

Regional Case Study

Measuring the Effect of Kampong AMOI Program on Sustainability Factors using Social Return on Investment Method: A Case Study of Riding Panjang Village, Bangka Barat

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Abstract

The Kampong AMOI (Integrated Agro-Independent) Program is a community empowerment program carried out by PT Timah Tbk Metallurgical Unit Muntok. This community empowerment was carried out in Riding Panjang Village, Merawang District, Bangka Regency, Air Putih Village, Tanjung Village, Muntok District, and West Bangka Regency. This program integrates three activities, namely nursery perennials, composting, and broiler cultivation. The Kampong AMOI program has a significant impact on the economic and environmental development of the three villages. Therefore, in this paper, the results of the program impact will be analyzed using the evaluative social return on investment (SROI) method. This study aims to comprehensively evaluate, measure, and calculate the impacts of the program's implementation from the environmental, economic, welfare, and social aspects. The Kampong AMOI Community Empowerment Program (Integrated Agro-Independent Village) results have an SROI value of 2.518. This result shows that every IDR 1 invested has a benefit or impact value of IDR 2.518. This result also concludes that the Kampong AMOI program is reasonable to be conducted in Riding Panjang Village, Air Putih Village, and Tanjung Village.

Keywords: Kampong AMOI; social impact assessment; SROI; sustainability

1. Introduction

Community-based management (CBM) for local resources is a common framework and well-known method for achieving economic resilience (Edwards, 2019). Therefore, proper CBM can empower the community through several programs and actions. Besides, empowering the community means enhancing economic development and controlling environmental pollution, thus, maintaining the sustainability of the environmental ecosystem (Surya et al., 2020). Community empowerment is a power owned by the members to act, plan, participate, and decide the suitable ways for developing the community through specific processes. In Indonesia, the government-endorsed community development and empowerment through some programs and policies (Badaruddin et al., 2021). As part of a business company's corporate social responsibility (CSR), local community empowerment is also compulsory since the community becomes the subject of its business process. The company should

commit to enhancing the quality of life and benefitting the local community (Ariza-Montes et al., 2021; Berlianty, 2021).

Social return on investment (SROI) is a valuable tool to measure the success of a community empowerment program. SROI tells the path of change in people or organizations (Millar and Hall, 2013). SROI can also measure social, environmental, and economic value using a representative monetization approach (Perrini et al., 2021). Compared to other social innovation evaluation methods such as cost-benefit analysis (CBA), cost-effectiveness analysis (CEA), and cost-utility analysis (CUA), SROI can comprehensively assess the financial performance of a program (Ricciuti and Bufali, 2019). SROI consists of 2 types, namely evaluative and forecast. The SROI method is used to evaluate the impact of a program or activity that has already occurred. Meanwhile, the SROI forecast type estimates the impact of a program or activity in the future. Impact measurement studies with evaluative and forecast SROI types have the same principles and stages that have been agreed upon globally (Bahri and Sulistiawati, 2021). Even though some social innovation impact is successfully measured using SROI, there is still little evidence on how a CSR program, especially in Indonesia, successfully develops the community (Santoso et al., 2019; Gunawan et al., 2021).

This study aims to measure the impact of a CSR program - the Kampong AMOI Community Empowerment Program (Integrated Agro-Independent Village) conducted by PT Timah Tbk Metallurgical Unit Muntok - using the evaluative type SROI method. It is hoped that this study can comprehensively evaluate, measure, and calculate the impacts due to the program's implementation from the environmental, economic, welfare, and social aspects. An overview of the positive and negative impacts of the program on all stakeholders involved in monetization will be obtained. This study also hopes that information on the feasibility of implementing the program will be obtained through the SROI value. Information on the program's feasibility will be very useful in planning and decisions making for the development and duplication of programs in the future.

2. Methods

The impact measurement study using the SROI method refers to the previous successful research conducted by Bahri and Sulistiawati (2021); Suryani and Ikhlas (2021); and the Regulation of the Minister of Environment and Forestry of the Republic of Indonesia Number 1 of 2021 concerning the Program for Assessment of Company Performance Ratings in Environmental Management.

2.1 Data Collection

Data collection in the SROI study is divided into secondary 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 includes extracting outcomes and setting indicators through interviews and FGDs with identified and registered stakeholders.

2.2 Research Framework

The stages of the impact measurement study using the SROI method are carried out per the SROI guideline presented by Bahri and Sulistiawati (2021) and Suryani and Ikhlas (2021) as follows:

a. Scoping and identification of stakeholders

At this stage, the scope of the study is determined, including purpose, area coverage, activity scope, time scope, and type of SROI used. Identification of all members, both stakeholders and the community who give or receive the program's impact. Stakeholder identification is carried out by fulfilling the materialistic element relevant to the program and its significance. The scope of time for assessing impact performance measurement using the SROI method is determined from March 2019 to August 2021. study of impact performance measurement using

the SROI method is evaluative, namely, to measure the impact due to the Kampong AMOI Community Empowerment Program (Integrated Agro-Independent Village).

- b. Outcome mapping from each stakeholder
 Analysis of the theory of changes in the program is carried out to obtain the relationship between input, output, and outcome. Outcome mapping uses the principle of materiality. Only outcomes meet the materiality element relevant to the program and are significant.
- c. Determination of indicators and value of each outcome
 Determination of indicators or search for data from each outcome. at this stage, the determination of each outcome's financial approach or monetization is also carried out. The financial approach used is as follows: Market price, standard or reference price (price catalog), an example is using activity costs that can produce the same outcome, the risk is using a cost approach that arises if the outcome does not occur, and opportunity is using an opportunity approach that arises due to the outcome occurring, and value game for outcomes that are very difficult to measure
- d. Impact fixation
 A recheck is carried out on the calculation of the outcome of each stakeholder by considering the following factors, including deadweight or changes that must occur without a program, attribution, or contribution of other parties in obtaining the outcome, and displacement or judgment about how many results replace other results. This study did not use the drop-off attribute because all the calculated outcomes had already occurred. Meanwhile, the calculation of the outcome after fixation of the impact uses the equation (1).

$$\text{Outcome After Fixation} = \text{Outcome Before Fixation} - (\% \text{Deadweight} \times \text{Outcome Before Fixation}) - (\% \text{Attribution} \times \text{Outcome Before Fixation}) - (\% \text{Displacement} \times \text{Outcome Before Fixation}). \quad (1)$$

The calculation results of each outcome after fixation are obtained by considering deadweight, attribution, and displacement.

- e. SROI calculation
 SROI calculation considers changes in currency values. The total outcome value that has been fixed or after the discount will be converted into one value in the present value. To calculate the present value of the total outcome value that has been fixed, use the formula (2).

$$\text{Present Value} = \frac{\text{Value of impact in year 1}}{(1+r)} + \frac{\text{Value of impact in year 2}}{(1+r)^2} + \frac{\text{Value of impact in year 3}}{(1+r)^3} + \frac{\text{Value of impact in year 4}}{(1+r)^4} + \frac{\text{Value of impact in year 5}}{(1+r)^5} \quad (2)$$

Where r is the interest rate determined by Bank Indonesia for that year, in this calculation, the interest rate refers to the interest rate set by Bank Indonesia in 2020 and 2021, which is an average of 3.5%. Meanwhile, the value of SROI is calculated using equation (3).

$$\text{SROI} = \frac{\text{Present value}}{\text{Total investment value}} \quad (3)$$

3. Result and Discussion

3.1 Overview of Kampong AMOI program

Kampong AMOI (Integrated Agro-Independent Kampong) is a community empowerment program that aims to increase community income through 3 integrated agro activities: perennial plant breeding, composting, broiler cultivation, a form of utilization of ex-mining land and other non-productive lands. This program also introduces a new composting method in pit bentonite zeolite composting (Anifah, 2014; Romawati, 2018). The Kampong AMOI (Integrated Agro-Independent Village) program was implemented in 3 places, namely Riding Panjang Village, Merawang District, Bangka Regency and Air Putih Village, and Tanjung Village, Muntok District, West Bangka Regency. The targets of this program are the Sinar Harapan Gapoktan in Riding Panjang Village, KWT Perkasa Air Putih Village, the Abadi Superior Livestock Group in Air Putih Village, and the Tanjung Jaya Gapoktan. Casual workers, including tin miners, dominate members of these community groups.

3.3 Stakeholder Identification

Stakeholder identification is carried out by conducting an inventory of data collection of all actors in contact with the Kampong AMOI Community Empowerment Program (Integrated Agro-Independent Village). Stakeholders who have been in the data are then screened using the materiality principle. In this case, the stakeholders involved in the study must meet the materiality element, which is relevant to the program and significant.

Table 1. Stakeholder identification

No	Name and Stakeholder Category	Role	Reason for Involvement
1	PT Timah Tbk Unit Metalurgi Muntok (Private Sector)	As the initiator, mover, and funder of the program	PT Timah Tbk Metallurgical Unit Muntok fulfills the element of materiality because it is the initiator, driver, and donor of the program
2	PT TAM (Private Sector)	As a target group's business partner	PT TAM does not fulfill the materiality element because it is the subject or actor of the program that carries out seeding and composting
3	Gapoktan Sinar Harapan (Civil Society)	As a recipient of a program that does seeding and composting	The Sinar Harapan Gapoktan fulfills the element of materiality because it is the subject or actor of the program that carries out seeding and composting
4	KWT Perkasa Desa Air Putih (Civil Society)	As a recipient of a program that does seeding and composting	KWT Perkasa Desa Air Putih fulfills the element of materiality because it is the subject or actor of the program that carries out seeding and composting
5	Ternak Unggul Abadi Community (Civil Society)	As a recipient of the broiler cultivation program	The Eternal Superior Livestock Group fulfills the element of materiality because it is the subject or actor of the program that carries out broiler cultivation
6	Gapoktan Tanjung Jaya (Civil Society)	As the recipient of the program for breeding, composting, and broiler farming	Gapoktan Tanjung Jaya fulfills the element of materiality because it is the subject or actor of the program that carries out broiler farming
7	Riding Panjang Village Government (State)	As a program licensing provider	The Riding Panjang Village Government does not fulfill the materiality element because it only acts as a program permit provider. However, the role of the village government in providing land for activities is calculated as one of the attribution factors.
8	Air Putih Village Government (State)	As a program licensing provider	The Air Putih Village Government does not fulfill the materiality element because it only acts as a program permit provider. However, the role of the village government in providing land for activities is calculated as one of the attribution factors.
9	Tanjung Sub-district Government (State)	As a program licensing provider	The Tanjung Village Government does not fulfill the materiality element

No	Name and Stakeholder Category	Role	Reason for Involvement
			because it only acts as a program permit provider. However, the role of the village government in providing land for activities is considered one of the attribution factors.
10	Field Instructor of Desa Air Putih (Civil Society)	As a companion and supervisor of activities in the program	The Air Putih Village Field Agricultural Instructor does not fulfill the materiality element because it is not directly involved in the program
11	Field Instructor of Kelurahan Tanjung (Civil Society)	As a companion and supervisor of activities in the program	The Agricultural Instructor in Tanjung Kelurahan does not fulfill the materiality element because it is not directly involved in the program
12	Bangka Barat Governor (State)	Supporting the program by giving awards to PT Timah Tbk Metallurgical Unit Muntok	The Regent of West Bangka does not fulfill the element of materiality because it only plays a role in appreciating or giving awards.

3.4 Outcome Mapping

The outcome mapping process analyses the theory of change with several interventions carried out by PT Timah Tbk Metallurgical Unit Muntok to obtain the impact of changes or outcomes of the Sinar Harapan Gapoktan. The intervention was to carry out a community empowerment program by integrating agro activities for perennial plant breeding, composting, and broiler cultivation. These interventions' results will generate common conditions or desired outcomes, and an overview of inputs, outputs, and outcomes can be seen in Table 2.

Table 2. Outcome mapping for each stakeholder

Stakeholder	Activities	Output	Outcome
PT Timah Tbk Unit Metalurgi Muntok (Private Sector)	Program initiators, movers, and donors	<ul style="list-style-type: none"> Managed perennials nursery area by target community groups with a total area of 790 m² (3 locations) with a total of 28674 seedlings produced Availability of 14 pit bentonite zeolite composting Utilization of organic waste into compost using a composting pit as much as 200 kg of waste per pit composting reactor per 1 cycle Availability of 3 chopping machines and infrastructure for composting in 3 villages Availability of 1000 chicks for broiler cultivation 4 groups accompanied by organizational governance 	<ul style="list-style-type: none"> Increasing group income through nursery sales Improving the ability of group members to conduct nurseries Company cost savings for the procurement of perennial plant seeds Increased cooperation of group members
Gapoktan Sinar Harapan dan KWT Perkasa	Program recipients who carry out	<ul style="list-style-type: none"> Availability of 14 pit bentonite zeolite composting Utilization of organic waste 	<ul style="list-style-type: none"> Increasing group income through the sale of compost Company cost savings for

Stakeholder	Activities	Output	Outcome
Air Putih (Civil Society)	seeding and composting of organic waste using the Bentonite Zeolite Pit Composting method	into compost using pit composting as much as 200 kg of waste per pit composting reactor per 1 cycle <ul style="list-style-type: none"> • Availability of 3 chopping machines and infrastructure for composting in 3 villages 	compost procurement <ul style="list-style-type: none"> • Reducing the burden of CO₂ emissions to the environment from the use of waste so that the community does not burn it • Increased cooperation of group members
Ternak Unggul Abadi Community (Social Society)	Broiler farming	<ul style="list-style-type: none"> • Availability of 2 broiler farming infrastructures in 2 villages • Availability of 1000 chicks for broiler cultivation 	<ul style="list-style-type: none"> • Members can cultivate broilers • Group members can increase group income through the sale of broilers • Increased cooperation between group members
Gapoktan Tanjung Jaya (Civil Society)	Doing breeding, composting, and broiler cultivation	4 groups accompanied by organizational governance	<ul style="list-style-type: none"> • Capacity building of group members in group governance • Increasing cooperation and solidarity among group members

It is necessary to determine the indicators and financial income techniques used to calculate the value of each outcome. Indicators are a way of knowing that a change has occurred. Meanwhile, the financial approach is a monetization technique or changing value. Impact fixation is carried out by rechecking the outcome calculation of each stakeholder by considering the following factors (Arvidson et al., 2014):

- Deadweight or changes that are certain to occur without a program.
- Attribution or contribution of other parties in obtaining the outcome.
- Displacement or judgment about how much a result replaces another result. This study does not use the drop-off attribute because all the calculated outcomes have occurred.

Deadweight value is determined by comparing or benchmarking on similar conditions or the same group of people as program beneficiaries. By looking at similar conditions or the same group of people as controls, a picture of the condition of program beneficiaries can be obtained if they do not receive program intervention. Meanwhile, attribution is determined by analyzing the role or contribution of other parties in the program. Determination of the amount of attribution can be seen from the percentage of budget contributions in the program, the percentage of time contributions, and the percentage of other input contributions. At the same time, the displacement is determined by looking at the possibility of a displacement of results that replace other results (Suryani and Ikhlas, 2021). For example, the program provides benefits in this case, namely eliminating or reducing an adverse condition. It is necessary to ensure whether the adverse condition is transferred to other areas that are not the program's target. The magnitude of the displacement will determine the displacement value. Deadweight, attribution, and displacement values are expressed as percentages for each outcome.

3.5 Scoring and Calculation of SROI

The calculation of SROI is considered to include all outcomes derived from 2019 to 2021. The input value for the Kampong AMOI Community Empowerment Program (Integrated Agro-Independent Village), namely PT Timah Tbk Metallurgical Unit Muntok (Private Sector) in 2019 with an investment value of IDR 91,409,336, in 2020 reached IDR 110,093,700, the following year, 2021, the investment value reached IDR 120,622,800. The total investment value reaches IDR 322,125,836. After inputting the

investment value, the outcome value after fixing the Kampong AMOI community empowerment program (Integrated Agro-Mandiri Village) is stated in Table 3.

Table 3. Outcome value recapitulation after fixation

No	Stakeholder	Outcome Value After Fixation (Rp)			Total
		2019	2020	2021	
1	PT Timah Tbk Unit Metalurgi Muntok (Private Sector)	23,909,800	36,967,900	45,840,000	106,717,700
2	Gapoktan Sinar Harapan (Civil Society)	102,327,578	102,471,130	109,757,934	314,556,642
3	KWT Desa Air Putih (Civil Society)	0	127,377,333	88,039,772	215,417,105
4	Ternak Unggul Abadi Community (Civil Society)	0	46,521,743	10,966,864	57,488,607
5	Gapoktan Tanjung Jaya (Civil Society)	0	0	174,878,872	174,878,872
Outcome After Fixation		126,237,378	313,338,106	429,483,442	869,058,926

SROI calculation takes into account changes in currency values. Therefore, the total value of the outcome that has been fixed or after the discount will be converted into one value in the form of the present value.

$$\text{Present Value} = \frac{\text{IDR } 126,237,378}{(1 + 0.035)} + \frac{\text{IDR } 313,338,106}{(1 + 0.035)^2} + \frac{429,483,442}{(1 + 0.035)^3}$$

$$\text{Present Value} = \text{Rp } 811.275.807$$

Next is to determine the value of the SROI for the Kampong AMOI Empowerment program (Integrated Agro-Independent Village) using the following equation.

$$\text{SROI} = \frac{\text{Present Value}}{\text{Total Investment Value}}$$

$$\text{SROI} = \frac{\text{Rp } 811,275,807}{\text{Rp } 322,125,836} \text{SROI} = 2.518$$

Based on calculations using the above equation, the program's Social Return on Investment (SROI) value is 2,518. The value of this ratio indicates that the Kampong AMOI (Integrated Agro-Independent Village) Empowerment program is still feasible to implement. As it can be seen in Table 3, Gapoktan Sinar Harapan receive the highest benefit of the program which followed by KWT Desa Air Putih and Ternak Unggul Abadi Community. At the same time, Gapoktan Tanjung Jaya receives the lowest amount of benefit from the program. This value also has some necessary meaning for the development of the program. The program can create a sustainable living community that can control its environment (Badaruddin et al., 2021). The social innovation that the company has created also has many beneficiaries, which resulted in higher SROI values compared to other CSR program. For instance, PT. Badak NGL resulted only 1.59 for their 3-years CSR program (Gunawan et al., 2021). PT. Pertamina Fuel Terminal Maos Cilacap can create a SROI ratio of 1.34 for their CSR program (Suryani and Ikhlas, 2021). This result also means that the appropriate program has been implemented in the targeted area. The SROI method under this evaluation study proofing several advantages such as (Moroń and Klimowicz, 2021):

- SROI can be used for assessing the long-term impact of a program based on social, environmental, and its economic value to the community
- SROI gives a broader view for determining the stakeholders that involve in the program
- SROI can also be used for evaluating public-private partnerships (PPP), which focuses on the innovative social cooperation in a specific program

4. Conclusions

The Kampong AMOI Community Empowerment Program (Integrated Agro-Independent Village) has an SROI value of 2,518. This result shows that every IDR 1 invested has a benefit or impact value of IDR 2,518. Thus, the program is classified as feasible to be continued. This result is essential to judge whether the CSR program should be continued or not and can be duplicated or not. The result also means that the targeted community can benefit from the program. However, this framework is limited to measuring the program's direct impact on the community. As a previous study reported, the program's multiplier or indirect effect cannot be accessed (Courtney and Powell, 2020). Moreover, other limitations such as social functioning improvement and sensitivity analysis are excluded from the analysis, which may give many possibilities of subjectivity. Therefore, further studies should also consider this limitation to enhance the quality of the presented analysis.

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