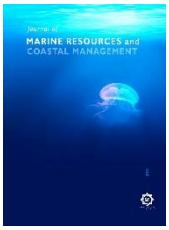
JOURNAL OF MARINE RESOURCES AND COASTAL MANAGEMENT
INDONESIAN JOURNAL OF MARINE LIFE AND UTILIZATION

e-ISSN: 2722-0966
Vol. 3 Issue 2



The Analysis of Traditional Fishers' Welfare based Livelihood Sustainability Approach (Case Study: Kedung Cowek Surabaya Fishers' Community)

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ABSTRACT

The city of Surabaya has a fairly high Human Development Index, but inequality still exists for marginalized communities such as fishermen on the north and east coasts of Surabaya. Indonesian Traditional Fishermen have an important role in the macro economy and national food security. Traditional Fishers are still included in a marginalized group of people who are very vulnerable to natural and political factors. Efforts to increase the resilience of fishermen need to be carried out by maximizing the assets/capital in the community. The purpose of this study was to assess the livelihood achievement index of fishermen on the dimensions of financial, natural, social and human capital with a case study conducted at the Fishers' Cooperative Bahari 64 community. Using a quantitative descriptive method, this study conducted a survey of 98 respondents from 130 members who work as a fisherman. From the data analysis it was found that the fishing community of Koperasi Bahari 64 was categorized at a good level with a livelihood index value of 62.26 with an achievement dimension of 62%.

Keywords: livelihood sustainability index, Resilience, Community

INTRODUCTION

The fisherman is a living society, growing and developing in the Kawasan district, a Kawasan transition between land and sea. As a system, society is composed of social categories that form a social unity [1]. According to the Fisheries Act No. 45 of 2009, a fisherman is a person whose eyes are engaged in fishing. Kelurahan Kedung Cowek, district of Bulak Kota Surabaya is in the coastal area of East Surabaya area that borders directly with the Madura Strait. The majority of the people living in the region are professional fishermen who rely on marine resources as economic resources. Kedung Cowek's fishing activities range from catching or producing, fishing trade, and processing of fish and other seafood. The Nambangan fishing area is the area around the Madura Strait [2].

In recent years, the natural factors of climate change and sand mining practices as well as government development policies that are unfavourable to the public have caused environmental damage in the Madura Strait and the eastern coast of Surabaya. In addition to the challenges of natural factors environmental harm, non-natural factors such as the capture technology constraints seen by the majority of Kedung Cowek fishermen are traditional fishing and small-scale fishing, weak marketing networks, and the existence of fishing cooperative institutions in this case. In addition to previous research, the majority of cowek fishers are traditional fishermen and small-scale fishers and as much as 62% of the income of the cowek community is below the minimum wage of the Surabaya City Employees which reinforces the perception of small scale fisherman identical to poverty [3].

In addition to the natural and non-natural factors faced by the cow fishermen inining their existence, there are also factors that influence the existence of cowfishermen among others: educational level, cultural traditions, income, working time, skills, government assistance to the traditional fisherman's existence in cowfishing. With the Asset Based Community Development approach, the assets of the Kedung Cowek fishing community are identified as: natural assets such as swamps, ponds, basins, shoreline, reservoirs, slopes, and rivers, assets collective infrastructure of Kedung cowek citizens such as mosques, schools, musholla, asphalt roads and paving stone, asset such as skills to manage the sea as a fisherman, trade, and other types of seafood processing skills as well as not less important social assets through social organizations of fishermen's associations, cooperatives and self-reliant mothers (KIM) groups [4].

One of the challenges and assets of the Cundang Cowek fishing community is the need for a strategy that describes the efforts made to adequate livelihoods. The assets recognized in the theory of sustainable living are: natural capital, physical capital, human capital, social capital, and financial capital. However, in its implementation it must be adapted to the current conditions in the society encountered by the constraints of society according to the principle of participation. One way of improving some aspects of fishermen's livelihoods

in line with the economic manifestations of citizenship is through the strengthening of cooperatives.

The Bahari 64 co-operation was founded in 2017 on the initiative of the communities in the village of Nambangan-Cumpat, which is dominated by fishermen as its focus, to help improve the welfare of life by providing seafood needs that are sold at low prices. Given that before the establishment of the 64 cooperatives, fishermen had to spend no less time and cost to buy various fishing gear as equipment for sailing. In addition to this, the marks of fishermen who are still tied to land in the relationship of savings and loans and not soon end the problem of debt due to interest continues to increase. From the reason above it is urgent to measure the livelihood sustainability of this community in coping their difficulties.

RESEARCH METHODS

Types of research used in this research are descriptive quantitative research. This study was conducted in two villages namely Nambangan and Cumpat, Kelurahan Kedung Cowek. These two villages are where the 64th Maritime Corporation is located. There are 130 fishermen who are members of the cooperative. The fishermen to be investigated are those who have a capture fleet of <5 GT. The sampling technique used is the Slovin method with simple random samplings. Data is processed through various steps: *editing, coding,* and *tabulating.*

The main capital of an asset-based empowerment program is to change the way the community sees itself. Not only is he stuck in the shortcomings and problems he has, but he gives attention to what he has and can do. Assets aren't always identical to money or material. A lot of things are owned by the community but less recognized as part of the asset. Among the assets commonly found in communities are life stories, knowledge, experience, innovation, physical assets/infrastructure, natural resources, human resources, financial resources, cultural assets, associations and working groups. Asset based approach used in this research to describe the potrait of the community.

Research Instruments

Instruments The research instruments below used a questionnaire according to the standards and responses in Koperasi Bahari 64 Community. The variables considered above are similar to the reference questions in the classification questionnaire to obtain the parameter of financial capital, natural capital, social capital and human capital [5].

Financial Capital Parameter
1. Household income per capita
2. R/C ratio

Natural Capital Parameter
1. Fishery productivity
2. Important economical proportion of fish

Social Capital Parameter
1. Access and benefit of economic institutions
2. Access and benefit of social institutions
3. Network of informal economy

Human Capital Parameter
1. Level of education
2. Level of health
3. The number of family members
4. Age

The description and index categories of each parameter can be seen on table 1.

RESULTS AND DISCUSSIONS

Natural Capital

Most of the communities in the Nambangan Village of Surabaya have been able to develop well, as it is organized because the community of the Village of Nambang Surabaya can already form their own groups. The eyes of the people of the village of Nambangan are fishermen, but there are also other jobs of the community of the town of Nampangan, such as entrepreneurship.

In calculating the livelihood index of fishermen, the productivity parameters of catch fishing are also required in order to assess the availability of natural capital / seafood that is in the waters around Kelurahan Kedung Cowek Surabaya (Selat Madura). The fishermen joined in the 64th Maritime Cooperative are accustomed to sailing around the Madura Strait. After a process of structured interviews, it was found that the average catch per fleet was 6.1 tons. This is still slightly below the national average of 8.9 tons per fleets per year [6]. There are three types of fishermen based on their catch tools: Petorosan Fishermen, Netting Fisherman and Submarine Fishers.

Generally, Nambangan net fishermen carry out sailing activities in the Madura Strait, which extends east of the Suramadu Bridge to Sumenep. They will ride their boats every day to the areas of captivity that are at least a mile away from the Kenjeran coast, Surabaya to approximately a mile from Madura Island. In carrying out their fishing activities in the ocean, nets fishermen are heavily dependent on wind and current factors. According to Syukron, if the east wind season arrives, then with a 9 paarden kracht (PK) powered engine, the boat takes two hours to reach the capture area. But if the west wind season, the time it takes only ranges from one hour. The average net fisherman will spend seven hours on one sailing.

Every day, they're going to go sailing to the points to examine the capture. They'll put the net on, then leave it for 3-4 hours, and then the net will be lifted back into the boat. Boats owned by Nambangan net fishermen generally have sizes: length 7.5 meters to 8 meters, and width 1.5 meters. These boats are mostly made of wood. Such boats were usually purchased in half-use condition, with prices ranging from 15 million to 20 million rupiah

from fisherman from Madura and around the coastal area of Surabaya. According to the respondents, the new vessels could reach the price of 25-30 million rupiah.

The engines used are generally powered by diesel engines, with power between 6.5-8.5 hp or petrol engines with power 8-9 hp. These engines were purchased by Nambangan fishermen in half-use condition, with a price range of up to 3-4 million rupiah for diesel engine, and 1-2 million rupies for petrol engine. In the village of Nambangan itself, there is a fisherman who has the technique and the ability to repair the machine, so that if the machine is damaged, all the fishermen will use their tools to redress the damage to their machine.

Table 2. Index of Natural Capital

Natural Capital	Score	Weight	Index
Fishery productivity	0.68	0.05	3.38
Important economical proportion of fish	0.87	0.05	4.33
Total	0.77	0.10	7.71

Table 1. Parameters of household living conditions of fishermen [5],[6]

No.	Parameter/*Parameters*	Kategori Indeks				
		Buruk/ *Poor*	Kurang Baik/*Not good*	Sedang/ *Medium*	Baik/ *Good*	Baik Sekali/ *Very good*
1	Modal keuangan/*Financial Capital*	0-8	>8-16	>16-24	>24-32	>32-40
	a. Pendapatan Rumah Tangga Perkapita/*Household income per capita*	0-2	>2-4	>4-6	>6-8	>8-10
	b. Perbandingan R/C/*R/C Ratio*	0-2	>2-4	>4-6	>6-8	>8-10
2	Modal Alam/*Natural Capital*	0-2	>2-4	>4-6	>6-8	>8-10
	a. Produktivitas perikanan/*Fishery productivity*	0-1	>1-2	>2-3	>3-4	>4-5
	b. Proporsi ikan ekonomis penting/ *Important economical proportion of fish*	0-1	>1-2	>2-3	>3-4	>4-5
3	Modal Sosial/*Social Capital*	0-6	>6-12	>12-18	>18-24	>24-30
	a. Akses dan manfaat kelembagaan ekonomi/*Access and benefit of economic institutions*	0-1,2	>1,2-2,4	>2,4-3,6	>3,6-4,8	>4,8-6
	b. Akses dan manfaat kelembagaan sosial /*Access and benefit of social institutions*	0-1,2	>1,2-2,4	>2,4-3,6	>3,6-4,8	>4,8-6
	c. Jaringan ekonomi informal/ *Network of informal economy*	0-1,2	>1,2-2,4	>2,4-3,6	>3,6-4,8	>4,8-6
4	Modal Sumber daya Manusia/ *Human Capital*	0-4	>4-8	>8-12	>12-16	>16-20
	a. Tingkat Pendidikan/*Level of education*	0-1	>1-2	>2-3	>3-4	>4-5
	b. Tingkat Kesehatan/ *Level of health*	0-1	>1-2	>2-3	>3-4	>4-5
	c. Jumlah Anggota Keluarga/*The number of family members*	0-1	>1-2	>2-3	>3-4	>4-5
	d. Umur/*Age*	0-1	>1-2	>2-3	>3-4	>4-5
	Indeks Penghidupan/*Livelihood Index*	0-20	>20-40	>40-60	>60-80	>80-100

Financial Capital

The total value of the investments in the cowfisher is Rp. 51,750,000. The investment cost of the ship <5GT and the ship's engine is the largest. The cost of reduction per year/item is calculated on the basis of the detailed value of the investment goods divided by the duration of use. The total cost of reduction from the investment of fishing catch by the ship <5GT is Rp. 18.570.000,-

In carrying out the fishing process activities every day, fishermen also need the costs that must be paid each year. These are the costs of maintenance/repair of ships, ship engines and capture equipment. The costs that must be issued each year and have a tendency to the amount is fixed and not affected by the amount of production can be called fixed cost. The fixed cost of the fishing enterprise without the membership of the 64 cooperatives is Rp. 23,958,000.

Variable cost/non-fixed cost is a large cost which is influenced by a small amount of production obtained. The variable cost of fishing enterprises caught in the coast of Surabaya consists of BBM, meals, and ice stone costs. Fuel is the cost of each sailing. The price and quantity of fuel is estimated as fluctuating depending on the frequency of sailing and the long sailing factor. In addition to the cost of supplies and BBM, ice stones are also needed to cool the fish caught so that it doesn't get damaged quickly. The amount of ice stone needed also

depends on the amount caught. The average non-fixed monthly cost to be borne by the fishermen's fleet incorporated into the 64 members of the Corporation is Rs. 4,200,000.

According to the results of the survey, the income of 64 members of the co-operation who occupy as fishermen is Rp. 2,298,214 and the value of household expenditure per month is Rp. 3,646,939. Based on these results, then compared to UMK Surabaya, so obtained an average R/C score of 0.7.

The result of the financial capital index on the fishing community Kelurahan Kedung Cowek is 23.21. Referring to table 6 in chapter III, the maximum value of social capital is 40. So it can be concluded that the reach dimension of this capital is 58%.

Table 3. Index of Financial Capital

Financial Capital	Score	Weight	Index
Household income per capita	0.46	0.2	9.10
R/C Ratio	0.70	0.2	14.00
Total	0.58	0.40	23.10

Social Capital Parameter

There are six associations that exist on Nambangan-Cumpat Community, i.e. Nelayan Nambangan Associatgion, Ibu Mandiri Nambangan, Pemberdayaan Kesejahteraan Keluarga (PKK), Ibu Pengajian Nambangan-Cumpat, Karang Taruna Nambangan, Koperasi 64 bahari Nambangan Surabaya. The most active group association is Kelompok Nelayan Nambangan, Ibu Pengajian Nambangan-Cumpat, Koperasi 64 and PKK.

The survey of 98 respondents in the fishing community members of 64 marine cooperatives had a fairly good economic network. The total weighing value (see table 23) is 282 and the maximum value achieved is 490. So access to the economic network indicator is 57%.

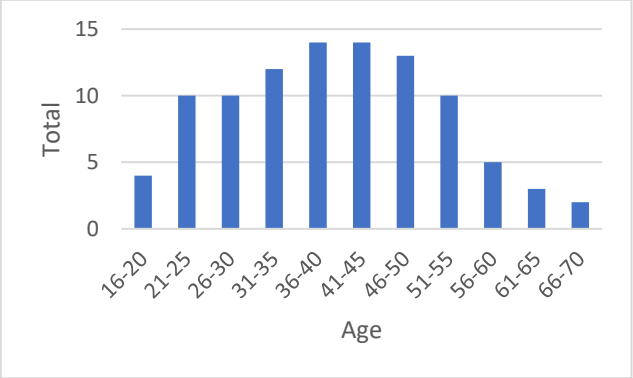
Kelurahan Kedung Cowek's social capital index is 18.21. Referring to table 6 in chapter III, the maximum value of social capital is 30. So it can be concluded that the reach dimension of this capital is 61%.

Table 4. Index of Social Capital

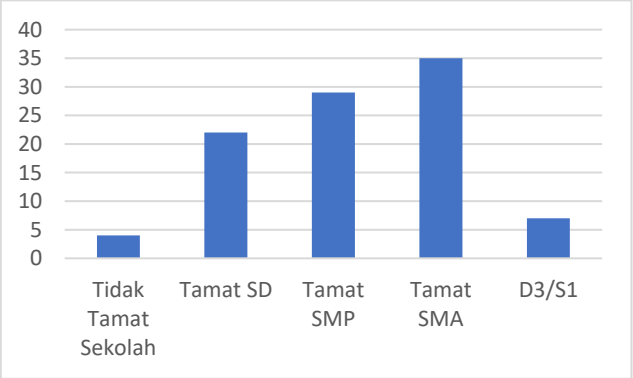
Financial Capital	Score	Weight	Index
Access and benefit of economic institutions	0.58	0.1	5.83
Access and benefit of social institutions	0.66	0.1	6.60
Network of informal economy	0.58	0.1	5.79
Total	0.61	0.30	18.21

Human Capital

Human Resource Capital is an individual's asset in terms of ability to work, health, skills, knowledge/education in order to acquire a variety of livelihood strategies and the purpose of living. (DFID, 1999). On a household scale this can be reflected in the quantity and quality of the availability of labour which can be influenced by the level of education, the number of family members of productive age, and the health level.



Most of the members of the cooperative are in the productive age of 18 to 60 years, but only a few are in old age. It can be a good capital in household financial productivity and have graduated from high school or completed education in 12 years. Some of them have also completed undergraduate programs



In a survey conducted during the Covid-19 pandemic, 62 people were seen in good health conditions without comorbidity and 19 responded very well. 17 people said that their health condition had decreased considerably after being exposed to the coronavirus.

The human capital parameter has a weight of 20% by looking at the indicators of level of education, level of health, number of family members who are productive and age. From the results of the statistical analysis performed obtained the score level of Education is 0.67, level of Health is 0.8, the number of members of the family is 0.62 and the age of 0.55. if in total the score is 0.6. When multiplied by weight per indicator, the total value of the human capital index is 13.23. Referring to table 6 in chapter III, the maximum value of social capital is 20. So it can be concluded that the reach dimension of this capital is 66%.

Table 5. Index of Human Capital

Human Capital	Score	Weight	Index
Level of education	0.67	0.05	3.35
Level of health	0.80	0.05	4.02
The number of family members	0.62	0.05	3.10
Age	0.55	0.05	2.76
Total	0.66	0.20	13.23

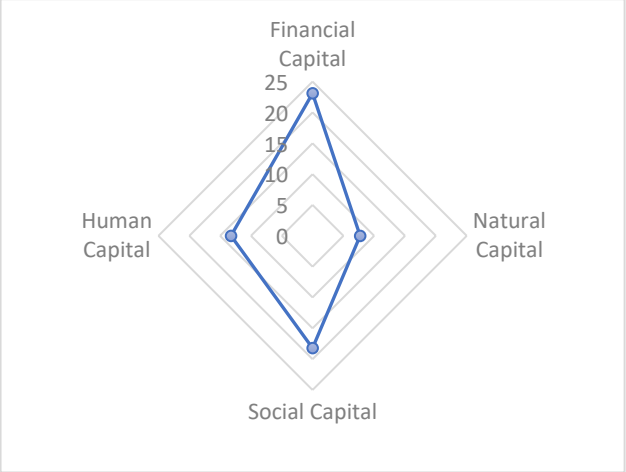
Fishermen livelihood index in Kedung Cowek Kelurahan is obtained based on the aggregation of the respective assets on each index. Based on the results of the mapping of the category compiler of the livelihoods index, it can be known that the value of the life index of the fishermen incorporated in the community of the Maritime Cooperation 64 in total is in the good category with the total value of index 62.26.

The amount of catches from fishermen has many variables that category is sufficient because the value of the index is in the range 51-65. The assets that make the biggest contribution in the formation of the livelihood index of fishermen on fleets less than 5 GT are financial capital assets with a percentage of 40%. Based on the results of interviews it was found that the fisherman has an uncertain income that depends on the season and weather conditions. The average income of 64 marine fishing is Rp. 2.298.214,-/month. Fishing catchers who are heavily dependent on weather and seasonal conditions need to undertake some strategies so that the livelihood of fishermen can be increased.

Capital/natural assets in the waters of the Madura Strait especially on the east side of the city of Surabaya belong in the good category with the value of the natural capital index is 7.71. With climate change at the end of this decade, it is necessary to do some research with the public to recognize what changes are taking place in nature.

Asset	Score	Weight	Index	Description
Financial Capital	0.58	0.40	23.10	Average
Natural Capital	0.77	0.10	7.71	Good
Social Capital	0.61	0.30	18.21	Good
Human Capital	0.66	0.20	13.23	Good
Total:	2.62		62.26	Good

The radar diagram below can be concluded that the dimensional access of the four capital in the fishermen's community appears fairly balanced. There is no significant discrepancy between the four capitals. There needs to be a strategy to increase social and financial capital so that people can maximize their existing assets.



CONCLUSION

The welfare of small-scale fishermen in the town of Kedung Cowek, Surabaya, which is assessed from the financial, natural, human and social aspects of capital, can be categorized at a good level with a living index of 62.26 with a reach of 62% dimension. The financial capital aspect has the largest proportion of 40% and the index value obtained is of 23.10 which is categorized as moderate. The reach of the financial capital dimension is achieved 58%. The social and human capital aspects in the co-operative community 64 belong to both the index values in succession 18.21 and 13.23. The achievement of the social capital and human dimensions in sequence is 61% and 66%. The Kedung cowek community has a sufficient number of productive and healthy family members who are within 1 household, so it becomes an asset to be able to increase family income. While the existence of the 64 co-operatives, which has just been established since 2019, has marketed products for the well-being of its members as well as has a system of saving loans for its members. The waters of the Madura Strait also have a productivity of seafood that ranks well with an index of 7.71 with a dimension reach of 77%. The value of the economic and non-economically important fish proportion in these waters is also quite large, so it can provide a fairly large business receipt for fishermen.

REFERENCES

[1] Kusnadi, 2009, Keberdayaan Nelayan Dalam Dinamika Ekonomi Pesisir, Yogyakarta : Ar-Ruzz Media

[2] Baga, Veronika Diaz, Sri Murtini. “Faktor – Faktor Yang Mempengaruhi Eksistensi Nelayan Tradisional Di Kelurahan Kedung Cowek Kecamatan Bulak Kota Surabaya.” Swara Bhumi 4, no. 4 (2017): 91–98.

[3] Sawiji, Asri, and Rizqi A. Perdanawati. “Pemetaan Pemanfaatan Limbah Kerang Dengan Pendekatan Masyarakat Berbasis Aset (Studi Kasus: Desa Nambangan Cumpat, Surabaya).” Marine Journal 03, no. 01 (2017): 10–19.

[4] Pokja 6, Sile Project. NAMBANGAN - Pengelolaan Partisipatif Lingkungan Pesisir Dan Laut Di Kedungcowek, Surabaya, 2016.

[5] DFID. "Sustainable Livelihoods Guidance Sheets, Section 2.1. Department for International Development (DFID)." Departement for International Development (1999): 26.

[6] McLeod, R. "The Impact of Regulations and Procedures on the Livelihoods and Asset Base of the Urban Poor - a Financial Perspective," no. May (2001): 20 pp. http://r4d.dfid.gov.uk/Output/184838/Default.aspx.

[7] Trianti, R., & Firdaus, M. (2016). Tingkat Kesejahteraan Nelayan Kecil dengan Pendekatan Penghidupan Berkelanjutan di Kelurahan Kedung Cowek. Jurnal Sosial Ekonomi Kelautan dan Perikanan, 29-43.

[8] Sirait, Robby Alexander. "Penguatan Peran Koperasi Nelayan : Manifestasi Ekonomi Kerakyatan Memastikan Pembangunan Ekonomi Kelautan Berparadigma Berkelanjutan." Buletin APBN Pusat Kajian Anggaran Badan Keahlian DPR RI Keahlian DPR RI III (2018): 3–8. www.puskajianggaran.dpr.go.id.