisan Mountains and emptying into the Malacca Strait. The area around the river is densely populated with brackish water fishing activities while the Malacca Strait is a marine fishing area dominated by Malay, Karo, Simalungun, and Javanese. The central part is a plateau with minimal population and only allows dry cultivation activities and the dominant residents are Toba, Pakpak, and Karo. Moreover, the west coast is a rugged area and the sea is the source of livelihood for the people which are mainly Toba, Angkola, and Mandailing. The Nias Islands cover an area of 4,771 km² located off the Indonesian Ocean with the main population being the Nias fishing at sea. It is also important to state that Lake Toba covers an area of 1,130 km² north of Tapanuli and allows the people to catch freshwater fish or cultivate in cages.

The Strait of Malacca on the east coast of North Sumatra is the WPP-NRI 571 with a medium level of fishing. In this region, Langkat, Medan, Deli Serdang, Serdang Bedagai, Tanjung Balai, Batubara, Asahan, and Labuhanbatu are the main fishing centres. Furthermore, the Indonesian Ocean on the west coast is WPP-NRI 572 with overfishing where Central Tapanuli, Sibolga, Mandailing Natal, and Nias are the main centres. Figure 1 is a map of the main fishing centres in North Sumatra Province.

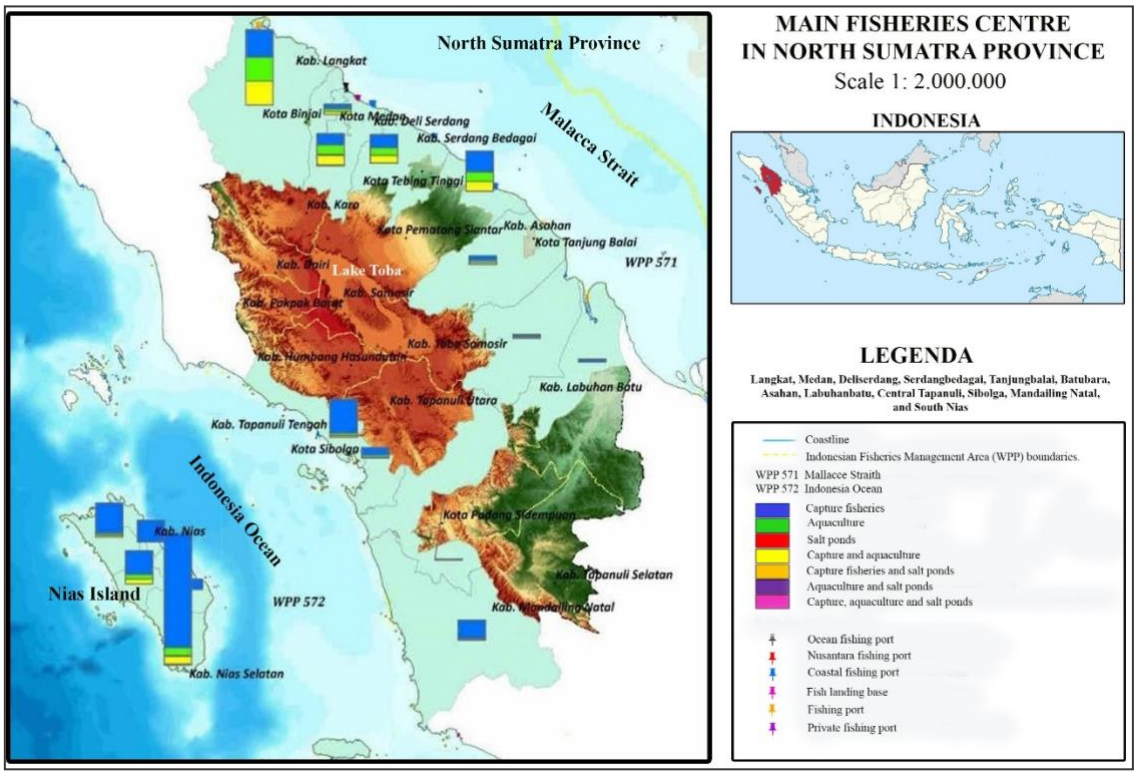

Figure 1: Map of the main fishing centres in North Sumatra Province

Data from the KKP (2023) showed that 166,005 fishermen were in North Sumatra consisting of 149,875 in marine and 16,130 on land, including rivers, swamps, springs, reservoirs, and artificial ecosystems. A total of 65,164 cultivating fishermen were identified, including 450 at sea, 9,726 in brackish, and 48,576 in freshwater. Meanwhile, the BPS (2022) provided different data which divided 170,224 fishermen into two categories, including 122,212 permanent and 48,012 part-time. Although this figure is doubtful, 60-80 percent are small-scale fisheries working personally or in groups of 3-4 with simple equipment, vessels weighing less than 5 GT, outboard boats, or without engines, and are subsistence-oriented. Table 1 provides information on the number of fishermen in 12 main fishing centres within North Sumatra Province throughout 2021-2023.

Table 1: Fishermen in 12 main fishing centres in North Sumatra Province, 2021-2023

Fisheries locations	2021	2022	2023
Central Tapanuli	25.045	25.045	25.114
Sibolga	8.310	8.310	8.714
Mandailing Natal	1.249	1.249	1.678
South Nias	5.372	5.372	5.923
Langkat	19.090	19.090	19.540
Medan	12.291	12.291	12.455
Deliserdang	13.953	13.953	14.234
Serdangbedagei	11.030	10.030	10.341
Tanjungbalai	14.058	14.058	14.157
Asahan	20.167	20.167	20.456
Labuhanbatu	6.369	6.369	6.768
Batubara	20.487	20.487	20.872
Total	152.421	156.401	161.252

Source: Department of Communication and Information of North Sumatra Province, 2023

The data in Table 1 showed that the number of fishermen in 2022 was 170,280 consisting of 119,063 permanent, 51,020 main part-time, and 197 additional part-time. In 2023, the number reduced to 161,256 which was not much different from 170,280, and were fishing in seas, lakes, rivers, and swamps or cultivating in brackish and freshwater ponds using intercropping, floating nets, and cages. There were three main reasons behind the increase

which were (1) limited employment opportunities, (2) bankruptcy due to the Covid-19 pandemic, and (3) the addition of new family members. Furthermore, Table 2 shows the statistics related to small-scale fisheries in North Sumatra in 2023.

Table 2: Small-scale fisheries in North Sumatra Province, 2023

Fisheries locations	Total fisheries	Small fisheries	Marine fisheries	Inland fisheries			Aquaculture		
				Rivers	Swamps	Ponds	Marine	Brackis	Fresh
Central Tapanuli	25.114	23.534	23.298	53	29	-	97	57	-
Sibolga	8.714	7.876	7.751	47	19	-	42	17	-
Mandailing Natal	1.678	1.348	1.193	29	31	-	32	12	51
South Nias	5.923	5.117	4.862	63	88	-	32	72	-
Langkat	19.540	19.011	18.658	43	103	11	88	81	27
Medan	12.455	12.052	11.828	21	111	-	-	92	-
Deliserdang	14.234	13.782	13.377	34	141	-	112	87	31
Serdang Bedagei	10.341	9.573	9.211	97	72	21	101	71	-
Tanjung Balai	14.157	12.945	12.570	88	54	-	132	101	-
Asahan	20.456	19.471	18.779	56	201	32	197	134	72
Labuhanbatu	6.768	5.971	5.711	27	42	-	72	98	21
Batubara	20.872	19.429	19.211	54	32	-	54	78	-
Sub-total	-	-	-	612	923	64	959	900	202
Total	161.252	150.109	146.449		1599			2.061	

The information in Table 2 showed that 150,109 were small-scale fisheries consisting of 146,449 in marine, 1,599 on land, and 2,061 categorized as aquaculture. The data showed that marine fisheries were the main source of income for the people. Meanwhile, the basic problem in WPP-NRI 572, more specifically in the west of North Sumatra, was overfishing or excessive fishing. This situation has an impact on small-scale fisheries experiencing difficulty in catching fish, leading to erratic and fluctuating income trends. The highest per capita income was recorded to be IDR 25,000-IDR 50,000 per day or IDR 750,000-IDR 1,500,000 per month while a small number of others earned IDR 35,000-IDR 65,000 per day or IDR 1,050,000-IDR 1,950,000 per month. All the income was used to meet all daily needs, specifically food and non-food such as school, social services, lighting, health, and capital for fishing operations.

The income was observed to be significantly lower than the average gross domestic product in 2023 which was set at IDR 5,183,333 per capita per month or the equivalent of IDR 62,200,000 per capita per year. It was also far below the poverty line standard of IDR 535,547 per person per month or the equivalent of US$ 2.16 per person per day set by the World Bank. The data showed that the majority of small-scale fisheries reflected medium and even absolute poverty. Furthermore, the basic needs approach places the fishermen with an income less than US$ 2 or IDR 30,000 per day below the poverty line or in extreme poverty. This reference strongly indicates a less prosperous situation considering the limitation of the fishermen in meeting food and non-food needs.

Considering the high level of poverty in Indonesia, including among small-scale fisheries, the Indonesian Government issued regulations to improve the quality of life. This was observed from the implementation of Law Number 7 of 2016 concerning the Protection of Fishermen, Law Number 32 of 2014 concerning Maritime Affairs, and Law Number 45 of 2009 concerning Amendments to Law Number 31 of 2004 concerning Fisheries. Almost all the fishermen participated in national programs such as the Smart Indonesia Program (*Program Indonesia Pintar* [PIP]) for education, the National Health Insurance Program (*Program Jaminan Kesehatan Nasional* [PJKN]), the Family Hope Program (*Program Keluarga Harapan* [PKH]), and Non-Cash Food Assistance.

Through the Smart Indonesia Program conducted from 2018 to 2023, the government provided different financial educational assistance to 19.7 million students from elementary to high school, ranging from IDR 450,000 per child per year for elementary to IDR 750,000 for junior high and IDR 1,000,000 for high schools. Moreover, health assistance was provided to 96 million underprivileged people and family assistance amounting to IDR 1,890,000 per year per beneficiary group (*Kelompok Penerima Manfaat* [KPM]) was given to 10 million recipients to improve welfare. Lastly, non-cash food assistance of IDR 110,000 per month was distributed to 15.5 million recipient groups through the PKH (Coordinating Ministry for Human Development and Culture**, 2018).**

The Coordinating Ministry for Economic Affairs (*Kementerian Koordinator bidang Perekonomian*), the Ministry of Maritime Affairs and Fisheries (*Kementerian Keluatan dan Perikanan*), the Maritime Affairs and Fisheries Service (*Dinas Keluatan dan Perikanan*), the Community Empowerment Agency (*Badan Pemberdayaan Masyarakat* [Bapemas]), the Social Service (*Dinas Sosial*), the National Unity and Community Protection Service (*Dinas Kesatuan Bangsa dan Perlindungan Masyarakat*), the Health Service (*Dinas Kesehatan*), the National Population and Family Planning Agency (*Badan Kependudukan dan Keluarga Berencana Nasional* [BKKBN]), and several fishermen organizations including the Association of Indonesian Fishermen (*Persatuan Nelayan Indonesia* [PNI]), the Indonesian Traditional Fishermen's Association (*Himpunan Nelayan Tradisional Indonesia* [HNTI]), and the Indonesian Fishermen's Union (*Serikat Nelayan Indonesia* [SNI]) routinely implemented empowerment programs.

Some of these included knowledge transfer, workshops, family financial management, education, and health, as well as assistance with capital, tools, equipment, and houses. For example, the Coordinating Ministry for the Economy launched Micro Business Productive Assistance (*Bantuan Produktif Usaha Mikro* [BPUM]) in 2022 to reduce extreme poverty in Indonesia. More specifically, IDR 600,000 per person per month was provided for 1.76 million marine and fisheries business actors operating as labour fishermen, without boats, or with boats lesser than 5 GT (Limanseto, 2022). The KKP also initiated Fishermen's Insurance Premium Assistance for 500,000 people including fuel subsidies in 2017.

The Indonesian government planned to provide subsidies covering ship improvements, fishing gear, ship search technology, refrigerators, fuel, ice, bait, personal, social and insurance costs, operators and workers, fish selling prices, support for marine activities, and losses to fishing operations from 2022 to 2024. As of November 2023, the assistance of 17,436 units of fishing equipment and 1,205 units of fishing boat engines had been launched in 85 locations with advanced fishing village production infrastructure in 79 others. Furthermore, 1,100 units of fishing boat engines, 15,000 units of fishing equipment, and production facilities were provided as subsidies in April 2024 at 55 advanced fishing village locations (Grahadyarini, 2024).

The government claimed that all these programs would have reduced extreme poverty by 2.04% or 5.59 million in December 2023. However, the small-scale fisheries in Indonesia are currently not prosperous because the aid and subsidies tend not to be well-targeted but are mostly enjoyed by large-scale fisheries actors. The trend showed that assistance and policies proposed by the government were not on target and failed to improve the quality of life for small-scale fisheries. It was further observed that the highest percentage of the fuel oil subsidies provided were enjoyed more by large fisheries.

The 13th Ministerial Conference (MC13) of the World Trade Organization (WTO) held on 26 February-2 March 2024 in Abu Dhabi issued an eight-point Fisheries Subsidies Agreement (FSA) (WTO, 2024), Meanwhile, the Indonesian government determined to launch subsidies through flexible fisheries management as well as implement Special and Differential Treatment (S&DT) (Grahadyarini, 2024). The prohibition program was applied to stop the epidemic of illegal, unreported, and unregulated (IUU) fishing (Food Agriculture Organization [FAO], 2024) towards reducing overfishing over capacity (OFOC) but considered a dilemma for small-scale fisheries in developing countries such as Indonesia.

In addition to several ineffectively implemented policies and programs, the Indonesian government focuses on formulating policies to eradicate the poverty of the relatively large number of fishermen. This shows there is a need to improve the living standard for small-scale fisheries based on three main considerations, including (1)

sustainable efforts to reduce extreme poverty, (2) assisting with sustainable capital and technology to improve quality of life, as well as (3) assistance and sustainable empowerment. There is also the need for an effective mechanism to ensure all the policies and assistance are targeted at the right recipients.

The small-scale fisheries in Indonesia are currently categorized to be below the poverty line and experiencing extreme poverty. It was also observed from the field observation results that most of the fishermen lived on the coast in slums, dirty, poorly sanitized, unhygienic, and salty environments. Most of the houses were on stilts with brackish water underneath and had tin or thatch roofs as well as wooden walls and floors as observed in Bugis Village in Central Tapanuli. A small number of others had tin roofs, walls, and cement floors, but were not free from the influence of the high tide as observed in Pangkalansusu, Kampai Island, Sambilan Island and Pangkalan Brandan in Langkat, Belawan in Medan, Percut Seituan in Deliserdang, and Boga in Batubara. At certain times, usually in the middle of the month, the "big tide" often submerges most houses in water between 30-75 cm at Natal, Mandailing, and Mengkudu Bay in Serdangbedagei, Asahan, and Tanjung Balai. Meanwhile, all the houses were installed with subsidized electricity of 450 volt-amperes (VA) and equipped with credit-driven dispensers, rice cookers, freezers, televisions, and motorbikes. Even though the small-scale fisheries were poor, most had smartphones connected to social media.

The basic problem identified in the environment was the difficulty in getting clean water because most bathing, washing, cooking, and defecation activities were conducted using brackish and turbid water. Even though clean water is available from the government, most fishermen buy water treated using reverse osmosis (RO) for IDR 6,500 per 20 litres. Moreover, most children drop out of school due to lack of funds or the relatively long distance from home, leading to several finishing only elementary or middle school. Another problem is the Community Health Center (*Pusat Kesehatan Masyarakat* [Puskesmas]) and the Integrated Service Center (*Pos Pelayanan Terpadu* [Posyandu]) located far away in the sub-district capital, leading to difficulty for people in fishing settlements to check the health of children, pregnancy, and parents. Most fishermen have thin bodies, dull faces, and dark bodies due to limited nutrition, extreme weather, the influence of salt water, and an unhygienic living environment. The results presented in Table 3 were used to identify and categorize the factors causing poverty among small-scale fisheries based on the questionnaire distributed to 250 informants. For the record, the scores were based on the choice made by the informants on the questionnaire.

Table 3: Determinants of poverty for small scale-fisheries

Main factors	Attribute	Score
Socials	Education and skills	172
	Work experience	181
	Institutional	165
Economic	Working capital	250
	Work tools and equipment	250
	Distribution and marketing	250
Cultures	Religion and belief	151
	customs	162
	Patterns of thought and behaviour	169
Work ecosystem	Mileage	242
	Fuel	250
	Climate or weather	250
	Water pollution	250
	Availability of fish	250
	Fishing competitors	250
Government intervention	Regulations	250
	Social assistance	250
	Capital assistance	250
	Selling price	250

The information in Table 3 showed that the five main poverty determinants were categorized into two, including the external factors such as the employment ecosystem and government intervention, and internal ones in the form of the social, economic, and cultural environment. It is important to state that the external factors are not within

the control of the fishermen and despite the relationship with poverty, some other factors also have influence. For example, well-targeted social assistance and subsidies, new technological inventions, easy loans, and relatively stable marketing prices can assist fishermen in getting out of poverty. However, the interventions are often exploited by government officials, including service heads, sub-district heads, village heads, and hamlet heads as well as non-governmental organizations.

An example was the complaints received from Belawan that the village head exploited the recipients of aid through deductions even though the fund was transferred directly to their accounts. This was achieved by mobilizing the recipients to deduct from the aid in the bank followed by threats of removing anyone that disclosed or published the action on social media. The phenomenon is common in institutions located in the area, including Pangkalanbrandan in Langkat, Boga Beach in Batubara, Bugis Village in Central Tapanuli, and several fishing villages on the Nias Islands. Another example was the diversion of educational assistance to elementary, middle, and high school students by corrupt-related agencies. This showed that authorized officials contributed to the worsening poverty because the aid and subsidies provided to the people were corrupted.

The tendency of children to drop out of school was very high with average observed to have completed only middle and high school. Few of those who continued to high school relied on government assistance. Moreover, the requirements, procedures, and competition in the Indonesia Smart-College Card (*Kartu Indonesia Pintar-Kuliah* [KIP-K]) provided by the government were observed to be relatively tight. Most children in other families, apart from school dropouts, were unemployed or assisting their parents. A similar trend was observed in the health sector with most identified to have selected the Healthy Indonesia Card (*Kartu Indonesia Sehat* [KIS]) which did not require paying any charges. The option is different from class C health insurance which requires contributions of IDR 25,000 per person per month and is considered to be a burden by most small-scale fisheries. Ironically, quite a few family members are trapped in narcotics, online gambling, and online loans.

About the internal factors, field observations confirmed the influence on socio-economic conditions. The facts showed four important points, including the fact that the small-scale fisheries had (1) accepted the fate of being a helpless "weak person," (2) extended a lot of hands to the government, corporations, institutions, or philanthropy, (3) lacked the enthusiasm to improve the quality of life, and (4) led a lifestyle that was not commensurate with income level. This was observed from the trend that several fishermen spent their income to imitate unaffordable lifestyles by buying household equipment, clothing, and food. Quite a few were also willing to pawn production tools or take out loans to hold ceremonies and rituals around the circle of life. In other cases, some stopped fishing activities after receiving cash assistance and subsidies while others sell the equipment collected as aids to earn money. These actions do not support social change but rather trigger new dependency and poverty which hamper development (So, 1990). Unfortunately, education was observed not to be a priority for the people and was considered a wasteful investment.

The poverty among the fishermen was considered to be plural with four classes, including (1) absolute when the person was unable to meet primary needs, (2) relative where development was uneven, (3) cultural in the case of negative living habits, and (4) structural due to the inability to utilize existing resources. The paradox of fishing poverty is addressed in a dilemma due to the uneven development and regulatory inequality as well as work ethic and habitus. Several scholars put forward social, economic, and cultural factors, as the three main determinants of poverty (Dillon and Hermanto, 1993). The first factor includes education and skills, age, institutional and work experience, the second is capital, work, and distribution, while the third focuses on religion, belief, habits, behaviour, and customs. Others are operational costs, labour, distance travelled, equipment, fuel, selling price, and depletion of resources (Sujarno, 2008).

The irony of the situation around the fishermen observed from the abundance of marine resources and the trap of poverty showed the fundamental root of the problem to be (1) low mindset, (2) limited fish availability, (3) water pollution and ecosystem damage, (4) limited access to capital, (5) limited technology and simple management, (6) uneven distribution of results, and (7) limited market access (Damanik, Berutu, Purba, and Rulyani, 2023). This statement, although reasonable, does not summarize the most important factors behind the poverty of the fishermen. In several cases, the complexity of the problems is inseparable from the aspects influencing the

maintenance of poverty such as (1) uncertain seasons, (2) low human resources, (3) simple equipment, (4) limited catches, (5) life attitudes and motivation, and (6) government interference (Dahuri, Rais, Ginting, and Sitepu, 1996). Other scholars stated that the three reasons for poverty were (1) technological limitations, (2) debt bondage, and (3) marketing (Nugroho, 2003).

The process of ending poverty is not easy with the biggest difficulty and challenge observed not to be the intensity and quantity of empowerment programs but rather the work ethic. Despite the capital support such as aid and subsidies provided, facts showed that poverty did not reduce. This was confirmed by the continuous widespread development of new levels of poverty even though high levels of aid and subsidies, both cash and non-cash, were provided for the fishermen. The trend is associated with the tendency of the aid and subsidies to make the people lazy and willing to wait for the next batch instead of working. This shows that the mechanism is not the best approach because every house has a “poor sign” even from the data collected by the military and police.

Most fishing phenomenon in Indonesia is in line with the dependency theory where the poverty of the fishermen in the Third World is believed to be complicated by the state. The subsidies and state assistance intended to assist society end up contributing to social inequality and hegemony in several cases, causing economic, social, cultural, and political poverty. The observation is based on the culture and mentality held which is contrary to the concept of modernization (Koentjaraningrat, 1985). This made the father of Indonesian Anthropology remind the government in the New Order era to stop playing the role “as a teacher” and consider the public “as stupid students.” The modernization theory implemented at the time was "The Stage of Economic Growth: A non-communist Manifesto" introduced by Rostow (1991). It states that not all activities of the government are in line with the culture and mentality of the Indonesian people. This statement was made considering the several cases of failure of development programs, specifically the self-sufficiency in the food sector implemented in 1982.

The observation from the small-scale fisheries in the 12 research locations showed that poverty did not solely depend on policies, regulations, or government subsidies and assistance, but rather on work ethic and habitus. The government is required to improve the dignity of society but there is a need to first provide early knowledge and life skills through workshops, seminars, or empowerment to gradually internalize work ethic into the habitus of the people. This is necessary because work ethic is the mental attitude, a guide to motivate high work enthusiasm, initiative, perseverance, discipline, never giving up attitude, ability to work together, and responsibility (Brownlee, 2020; Glassdoor, 2021; Herrity, 2023). The trend can be related to the German work ethic which focuses on rationality, high discipline, hard work, orientation towards material success, thrift, and saving (Weber, 1992).

Personal success, social relations, and work require an ethic that focuses on interpersonal skills to read opportunities and chances, have the initiative in a job, and be reliable in any situation. This was confirmed by the result of previous research that low work ethic caused the poverty of fishermen despite abundant maritime resources, leading to a low Need for Achievement (N Ach), a key factor in socio-economic development (McClelland, 1961). There is a need for significant achievement, mastery of skills, and high standards to express preferences for certain outcomes affiliated with the cultural mission. Furthermore, reformer figures are needed to change psychological problems hindering social change in society (Lerner, 1958). Even though the theory referenced is old, it is in line with the explanation of the phenomenon of poverty where economic prosperity is not solely triggered based on external stimulus but is more determined by the work ethic and mentality of the community.

Laziness, resignation, apathy, working instinctively and without initiative as well and giving up easily were found to be the work ethic that led to the lack of improvement in socio-economic life. This was observed from the fact that poverty persisted among small-scale fisheries even though several external stimuli such as food and non-food assistance were provided in the form of subsidies, knowledge and skills transfer through workshops and empowerment. Without continuous improvement in internal conditions such as good work ethic and mentality, poverty can undoubtedly be reduced. The most basic points required are attitude, determination, and dedication as well as responsibility for tasks and work.

The working conditions around marine fisheries require adopting a hardworking, disciplined, diligent, initiative, material-oriented, and thrifty work ethic to ensure the placement of high value on material and professional success. People with these attributes demonstrate moral principles and ideal lifestyles to improve their abilities towards influencing the surrounding environment positively. This shows that the fishermen need to have work motivation, understand the necessity of hard work and strong character, and become reliable, dedicated, and disciplined, as well as ensure continuous improvement of quality. All the attributes identified as the pathway to reduce poverty and become more prosperous. The trend shows that, compared to external stimuli, internal factors are both preconditions and determinants of socio-economic improvement. Therefore, this research concludes that a high work ethic is the main key to transitioning from normal and extreme poverty to improving the socio-economic conditions needed to be more prosperous.

4. Conclusion

In conclusion, a high work ethic requires that the fishermen understand the quality of being self-motivated and fully aware of the hard work and strong character needed to perform their job. This could be achieved through the adaptation of hardworking, disciplined, diligent, initiative, material-oriented, and thrifty ethics around the marine fisheries environment. The fishermen were required to exhibit moral principles as hard workers, lead ideal lifestyles to improve their abilities and have a good impact on the surrounding environment. Therefore, the ethics considered suitable for the research area were determination and dedication, valuable soft skills, moral principles, strong character at work, implementation of positive values to increase work capacity, positioning in every job, reliability, discipline, and responsibility. In the future, similar research is needed, specifically to foster and develop a work ethic for small-scale fisheries to avoid laziness, apathy, giving up easily, lack of initiative, and working instinctively.

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