

Research Article

Measurement of the Social Investment Impact of the Pertamina Sahabat Nelayan Program Using the Social Return on Investment Method (SROI)

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Abstract. To be able to improve the welfare of fishermen, Pertamina runs the *Pertamina Sahabat Nelayan* program. In this program, there is a Social Return on Investment (SROI) which helps reduce inequality and environmental degradation and increase welfare by combining social, environmental, and economic costs and benefits. This research then aims to see the SROI of the *Pertamina Sahabat Nelayan* program. This research will be conducted by measuring the existing impact using the SROI method. Meanwhile, the data obtained will be analyzed descriptively. The results of this study then found that this community empowerment program had an SROI value of 1.83. This means that the *Pertamina Sahabat Nelayan* program positively impacts the economy, society and environment. But unfortunately, this program has a negative impact, namely the existence of a group dependency on the role of PT Pertamina Patra Niaga Integrated Terminal Semarang in terms of communication with other parties and promotion of the program.

Keywords: Social Return on Investment (SROI), *Pertamina Sahabat Nelayan* Program, Fishermen, *Pertamina*.

A. INTRODUCTION

Social Return on Investment (SROI), according to A Guide to Social Return on Investment from The SROI Network Accounting for Value in 2012, is a framework for measuring and calculating a much broader concept of value. SROI seeks to reduce inequality and environmental degradation and increase well-being by combining social, environmental, and economic costs and benefits (Davies et al., 2019). SROI tells the path of change in a person or organization related to measuring social, environmental and economic value using a representative monetization approach. In simple terms, SROI can be defined as a method for measuring and calculating the impact of a program or activity by monetization (Courtney & Powell, 2020).

The two categories of SROI are evaluative and forecast. The objective of the evaluative variety of SROI is to assess the impact of a completed program or activity. In contrast, the forecast-type SROI estimates the impact that a program or activity will have in the future. Globally accepted impact measurement studies with evaluative and forecast-type SROI follow the same principles and stages (Lombardo et al., 2019).

This study is an impact measurement using the evaluative type SROI method on the *Pertamina Sahabat Nelayan* Program implemented by PT Pertamina Patra Niaga Integrated Terminal Semarang. The empowerment program has been going on since 2020 and was carried out in the Tanjung Mas Village, North Semarang District, Semarang City. This program

empowers fishermen groups to carry out operational activities of fishing workshops, developing FADs for fishing services and green mussel cultivation (Choudhary et al., 2021). In addition to introducing and teaching workshops and FAD operational activities, the company also assists operational practices for environmentally friendly ships by changing diesel fuel to LPG, installation of solar cells for fishing boats to increase energy efficiency, and carrying out 3R of non-B3 solid waste by utilizing used tires as a component of FADs (Tan et al., 2022).

Using the evaluative SROI method, the purpose of this study is to evaluate, quantify, and calculate the environmental, economic, social, and welfare effects of the program's implementation. It is anticipated that the outcomes of this study will provide an overview of the positive and negative effects of the program on all parties involved in monetization. Through this study, it is anticipated that information on the implementability of the program will be gleaned from the SROI values obtained. Future planning and decision-making regarding program development and duplication will benefit greatly from information regarding the program's viability.

B. LITERATURE REVIEW

1. *Pertamina Sahabat Nelayan* Program

The existence of potential wealth of marine resources is located on the north coast of Java Island. The existence of this potential is supported by community activities as fishermen also located in Tanjung Mas Village as a partner of PT Pertamina Patra Niaga Integrated Terminal Semarang as a group assistant who has a role in the function of increasing the capacity of fishermen and assisting the development of fisherman activities (Soehardjoepri et al., 2021). Market opportunities for marine products have high potential. To fulfill this potential, fishermen groups need assistance and capacity building in the operational process of fishing, aquaculture, and repair of fishing boat infrastructure. Therefore, PT Pertamina Patra Niaga Integrated Terminal Semarang is the part that initiates changes in the upstream to downstream process in the process of increasing fishermen's operational activities (Kyvelou & Ierapetritis, 2020). Some of these changes included the formation of a workshop group for fishermen's friends, mechanic training for workshop managers, assistance for workshop construction, assistance for workshop infrastructure, assistance for fishermen, manufacture of FADs, and assistance for green mussel cultivation activities became the background for PT Pertamina Patra Niaga Integrated Terminal Semarang in initiating the *Pertamina Sahabat Nelayan* Program (Delgado-Ramírez et al., 2023).

Pertamina Sahabat Nelayan is a program to foster fishing communities throughout Indonesia. This program was initiated by PT Pertamina (Persero) and has been launched since 2016. This program aims to assist fishing communities in improving their welfare socially and economically. One of the main objectives of this program is to provide expertise and skills to fishermen in operating boat engines (Obeng et al., 2022). In this program, Pertamina provides training and certification to fishermen to maximize the use of ship engines and increase their productivity. In addition, this program also provides working capital for fishermen to repair their boats, buy equipment, and strengthen the business they run. This working capital is expected to help fishermen to improve their quality of life and strengthen their family's economy (Priyanto et al., 2020).

Pertamina Sahabat Nelayan also assisted in starting a fishing workshop. This aims to provide access to fishermen to repair their boats and acquire the necessary equipment. This can strengthen the independence of fishermen in improving their boats. This program also aims to provide insurance protection for fishermen and their families. This is done to help fishermen deal with various risks at sea, such as a sinking ship, illness, or accident (Nisa & Sihidi, 2022). Apart from that, *Pertamina Sahabat Nelayan* also strives to develop various businesses that

fishing communities can carry out. For example, this program helps develop handicraft businesses and fisherman's special food. This is expected to allow fishermen to increase their income and strengthen their family economy (Bhowmik et al., 2021).

This program involves various parties, including the government, community organizations, and business partners. This is done to create synergies between multiple parties to strengthen the welfare of fishing communities. *Pertamina Sahabat Nelayan* also organizes various social and capacity-building activities (Prabowo & Kalsum, 2021). This activity was held to increase the skills and knowledge of fishermen, as well as provide access for them to obtain the latest information regarding market conditions and business opportunities that can be taken. This program has a significant impact on fishing communities throughout Indonesia. With this program, fishing communities are increasingly independent and able to improve their welfare. In addition, this program also contributes to increasing the productivity and competitiveness of the fisheries sector in Indonesia (Prosperi et al., 2019).

C. METHOD

This impact measurement study using the SROI method was carried out using the following references: A Guide to Social Return On Investment from The SROI Network Accounting for Value 2012; Regulation of the Minister of Environment and Forestry of the Republic of Indonesia Number 1 of 2021 concerning the Company Performance Rating Program in Environmental Management; and PROPER Socialization Materials on the SROI Method. The stages of study in this research are as follows: Determination of scope and identification of stakeholders; Outcome mapping of each stakeholder; Determination of indicators and values of each outcome; Impact fixation; SROI calculation; Sensitivity Analysis and Pay Back Period; SROI reporting. Secondary data collection and primary data collection were used to collect information for this SROI study. Reviewing pertinent documents or studies allows for the accumulation of secondary data, such as methods or techniques for calculating indicators and financial approaches. In the meantime, interviews and FGDs with identified stakeholders are used to acquire primary data, such as extracting outcomes and determining indicators. The data that has been collected is then processed according to a predetermined approach. The data obtained from the literature study and the calculation results were then analyzed descriptively (Suryani et al., 2022).

D. RESULT AND DISCUSSION

Through the *Pertamina Sahabat Nelayan* program, many social benefits are felt by people in coastal areas, especially fishermen. These benefits will be explained below:

1. Responding to Community Needs

The *Pertamina Sahabat Nelayan* program can answer the problems of community needs in Tanjung Mas. Potentials and problems that can be answered through the *Pertamina Sahabat Nelayan* program are as follows:

- a. There is no special workshop for repairing fishing boat engines in North Semarang
When the boat is damaged, fishermen have to repair the boat at an ordinary repair shop far from the pier. Fishermen have to bring their boats to land conventionally, namely, lifting them together, which requires much effort and cost. In answering this question, PT Pertamina Patra Niaga Integrated Terminal Semarang sparked an empowerment program in the form of *Pertamina Sahabat Nelayan* by establishing Fishermen's Workshops. The Fisherman's Workshop makes it easier for fishermen to repair boats because the workshop location is close to the pier, specifically for repairing boats. This can cut excess spending on boat repairs (Maya-Jariego et al., 2021).
- b. Limited equipment or workshop equipment

In carrying out boat repair actions, equipment and tools that are different from ordinary vehicle repairs are needed. This is a concern because ordinary repair shops only provide general repair equipment not qualified to carry out boat repairs. The limitations of boat repair tools and equipment affect the type of repairs carried out and still a small part of the damage (Battisti et al., 2020).

In answering this question, PT Pertamina Patra Niaga Integrated Terminal Semarang, through the Fisherman's Workshop, provides complete facilities and infrastructure through workshop tools and equipment. Providing complete workshop tools and kit makes it easier for fishermen to repair damaged boats which cannot be done in a normal workshop.

c. No machining skills

Knowledge of boat engines is the basis for discovering the causes of boat problems and damage. This requires an expert to be able to diagnose the problem. Unfortunately, before the Fisherman's Workshop existed in Kelurahan Tanjung Mas, no people had mechanical skills existed. In responding to this problem, PT Pertamina Patra Niaga Integrated Terminal Semarang, through the Fishermen's Workshop, held workshop training to produce boat engine experts in Tanjung Mas Village.

d. Light engine repair costs are pretty expensive, Rp. 100,000 per machine

The problem of high repair costs is one of the problems experienced by fishermen. The range of expenses fishermen incur to repair light machines reaches IDR 100,000 per machine. This price is the smallest cost incurred by fishermen in case of moderate or severe damage, the costs incurred are more. With the existence of a Fisherman's Workshop, PT Pertamina Patra Niaga Integrated Terminal Semarang has answered this problem. The workshop location is close to the boat dock, changing the maintenance pattern of fishermen's machines so that costs are lower. The fishermen carry out routine checks to prevent serious damage from occurring to the boat engine.

e. The income of fishing communities is relatively low.

Fishermen are often referred to as the poorest of the poor. This is due to the low welfare of coastal communities due to uncertainty in fish catches caused by natural factors. Fluctuations in fishermen's catches affect the income generated daily, so the amount of income is uncertain (Anna et al., 2019). In answering this problem, PT Pertamina Patra Niaga Integrated Terminal Semarang, through the Fishermen's Workshop, adds to the fishermen's income through the workshop's income. In addition, constructing FADs for green mussel cultivation and fishing increases people's income.

2. Disaster Response

Pertamina's community empowerment program *Pertamina Sahabat Nelayan* PT Pertamina Patra Niaga Integrated Terminal Semarang, has elements of sensitivity and responsiveness to critical conditions in society due to disasters. The program implemented by PT Pertamina Patra Niaga Integrated Terminal Semarang through the *Pertamina Sahabat Nelayan* program supports disaster response that occurs both from tidal disasters. A fishing workshop can provide an alternative income for fishermen when tidal floods arise and do not allow fishing activities.

The program implemented by PT Pertamina Patra Niaga Integrated Terminal Semarang through the *Pertamina Sahabat Nelayan* program supports the government's efforts in post-pandemic economic recovery. With the fishermen's workshop, there was an increase in the community's income outside of their basic income as fishermen reached IDR 5,000,000 per month. The Fishermen's Workshop also reduces expenses for repairing damaged boat engines for Rp. 50,000 per engine and increases the economic income of the stalls around the workshop

by up to Rp. 1,500,000. In addition, the existence of the Fish Calling Tool (APIK) increases the number of fishermen's catches by up to 150% so that the income earned by fishermen increases.

Then the social innovation carried out by PT Pertamina Patra Niaga Integrated Terminal Semarang through the *Pertamina Sahabat Nelayan* program supports the government's efforts in adapting to climate change disasters. The FAD program helps the community earn income from cultivating green mussels and barramundi when sea and climate conditions do not allow fishing by boat. FADs are a type of fishing aid installed in both shallow and deep seas. Making fish FADs is one way to collect fish, by shaping the conditions of the seabed to be similar to the condition of natural corals, FADs make fish feel like they have a new home.

Then the *Pertamina Sahabat Nelayan* Program supports efforts to mitigate climate change through efforts to reduce greenhouse gas emissions. Based on the Environmental Impact Assessment Report for the *Pertamina Sahabat Nelayan* Program compiled by PT Sucofindo (Persero) Semarang Branch, the amount of greenhouse gas emissions that was successfully reduced was as follows:

- a. Reducing greenhouse gas emissions from the conversion of BBM to LPG by 2,681 tons of CO₂eq.
- b. Reducing greenhouse gas emissions from solar cell installation activities for fishing boats by 0.134 Ton CO₂eq

3. There is an Element of Knowledge Transfer

PT Pertamina Patra Niaga Integrated Terminal Semarang has transferred knowledge – core competency to the people of Tanjung Mas Village, North Semarang. Core Competency Levels based on Gallon, Stillman, and Coates in their book entitled *Putting Core Competency Thinking into Practice* are divided into three categories, namely market interface skills, infrastructure capabilities, and technological capabilities.

a. Market Interface Capabilities

Market Interface capability is a capability that can be used by the assisted community in the market and is visible (Herhausen et al., 2020). The *Pertamina Sahabat Nelayan* program has brought competence to fishermen through promotion and marketing skills for Fishermen's Workshops that can be used in the market through the training that has been conducted. A new market was created through the Fishermen's Workshop by selling boat repair services in the wharf environment and being the unique boat repair shop in North Semarang.

b. Infrastructure Capability

Infrastructure capability is a capability related to the company's internal operations. The *Pertamina Sahabat Nelayan* program successfully transferred knowledge in governance and financial bookkeeping to fishermen. Through this knowledge transfer, fishermen can carry out financial accounting so that the operational costs of the Fisherman's Workshop can be recorded properly and correctly. This transfer is carried out by training the workshop management group (Baker & Constant, 2020).

c. Technological Capability

Technological capabilities are capabilities that provide direct support to product portfolios. The *Pertamina Sahabat Nelayan* program has applied science capabilities, design and development capabilities, and manufacturing capabilities. The technological capability transferred to the target community is the ability of applied science through training in fire extinguishers. Providing fire extinguishers and fire prevention training is necessary for workshop activities prone to fire. Through APIK and FADs, there is an ability to design and develop tools to get more fish catches and green mussel cultivation.

In addition to developing APIK, the *Pertamina Sahabat Nelayan* program has succeeded in transferring knowledge by introducing and changing the use of boat engine fuel from BBM to LPG. Knowledge transfer is carried out through outreach and training to the target community. Using LPG fuel saves fishermen's expenses and reduces emissions emitted by each boat. Using 1 LPG is the same as 3 liters of fuel, so fishermen's expenses are for boat fuel. Emission reductions were also successfully carried out by 2,681 TonCO₂eq (Blichfeldt & Faullant, 2021).

4. Novelty and Uniqueness

The *Pertamina Sahabat Nelayan* Program has an element of novelty. It can be seen that the *Pertamina Sahabat Nelayan* Program has a part of novelty in terms of innovation development and regional aspects. Before this program ran, no similar program was conducted in the North Semarang area. So far, no oil and gas company has had a similar social innovation program.

The unique elements that exist in the practice of the *Pertamina Sahabat Nelayan* program contained in this program can be described as follows:

- a. The Fisherman's Workshop is the only workshop specifically for fishing boats in North Semarang.
- b. National Fire Protection Association (NFPA) standard Fisherman's Workshop
The *Pertamina Sahabat Nelayan* program, through the Fisherman Workshop activities, has established workshops that comply with NFPA standards by providing light fire extinguishers (APAR). This made Fisherman's Workshop the first workshop in North Semarang to implement fire extinguishers as a fire prevention measure.
- c. Using lights sourced from solar panels as a Fish Calling Tool (APIK).
The *Pertamina Sahabat Nelayan* program, through the Fish Calling Tool (APIK), encourages the formation of new tools. This tool was developed by PT Pertamina Patra Niaga Integrated Terminal Semarang together with the Fisheries Center (BBPI). This innovation is a tool created to increase fish catches in North Semarang through lights sourced from solar panels. In addition, this tool can also be used as a power source to charge electronic devices on the boat.

5. Changes in People's Mindsets and Behavior

Through the *Pertamina Sahabat Nelayan* program, there have been several systemic changes in the lives of fishing communities in Tanjung Mas, including:

- a. Changes in behavior in caring for boats from breakdown maintenance to preventive maintenance. Before the Fisherman's Workshop, fishermen repaired boats after the damage, so the costs incurred were more significant. After the workshop, fishermen can carry out routine maintenance to anticipate greater damage (Saldanha et al., 2020).
- b. Having a Fishing Boat Workshop near the wharf makes it easier for fishermen to repair boats. Previously, when the boat was damaged, it needed to be disassembled to be taken to a workshop that was far away. However, boat engine repairs can now be done at the wharf with a mechanical system that comes to the location of the damaged boat (Barz et al., 2020).

6. Sustainability Compass

The success of the *Pertamina Sahabat Nelayan* program can be measured in four sustainable dimensions, namely Nature, Social, Economy, and Well-being. Details of the benefits of the four sustainable dimensions can be seen in the following table:

- a. Nature

- 1). Reduced greenhouse gas emissions from fuel to LPG by 2,681 tons of CO₂eq
 - 2). Reducing greenhouse gas emissions from the installation of solar cells for fishing boats by 0.134 Ton CO₂eq
 - 3). Energy savings from converting incandescent lamps to LEDs using solar panels of 228.12 kWh/year
- b. Social
- 1). Establishment of 1 fishing cooperative in the eastern region.
 - 2). Formation of 1 workshop group consisting of 15 fisherman mechanics under the auspices of the cooperative
 - 3). Increased cooperation in workshop groups.
 - 4). Increasing the social solidarity of the workshop group members.
 - 5). The value of IKM reaches 96%.
- c. Economy
- 1). Increased income for the workshop group per month to Rp 754,285.71 per month
 - 2). Affordable repair costs Rp. 50,000 per machine
 - 3). Increase in economic income through sales of lubricants amounting to Rp1,295,000
 - 4). Alternative work during bad weather.
 - 5). Efficient use of fuel oil into LPG in boat engines. The efficiency with a ratio of 1:3 (1 LPG cylinder is equivalent to 3 liters of fuel) with savings in fuel purchase costs of Rp. 5,544,081 per year
 - 6). Savings in electricity tariffs of IDR 308,418 per year
 - 7). Increased fish catch through APIK innovation by 150%, namely IDR 360,000.
 - 8). Increase in green mussel cultivation income of IDR 2,780,000 per month
- d. Well-being
- 1). 30 fishermen were given training in fishing boat engine repair and certified
 - 2). Group members can apply innovative fish-calling tools (APIK).
 - 3). Change from a social group to an economic group
 - 4). Group members can become resource persons for fishermen in the western region.
 - 5). Increased capacity of group members in workshop mechanics.
 - 6). Increased group capacity in bookkeeping
 - 7). Increased group cash from members

7. Sensitivity Analysis

It can be seen that the stakeholder with the most significant outcome is the fishermen's friend group as the implementer of the program. Referring to the results of these outcomes, it can be identified that the main actors or stakeholders supporting the program are groups of fishermen friends who play an essential role in the sustainability of the program because many outcomes are affected by their products, such as the income of group members (Sugi, 2023). If the productivity of this group of fishermen friends is good, then the outcome will also tend to be good. Conversely, if the productivity of this group of fishermen friends decreases, the outcome will also tend to decrease and affect the acquisition of the SROI value. Meanwhile, PT Pertamina Lubricants, as the program's beneficiary in the supply of fishing workshop lubricants, also play an essential role. In addition, the community's response to the program also plays a critical role in the sustainability of the program.

The *Pertamina Sahabat Nelayan* Group, as the perpetrators of fishing workshop activities and PT Pertamina Lubricants as the party that supplies lubricants, have a close relationship. The productivity of fishermen workshop operators will be affected by PT Pertamina Lubricants' lubricant supply. If the communication between the Fishermen's Friends Group and PT Pertamina Lubricants can go well, the workshop productivity can

increase. Conversely, if communication is not good, productivity will tend to decrease because the lubricant supply is constrained. On the other hand, the community's response to the program also affects the sustainability of the program. If the community's response is positive, program productivity can be maintained, and conversely, if the community's response is negative, program productivity will tend to decrease due to a loss of enthusiasm (Li et al., 2022).

Based on the analysis above, the company, as the program's driving force, must be able to manage the three stakeholders who are the primary support for program sustainability. Companies must be able to engage and align the three stakeholders. In this case, the company can guide the Fishermen's Friends Group to communicate independently with PT Pertamina Lubricants so that the supply of lubricants can be directed to run independently without dependence on PT Pertamina Patra Niaga Integrated Terminal Semarang. In addition, PT Pertamina Patra Niaga Integrated Terminal Semarang also needs to provide program promotion assistance to maintain public interest in the program.

8. Independence and Sustainability of Program Impact

The *Pertamina Sahabat Nelayan* community empowerment program, one of the results of the Fisherman's Workshop, was initially carried out in Tanjung Mas Village, North Semarang District, Semarang City, which was successfully replicated in Tunggul Sari, Mangunharjo Village, Tugu District, Semarang City. This activity can be replicated in the Western Region due to the successful increase in the operating income of the Eastern Region Fishermen's Workshop by IDR 1,295,000 through the sale of lubricants. In addition, workshop training was also successfully carried out for 15 fishermen who are members of the Western Region Fishermen Friends Group. The formation of members of this group is stated in the Decree of the Head of the Semarang City Fisheries Service Number 523/SK/06.01/X/2022 concerning the Establishment of the Friendly Group of Western Fishermen in the City of Semarang.

Meanwhile, the results of the SROI study conducted in the field also found fewer positive facts, namely that the group's dependence on PT Pertamina Patra Niaga Integrated Terminal Semarang tended to be high. This is because the group has been unable to communicate well with other stakeholders and lacks maximum promotional activities to support community enthusiasm for the program.

9. Contribution to SDGS Targets

The *Pertamina Sahabat Nelayan* program supports contributions to the SDGS targets for SDGS goal number 1, ending poverty in all forms everywhere. *Pertamina Sahabat Nelayan* Program supports increasing income from fishing workshops and FADs to alleviate poverty in program beneficiary communities. In addition, the *Pertamina Sahabat Nelayan* Program also helps SDGS goal number 8 to increase inclusive and sustainable economic growth, productive and comprehensive employment opportunities, and decent work for all. The *Pertamina Sahabat Nelayan* program supports a sustainable economy by developing workshops, FADs and their replication activities. This program also provides productive and comprehensive job opportunities for people of all ages.

E. CONCLUSION

The *Pertamina Sahabat Nelayan* Community Empowerment Program has an SROI value of 1.83. This shows that every IDR 1 invested has a benefit or impact value of IDR 1.83. The results of the SROI study show that the *Pertamina Sahabat Nelayan* Program has positive economic, social and environmental impacts. However, the results of the SROI study

conducted in the field also found fewer positive facts related to group dependence on PT Pertamina Patra Niaga Integrated Terminal Semarang's role in communication with other parties and program promotion. Therefore, companies must provide capacity building for groups in communication with stakeholders and program promotion.

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