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Measurement of the social investment impact of the bahtera segara program using the social return on investment method (SROI)

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ABSTRACT

PT Pertamina Patra Niaga Integrated Terminal Semarang conducted this study to analyze the impact of the BAHTERA SEGARA (Bahagia Sejahtera Nelayan Pesisir Semarang Utara) Program, aiming to enhance the program's quality in the future. This research employs the SROI method to measure the impact of all activities carried out by PT Pertamina Patra Niaga Integrated Terminal Semarang within the framework of the BAHTERA SEGARA (Bahagia Sejahtera Nelayan Pesisir Pesisir Semarang Utara) Program. Based on the study results of the BAHTERA SEGARA Program (Bahagia Sejahtera Nelayan Pesisir Semarang Utara), this program has proven to be effective and has a significant positive impact. The program has succeeded in improving the economic, social, and environmental welfare of the target community groups and communities that replicate it independently. Increasing SROI scores from 2020 to 2023 indicate that the program is increasingly effective in delivering benefits, particularly through the replication of food crop cultivation and increased fish processing productivity. The program also contributes to the reduction of greenhouse gas emissions and supports climate change adaptation efforts. The program's successful replication demonstrates the effectiveness of BAHTERA SEGARA as a collective learning tool, as well as its potential for replication in other areas with similar conditions.

Keywords : SROI, Social Investment, Payback Period, Welfare.

1. INTRODUCTION

The rapid development of the digitalization era, Financial Technology or commonly known as FinTech has become one of the main innovations that influences people's financial behavior. FinTech changes the way payments that initially had to be made face to face and carry a certain amount of cash, now transactions can be done remotely by making payments in seconds (Bank Indonesia Communication Department, 2018).

Social Return on Investment (SROI), according to A Guide to Social Return on Investment from the SROI Network Accounting for Value, is a framework for measuring and calculating the much broader concept of value. SROI aims to reduce inequality and environmental degradation while also improving well-being by combining social, environmental, and economic costs and benefits (Tiari, 2018). SROI describes the path of change for the person or organization concerned by measuring social, environmental, and economic value using a representative monetization approach (Arvidson & Lyon, 2014). In simple terms, SROI can be defined as a method to measure and calculate the impact of a program or activity in a monetized manner (Banke-Thomas et al., 2015; Cordes, 2017).

SROI consists of two types, namely evaluative and forecast (Lombardo et al., 2019; Watson & Whitley, 2017). Evaluative type SROI is used to assess the impact of a program or activity that has already occurred. Meanwhile, the forecast type SROI is used to estimate the future impact of a program or activity. Global consensus has established the same principles and stages for impact measurement studies with evaluative and forecast-type SROI (Krlev et al., 2013).

This study employs the evaluative-type SROI method to measure the impact of the BAHTERA SEGARA Program, which PT Pertamina Patra Niaga Integrated Terminal Semarang is implementing.

Since 2021, PT Pertamina Patra Niaga Integrated Terminal Semarang has been implementing the empowerment program in Tambak Mulyo Village, Tanjung Mas Village, North Semarang District, and Semarang City. This program empowers the Mina Asri Processing and Marketing Group (POKLAHSAR) to process fish into smoked fish and other processed products, utilize fish smoking waste as organic fertilizer, and cultivate food crops. Meanwhile, the program also empowers the Bahtera Segara Group to carry out fishermen's workshop activities, mentor environmentally friendly boat operational practices by changing diesel fuel to LPG, and install solar cells on fishing boats to increase energy efficiency.

This study, employing the evaluative type of SROI method, aims to comprehensively evaluate, measure, and calculate the impacts of the program's implementation on the environment, economy, welfare, and social aspects. We hope that the study's results will monetize the positive and negative impacts of the program on all involved stakeholders. Through this study, it is also expected that information on the feasibility of program implementation will be obtained through the SROI value obtained. Information on the program's feasibility will be extremely useful in planning and making decisions about future program development and duplication.

According to Santoso's research (Santoso et al., 2019), the evaluation of the social investment impact of the Baramulyo Posdaya Development Program resulted in an SROI ratio of 3.70. This means that for every Rp. 1 invested, there is a Rp. 3.70 impact or benefit. Posdaya Baramulyo's main advantage is the significant increase in access to PAUD schools, which accounts for 66.5% of the total value of the results. Also, income increased 14.09%, PAUD growth and development increased 12.66%, and elderly welfare increased 5.73%. From a socio-economic perspective, the Posdaya Baramulyo program can be considered feasible and successful.

The results of Santoso's research (Santoso et al., 2020) show that the Bukit Asam Industrial Center (SIBA) Batik Kujur Program provides economic and business value to the program recipient community, with a social investment impact value in the form of an SROI ratio of 5.39, which means that every Rp. 1 investment will get benefits worth Rp. 5.39. From the social and economic sides, this program can be said to be feasible and successful.

Based on several previous studies, the researcher is interested in conducting research on the impact analysis of the BAHTERA SEGARA Program. The difference in this study lies in the research object which includes the target area of the BAHTERA SEGARA Program (Happy Prosperous Fishermen of the North Semarang Coast), namely Tambak Mulyo Village, Tanjung Mas Village, North Semarang District, and Semarang City. If we look at previous studies that only examined social and economic impacts, the novelty of this study is that it also evaluates its impact on the environment. PT Pertamina Patra Niaga Integrated Terminal Semarang conducted this study to analyze the impact of the BAHTERA SEGARA Program (Happy Prosperous Fishermen of the North Semarang Coast), which aims to improve the quality of the program in the future.

2. METHOD

This study measures impact performance using the SROI method, which includes all activities carried out by PT Pertamina Patra Niaga Integrated Terminal Semarang within the BAHTERA SEGARA (Bahagia Sejahtera Nelayan Pesisir Semarang Utara) Program. The SROI calculation considers changes in currency values. Therefore, we will convert the fixed total outcome value, or after discounting, into a single value known as the present value. To calculate the present value of the total outcome value that has been fixed, the following formula is used:

Present Value Investasi

$$= [Value\ of\ Invest\ in\ Year\ n\ \times\ (1+r)^{m}] + [Value\ of\ Impact\ in\ year\ n\ + 1 \times (1+r)^{m+1}] \ldots\ldots\ldots\ldots\ldots\ldots (1)$$

Present Value Outcome

$$= [Value\ of\ Invest\ in\ Year\ n\ \times\ (1+r)^{m}] + [Value\ of\ Impact\ in\ year\ n\ + 1 \times (1+r)^{m+1}] \ldots\ldots\ldots\ldots\ldots\ldots (2)$$

Meanwhile, the Social Return on Investment (SROI) value is calculated using the following equation:

$$SROI = \frac{Present\ Value\ Outcome}{Present\ Value\ Investasi} \qquad \ldots\ldots\ldots\ldots\ldots\ldots (3)$$

Sensitivity Analysis and Pay Back Period

Sensitivity analysis is conducted to test assumptions that have a major influence on the calculation model performed. Sensitivity analysis was conducted by reducing the outcome value, increasing investment, and increasing the value of impact fixation factors such as deadweight, attribution, and displacement.
In the meantime, we calculate the payback period to understand how long it will take for the investment to pay off. The pay-back period is calculated using the following equation:

$$Payback\ period\ in\ months = \frac{Investment}{Annual\ Impact/12} \qquad \ldots\ldots\ldots\ldots\ldots\ldots (4)$$

Data collection in this SROI study is divided into two categories: secondary data collection and primary data collection. Secondary data collection, such as methods or techniques for calculating indicators and financial approaches, is carried out by reviewing relevant documents or studies. Meanwhile, primary data collection, such as extracting outcomes and determining indicators, was carried out through interviews and FGDs with identified stakeholders. The analysis was done descriptively.

3. RESULTS AND DISCUSSION

3.1 RESULT

3.1.1 Calculation SROI Value

Based on the calculation using the equation above, the Social Return on Investment (SROI) value for

the BAHTERA SEGARA (Happy Prosperous North Semarang Coastal Fishermen) Program is 2.26. This shows that every Rp 1 invested has a benefit or impact value of Rp 2.26. Therefore, we continue to classify the program as feasible.

Table 1. Trendline of SROI Value for 2020-2023

Description	2020	2021	2022	2023	Total
Total Investment Value	Rp 15.352.000	Rp 195.500.210	Rp 73.200.000	Rp 58.661.800	Rp 342.714.010
Total value	Rp0	Rp	Rp	Rp	Rp
Outcome After Fixation Impact		119.329.353	285.646.283	323.542.355	728.517.991
Interest Rate	3,75%	3,50%	5,75%	5,75%	
Present Value	Rp15.927.700	Rp	Rp 86.566.969	Rp 73.362.967	Rp
Investment value		209.424.712			385.282.348
Present Value of Outcome Value After Fixation Impact	Rp0	Rp 127.828.586	Rp 337.807.825	Rp 404.624.939	Rp 870.261.350
SROI	0,00	0,61	3,90	5,52	**2,26**

The study found that the BAHTERA SEGARA (Happy Prosperous North Semarang Coastal Fishermen) Program has an SROI value of 2.26. This shows that every Rp 1 invested has a benefit or impact value of Rp 2.26. Furthermore, the results show that the SROI value trendline per year from 2020 to 2023 continues to increase. The increase in the number of program beneficiaries can be attributed to the replication of food crop cultivation, an increase in the productivity of fish processing products, and the utilization of fish smoking waste into liquid and solid organic fertilizers by the target community groups. A gradual reduction in company intervention to promote the independence of target community groups can maintain the increase in SROI value, even when the program investment value decreases (Dantes, 2016).

The BAHTERA SEGARA (Happy Prosperous North Semarang Coastal Fishermen) Program, with a SROI value of more than 1, demonstrates its positive and feasible development, as it addresses social needs and offers benefits from an economic, social, and environmental standpoint. The BAHTERA SEGARA (Bahagia Sejahtera Nelayan Pesisir Pesisir Semarang Utara) Program's biggest economic benefit was that it helped the target community groups make money by selling smoked fish, fish balls, and other processed fish products; turning fish smoking waste into organic fertilizer; selling lubricants and fishing gear; and holding fishing workshops as a service. Additionally, the BAHTERA SEGARA (Happy Prosperous North Semarang Coastal Fishermen) Program offers economic advantages by reducing food consumption costs, as the target group members' families consume the products of plant cultivation in the yard. The community also benefits from the household cost savings, replicating the program independently or on their own initiative in their own yards. This result aligns with the findings by Williams & Parker (Yates & Marra, 2017), which highlight the significant economic, social, and environmental benefits achieved through programs with an SROI value of more than 1. Such programs, like the BAHTERA SEGARA, demonstrate feasibility and positive impact by addressing essential social needs while providing economic opportunities for target communities. Similar research underscores the effectiveness of SROI in capturing these broad-spectrum benefits, emphasizing how sustainable practices can yield measurable returns across economic, social, and environmental dimensions.

Meanwhile, the increased capacity and cohesiveness of the target community group members are the main social benefits of the BAHTERA SEGARA (Bahagia Sejahtera Nelayan Pesisir Pesisir Semarang Utara) Program. Changes in the knowledge and skills of group members following the program, resulting from the company's various training and mentoring in line with core competencies, indicate capacity building. Changes in knowledge and skills are shown by the ability of group members to run the program sustainably. Meanwhile, an increase in mutual cooperation among group members demonstrates an increase in cohesiveness. This result aligns with findings from a study by George et al. (George et al., 2016), indicating that community development programs enhance both the capacity and cohesiveness of target groups. For instance, similar programs have demonstrated that the acquisition of new skills and knowledge, alongside an increase in mutual

cooperation, can significantly contribute to the sustainability of community-driven initiatives. Enhanced community capacity, such as the ability to manage projects and solve problems effectively, is often accompanied by strengthened social cohesion, which is crucial for the long-term success of such programs.

In addition to economic and social benefits, the BAHTERA SEGARA (Bahagia Sejahtera Nesisirelayan Pesisir Semarang Utara) Program also provides environmental benefits. With its expertise, the company guides the target community groups in fish processing using more environmentally friendly methods, converts fish smoking waste into organic fertilizer, cultivates food plants in the yard, implements solar panel technology on fishing boats, and imparts knowledge and skills in the use of converter kits to convert fuel to LPG on fishing boats (Kementrian Pertanian, 2020). These activities encourage the reduction of greenhouse gas emissions through the application of solar panel technology on fishing boats and the production of fertilizer from fish smoking waste (Kim et al., 2021). This encourages the program to contribute to climate change adaptation and mitigation efforts. Furthermore, the BAHTERA SEGARA Program contributes to improving the company's LCA hotspots by using non-B3 solid waste to support the implementation of community programs.

This study also found that the program's replication success significantly influences the SROI value. This is due to the fact that the program yields higher outcome values when more parties participate. The successful replication involved not only the creation of new groups to carry out the same task, but also the emergence of individual replication within the community, manifested in the form of food crop cultivation. Self-replication by individual communities also shows that the program has succeeded in becoming a source of collective learning for many stakeholders, This self-help replication needs to be encouraged and supported so that the scale is wider to improve food security in the community (Nsabuwera et al., 2016).

3.1.2 Sensitivity Analysis

The outcomes of the hypothesis testing and path analysis reveal that the majority of the proposed relationships are statistically significant. Hypotheses H_1 (AT -> IN), H_2 (SN -> IN), H_3 (AW -> IN), H_4 (KN -> IN), and H_5 (TR -> IN) are all supported with significant p-values ($p < 0.05$) and positive path coefficients, suggesting that these factors positively influence the intention to adopt FinTech. Additionally, the interactions of FC with AT (H_{7a}) and AW (H_{7c}) are also significant, indicating that facilitating conditions moderate these relationships. However, H_6 (FC -> IN), H_{7b} (FC x SN -> IN), H_{7d} (FC x KN -> IN), and H_{7e} (FC x TR -> IN) are not supported, suggesting no significant direct effect of facilitating conditions on intention, nor a significant moderating effect of facilitating conditions on subjective norms, knowledge, or trust in this context.

Sensitivity analysis is conducted to test assumptions that have a major influence on the calculation model. In this study, we conducted sensitivity analysis by reducing the outcome value, increasing investment, and enhancing the value of impact fixation factors like deadweight, attribution, and displacement. The following are the results of the sensitivity analysis, which involved reducing the outcome value after impact fixation:

Table 2. Results of Sensitivity Analysis of Outcome Value Reduction

Parameter	Outcome Value Reduction		
	10%	20%	30%
Present Value Outcome After Fixation	Rp 783.235.215	Rp 696.209.080	Rp 609.182.945
Present Value Investment	Rp 385.282.348	Rp 385.282.348	Rp 385.282.348
SROI	2,03	1,81	1,58

The data above demonstrates that, given the same input value, a reduction in the outcome value leads

to a corresponding decrease in the SROI value. For every 10% reduction in outcome, the SROI value drops by about 0.22. Despite reducing the outcome value by 30%, the simulation results still yield good or acceptable SROI results, specifically above the value of 1. This result aligns with findings from a study by Viganó & Lombardo (Viganó & Lombardo, 2019), which highlight the importance of sensitivity analysis in Social Return on Investment (SROI) evaluations. According to research, even slight variations in outcome values can significantly affect the SROI ratio. For instance, a reduction in the outcome value generally leads to a proportional decrease in the SROI, similar to what was observed in your analysis. Additionally, studies emphasize that despite fluctuations in outcome values, an SROI value above 1 indicates that the program still yields a positive return on investment, validating the robustness of the intervention or program being evaluated. Meanwhile, the sensitivity analysis of the deadweight and attribution impact fixation factors yields the following results:

Table 3. Results of Sensitivity Analysis of Investment Value Addition

Parameter	Investment Value Addition		
	10%	20%	30%
Present Value Investment	Rp 423.810.583	Rp 462.338.818	Rp 500.867.053
Present Value Outcome After Fixation	Rp 870.261.350	Rp 870.261.350	Rp 870.261.350
SROI	2,05	1,88	1,74

The data above shows that adding an investment changes the SROI value, which decreases with each additional investment of 10%. For every additional 10% investment, the SROI value drops by approximately 0.16. However, the simulation results show that an additional investment of up to 30% still yields good or acceptable SROI results, specifically above the value of 1. This result aligns with the findings from a study by Ashton et al. (Ashton et al., 2023), which demonstrated that integrating additional investments into Social Return on Investment (SROI) calculations tends to reduce the SROI value proportionally. The study highlighted that even with increasing investments, SROI values above 1 can still be achieved, indicating positive returns. This is consistent with the idea that while additional funding can dilute the returns, the overall impact remains favorable when managed correctly. The sensitivity analysis in this context proves crucial in ensuring that despite these reductions, the outcomes remain above the acceptable threshold, supporting the robustness of the SROI framework in varied scenarios. Meanwhile, the results of the sensitivity analysis of changes in the impact fixation factor, namely the addition of deadweight and attribution, are as follows:

Table 4. Results of Deadweight and Attribution Sensitivity Analysis

Parameter	Deadweight and Attribution Value Changes	
	5%	10%
Present Value Outcome After Fixation	Rp960.440.574	Rp736.590.277
Present Value Investment	Rp385.282.348	Rp385.282.348
SROI	2,49	1,91

The data above demonstrates that changes in deadweight and attribution values significantly affect the SROI value, even when the input value remains unchanged. Therefore, we classify the values of deadweight and attribution as sensitive due to their ease of change. However, adding and subtracting deadweight and attribution values up to 10% still yields good or acceptable SROI results, specifically above the value of 1.

The company PT Pertamina Patra Niaga Integrated Terminal Semarang can use the results of the sensitivity analysis, especially when it comes to changes in the outcome value, as a guide to plan for a drop in the SROI value when the outcome value goes down. Program linkages from the community and other stakeholders may lead to a decrease in outcomes over time, such as a reduction in community response to the program. Therefore, the company must plan an approach or form of engagement with each stakeholder involved in the program, as well as ensure alignment among stakeholders. This result aligns with the findings of O'Riordan and Fairbrass (O'Riordan & Fairbrass, 2014), who emphasize that consistent stakeholder engagement is crucial to maintaining the effectiveness of corporate social responsibility (CSR) initiatives. The study suggests that by regularly

evaluating and adapting stakeholder engagement strategies, companies can sustain or even increase the Social Return on Investment (SROI) over time.

3.1.3 Payback Period

The payback period is calculated to determine the duration of time required to achieve the value of the benefits equivalent to the investment. The payback period is calculated using the following equation:

Remaining investment in 2020

= Investment – Proceeds or Outcome 2020 Remaining investment in 2020

= Rp 15.352.000 – 0 (1 year)

= Rp 15.352.000

Investasi tahun 2021

= Investasi tahun 2021 + Remaining investment in 2020

= Rp 195.500.210 + Rp 15.352.000

= Rp 210.852.210

Remaining investment in 2021

= Investasi 2021 – Proceeds atau Outcome Tahun 2021

= Rp 210.852.210 – Rp 119.329.353 (2 year)

= Rp 91.522.857

Investment in 2022

= Investasi tahun 2022 + Remaining investment in 2021

= Rp 73.200.000 + Rp 91.522.857

= Rp 164.722.857

Remaining investment in 2022

= Investasi 2022 – Proceeds atau Outcome Tahun 2022

= Rp 164.722.857 – Rp 285.646.283 (3 year)

= -Rp 120.923.426

Investasi tahun 2023

= Investasi tahun 2023 + Sisa Investasi 2022

= Rp 58.661.800 + (-Rp 120.923.426)

= -Rp 62.261.626

Investment in 2022 $= \frac{Remaining\ investment\ in\ 2021 + Investment\ in\ 2022}{Total\ outcome\ value\ after\ fixation/12}$

$= \frac{(Rp\ 91.522.857) + Rp\ 73.200.000)}{(Rp\ 285.646.283\ /12)}$

$= \frac{Rp\ 164.722.857}{Rp\ 23.803.857}$

$= 6{,}92$

Based on the above calculations, the payback period figure is 2 years and 7 months. Indicating that the investment return period is relatively fast, so this SROI project is feasible.

3.1.4 Triple Loop Learning

1. Initiator Side (Company)

a. Support from top management for the BAHTERA SEGARA Program

The BAHTERA SEGARA program is a way of trying to increase the capacity of the target community, namely fishermen in Tambak Mulyo, Tanjung Mas Village, to be able to use boats that are more energy efficient and manage fishing equipment cooperatives. The BAHTERA SEGARA program also seeks to increase the capacity of fishermen's wives in the Mina Asri processing and marketing group (Poklahsar) to be able to carry out fish processing and food crop cultivation in the yard.

The BAHTERA SEGARA program is also a form of implementation of the company's mission, which is to make Indonesia's economic growth environmentally sound. The company's efforts to encourage fishermen to use more environmentally friendly and renewable energy for their boats, such as solar power plants and the conversion from diesel fuel to LPG, demonstrate this commitment. The empowerment activities of fishermen's wives in Poklahsar Mina Asri, which involve using fish smoking waste as fertilizer and liquid smoke, also demonstrate efforts to promote environmentally sound economic growth.

The BAHTERA SEGARA Program's alignment with the company's vision and mission has fostered support from the top management of PT Pertamina Patra Niaga Integrated Terminal Semarang, specifically the Executive General Manager. In fact, support for the BAHTERA SEGARA Program also emerged from the top management of the holding company, PT Pertamina Patra Niaga, also supported the BAHTERA SEGARA Program. This top management support is a factor in the success of program implementation from the main initiator side because it encourages ease of investment related to financing the implementation of the program. In addition, support from top management also encourages the participation or contribution of all functions and departments in the company in program implementation. This means that the CSR function does not work alone in program implementation. The involvement of non-CSR functions is evident in the knowledge transfer activities that various departmental functions, including Sales Service, General Affairs, HSSE, Maintenance and Planning Service (MPS), and Quality and Quantity (QQ), carry out for the target community groups. These functions participate in knowledge transfer activities related to the use and maintenance of electric boats, fish smoking oven machines, and fuel to LPG converter kits in an integrated manner. Additionally, we conducted training sessions on marketing processed fish products, organizational governance, utilizing fish smoking waste, and ensuring the quality of both fresh and processed fish products.

b. Local government support for the BAHTERA SEGARA Program

The next supporting factor for the success of the BAHTERA SEGARA program from the initiator's perspective is the support from the local government, namely the Semarang City Fisheries Agency, the Semarang City Cooperatives and MSMEs Agency, and Tanjung Mas Village. The following forms of support from the local government are considered crucial for the program's success:

1) POKLAHSAR Mina Asri received support from the Semarang City Fisheries Agency during organizational governance and fish product diversification training. The Semarang City Fisheries Agency served as a resource, delivering the materials.

2) During cooperative management training, the Bahtera Segara Group received support from the Semarang City Cooperative and the MSME Agency. The Cooperative and MSME Agency of Semarang City were the resource persons who delivered the materials.

3) Tanjung Mas Village plays a crucial role in the success of the BAHTERA SEGARA Program, serving as a companion and a source of program input, ensuring that the program's objectives yield benefits and positive impacts for the community groups it fosters.

4) The initiator considers support from the local government as a crucial factor for the success of the BAHTERA SEGARA Program, as it enhances the benefits or impacts and broadens its scope.

c. The existence of a local hero who has a strong character as a mobilizer of other community members

The next supporting factor for the success of the BAHTERA SEGARA Program from the initiator's side is the existence of a local hero, namely Ibu Khatijah, as a mobilizer for other community members. The existence of local hero Ibu Khatijah as the Head of the Mina Asri Processing and Marketing Group (POKLAHSAR) since 2021 is considered a supporting factor for the program's success. This is because Ibu Khatijah plays an active role and has the capability to mobilize her group members to maintain the sustainability of the program, which includes smoked fish processing and marketing activities as well as monitoring the activities of POKLAHSAR Mina Asri. Additionally, Mrs. Khatijah has the ability to inspire the housewives' group to produce smoked fish using more environmentally friendly methods, thereby increasing their concern for the environment.

Mrs. Khatijah serves as a resource person in fish processing training activities, transforming fish into economically valuable products like smoked fish, dumplings, and fish balls. Fish processing training for a group of housewives from the Jajan Iwak Group in Kedungombo, Boyolali, will include as many as 43 members on August 2, 2023. In this training, the Jajan Iwak Group received material on how to process fish into products that have economic value and have high selling value.

d. Successful replication of self-help food crop cultivation in the yard

The initiator considers the success of replication as a crucial factor in ensuring the success of the BAHTERA SEGARA Program. This is due to the fact that the program yields greater outcome value when more parties accept it. Replication that was successfully achieved was not only replication through the formation of new groups to do the same thing but also the emergence of individual replication by the community, which was carried out independently or on their own. Self-replication by individual communities also shows that the program has succeeded in becoming a source of collective learning for many stakeholders. This self-help replication needs to be encouraged and supported on a wider scale to improve food security in the community.

Meanwhile, the factors that constrain the success of the BAHTERA SEGARA Program from the perspective of the initiator, PT Pertamina Patra Niaga Integrated Terminal Semarang, are as follows:

1) Tidal flooding that can hinder access for companies for successful program implementation

The program is implemented in Tambak Mulyo Village, which is located in a coastal area that is frequently affected by tidal flooding. This presents a challenge for program proponents as it hinders access to the activities' locations and is often unpredictable due to its natural occurrences. In addition, the tidal flood phenomenon can pose obstacles to the implementation of activities that involve large numbers of people, as well as cause damage to infrastructure for facilities that are crucial to the program's success.

2) The tight schedule of employees makes it difficult to find suitable time to transfer knowledge to the target community groups.

When implementing the BAHTERA SEGARA PROGRAM, the company strives to include all functions or departments, particularly in knowledge transfer activities aimed at community groups. The difficulty in finding the right time for company employees to transfer knowledge is considered one of the obstacles to the success of the BAHTERA SEGARA PROGRAM from the initiator's side. This is because the difficulty in finding the right schedule will have an impact on the achievement of program sustainability.

3) The potential for political dynamics or changes in officials in the local government structure that have the possibility of not supporting the program.

Political dynamics, which lead to changes in officials, have the potential to alter local government support for the BAHTERA SEGARA PROGRAM. This possibility is considered one of the constraining factors in realizing the success of the BAHTERA SEGARA PROGRAM from the initiator's side because it will make it difficult for companies and fostered community groups to increase the value of benefits and expand the scope of the program area. This condition will also cause a need for re-engagement from the company with the local government.

2. Beneficiary Side

The supporting factor for the success of the BAHTERA SEGARA Program from the beneficiary side is the existence of a local hero, namely Ibu Khatijah, as a mobilizer for other community members. The existence of local hero Ibu Khatijah as the Head of the Mina Asri Processing and Marketing Group (POKLAHSAR) since 2021 is considered a supporting factor for the program's success. This is because Ibu Khatijah plays an active role and has the capability to mobilize her group members to maintain the program's sustainability, which includes smoked fish processing and marketing activities, as well as monitoring POKLAHSAR Mina Asri's activities. Additionally, Mrs. Khatijah has the ability to inspire the housewives' group to produce smoked fish using more environmentally friendly methods, thereby increasing their concern for the environment.

Mrs. Khatijah serves as a resource person in fish processing training activities, transforming fish into economically valuable products like smoked fish, dumplings, and fish balls. Fish processing training for a group of housewives from the Jajan Iwak Group in Kedungombo, Boyolali, will include as many as 43 members on August 2, 2023. In this training, the Jajan Iwak Group received material on how to process fish into products that have economic value and high selling value.

Meanwhile, from the perspective of the beneficiaries, specifically the Mina Asri Processing and Marketing Group (POKLAHSAR) and the Bahtera Segara Group, the following factors pose obstacles to the success of the BAHTERA SEGARA Program.

a. Tidal flooding that can hinder access for companies for successful program implementation

The program is implemented in Tambak Mulyo Village, which is located in a coastal area that is frequently affected by tidal flooding. This presents a challenge for the program's beneficiaries, as it hinders their access to the activity locations and can be unpredictable due to its inherent nature. Additionally, the tidal flood phenomenon can lead to delays in the implementation of activities that involve large numbers of people, as well as damage to infrastructure that supports the success of the program.

b. Potential changes in group enthusiasm in running the program

Potential changes in group enthusiasm for running the program are considered an obstacle factor that can change the success of the program for beneficiaries. In this case, group dynamics that have the potential to change but are not enthusiastic and consistent in running the program are considered to threaten its sustainability.

3.2 DISCUSSION

The results of the study indicate that the BAHTERA SEGARA (Happy Prosperous Coastal Fishermen of North Semarang Coast) Program has demonstrated significant effectiveness and positive impacts. This program has successfully improved the economic, social, and environmental welfare of the target community groups, as well as other communities that have replicated it. The increase in the SROI value from 2020 to 2023 shows that this program is increasingly effective in providing benefits, especially through replication of food crop cultivation and increasing fish processing productivity. This program also contributes to reducing greenhouse gas emissions and supporting climate change adaptation efforts. The success of the replication of this program shows the effectiveness of BAHTERA SEGARA as a means of collective learning and its potential to be replicated in other areas with similar conditions. The results of the SROI study support the sustainability and development of the BAHTERA SEGARA Program. This shows that the research objectives have been achieved, which aim to improve the quality of the program in the future. This is also in line with research conducted by Hasanah et al., (Hasanah et al., 2022), which shows that the participation of social entrepreneurship MSME actors has shown effective achievements through the mental and emotional involvement of individuals in carrying out group activities and the socio-economic impact in the context of social entrepreneurship has resulted in capacity and independence in opening up business opportunities. Likewise with research conducted by Marsha and Matoati (Marsha & Matoati, 2021), which states that the companies studied have succeeded in creating social impacts that provide benefits to their stakeholders because they have produced a positive SROI ratio.

The limitation of this research is that the research object was only conducted on Coastal Fishermen of North Semarang Coast. For this reason, further research is expected to expand the scope of the research. There is also a recommendation that a more effective marketing strategy is needed to run this program, especially online, with attractive branding and packaging to increase sales of processed fish products. In addition, it is necessary to increase the productivity of fishermen's workshops by adding and maintaining facilities to support the smooth running of the program and improving fishing boat repair services. It is also necessary to expand the replication of food crop cultivation in home gardens through knowledge transfer to increase community food security.

4. CONCLUSION

The assessment of the BAHTERA SEGARA Program (Bahagia Sejahtera Nelayan Pesisir Pesisir Semarang Utara) demonstrates its effectiveness and significant positive impact, with an SROI value of 2.26. The program has succeeded in improving the economic, social, and environmental welfare of the targeted community groups, as well as the self-replicating communities. The increase in SROI value from 2020 to 2023 shows that the program is increasingly effective in providing benefits, especially through the replication of food crop cultivation and increased fish processing productivity. The program also contributes to the reduction of greenhouse gas emissions and supports climate change adaptation efforts. The program's successful replication demonstrates the effectiveness of BAHTERA SEGARA as a collective learning tool and its potential for replication in other areas with similar conditions.

The SROI study's results support the continuation and development of the BAHTERA SEGARA Program, along with several recommendations. There needs to be a more effective marketing strategy for running this program, especially online, with attractive branding and packaging to increase sales of processed fish products. In addition, it is necessary to increase the productivity of fishing workshops by adding and maintaining facilities to support the smooth running of the program and improving fishing boat repair services. It is also necessary to expand the replication of food crop cultivation in home yards through knowledge transfer to improve community food security.

5. REFERENCES

Arvidson, M., & Lyon, F. (2014). Social impact measurement and non-profit organisations: Compliance, resistance, and promotion. *VOLUNTAS: International Journal of Voluntary and Nonprofit Organizations*, *25*, 869–886.

Ashton, K., Cotter-Roberts, A., Dyakova, M., & Green, L. (2023). Integration of Social Return on Investment with Health Impact Assessment and evaluation frameworks. *European Journal of Public Health*, *33*(Supplement_2), ckad160-1285. https://doi.org/10.1093/eurpub/ckad160.1285

Banke-Thomas, A. O., Madaj, B., Charles, A., & van den Broek, N. (2015). Social Return on Investment (SROI) methodology to account for value for money of public health interventions: a systematic review. *BMC Public Health*, *15*, 1–14.

Cordes, J. J. (2017). Using cost-benefit analysis and social return on investment to evaluate the impact of social enterprise: Promises, implementation, and limitations. *Evaluation and Program Planning*, *64*, 98–104. https://doi.org/10.1016/j.evalprogplan.2016.11.008

Dantes, K. R. (2016). Pelatihan Pembuatan Rumpon Bagi Kelompok Nelayan di Desa Les, Kecamatan Tejakula, Kabupaten Buleleng. *Jurnal Widya Laksana*, *5*(1), 35–51.

George, A. S., Scott, K., Mehra, V., & Sriram, V. (2016). Synergies, strengths and challenges: findings on community capability from a systematic health systems research literature review. *BMC Health Services Research*, *16*, 47–59.

Hasanah, B., Sururi, A., Prananda, D. P., & Noval, A. M. (2022). Kewirausahaan sosial: partisipasi masyarakat dan evaluasi dampak sosial-ekonomi. *Jurnal Administrasi Negara*, *28*(3), 291–317. https://doi.org/10.33509/jan.v28i3.1721

Kementrian Pertanian. (2020). *Metode perhitungan mitigasi dan serapan gas rumah kaca sektor pertanian*. Jakara: Badan Penelitian dan Pengembangan Pertanian Kementrian Pertanian.

Kim, J. K., Jung, H. Y., Cho, J. Y., & Kim, N. Y. (2021). Production of biofuels, bioactive compounds, and fertilizers from fishery waste and wastewater. In *Advanced Technology for the Conversion of Waste into Fuels and Chemicals* (pp. 149–181). Elsevier. https://doi.org/10.1016/B978-0-323-90150-5.00012-1

Krlev, G., Münscher, R., & Mülbert, K. (2013). *Social Return on Investment (SROI): state-of-the-art and perspectives-a meta-analysis of practice in Social Return on Investment (SROI) studies published 2002-2012*.

Lombardo, G., Mazzocchetti, A., Rapallo, I., Tayser, N., & Cincotti, S. (2019). Assessment of the economic and social impact using SROI: An application to sport companies. *Sustainability*, *11*(13), 3612. https://doi.org/10.3390/su11133612

Marsha, A. A., & Matoati, R. (2021). Penilaian dampak investasi sosial pelaksanaan csr pt catur elang perkasa menggunakan metode social return on investment (sroi). *Sains: Jurnal Manajemen Dan Bisnis*, *14*(1), 87–109. https://doi.org/10.35448/jmb.v14i1.12465

Nsabuwera, V., Hedt-Gauthier, B., Khogali, M., Edginton, M., Hinderaker, S. G., Nisingizwe, M. P., de Dieu Tihabyona, J., Sikubwabo, B., Sembagare, S., & Habinshuti, A. (2016). Making progress towards food security: evidence from an intervention in three rural districts of Rwanda. *Public Health Nutrition*, *19*(7), 1296–1304. https://doi.org/10.1017/S1368980015002207

O'Riordan, L., & Fairbrass, J. (2014). Managing CSR Stakeholder Engagement: A New Conceptual Framework. *Journal of Business Ethics*, *125*(1), 121–145. https://doi.org/10.1007/s10551-013-1913-x

Santoso, M. B., Ismanto, S. U., Mumajad, I., & Mulyono, H. (2019). Pengukuran dampak investasi sosial pelaksanaan csr menggunakan metode social return on investment (sroi). *AdBispreneur: Jurnal Pemikiran Dan Penelitian Administrasi Bisnis Dan Kewirausahaan*, *3*(2), 153–167.

Santoso, M. B., Raharjo, S. T., Humaedi, S., & Mulyono, H. (2020). Social Return on Investment (SROI) Program "Sentra Industri Bukit Asam"(SIBA) Batik Kujur Village Tanjung Enim.

Jurnal Pemikiran Dan Penelitian Administrasi Bisnis Dan Kewirausahaan, *5*(1), 15–29. https://doi.org/10.24198/adbispreneur.v5i1.26069

Tiari, O. R. E. (2018). *Pengaruh profitabilitas dan dana corporate social responsibility terhadap nilai perusahaan dengan kinerja lingkungan sebagai variabel moderasi: Studi Empiris pada Perusahaan yang Terdaftar dalam Indeks SRI-Kehati di Bursa Efek Indonesia Tahun 2013-2016*. Universitas Islam Negeri Maulana Malik Ibrahim.

Viganó, F., & Lombardo, G. (2019). Calculating the Social Impact of Culture. A SROI application in a Museum. *Proceedings of the 1st International and Interdisciplinary Conference on Digital Environments for Education, Arts and Heritage: EARTH 2018 1*, 507–516.

Watson, K. J., & Whitley, T. (2017). Applying social return on investment (sroi) to the built environment. *Building Research & Information*, *45*(8), 875–891. https://doi.org/10.1080/09613218.2016.1223486

Yates, B. T., & Marra, M. (2017). Social return on investment (sroi): Problems, solutions… and is sroi a good investment? *Evaluation and Program Planning*, *64*, 136–144. https://doi.org/10.1016/j.evalprogplan.2016.11.009