Social Economic Conditions Of Coastal Communities In Nambo District, Banggai Regency, Central Sulawesi Province

Abdul Basith[1*], Yaser Krisnafi[2], Muhammad Nur Arkham[23], Mathius Tiku[2], Miazwir[4]

[1]Politeknik Ahli Usaha Perikanan, Jakarta, Indonesia
[2]Politeknik Kelautan dan Perikanan Dumai, Dumai, Indonesia
[3]Center for Coastal and Marine Resource Studies LPPM-IPB University, Bogor, Indonesia
[4]Ministry of Marine Affairs and Fisheries, Jakarta, Indonesia

----

ABSTRACT
Most of the people who live in coastal villages are fishermen and are very dependent on marine resources and coastal ecosystems. The purpose of this study is to be able to determine the socio-economic conditions of coastal communities who utilize coastal potential in the Nambo District, Banggai Regency. Data collection was carried out by means of surveys and interviews. Data analysis was carried out qualitatively and descriptively. Most of the social conditions of the coastal communities in Nambo District live on the coast with a less dense population density. The educational aspect shows that on average 57% of coastal communities with a bachelor's degree have a human development index (IPM) score in the low category. Judging from the economic conditions, the livelihoods of coastal communities in Nambo District depend on the fisheries sector, namely some as fishermen. The fishing gear and fishing fleet used for the capture fisheries business at the research location are small-scale fisheries, namely with fishing fleets < 5GT and various fishing gear including handlines, gill nets, bottom longlines, trolllines, and gill nets without crimping lines.
KEYWORDS: coastal communities, small fishermen, capture fisheries and Nambo District

I.   INTRODUCTION
Coastal communities in general have become part of a pluralistic society but still have a spirit of togetherness. This means that the average coastal community structure is a combination of the characteristics of urban and rural communities. Because, the structure of coastal communities is very plural, so they can form systems and cultural values which are cultural acculturation of each component that forms the structure of society.

Coastal communities have certain traits or characteristics that are unique/unique. This characteristic is closely related to the nature of business in the fishery sector itself. Because the nature of fishing businesses is strongly influenced by factors such as the environment, season and market, the characteristics of coastal communities are also affected by these factors. According to Anderies et al., (2004) in terms of socio-economic and cultural aspects, the management of coastal areas along with the natural resources in them, should provide the greatest benefits to coastal communities as the main actors and owners of these resources. Therefore, all development activities in coastal areas are directed at increasing the income and welfare of coastal communities without compromising the socio-cultural aspects of the local community (Bengen, 2004).

Nambo sub-district is one of 23 sub-districts in Banggai Regency, Central Sulawesi Province. Nambo District is a coastal district in Banggai Regency. Nambo District consists of 11 inhabited villages and according to the location of the area is part of the village. Geographically, Nambo District has a total area of 169.70 km2. According to Dahuri (2001) explained that coastal villages are villages that are not far from the sea and are usually located along the sea. In addition, coastal villages can be categorized as villages on small islands and villages in coastal areas. In other words, this coastal village is not affected by areas in the interior or the mainland but cannot be separated from activities on the mainland. Most of the people living in coastal villages are fishermen

and are very dependent on marine resources and coastal ecosystems (Bunce et al., 2000).

At the development level, of course, synergy and integration are needed, because it involves many stakeholders, this integration absolutely must be done so that it can be managed properly in the development of coastal communities. The purpose of this study is to be able to determine the socio-economic conditions of coastal communities who utilize coastal potential in the Nambo District, Banggai Regency.

II.   RESEARCH METHODOLOGY
Time and Location Research
This research was conducted in the coastal area of Nambo District, Central Sulawesi Province. This research was conducted in July 2019. In detail, the research locations can be seen in Figure 1.
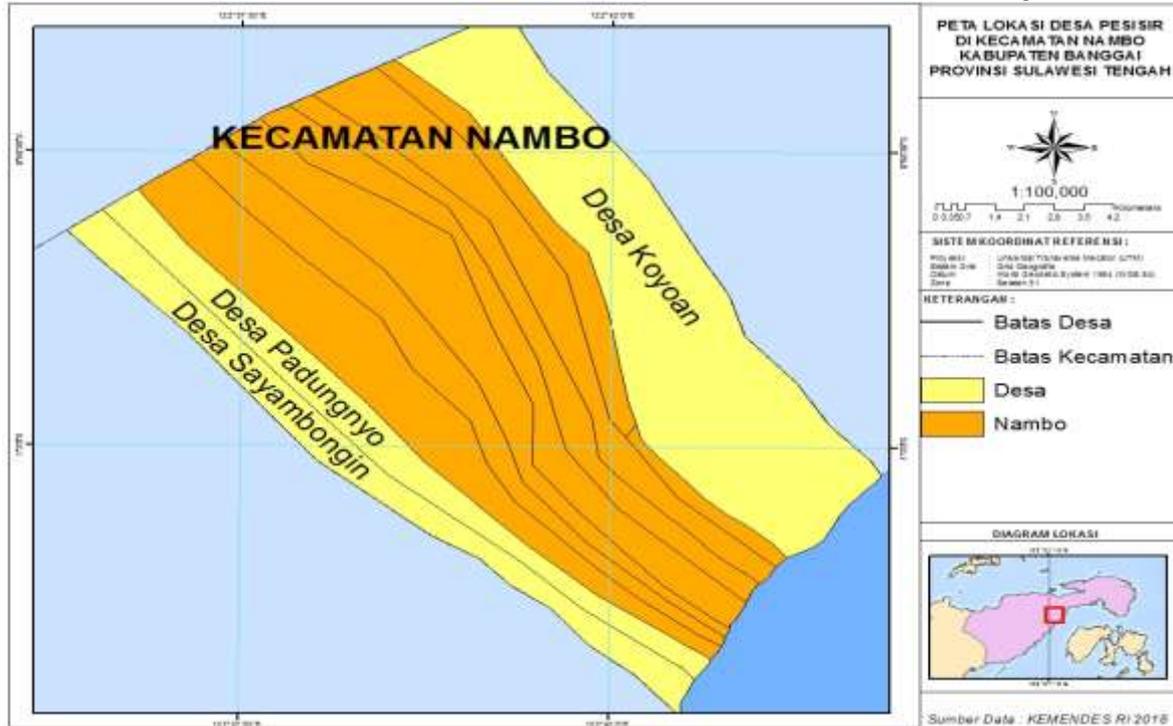

Figure 1. Research Location

Collection of Socio-Economic Information and Data

Types and sources of data to identify the condition of the social system of coastal and marine areas in Coastal District, Banggai Regency were obtained by collecting primary and secondary data. Primary data was obtained by using community interviews regarding community perceptions of coastal and marine ecosystem services to communities related to the benefits of coastal and marine ecosystems. The method used is a qualitative method because it is used to research under natural objective conditions, where sampling of data sources is carried out purposively and snowball (Sunaryanto et al., 2014). Primary data sources are respondents and informants where the number of respondents is based on the adequacy of information requirements according to the researchers' considerations and according to efficiency requirements, namely data obtained sufficiently with the smallest sacrifice in terms of time, access and cost (Sinabutar, 2015). The selected respondents included fishermen, farmers, village officials, community leaders and other members of the community. Primary data collection was obtained through an interview process with the community in the research area using a blank form (questionnaire). Given the limited time and area size, the primary data survey was carried out using rapid appraisal methods, focus group discussions, and in-depth interviews with both formal and non-formal key informants. In addition to collecting primary data, secondary data collection is also carried out for social data needs. Secondary data was obtained from the process of studying literature, as well as related reports. These reports include village, sub-district potential reports and research reports related to coastal and marine areas in the study area.

Social and Economic Data Analysis

Qualitative data analysis techniques based on data collection and observation have been carried out since the beginning of data collection. The results of in-depth interviews and observations are presented in the form of daily notes which are analyzed since the first time they came to the field and are ongoing. Qualitative data analysis was carried out by collecting data, analyzing data, reducing data, presenting data and drawing conclusions through data verification. At the time of the interview, in addition to writing and giving a questionnaire, data recording was also done using a tape recorder. Creswell (2010) states that data analysis is a process of simplifying data into a form that is easier to understand so that it is easy to interpret. Data reduction is carried out with the aim of sharpening, classifying and directing and removing unnecessary data and organizing data in such a way that a final conclusion is obtained (Singarimbun and Effendi, 1995).

Data reduction is part of the analysis. Data reduction is a form of analysis that sharpens, classifies, directs, discards unnecessary, and organizes data in such a way that final conclusions can be drawn and verified (Arkham, 2018).

Data is presented in the form of narrative text. The results of field data are arranged in the form of paragraphs, matrices, tables and diagrams which make it easier to see what is going on and determine whether to draw the right conclusions or continue to do the analysis. Next is drawing conclusions through verification carried out by researchers before researchers draw final conclusions. This verification is carried out by rethinking during writing, reviewing field notes and exchanging ideas with experts and studying literature/references. Qualitative data analysis is combined with the results of the interpretation of existing quantitative data.

III.   RESULT AND DISCUSSION
Administrative Region

Based on area boundaries and area height above sea level (DPL), according to villages in the Nambo sub-district, it is between 3.0 – 30.0 mDPL. Nambo District has 11 villages in the coastal village category (Nambo District in Figures, 2018). A more detailed description of the list of names for coastal village areas in Nambo District, Banggai Regency is presented in Table 1.

Table 1. Village names based on their area and category around the activity location

No	Village	Area (km^2)	Percentage (%)	Village category
1	Nambo Padang	15,50	9,13	Coastal Village
2	Nambo Lempek	8,30	4,89	Coastal Village
3	Koyoan	18,50	10,90	Coastal Village
4	Nambo Bosaa	14,50	8,54	Coastal Village
5	Nambo Lempek Baru	6,40	3,77	Coastal Village
6	Koyoan Permai	16,50	9,72	Coastal Village
7	Lontio	14,88	8,77	Coastal Village
8	Lontio Baru	10,12	5,96	Coastal Village
9	Padungnyo	30,00	17,68	Coastal Village
10	Sayambongin	20,00	11,79	Coastal Village
11	Lumbe	15,00	8,84	Coastal Village
	Total	**169,7**	**100**	**Coastal Village**

Source: [BPS] Nambo District, 2018

Population

Number of Population and Population Density

The total population in Nambo District in 2017 was recorded at 8,582 people, the number of households in 2017 reached 2,331 families with an average number of members per household of around 3.7 people per household in Nambo

District. Overall, the level of population density in the 11 villages in the Nambo sub-district averages 51 people per km2 with the density criteria being less dense. Complete data regarding the level of population density by coastal villages in Nambo District can be seen in Table 2.

Table 2. Population Density Level in Coastal Villages in Nambo District, 2017

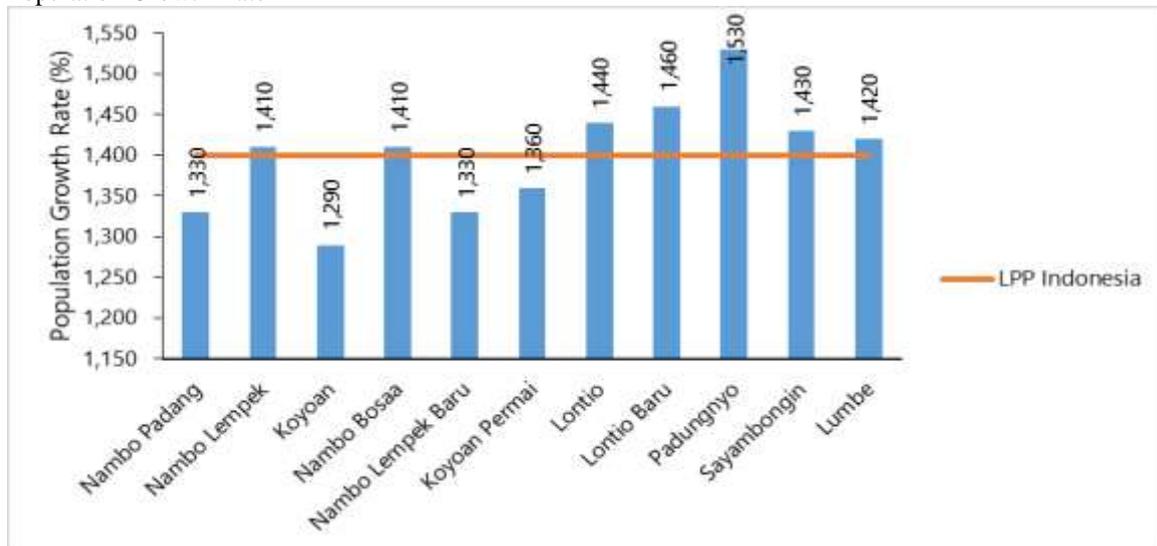| No	Village	Population (person)	Area (km2)	Population Density (person/km2)	Density Criteria
1	Nambo Padang	685	15,50	44	Not Dense
2	Nambo Lempek	865	8,30	104	Less Dense
3	Koyoan	709	18,50	38	Not Dense
4	Nambo Bosaa	866	14,50	60	Less Dense
5	Nambo Lempek Baru	840	6,40	131	Less Dense
6	Koyoan Permai	595	16,50	36	Not Dense
7	Lontio	914	14,88	61	Less Dense
8	Lontio Baru	625	10,12	62	Less Dense
9	Padungnyo	1.127	30,00	38	Not Dense
10	Sayambongin	711	20,00	36	Not Dense
11	Lumbe	645	15,00	43	Not Dense
Total		**8.582**	**169,70**	**51**	**Not Dense**

Description:
The criteria for population density based on Law Number: 56/PRP/1960 divides four classifications of population density, namely:
not dense   : density level 1 – 50 people/km2
less dense   : density level of 51 – 250 people/km2
quite dense   : density level of 251 – 400 people/km2
dense   : density level of 401 people/km2 and above
Source: [BPS] Nambo District, 2018 (processed)

The population growth rate in Coastal Village, Nambo District, which is the study area as a whole, increases by an average of 1.40 percent per year. When compared with the national population growth rate, the population growth rate in Coastal Village, Nambo District is on average the same when compared to the national population growth rate which reaches 1.4 percent per year. The lowest population growth rate was in Koyoan Village, which was 1.29 percent. Complete data regarding the rate of population growth in 11 coastal villages in Nambo District can be seen in Figure 1.

Population Growth Rate

Source: [BPS] Nambo District, 2018 (processed)
[BPS] Nambo District, 2017 (processed)
Figure 1. Population Growth Rate in Coastal Village, Nambo District, 2016-2017

Dependency Ratio

The dependency ratio is an important demographic indicator. The higher the percentage of the dependency ratio indicates the higher the burden that must be borne by productive people to finance the lives of people who are not yet productive and no longer productive. Meanwhile, the lower the dependency ratio percentage, the lower the burden on the productive population to finance the unproductive and unproductive population.

Young people aged under 15 years are generally considered as unproductive people because economically they still depend on their parents or other people who support them. In addition, residents aged over 65 years are also considered no longer productive after passing retirement. The population aged 15-64 years is the working age population who is considered productive. On the basis of this concept, it can be described how much the population depends on the working age population. Although not very accurate, this kind of dependency ratio gives an economic picture of the population from a demographic point of view. Following are details of the population by age group in the Nambo District presented in Table 3.

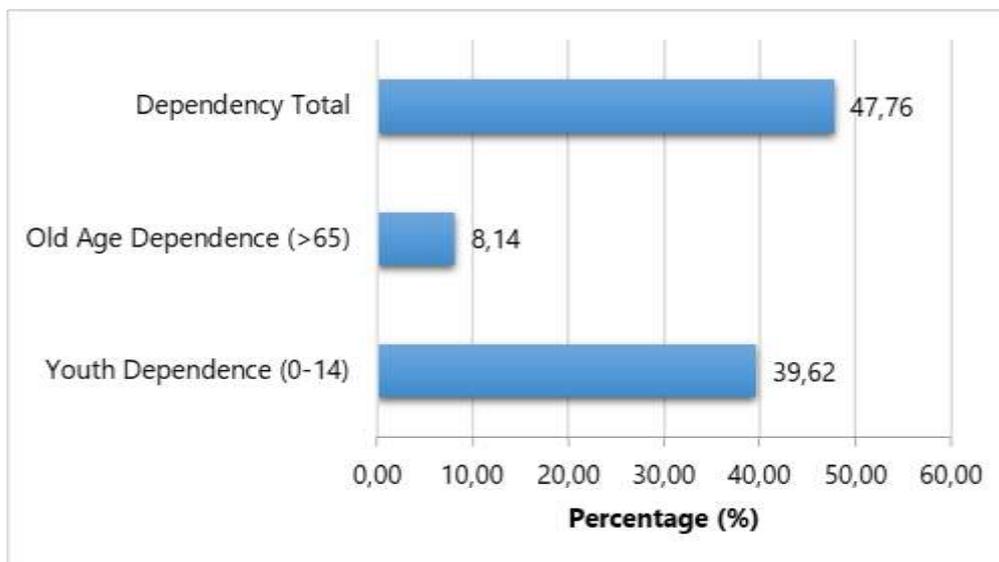Table 3. Population Gender Ratio in Nambo District in 2017

Age Group	Population (person)
Age 0-14	2.301
Age 15-64	5.808
Age ≥ 65	473
Total	8.582

Source: [BPS] Nambo District, 2018

The dependency ratio is the ratio between the population aged 0-14 years, plus the population aged 65 and over compared to the population aged 15-64 years. The dependency ratio can be seen according to age, namely the Young Dependency Ratio and the Old Dependency Ratio.

• The Young Dependency Ratio is the ratio of the population aged 0-14 years to the population aged 15-64 years,

• Old Dependency Ratio is the ratio of the population aged 65 years and over to the population aged 15-64 years, and

• The Total Dependence Ratio is the ratio of the young population (0-14 years) plus the old population (>65 years) compared to the productive age population (15-64 years).

Source: [BPS] Nambo District, 2018 (processed)
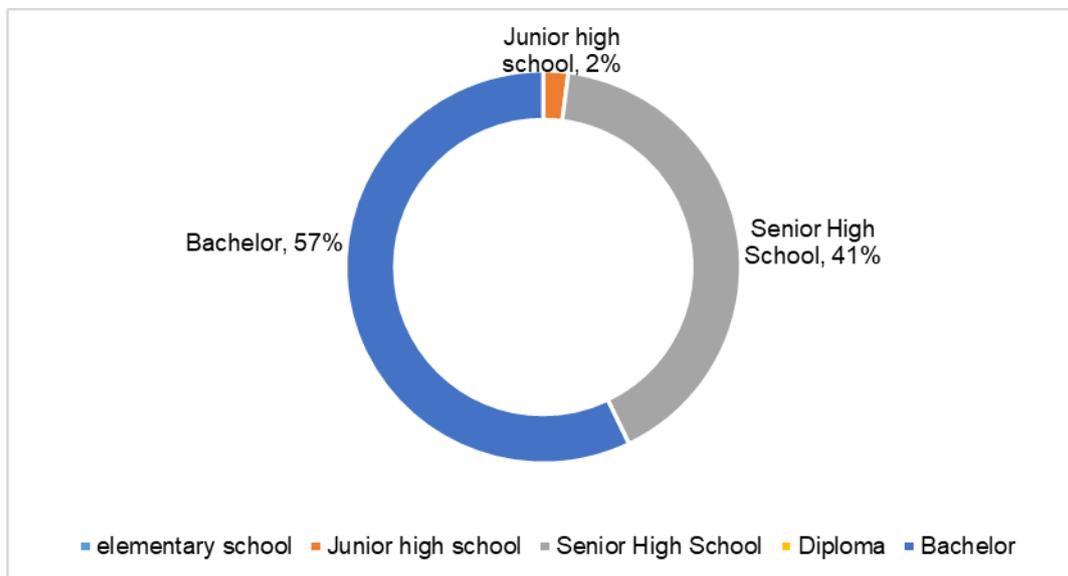Figure 2. Dependency Ratio Value in Nambo District in 2017

Based on Figure 2, it can be seen that the overall value of the young age dependency ratio has a greater value than the old age dependency ratio. This shows that in general the number of young people is more than the number of old people. The average total dependency ratio in the study sub-districts was 47.76 percent, in addition, the youth dependency ratio was 39.62 percent and the old age dependency ratio was 8.14 percent.

Education Level

The educational factor is very important in order to improve the quality of human resources. The higher the community's education means the quality of its human resources will also be better. Based on their level of education, most of the population in the study areas has an average education above high school/equivalent. The level of education presented in the figure below is an overview of the education of residents who work either as civil servants or work as village officials. Most of the population in the study areas who work as civil servants and in the village administration are Bachelor graduates, 57%. Following are details regarding the percentage of education level of the population in the study area which can be seen in Figure 3.

Based on the results of a field survey in the Nambo District area, it is known that the education level of the people in the study area is relatively high, especially for the current generation who generally have a high school/high school level of education. To continue to higher education level (PT) usually outside the region. Now in Luwuk City there are state and private high schools.

Source: [BPS] Nambo District, 2018 (processed)
Figure 3. Percentage of Education Level in Nambo District in 2017

Livelihood

Based on agricultural households in Nambo District, based on the agricultural sub-sector, there were 2,072 people. The types of sub-sectors of agriculture for the livelihood of the population in the Nambo District are: agriculture, plantations, animal husbandry, fisheries and forestry. The agricultural sub-sector with the largest number of people is the plantation sector, with 830 people (40%), while the fisheries sub-sector is in second place with a total of 541 people (26%). Based on the survey results, it is stated that most of the coastal communities in Nambo District work in the garden, while fishermen are only seasonal. In addition, there are also residents whose main occupation/profession is fishing. An overview of the livelihoods of residents in the Nambo District area can be seen in Table 4.

Table 4. Number of Agricultural Households by Agriculture Sub-Sector in Nambo District in 2017

No	Village	Agriculture	Plantation	Farm Animal	Fisheries	Forestry
1	Nambo Padang	2	65	22	72	0
2	Nambo Lempek	4	68	16	40	15
3	Koyoan	43	69	24	25	3
4	Nambo Bosaa	13	89	30	69	0
5	Nambo Lempek Baru	13	82	29	68	8
6	Koyoan Permai	29	64	21	25	2
7	Lontio	49	59	36	90	8
8	Lontio Baru	49	38	29	51	2
9	Padungnyo	58	144	41	25	5
10	Sayambongin	77	91	29	29	2
11	Lumbe	19	61	19	47	4
Total		**356**	**830**	**296**	**541**	**49**

Source: [BPS] Nambo District, 2018 and Banggai District Fisheries Service (2019)

Human Development Index (HDI)

Human development is formed by three basic dimensions, namely long and healthy life, knowledge, and decent standards of living. Longevity and healthy life are described by Life Expectancy at birth (AHH), which is the number of years a newborn baby is expected to survive, assuming that the pattern of death rates according to age at birth is the same throughout the baby's life. Knowledge is measured through the indicators of Average Length of School and Years of School Expectations. The average length of schooling (RLS) is the average length (years) of the population aged 25 years and over who have or are currently undergoing formal education. Long School Expectancy (HLS) is defined as the length (years) of formal schooling that is expected to be experienced by children at a certain age (7 years) in the future. A decent standard of living is illustrated by adjusted per capita expenditure, which is determined from the value of per capita expenditure and purchasing power parity (BPS Indonesia, 2017).

HDI is calculated based on the geometric average of the health index, knowledge index, and expenditure index. The calculation of these three indices is done by standardizing the minimum and maximum values of each index component. Nambo District which has very high natural resource potential is also supported by good human resources as well. Communities in Nambo District also have good quality health, education, and fulfillment of needs. The following is the Human Development Index (HDI) in the Nambo District study location based on the survey results presented in Table 5.

Table 5. Development of the Human Development Index (HDI) in the Nambo District Study Locations

No	Village	AHH	HLS	RLS	HDI	Category
1	Koyoan	70	12	10,4	58,83	Less
2	Padungnyo	65	12	7,8	61,59	Middle
3	Sayambongin	65	12	9,75	59,81	Less

HDI Category (BPS Indonesia, 2015):
Low HDI   : HDI < 60
Moderate HDI   : $60 \leq HDI < 70$
High HDI   : $70 \leq HDI < 80$
Very High HDI   : $HDI \geq 80$
Source: Interview Results, 2019 (Processed)

HDI is an indicator used to see development progress in the long term. To see the progress of human development, there are two aspects that need to be considered, namely the speed and status of achievement. In general, human development in the study location, Nambo District continues to be improved. Banggai Regency HDI

in 2016 was 68.17 (moderate category). As for the study locations in Nambo District, the average HDI value was in the "Less" category with an average value of 58.83 to 61.59, where the HDI value of Padungnyo Village was the highest among the others. The HDI value in the study locations was obtained from the results of surveys and interviews with respondents and the data was processed using the latest BPS and UNDP formula in 2015. The HDI value in the study locations was generally lower than the HDI value in Indonesia, which was 70.81, however, it is still in the "Less" category.

Infrastructure Types and Providers
Based on the results of observations in the field both through observation and interviews as well as literature studies, it was found that the infrastructure in Coastal Village, Nambo District,

was relatively good. In general, the existence of public infrastructure in Nambo District is better than that in Nambo District. The types of infrastructure available are educational infrastructure in the form of schools consisting of kindergartens to vocational high schools (SMK), health service centers, dug and drilled wells as sources of clean water, transportation, communication facilities, places of worship and sports facilities. The existence of this infrastructure is able to support the social life of the community, especially education, economy and health. These infrastructures are provided by the government and some of them by the private sector and there are self-help from the community. Details about the types of infrastructure and their providers can be seen in Table 6.

Table 6. Types and Infrastructure Providers in Coastal Village, Nambo District

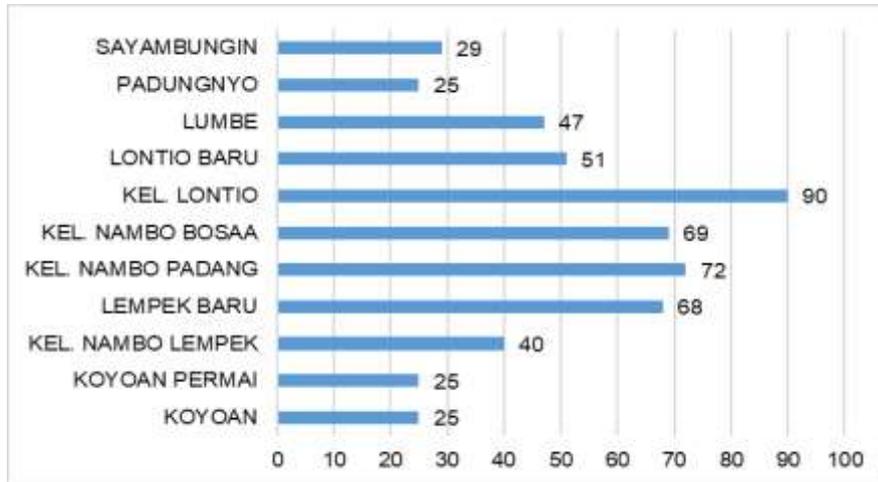| No	Type of Infrastructure	Description	Infrastructure Provider	Source
1	School	Play Group, Elementary School, Junior High School, Senior High School	Government and Private	BPS Nambo District 2018
2	Health services	Sub Health Center, Polindes and Posyandu	Government	BPS Nambo District 2018
3	Worship place	Mosque	Government, Community and Private	BPS Nambo District 2018 and interview
4	Sports Grounds	Football and Volleyball	Government	BPS Nambo District 2018
5	Transportation	Road	Government	BPS Nambo District 2018
6	Clean Water Source	Dug and Drilled Wells	Community	interview
7	Communication media	Cell phone and TV signal	Community and Government	interview
8	Village Hall	Village Hall	Government	BPS Luwuk Timur District 2018

Utilizers of Coastal and Marine Resources
Fisherman
Generally, coastal communities who utilize coastal and marine resources in the study locations are fishermen who focus on capture fisheries activities which are included in the category of small fishermen. Based on data from

the Banggai District Fisheries Service in 2019, there is only one type of fishermen in the study location, namely boat fishermen, a total of 541 people. The highest number of fishermen in the Nambo District study area was in Lontio Village with 90 people (16.6%), while the small number of fishermen was in 3 villages with the same number

of fishermen of 25 people (4.6%), namely in Padungnyo Village , Koyoan and Koyoan Permai. Details regarding the number of fishermen in the study location in the Nambo District are presented in Figure 5.

Source: Banggai District Fisheries Service (2019)
Figure 5. Number of Fishermen in Coastal Village, Nambo District

Fishing Vessel

Types of fishing vessels that often operate in the study area include boats without motors, motor boats and outboard motors. Types of motorized vessels operating in the study area are vessels < 5GT (small fisherman category). The largest number of fishing vessels in the coastal village of Nambo District, namely in Lontio Village, was recorded at 90 units. The types of fishing vessels in Lontio Village were dominated by motorized boats and boats without medium motors, each with 40 units. As for the least number of fishing boats, there were 3 villages with the same number of boats, namely 25 units, namely in Padungnyo, Koyoan and Koyoan Permai Villages with medium and small motorless boats and outboard motors <5 GT. Thus the area of fishing operations for fishermen in the study area is not far from the coast (about 5 miles from the coast at most) and is highly dependent on the existing conditions of the coastal ecosystem. Following are details of the number of fishing vessels in the coastal village of Nambo District by type of vessel in 2019 can be seen in Table 7.

Table 7. Number of Fishing Boats in Coastal Village, Nambo District

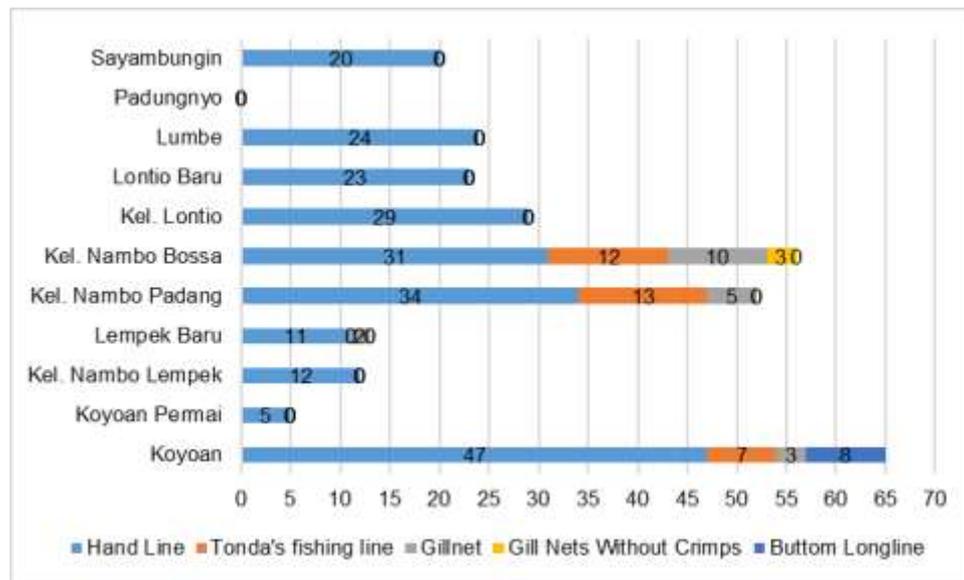| No	Village	Boat Without Motor		Outboard Motors		Total
		Small	Medium	< 5 GT	5-10 GT	
1	Koyoan	5	10	10	-	25
2	Koyoan Permai	5	10	10	-	25
3	Kel. Nambo Lempek	10	15	15	-	40
4	Lempek Baru	8	30	30	-	68
5	Kel. Nambo Padang	6	40	25	1	72
6	Kel. Nambo Bosaa	19	30	20	-	69
7	Kel. Lontio	10	40	40	-	90
8	Lontio Baru	6	25	20	-	51
9	Lumbe	7	20	20	-	47
10	Padungnyo	5	10	10	-	25
11	Sayambungin	5	12	12	-	29

Source: Banggai District Fisheries Service (2019)

Fishing Gear

The fishing gear used in the coastal villages of Nambo District varies, namely: hand line, troll line, bottom longline, fixed gill nets and gill nets without crimps. Each fishing gear has its own fishing ground and target fish. However, there are also several fishing gears that have the same target fish and fishing ground.

Hand line fishing gear is owned by all fishermen in the coastal village of Nambo District.

Hand trolling and netting are operated in shallow waters, especially around coastal and marine ecosystems (coral reefs and seagrasses). Most of the fish resources in Nambo waters are used by fishermen from Nambo District. Even so, there are also many fishermen who come from outside the Nambo District who take part in exploiting fish resources in Nambo waters. The number of ownership of fishing gear in Coastal Village, Nambo District can be seen in Figure 6.

Source: Banggai District Fisheries Service (2019)
Figure 6. Number of Fishing Gear Ownership in Coastal Village, Nambo District

IV. CONCLUSION

The conclusion obtained from the results of this study is that most of the social conditions of coastal communities in Nambo District live on the coast with a less dense population density. The educational aspect shows that on average 57% of coastal communities with a bachelor's degree have a human development index (HDI) score in the low category. Judging from the economic conditions, the livelihoods of coastal communities in Nambo District depend on the fisheries sector, namely some as fishermen. The fishing gear and fishing vessels used for the capture fisheries business at the research location are small-scale fisheries, namely fishing vessels < 5GT and various fishing gear including handlines, gill nets, bottom longlines, trolllines, and gill nets without ropes wrinkle.

REFERENCES

[1].   [BPS] Statistics Indonesia. 2017. Nambo District in Figures 2017. Central Sulawesi

[2].   [BPS] Statistics Indonesia. 2018. Nambo District in Figures 2018. Central Sulawesi

[3].   Anderies, J.M., M.A. Janssen, and E. Ostrom. 2004. A framework to analyze the robustness of social-ecological systems from an institutional perspective. Ecology and Society 9 (1): 18.

[4].   Arkham, M.N. 2018. Services for providing seagrass ecosystems for small-scale fishing activities in the East Coastal Region of Bintan Island, Riau Archipelago. Coastal and Ocean Journal. Vol. 3, No. 2: 29-40.

[5].   Bengen, D.G. 2004. Towards Integrated Coastal Area Management Based on Watershed (DAS), in the Interaction of Land and Sea: Effects on Resources and Environment, Proceedings of the Symposium on Land and Sea Interaction. Edited by W.B. Setyawan, et al. Jakarta: Deputy for Earth Sciences, Indonesian Institute of Sciences.

[6].   Bunce L., Townsley P., Pomeroy R., Pollnac R. 2000. Socioeconomic manual for coral reef management. The National

Library of Australia Cataloging-in-Publication data. Australian Institute of Marine Science. Australia. 264p.

[7]. Creswell, J. W. (2010). Research Desaign: Pendekatan Kuantitatif, Kualitatif dan Mixed. Pustaka Pelajar. Indonesia.

[8]. Dahuri, R. 2001. Integrated coastal area resource management. Publisher Pradnya Paramita. Jakarta.

[9]. Kattsof L O. (1986). Introduction to Philosophy. XII volume. Soemargono, S; translator. Yogyakarta (ID): Tiara Wacana Yogya. Translation from: Elements of Philosophy

[10]. Sinabutar, P. (2015). Tenure Arrangements and Roles of the Parties in Realizing the Legality and Legitimacy of State Forest Areas. Dissertation. Bogor (ID): Bogor Agricultural Institute. 105 pp.

[11]. Singarimbun, M and Effendi, S. 1995. Survey Research Methods. Jakarta: PT. LP3ES Indonesia Library.

[12]. Sunaryanto H, Widiono S, Hanum SH and Arwani M. 2014. A tentative model for dealing with social conflict in Central Bengkulu Regency. Research Report. Faculty of Social and Political Sciences, Bengkulu University. Bengkulu. 49 Pg.