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Performance Measurement of the Impact of Social Return on Investment (SROI) of the Jayakarta Agro-Educational Tourism Program of PT XYZ

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Abstract. *The impact analysis of PT XYZ Corporate Social Responsibility (CSR) program using the Social Return on Investment (SROI) method focuses on the company's flagship initiative, the Agro-Educational Tourism Jayakarta program, located in Jatinegara Kaum Village, Pulo Gadung District, East Jakarta. This program has been a collaboration between PT XYZ and the Rumah Kaum Jayakarta Forest Farmers Group (KTH) since 2021. The impact assessment utilized both quantitative and qualitative data collected through periodic financial reports, in-depth interviews, and focus group discussions (FGD). The SROI value of the Agro-Educational Tourism Jayakarta program was 3,58, indicating that every one rupiah invested by PT XYZ generated 3,52 rupiah of economic, social, and environmental benefits. The total net benefit, after a 15% deadweight adjustment, amounted to Rp4.928.800.674 over the 2021–2023 period. The identified benefits include: (a) enhanced horticultural cultivation skills, (b) increased income from horticultural product sales, (c) strengthened social capital such as cohesion and solidarity, (d) reduced organic and inorganic waste through maggot cultivation and creative recycling, and (e) the emergence and dissemination of environmental awareness movements. The total CSR investment under the empowerment category for this program reached Rp1.399.345.270 over three years (2021–2023). The Agro-Educational Tourism Jayakarta program effectively addressed local waste management challenges by establishing an integrated waste management system to minimize waste generation, environmental degradation, flood risk, and disease. The program also introduced an innovative system that transformed waste into a savings-based investment tool, integrating it with environmental preservation through fun-learning-based educational tourism packages designed to foster "Earth Guardians" in Jatinegara Kaum Village. The program's novelty lies in its combination of (a) cultural and religious tourism centered on Prince Jayakarta, (b) agro-education applying fun learning methods for horticulture and waste management, (c) waste processing through maggot cultivation, composting, and creative recycling, and (d) creative economic development through waste banking and the facilitation of the Jayakarta Joint Business Group (KUBE) to support local MSMEs. From a Life Cycle Assessment (LCA) perspective, Agro-Educational Tourism Jayakarta contributes to reducing Global Warming Potential (GWP) through waste processing that lowers methane (CH_4) emissions and tree planting efforts supporting Net Zero Emission (NZE) initiatives. The program achieved tangible outcomes, including: reduction of 9,3 tons/year of inorganic waste and 5,4 tons/year of organic waste, mitigation of 221,55 kg of CH_4 and 7.532,7 kg CO_2-eq emissions, an average income of Rp99.600.000/year per KTH member, increased social cohesion, a membership growth from 33 to 47 members, and engagement of 23 potential Bank Sampah replication customers in Duren Sawit District.*

Keywords: SROI; Agro-Educational Tourism; CSR; Social Impact; PT XYZ

INTRODUCTION

Everyday human activities generate both constructive and destructive impacts, influencing the world socially, economically, and environmentally. As such, it is essential to measure the impact of these activities to evaluate their effectiveness and sustainability. Impact measurement helps assess a program's success, not only through its planning phase

but also during its implementation and evaluation. Program evaluation provides critical insights into the outcomes generated throughout its life cycle, ensuring that goals are met and resources are used efficiently.

There are several reasons why impact measurement is crucial: to identify program achievements at each stage, ensure the program stays on track, prevent unexpected setbacks, enhance the efficiency of resource utilization, and serve as a communication tool for all stakeholders. Regular impact assessments also demonstrate a program's commitment to transparency and accountability, fostering trust with the public. One of the widely recognized methods for measuring social and environmental impacts is the Social Return on Investment (SROI) approach.

SROI is a measurement framework that enables organizations to understand and manage the social, environmental, and economic value they create. It not only quantifies outcomes but also aims to reduce inequality, mitigate environmental degradation, and improve overall well-being by incorporating social, environmental, and economic costs and benefits. By monetizing the overall impacts, SROI enables comparisons between the total social value generated and the investment required, offering a clear picture of the program's net value.

PT XYZ has implemented several Corporate Social Responsibility (CSR) programs, with the Jayakarta Agro-Educational Tourism Program being one of its flagship initiatives. This program, in collaboration with the Rumah Kaum Jayakarta Forest Farmers Group (KTH), has been operational since 2021. Over the past three years, the program has generated a mix of positive and negative impacts. This study focuses on evaluating the impacts of the Jayakarta Agro-Educational Tourism Program and offers strategic recommendations for its continued improvement.

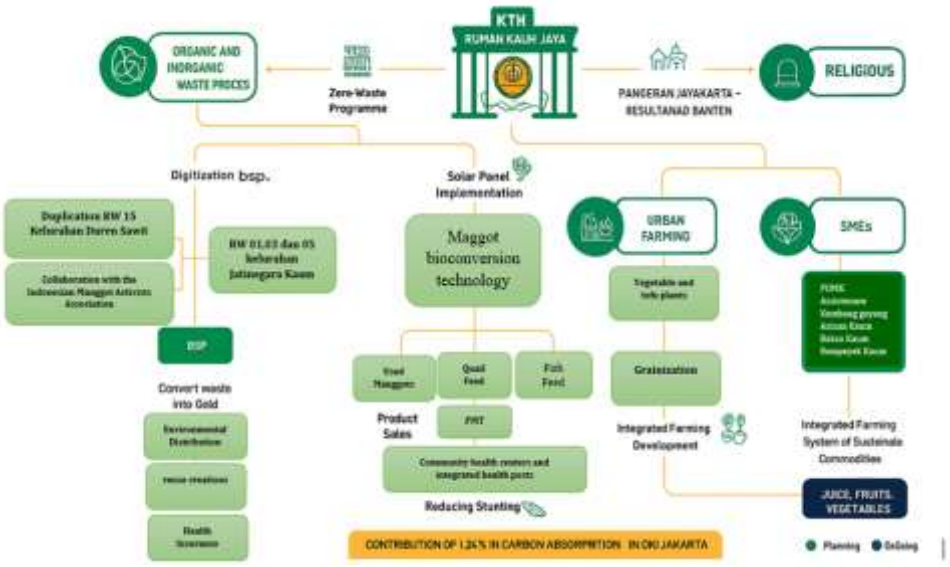

Figure 1. Overview Diagram of the Jayakarta Agro-Educational Tourism Program

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The Jayakarta Agro-Educational Tourism Program comprises three thematic clusters:

Seoul and Serenity Tours, which focuses on cultural and religious tourism centered on the historical legacy of Prince Jayakarta.

Agroheritage Journey, which applies a fun learning concept to educate visitors

about horticulture and waste management practices.

Renewcycle Solutions, which centers on processing organic and inorganic waste through maggot cultivation, compost production, and creative recycling.

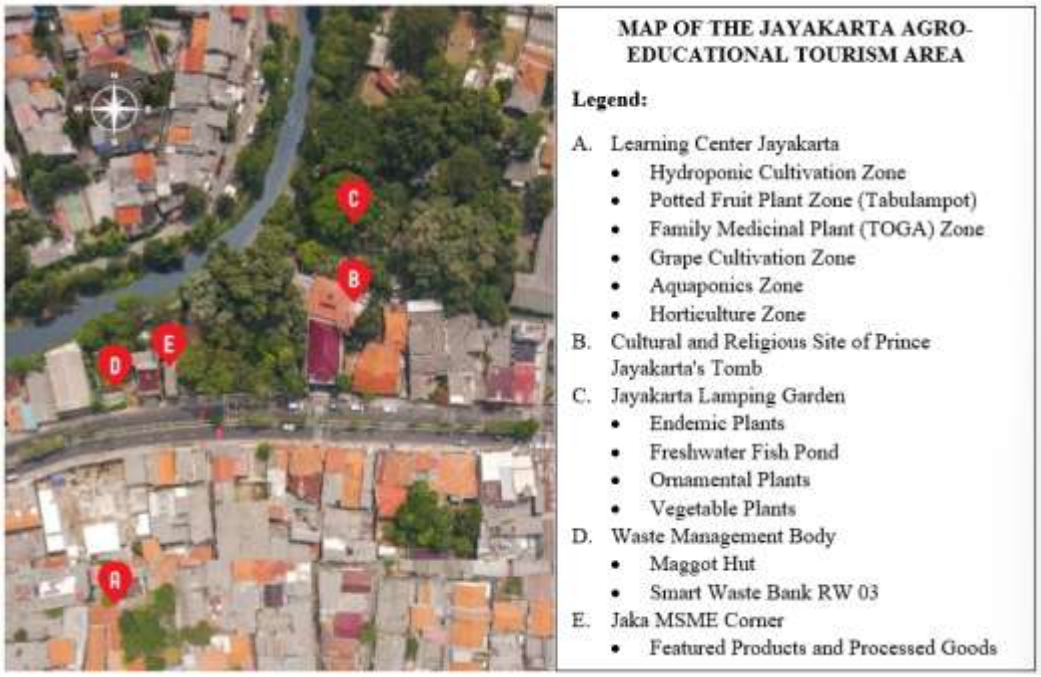

Figure 2. Map of the Jayakarta Agro-Educational Tourism Area

Figure 3. Package Composition of the Jayakarta Agro-Educational Tourism Program

IMPLEMENTATION METHODOLOGY

Research Design SROI Principles

The Social Return on Investment (SROI) method is widely used to measure social impact, incorporating both financial

and non-financial aspects to assess a program's outcomes. Unlike traditional financial metrics, which focus primarily on monetary value, SROI also considers social, economic, and environmental impacts. This broader approach allows organizations to gain a more comprehensive understanding of the value generated by their investments. One of the key strengths of SROI is its ability to assess the effectiveness of a program in addressing societal issues, going beyond financial return and considering the overall societal value created.

SROI employs a financial quantification (monetization) approach to measure the impact of a program. By comparing the social, environmental, and economic benefits generated by the program against the costs invested, SROI determines whether the program has been implemented effectively. This method helps to highlight the distribution of benefits among stakeholders, allowing an understanding of whether the program's outcomes are benefiting the primary target groups, or if they are disproportionately benefiting other groups.

The measurement of social investment impact carried out by PT XYZ adheres to the seven core principles of SROI, as outlined by Social Ventures Australia Consulting (2012). These principles provide a structured approach to impact assessment, ensuring the process is transparent, credible, and avoids overestimation. The seven principles are as follows:

1. **Involve stakeholders** - Actively engage stakeholders in the evaluation process to capture their perspectives and understand their experiences.
2. **Understand what changes** - Identify and quantify the changes that have occurred as a result of the program, including both intended and unintended outcomes.
3. **Value the things that matter** - Focus on outcomes that are important to stakeholders, ensuring that key impacts are captured in the evaluation.
4. **Only include what is material** - Ensure that only relevant impacts are included, excluding those that are insignificant or do not contribute meaningfully to the program's objectives.
5. **Do not overclaim** - Avoid overestimating the impact of the program. Acknowledge that some outcomes may be influenced by external factors or actions outside of the program's scope.
6. **Be transparent** - Maintain transparency throughout the evaluation process, ensuring that stakeholders have access to clear and understandable results.
7. **Verify the results** - Validate the findings through independent verification to ensure the credibility of the evaluation process.

SROI Assessment Stages

The SROI assessment involves a series of steps designed to minimize bias and ensure accurate measurement of the program's impact. The key stages of the SROI assessment are as follows:

1. **Defining Scope and Stakeholders**: Establish clear boundaries for the research and identify the stakeholders involved. This stage ensures that all relevant parties are included in the evaluation and that their perspectives are captured.
2. **Mapping Outcomes**: Determine the program's outcomes through impact mapping. This step visualizes the flow of activities, helping to identify the changes that have occurred and how they relate to the program's objectives.
3. **Assigning Value**: Collect and analyze data to quantify the identified outcomes. This involves both primary data (e.g., interviews, surveys) and secondary data (e.g., financial reports, industry

benchmarks) to assign a financial value to each outcome.

4. **Impact Fixation**: Exclude external factors that could overestimate the impact. This step ensures the accuracy of the results by applying appropriate adjustments such as deadweight (the impact that would have occurred anyway), displacement (when one activity displaces another), and attribution (the portion of impact attributed to the program).
5. **Calculating SROI:** Monetize the impacts by using financial indicators, including interest rate, present value, net present value, and payback period. These indicators help assess the financial return generated by the program relative to the investment made.

a. Interest rate

Interest rates play a crucial role in calculating SROI, as they are used to determine the present value of future benefits and costs. Bank Indonesia's interest rates are typically used as a reference for calculations, ensuring that the assessment reflects prevailing economic conditions. The following table 1 shows the interest rates used in this study.

b. Discount

To ensure the accuracy of SROI measurement and adhere to the principle of "do not overclaim," several deduction parameters are used. This principle asserts that organizations should only claim the value they directly create, excluding impacts generated by external factors or unplanned activities. To avoid overestimation, the following discounts or reductions are applied to the calculated value of benefits received by the community, as shown in Table 2.

Table 1. Bank Indonesia interest rates 2019-2023.

No	Year	Interest Rate	Data Source
1	2019	5%	Bank Indonesia
2	2020	3.75%	Bank Indonesia
3	2021	3.5%	Bank Indonesia
4	2022	3.75%	Bank Indonesia
5	2023	3.75%	Bank Indonesia

Table 1. Elements of value reduction or *discount*

No	Reducing Elements	Information	Range Value
1	*Deadweight*	Reduction in impact value because the object also obtains knowledge from other parties (Companies, schools, or other parties) other CSR activity providers)	0%- 10%
2	*Displacement*	Reduction in impact value caused by the possibility of placement errors in 3 assessment aspects.	0%- 10%
3	*Attribution*	Reduction of impact value according to the attribution received by taking into account attributions from other parties.	0%- 10%
4	*Drop off*	Annual decrease in value according to with the duration of the benefits received.	0%- 10%

SROI Measurement Tools

To assess the SROI of a program, the following financial indicators are used:

a) *Present Value*: This refers to the current value of future cash inflows resulting from the social impacts monetized through CSR or social investment programs. It is calculated using the formula:

$$\text{Present Value} = \frac{1}{(1+i)\ n}$$

Where:

- i = is the interest rate (based on Bank Indonesia rates)
- *n*= is the number of periods

b) *Net Present Value*: is the total *present value* of all cash inflows obtained from monetization of CSR/social investment programs minus the investment value. Formula:

Net Present Value = Total Present Value – Investment

c) SROI (Social rate of Return on Investment): The SROI ratio is calculated by dividing the total present value by the total investment:

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

d) *Payback Period*: is the length of time needed to return social investment.

$$\textit{Payback Period} = \frac{\text{Investment}}{\text{Total Present Value}}$$

However, this study focuses on Assessment SROI, or the level of return on social investment made by the company.

1. Reporting: the findings from the SROI assessment are compiled, verified, and transparently communicated to stakeholders. This ensures that the results are credible, objective, and accurately reflect the program's impact.

Data collection technique

The data collection for the SROI assessment employed multiple methods to ensure comprehensive and reliable findings. These methods included:

1. **Observation**
   Both direct and indirect monitoring of community behaviors and environmental conditions were conducted to understand the social, economic, and cultural context of the area.
2. **In-Depth Interviews**: Interviews with key stakeholders were conducted to gather qualitative insights regarding the program's impacts and implementation processes.
3. **Focus Group Discussions (FGDs)**: FGDs were held with key community actors and marginalized groups to gather diverse perspectives and validate findings related to the overall condition and social dynamics of the area.
4. **Questionnaires**: Structured questionnaires complemented qualitative data by collecting measurable responses from beneficiaries, ensuring data triangulation and improving the accuracy of evaluating social impact.

Time and Place of Implementation

The SROI assessment was conducted at the Jayakarta Agro-Educational Tourism Program site in Jatinegara Kaum Village, Pulo Gadung District, East Jakarta.

IMPACT ACHIEVEMENT ANALYSIS

Scope Determination

1. **Resolution of Social Needs by Companies:** The Jayakarta Agro-Educational Tourism program, a collaboration between KTH Rumah Kaum Jayakarta and PT XYZ, was developed as a response to the recommendations from a social mapping study conducted in Jatinegara Kaum Village. The study highlighted a community in crisis, primarily due to increasing waste management issues and limited awareness of environmental conservation. Based on the findings, the potential of local institutions with an interest in agriculture was identified, leading to the collaboration between PT XYZ and KTH Rumah Kaum Jayakarta. This partnership aimed to address the community's social needs, including

waste management, environmental awareness, and the development of a creative economy for local small and medium enterprises (SMEs) in Jatinegara Kaum Village.

2. **Solutions to Social and Environmental Problems:** The solutions designed and The solutions developed and implemented through the Agro-Educational Tourism program are as follows:

As detailed in **Table 4**, the input provided for the program has led to significant positive impacts in the community. These include the establishment of institutions focused on waste management, environmental preservation, and creative economic development. Renovations to facilities such as Saung Maggot for organic waste processing, along with the supply of BSF flies for this purpose, have directly contributed to the community's ability to manage waste sustainably. Furthermore, the program has introduced educational and training initiatives aimed at increasing the skills of KTH members and the community in horticulture and waste management.

Table 2. Analysis of Insect Diversity Index

Solution Input	Impact
Implementation of cooperation between PT XYZ and KTH Rumah Kaum Jayakarta	The establishment of institutions actively collaborating on waste management, environmental preservation, and creative economic development.
Renovation of Saung Maggot for organic waste processing	Creation of an organic waste management facility, enabling the decomposition of organic waste by maggots, and producing kasgot (maggot remains) as fertilizer.
Supply of BSF flies for groups to process organic waste	Operationalization of organic waste management through maggot cultivation.
Education, socialization, and training on horticulture and MSME development	Increased capacity and skills among KTH members and the broader community.
Solar panel installation	Support for the Jayakarta Community House KTH's renewable energy initiatives.
Assistance with endemic tree and plant seedlings	Support for efforts to reduce global warming and conserve endemic plants in Jatinegara Kaum Village.
Socialization of digital-based waste bank management	Increased public awareness about digitalization in waste management.
Inventory of natural resources and plants in the KTH Rumah Kaum Jayakarta area	Creation of a comprehensive inventory of assets at the Jayakarta Community House KTH.
Introduction of the Jayakarta Agro-Educational Tourism package	Development of an educational tourism package for the public.

3. **The Relationship between the Company's Vision and Mission and the Social Needs of the Community**

PT XYZ, as the parent company in the precious metal processing and refining sector, has committed to realizing its vision and mission, as outlined in its 2021-2025 Strategic Plan **(Renstra).** The company is dedicated to becoming a leader with integrity by enhancing competencies and fostering economic independence in the communities surrounding its operations.

In line with this commitment, PT XYZ, through its Corporate Social Responsibility (CSR) division, implements community empowerment initiatives,

including the Jayakarta Agro-Educational Tourism Program. One of the primary objectives of this program is to develop the creative economy by establishing the Jayakarta Joint Business Group (KUBE), which will accommodate various types of MSMEs from Jatinegara Kaum Village. This initiative aims to support the economic independence of the community, with joint facilitation by PT XYZ and KTH Rumah Kaum Jayakarta.

Stakeholder Participation and Identification.

Stakeholder involvement is crucial for the successful implementation of community development programs. By involving multiple stakeholders, the program gains broader support, facilitating the expansion of its impact and recognition.

The Jayakarta Agro-Educational Tourism Program involves a range of stakeholders, each playing an essential role in the program's execution. The following table (**Table 5**) outlines the stakeholders involved in the program, along with their respective roles and levels of participation. Some stakeholders are more central, while others play a less significant role.

Tabel 3.2 Data Intensitas Kerusakan Agrilus sp. di Kecamatan Pinolosian

No	Stakeholder	Role/Participation
1.	Jayakarta Community House Group	Leading implementer of horticultural activities, waste management, and creative economic development.
2.	Community of Jatinegara Kaum Village	The local community is affected by the program's activities.
3.	Jatinegara Kaum Sub-district Government	Oversees and monitors the implementation of the program.
4.	Jatinegara Kaum Sub-district MSMEs (Jaka MSMEs)	Partners in creative economic development initiatives.
5.	Jakarta State University (UNJ)	Academic partner providing students for field practice and research in horticulture at KTH Rumah Kaum Jayakarta.
6.	Visitors to Jayakarta Agro-Educational Tourism	Participants in the educational tourism activities organized by KTH Rumah Kaum Jayakarta.
7.	PT XYZ Business Unit	Partners with KTH Rumah Kaum Jayakarta in supporting the program's activities.

2. **Mapping benefits, activities, and outputs**

Stakeholder involvement in the implementation of the Jayakarta Agro-Educational Tourism program brings benefits through collaborative activities that help achieve predetermined outputs/achievements. The following describes the mapping of benefits and activities carried out jointly with stakeholders in the Jayakarta Agro-Educational Tourism program (see Table 6).

3. Outcome Mapping of each stakeholder

Outcome mapping is a systematic approach to identifying and visualizing the benefits derived from the Jayakarta Agro-Educational Tourism program. These benefits are subsequently monetized to assess the economic impact received by beneficiaries based on the funds invested by the company. The following outlines the outcomes for each stakeholder group that benefited from the Jayakarta Agro-Educational Tourism program (see Table 7).

Table 2 Mapping of the outcomes of the Jayakarta Agro-educational tourism program

No	*Stakeholder*	*Outcome*	Explanation
1.	Jayakarta Community House Group	Increasing skills in cultivating horticultural crops	Horticultural cultivation skills through training in tanbulampot (fruit plants in pots), grape cultivation, and other vegetative propagation.
		Increased skills in organic waste management	Skills regarding making compost and organic fertilizer from kasgot (used maggots).
		Increased revenue from product sales	Income is obtained from the sale of Kaum MSME products, such as kembang goyang and Betawi pickles, which are marketed through bazaars and orders from consumers.
		Improving the health of the Jayakarta Community House group	Members of the Jayakarta Community House Community Group (KTH Rumah Kaum) carry out gardening and farming activities through *urban farming.*
		Increasing the skills of administrators in digital waste bank management	Socialization from PT XYZ and Pok Lisa Smart Waste Bank regarding the digitalization of Waste Banks
		Increasing social cohesiveness between groups of the Jayakarta Community House	Frequent interactions and activities together increase cohesiveness among members of the Jayakarta Community House KTH.
2.	The Community of Jatinegara Kaum Village	Increasing environmental cleanliness	The community carries out waste donation activities at the Smart Waste Bank drop boxes which are spread across 11 points in Jatinegara Kaum Subdistrict.
		Savings on the cost of purchasing organic fertilizer	Fertilizer from kasgot produced by KTH Rumah Kaum Jayakarta is distributed free of charge to the community if they need it.
3.	State University of Jakarta	Dissemination of the impact of social *movements*	The dissemination of impact is carried out through field practice activities, knowledge sharing, and training from academics at the KTH Rumah Kaum Jayakarta Learning Center.
4.	Visitors to Jayakarta Agro-educational Tourism	Increasing knowledge about agricultural cultivation	Information provided by tour guides to visitors regarding agriculture in Agro-educational tourism activities
		Increasing knowledge about waste management	Information provided by the tour guide to visitors regarding waste management in agro-educational tourism activities
		The feeling of happiness after learning and getting new information	The sense of satisfaction, curiosity, and increased knowledge of visitors creates a sense of happiness after visiting the KTH Learning Center because it is packaged with a *fun learning concept* .
5.	Jatinegara Kaum Subdistrict Government	Assisting the government in waste management	The existence of organic and inorganic waste management activities by KTH helps the sub-district in managing household waste from the community.

No	*Stakeholder*	*Outcome*	Explanation
		There is a permit for the socialization and implementation of the Jayakarta Community House activities	The sub-district was assisted by the KTH Rumah Kaum Jayakarta activities regarding waste socialization.
		Operational convenience of Jayakarta Agro-Educational Tourism	The *MoU* between KTH Rumah Kaum Jayakarta and PT XYZ facilitates operational activities.
6.	PT XYZ Business Unit	Increasing harmonious relations between companies and the community	The collaboration between KTH Rumah Kaum Jayakarta and PT XYZ has resulted in strong synergy between community groups and the company.
7.	Jatinegara Kaum Subdistrict MSMEs (Jaka MSMEs)	Increasing members' skills in making traditional foods	There are training sessions and demonstrations from experts on traditional food preparation.
		Increased income from MSME sales results	Sales of MSME products at bazaars and consumer orders increase traders' income.
		Improving members' skills in packaging MSME products	Marketing and *packaging training* provided by the company has a positive impact on improving the skills of MSME members in packaging.

Determination of indicators and values

1. Determination of indicators and values for each *outcome*

The indicators were formulated by identifying the achievements and changes experienced by beneficiaries following the Jayakarta Agro-Educational Tourism Program, which encompasses a series of activities, including waste management, environmental conservation, and creative economy development. The value determination and calculation (monetization) were based on primary data, namely field data from the Rumah Kaum Jayakarta Community Forest Management Unit (KTH), and secondary data, with links to the sources provided. **Table 8** illustrates the determination of indicators and values for each program outcome over the 2021-2023 period.

Table 3 Determination of indicators and values for each outcome of the Jayakarta Agro-educational tourism program in 2021-2023

No	Stakeholder	Outcome Mapping	Indicators and Events		Quantity or value
1	Jayakarta Community House Group	Increasing skills in cultivating horticultural crops	Improved grape cultivation skills	Calculating the cost of grape cultivation training	Number of members who obtained grape cultivation skills 2021: -2022: 232023: 30
			Increasing skills in implementing Fruit Plants in Pots (TANBULAMPOT)	Calculating the training costs for Fruit Plants in Pots (TANBULAMPOT)	Number of members who obtained the skill of Fruit Plants in Pots (TANBULAMPOT) 2021: -2022: 322023: 40

No	Stakeholder	Outcome Mapping	Indicators and Events		Quantity or value
			Increased skills in horticultural cultivation	Calculating the cost of horticultural cultivation training	Number of members who received horticultural activity skills 2021: 262022: 322023: 40
		Increased skills in organic waste management	Increasing organic and inorganic waste processing skills	Calculating the cost of organic fertilizer training	Number of members who received organic fertilizer training 2021: 262022: 322023: 40
			Increasing skills in processing organic waste into maggots	Calculating the cost of maggot cultivation training	Number of members who received maggot cultivation skills 2021: 262022: 322023: 40
		Increased revenue from product sales	Increased revenue from product sales	Calculating sales results from the maggot products produced	The number of sales of maggot products produced in 2021: -2022: 405 kg2023: 801 kg
				Calculating sales results from compost fertilizer products	Sales volume of compost fertilizer products produced 2021: 360 kg 2022: 900 kg 2023: 1240 kg
			Increased income from the sale of endemic plant seeds	Calculating the sales results of endemic plant seeds	Number of sales of endemic plant products 2021: 75 seedlings 2022: 100 seedlings 2023: 150 seedlings
			Reduce household expenses because you get a harvest from what you have planted.	Costs for purchasing chilies, vegetables, spices, etc.	Number of people who get harvest from planting horticultural crops: 2021: 53 kg x Rp37,000/kg2022: 64 kg x Rp37,000/kg2023: 90 kg x Rp37,000/kg
		Improving the health of the Jayakarta Community House group	Increased group health from activities	Calculating the cost of regular exercise	Number of members whose health improved 2021: 10 people 2022: 15 people 2023: 17 people
		Increasing the skills of administrators in digital waste bank management. Increasing the	Increasing the ability of management to manage Bank Sampah customer money	Calculating increased capabilities through financial management and literacy training	The number of administrators who experienced an increase in their ability to manage money 2021: 10 people 2022: 15 people 2023: 17 people

No	Stakeholder	Outcome Mapping	Indicators and Events		Quantity or value
		skills of waste bank administrators begins with training activities.	Increasing the ability of administrators to sort and manage inorganic waste that is deposited	Calculating capacity building through **waste management training**	Number of administrators capable of carrying out inorganic waste sorting and management activities 2021: 10 people 2022: 15 people 2023: 17 people
		Increasing social cohesiveness between groups of the Jayakarta Community House	Increased cohesiveness among group managers	Calculating the frequency of Jayakarta Community House group meetings	Number of management meeting frequencies 2021: 21 times 2022: 28 times 2023: 36 times
2	The Community of Jatinegara Kaum Village	Increasing environmental cleanliness	Increasing public awareness in managing waste	Counting the number of households participating in waste charity activities	Number of participants in the 2021 waste donation activity: 220 people2022: 450 people2023: 630 people
			Reduced costs for waste collection fees	Calculating savings on trash can transportation	Number of households that successfully reduced the waste levy budget in 2021: 55 RT 2022: 112 RT 2023: 157 RT
			Reducing the risk of flooding due to waste	Calculating the assumed amount of losses that will occur if flooding occurs in Jatinegara Kaum Subdistrict	Assumption of the number of flood disasters that occurred in 2021: 1 RW 2022: 2 RW 2023: 1 sub-district
		Savings on the cost of purchasing organic fertilizer	Reduced costs of purchasing organic fertilizer	Calculating the amount of organic fertilizer used as fertilizer by the community	The amount of waste used as organic fertilizer by the community 2021: 360 kg 2022: 900 kg 2023: 1240 kg
3	Jakarta State University (UNJ)	Dissemination of the impact of social *movements*	The increasing number of students who undertake field work practice every year	Counting the number of students who do field work practice	Number of students who carried out field work practice in the region 2021: 3 people 2022: 7 people 2023: 12 people
4	Visitors to Jayakarta Agro-educational Tourism	Increasing knowledge about agricultural cultivation	Increasing knowledge in horticultural cultivation	Counting the number of visitors who get information related to agricultural cultivation	Number of visitors to Agro-Educational Tourism 2021: 317 people 2022: 420 people 2023: 720 people
		Increasing knowledge	Increasing knowledge	Counting the number of visitors	Number of visitors to Agro-Educational

No	Stakeholder	Outcome Mapping	Indicators and Events		Quantity or value
		about waste management	regarding organic and inorganic waste processing	who received information related to how to process organic waste	Tourism 2021: 117 people 2022: 420 people 2023: 720 people
			Increased knowledge related to BSF culture	Counting the number of visitors who received information regarding how to process inorganic waste	Number of visitors to Agro-Educational Tourism 2021: 117 people 2022: 420 people 2023: 720 people
		The feeling of happiness after learning and getting new information	Increase in the number of visitors visiting Agrotourism	Counting the number of visitors who visit Agrotourism	Number of visitors to Agro-Educational Tourism 2021: 117 people 2022: 420 people 2023: 720 people
5	Jatinegara Kaum Subdistrict Government	Assisting the government in waste management	Helping the government reduce the need for waste transportation	Calculate the number of garbage trucks that transport garbage in the sub-district	The number of garbage trucks reduced in garbage transportation 2021: 50 times transported 2022: 67 times transported 2023: 53 times transported
		There is a permit for the socialization and implementation of the Jayakarta Community House activities	Counting the number of outreach activities carried out by the Jayakarta Community House Group	Calculating the number of outreach activities carried out by the Jayakarta Community House Group to the community per year	Number of socializations conducted and received official permission from the Jatinegara Kaum Village Government 2021: 4 times 2022: 7 times 2023: 5 times
		Ease of operation of Agro-Educational Tourism	Ease of operation of Smart Waste Bank	Calculating the standard costs incurred for renting the Smart Waste Bank operational building	Standard building rental fee per month 2020: Rp 800,0002021: Rp 500,0002022: Rp 1,000,000
6	PT XYZ Business Unit	Increasing harmonious relations between companies and the community	Calculating the number of meetings between the company and the Malam group	Calculating the number of meetings between the company and the Malam group	Number of meetings between the company (CDO, CSR) and the group 2021: 12 times 2022: 16 times 2023: 19 times
7	MSMEs in Jatinegara Kaum Subdistrict	Increasing members' skills in making traditional foods	Increasing members' skills in processing food products	Calculating the number of Kaum MSME members who received training to increase their capacity to make local food.	Number of MSME members who received capacity building training 2021: 112022: 142023: 20

No	Stakeholder	Outcome Mapping	Indicators and Events		Quantity or value
		Increased income from MSME sales results	Increased income from MSME sales results	Calculating sales results from MSME products	Number of sales of MSME products produced in 2021: 100 packages, 2022: 400 packages, 2023: 525 packages
		Improving members' skills in packaging MSME products	Increasing members' skills in processing food products	Calculating the number of MSME members who received training to increase MSME packaging capacity	Number of MSME members who received capacity building training 2021: 112022: 142023: 20

2. Monetization Approach

Monetization is the process of quantifying the impact generated by CSR activities. Impact monetization is carried out by referring to several sources that have become references in impact measurement. The choice of monetization naturally takes into account various aspects of objectivity and the environment in which the CSR activities are carried out. In calculating SROI, to avoid overclaiming, the monetization process considers certain reductions, namely:

1. **Deadweight**: The impact that would occur if the program were not implemented. In this case, a deadweight of 15 percent was identified for the Jayakarta Agro-Educational Tourism program. This indicates that, if the activity did not run, there would be other impacts occurring.
2. **Drop-off**: A decrease in the quality or impact over time. No drop-off was identified in the Jayakarta Agro-Educational Tourism program (i.e., zero) because a cautious approach was applied in measuring the impact.
3. **Displacement**: The occurrence of impacts before interventions from other company programs. In the analysis of the Jayakarta Agro-Educational Tourism program, no displacement was found.
4. **Attribution**: Involvement of other parties. This was not found in the analysis of the calculations of the Jayakarta Agro-Educational Tourism program.

Table 9 outlines the approach to monetization for the Jayakarta Agro-Educational Tourism program from 2021 to 2023. The table shows how different events and outcomes are linked to specific indicators, sources of financial data, and the methods used to calculate the monetized impact. By using this approach, the program's outcomes are transformed into quantifiable financial values, providing a clearer picture of the economic impact derived from CSR investments.

Table 4 Approach to monetization of the Jayakarta Agro-educational Tourism Program in 2021-2023

No	Indicators and Events		How many changes have occurred?	Where does this quantity come from?	What approach will be used to assign value to change	Where does the financial value come from?	Calculation of the quantity of change with the financial approach value
1	Improved grape	Calculating the cost of	Number of members	1. In-depth	Multiply the number	https://www.habiburrahman.org/beritafoto-149-	2021: - 2022: 23

No	Indicators and Events		How many changes have occurred?	Where does this quantity come from?	What approach will be used to assign value to change	Where does the financial value come from?	Calculation of the quantity of change with the financial approach value
	cultivation skills	grape cultivation training	who obtained grape cultivation skills 2021: -2022: 232023: 30	group interviews 2. CSR program implementation report	of members skilled in grape cultivation by the cost of grape cultivation training.	pelatihan_budidaya_anggur_impor_-_sabtu_21_januari.html	x IDR 300.000 2023: 30 x IDR 300.000
	Increasing skills in implementing Fruit Plants in Pots (TANBULAMPOT)	Calculating the training costs for Fruit Plants in Pots (TANBULAMPOT)	Number of members who obtained the skill of Fruit Plants in Pots (TANBULAMPOT) 2021: -2022: 322023: 40		Multiply the number of skilled members by the cost of TANBULAMPOT training	https://www.bebeja.com/pelatihan-sukses-membuahkan-tabulampot/	2021: -2022: 32 x IDR 1.500.000 2023: 40 x IDR 1.500.000
	Increased skills in horticultural cultivation	Calculating the cost of horticultural cultivation training	Number of members who received horticultural activity skills 2021: 262022: 322023: 40		Multiply the number of skilled members by the cost of horticultural training	https://toko.sentratani.com/pelatihan-pertanian-peternakan-organik-modern-penginapan1	2021: 26 x IDR 1.600.000 2022: 32 x IDR 1.600.000 2023: 40 x IDR 1.600.000
	Increasing organic and inorganic waste processing skills	Calculating the cost of organic fertilizer training	Number of members who received organic fertilizer training 2021: 262022: 322023: 40	1. In-depth group interviews 2. CSR program implementation report	Multiply the number of skilled members by the cost of organic fertilizer production training.	https://diklatcenter.com/tag/biaya-pelatihan-pengelolaan-sampah-2022/	2021: 26 x IDR 6.000.000 2022: 32 x IDR 6.000.000 2023: 40 x IDR 6.000.000
	Increasing skills in processing organic waste into maggots	Calculating the cost of maggot cultivation training	Number of members who received maggot cultivation skills 2021: 262022: 322023: 40		Multiply the number of skilled members by the cost of maggot cultivation training	https://www.superprof.co.id/saya-janjikan-jasa-pelatihan-budidaya-maggot-bsf-dan-juga-bimbingan-budidaya-maggot-bsf-serta-program-kemitraan.html	2021: 26 x IDR 550.000 2022: 32 x IDR 550.000 2023: 40 x IDR 550.000
	Increased revenue from product sales	Calculating sales results from the maggot products produced	The number of sales of maggot products produced in 2021: -2022: 405 kg2023: 801 kg	1. Website bsp.id 2. CSR implementation report 3. Group sales records	Multiply the number of maggots produced by the price of maggots per package	Price of maggots sold by the group	2021: -2022: 405 x IDR 35.000 2023: 801 x IDR 35.000
		Calculating sales results from	Sales volume of compost		Multiply the sales proceeds of	Selling price of compost fertilizer	2021: 360 x IDR

No	Indicators and Events		How many changes have occurred?	Where does this quantity come from?	What approach will be used to assign value to change	Where does the financial value come from?	Calculation of the quantity of change with the financial approach value
		compost fertilizer products	fertilizer products produced 2021: 360 kg 2022: 900 kg 2023: 1240 kg		compost fertilizer by the selling price of compost fertilizer		15.000 2022: 900 x IDR 15.000 2023: 1240 kg x IDR 15.000
	Increased income from the sale of endemic plant seeds	Calculating the sales results of endemic plant seeds	Number of sales of endemic plant products 2021: 75 seedlings 2022: 100 seedlings 2023: 150 seedlings		Multiply the sales proceeds of endemic plant seeds by the price of the seeds	Price of endemic plants	2021: 75 seeds x IDR 21.000 2022: 100 seeds x IDR 21.000 2023: 150 seeds x IDR 21.000
	Reduce household expenses because you get a harvest from what you have planted.	Costs for purchasing chilies. vegetables. spices. etc.	Number of people who get harvest from planting horticultural crops: 2021: 53 kg x Rp37.000/kg 2022: 64 kg x Rp37.000/kg 2023: 90 kg x Rp37.000/kg		Multiply the number of people who get the harvest by the average harvest yield per year.	Current vegetable prices (chili prices. because the regular harvest is chili) August 2023 Kramatjati Market	2021: 53 kg x IDR 37.000 2022: 64 kg x IDR 37.000 2023: 90 kg x IDR 37.000
	Increased group health from activities	Calculating the cost of regular exercise	Number of members whose health improved 2021: 10 people 2022: 15 people 2023: 17 people	Average number of group members who are regularly active in KTH activities	Cost of exercising at the gym or sports center	https://fithub.id/	2021: 10 x 12 x Rp. 249.000 2022: 15 x 12 x Rp. 249.000 2023: 17 x 12 x Rp. 249.000
	Increasing the ability of management to manage Bank Sampah customer money	Calculating increased capabilities through financial management and literacy training	Number of administrators who experienced an increase in their ability to manage money 2021: 10 people 2022: 15 people 2023: 17 people		Calculate the cost of a money management training workshop multiplied by the number of administrators.	https://e-trainingonline.com/course/financial-management/	2020: 10 people x Rp 3.800.000 2021: 15 people x Rp 3.800.000 2022: 17 people x Rp 3.800.000

No	Indicators and Events		How many changes have occurred?	Where does this quantity come from?	What approach will be used to assign value to change	Where does the financial value come from?	Calculation of the quantity of change with the financial approach value
	Increasing the ability of administrators to sort and manage the inorganic waste that is deposited	Calculating capacity building through waste management training	Number of administrators capable of carrying out inorganic waste sorting and management activities 2021: 10 people 2022: 15 people 2023: 17 people		Multiplying the number of administrators who are able to carry out inorganic waste sorting and management activities	https://bisnisukm.com/pelatihan-pengolahan-sampah.html	2020: 10 people x Rp 2.500.000 2021: 15 people x Rp 2.500.000 2022: 17 people x Rp 2.500.000
	Increased cohesiveness among group managers	Calculating the frequency of Jayakarta Community House group meetings	Number of management meeting frequencies 2021: 21 times 2022: 28 times 2023: 36 times	CSR implementation report	Multiply the number of KTH manager meeting frequencies by the HOK value per working hour	HOK Jakarta	2021: 21 x IDR 120.000 2022: 28 x IDR 120.000 2023: 36 x IDR 120.000
2	Increasing public awareness in managing waste	Counting the number of households participating in waste donation activities	Number of participants in the 2021 waste donation activity: 220 people2022: 450 people2023: 630 people	1. CSR implementation report 2. Group activity attendance	Multiply the cost of waste management training by the number of households participating in the waste donation activity.	https://klinikinagrotek.piat.ugm.ac.id/paket-pelatihan/	2021: 220 people x Rp150.000 2022: 450 people x Rp150.000 2023: 630 people x Rp150.000
	Reduced costs for waste collection fees	Calculating savings on trash can transportation	Number of households that successfully reduced the waste levy budget in 2021: 55 RT 2022: 112 RT 2023: 157 RT		Multiplying the cost of garbage collection by the number of households can save on garbage budget.	Fee per household	2021: 55 RT x IDR 50.000 2022: 112 RT x IDR 50.000 2023: 157 RT x IDR 50.000
	Reducing the risk of flooding due to waste	Calculating the assumed amount of losses that will occur if flooding occurs in Jatinegara Kaum Subdistrict	Assumption of the number of flood disasters that occurred in 2021: 1 RW 2022: 2 RW 2023: 1 sub-district		Multiply the number of disaster areas by the losses incurred if a flood occurs.	https://repository.ipb.ac.id/handle/123456789/114673	2021: 1 RW x Rp16.099.600 2022: 2 RW x Rp16.099.600 2023: 1 sub-district x Rp160.996.000

No	Indicators and Events		How many changes have occurred?	Where does this quantity come from?	What approach will be used to assign value to change	Where does the financial value come from?	Calculation of the quantity of change with the financial approach value
	Reduced costs of purchasing organic fertilizer	Calculating the amount of organic fertilizer used as fertilizer by the community	The amount of waste used as organic fertilizer by the community 2021: 360 kg 2022: 900 kg 2023: 1240 kg		Multiply the amount of organic fertilizer by the difference in the price of fertilizer purchased by the community	Selling price of compost fertilizer	2021: 360 x IDR 15.000 2022: 900 x IDR 15.000 2023: 1240 kg x IDR 15.000
3	The increasing number of students who undertake field work practice every year	Counting the number of students who do field work practice	Number of students who carried out field work practice in the region 2021: 3 people 2022: 7 people 2023: 12 people		Multiply the number of students participating in field work practice by the training costs for community empowerment activities.	https://pusdiklatpemendagri.com/bimtek-pelatihan-pendampingan-dan-pemberdayaan-masyarakat-desa/	2021 : 3 x IDR 4.500.000 2022 : 7 x IDR 4.500.000 2023 : 12 x IDR 4.500.000
4	Increasing knowledge in horticultural cultivation	Counting the number of visitors who get information related to agricultural cultivation	Number of visitors to Agro-Educational Tourism 2021: 317 people 2022: 420 people 2023: 720 people		Multiply the number of visitors who get information related to agricultural cultivation by the cost of the agricultural cultivation workshop.	https://bbptusapiperah.ditjenpkh.pertanian.go.id/?page_id=4078	2021: 117 people x Rp200.000 2022: 720 people Rp200.000 2023: 420 people x Rp200.000
	Increasing knowledge regarding organic and inorganic waste processing	Counting the number of visitors who received information related to how to process organic waste	Number of visitors to Agro-Educational Tourism 2021: 117 people 2022: 420 people 2023: 720 people	Guest book and data on the number of visitors to Agrotourism	Multiply the number of visitors by the price of the organic and inorganic waste management workshop	https://agrowisata.id/agro_kaa/index.php?page=training_package	2021: 117 people x Rp 150.000 2022: 420 people x Rp 150.000 2023: 720 people x Rp 150.000
	Increased knowledge related to BSF culture	Counting the number of visitors who received information regarding how to process	Number of visitors to Agro-Educational Tourism 2021: 117 people 2022: 420 people		Multiply the number of visitors by the price of the BSF processing workshop	https://ksbbpersampahan.com/paket-bantuan-pemeliharaan-maggot/	2021: 117 people x Rp2.000.000 2022: 420 people x Rp2.000.

No	Indicators and Events		How many changes have occurred?	Where does this quantity come from?	What approach will be used to assign value to change	Where does the financial value come from?	Calculation of the quantity of change with the financial approach value
		inorganic waste	2023: 720 people				000 2023: 720 people x Rp2.000.000
	Increase in the number of visitors visiting Agrotourism	Counting the number of visitors who visit Agrotourism	Number of visitors to Agro-Educational Tourism 2021: 117 people 2022: 420 people 2023: 720 people		Multiply the number of guests or visitors by the cost spent on each visit.	Guest book and data on the number of visitors to the Agrotourism	2021:117 people x IDR 30.000 2022:420 people x IDR 30.000 2023:720 people x IDR 30.000
5	Helping the government reduce the need for waste transportation	Calculate the number of garbage trucks that transport garbage in the sub-district	The number of garbage trucks reduced in garbage transportation 2021: 50 times transported 2022: 67 times transported 2023: 53 times transported	1. In-depth interviews with the sub-district officials 2. Assumptions on the amount of waste produced and the garbage trucks used	Multiply the number of residents of Jatinegara Kaum Subdistrict who participated in the waste donation activity by the cost of waste management training.	Garbage truck costs for transporting garbage	2021 : 50 x IDR 150.000 2022 : 67 x IDR 150.000 2023 : 73 x IDR 150.000
	Calculating the number of outreach activities carried out by the Jayakarta Community House Group	Calculating the number of outreach activities carried out by the Jayakarta Community House Group to the community per year	Number of socializations conducted and received official permission from the Jatinegara Kaum Village Government 2021: 4 times 2022: 7 times 2023: 5 times	1. In-depth interview with BSP 2. In-depth interview with Jatinegara Kaum Village Government	Calculate the amount of socialization conducted by comparing it with the HOK for each participant who attended the socialization. The HOK for each person is assumed to be Rp. 120.000.	Casual worker daily wages (HOK)	2021: 4 times x 25 people x Rp 120.000 2022: 7 times x 35 people x Rp 120.000 2023: 5 times x 30 people x Rp 120.000
	Ease of operation of Smart Waste Bank	Calculating the standard costs incurred for renting the Smart Waste Bank	Standard building rental fee per month 2020: Rp 800.000 2021: Rp 500.000		Calculating the standard costs incurred for renting the Smart Waste Bank	Standard building rental costs in the Jatinegara Kaum sub-district area	2021: Rp 1.000.000 x 12 months 2022: Rp 1.200.000 x 12 months

No	Indicators and Events		How many changes have occurred?	Where does this quantity come from?	What approach will be used to assign value to change	Where does the financial value come from?	Calculation of the quantity of change with the financial approach value
		operational building	2022: Rp 1.000.000		operational building		2023: Rp 1.500.000 x 12 months
6	Calculating the number of meetings between the company and the Malam group	Calculating the number of meetings between the company and the Malam group	Number of meetings between the company (CDO. CSR) and the group 2021: 12 times 2022: 16 times 2023: 19 times	1) In-depth interviews with group facilitators 2) In-depth interviews with the company	Assuming that each meeting removes one HOK from each person. The HOK of each person is assumed to be Rp. 150.000 in Jakarta.	HOK Jakarta	2021: 12 x 150.000 2022: 16 x 150.000 2023: 19 x 150.000
7	Increasing members' skills in processing food products	Calculating the number of Kaum MSME members who received training to increase their capacity to make local food.	Number of MSME members who received capacity building training 2021: 112022: 142023: 20	In-depth interviews with MSME groups	Multiply the number of MSME members who receive capacity building training by the cost of training in processing MSME products.	https://www.benefita.com/training.php?id=CSR-02&judul=Workshop%20Ekonomi%20Masyarakat	2021: 11 x IDR 7.900.000 2022: 14 x IDR 7.900.000 2023: 20 x IDR 7.900.000
	Increased income from MSME sales results	Calculating sales results from MSME products	Number of sales of MSME products produced in 2021: 100 packages 2022: 400 packages 2023: 525 packages		Multiply the number of MSME products produced by those sold	Selling price of MSME products	2021: 100 x IDR 35.000 2022: 400 x IDR 35.000 2023: 525 x IDR 35.000
	Increasing members' skills in processing food products	Calculating the number of members of the Kaum MSME who received training to increase their MSME packaging capacity	Number of MSME members who received capacity building training 2021: 112022: 142023: 20		Multiply the number of MSME members who receive capacity building training by the cost of training in processing MSME products.	https://siduta.pemkomedan.go.id/main/training/detail/140	2021: 11 x IDR 1.500.000 2022: 14 x IDR 1.500.000 2023: 20 x IDR 1.500.000

Impact Fixation and SROI Calculation

1. Explanation of Impact Fixation

After collecting outcome evidence and monetizing it, aspects of change that are more influenced by external factors must be considered for exclusion. The assessment should consider not only additions but also reductions in value due to the involvement

of other parties or the results being shared. This is commonly referred to as discounting. After monetization, the present value is the value after the discounting of the four deductible elements. The following are the deductible elements included in the SROI analysis (see Table 10 for details of the reduction in value).

Table 10: Reduction in value from the Agro-educational tourism program

No	Indicators of *outcomes* that receive a reduced value	Reduction in value	
		Dead-weight %	Attribute %
1.	Increasing skills in implementing Fruit Plants in Pots (TANBULAMPOT)	5 %	
2.	Increasing organic and inorganic waste processing skills	10%	
3.	Increased group health from activities	5%	
4.	Increasing the ability of management to manage Bank Sampah customer money	15%	
5.	Increasing the ability of administrators to sort and manage inorganic waste that is deposited	10%	
6.	Increasing public awareness in managing waste	5%	
7.	Reducing the risk of flooding due to waste		5%
8.	Increasing knowledge about agricultural cultivation	5%	
9.	Increasing harmonious relations between companies and the community		5%
10.	Increasing members' skills in making traditional foods	5%	

Some elements of value reduction are (1) **Dead weight**, which is the impact that will occur if the program is not implemented. In this case, a deadweight of 15 percent was found in the Jayakarta Agro-Educational Tourism program, meaning that if the activity does not run, it will create other impacts. (2) **Drop off** (decrease in quality) – there is no drop off identified in the Jayakarta Agro-Educational Tourism program (zero) because the precautionary principle is applied in measuring the impact. (3) **Displacement** of the impact occurs before there is intervention from other company programs, and this was not found in the analysis of the Jayakarta Agro-Educational Tourism program. (4) **Attribution** (involvement of other parties) was not found in the analysis of the calculation of the Jayakarta Agro-Educational Tourism program.

There are two reducing elements: dead weight and attribution. There are 10 reducing indicators consisting of 2 attribution indicators and 8 deadweight indicators. This is because there are other parties involved in the impact results felt by stakeholders. For example, in waste management, the community already understands the concept before the training, and there are other external factors that influence the impact results.

1. Determination of *Rate of Return*

To estimate the program's timeframe to achieve an SROI of 1 rupiah, a Rate of Return (Payback Period) calculation is performed. This refers to the time it takes for the program to generate social benefits worth 1 rupiah, considering the program's costs. The calculation for the rate of return is as follows:

***Rate of Return** = (Total Investment Value) / (Present Value / 36) = (Rp*

1.339.345.270) / (Rp 4.928.800.674 / 36) = 9.8 months.

Based on the calculation above, the Rate of Return needed is **9.8 months**, meaning that within this period, the Jayakarta Agro-Educational Tourism Program has been able to generate benefits equivalent to IDR 1.

2. Program investment value

The program investment value is the input value provided by stakeholders in the program being implemented. This input is in the form of a CSR budget for the last three years, allocated to the Jayakarta Agro-Educational Tourism Program. Over the three consecutive years, the company invested Rp334,000,000 in 2021, Rp441,000,000 in 2022, and Rp624,345,270 in 2023. The total investment is **Rp1.339.345.270**, as detailed in **Table 11**.

Program benefit value or *impact value*

SROI (Social Return on Investment) measures not only the monetary value or impact monetization but also analyzes how the impact is distributed among different stakeholders. It is essential to examine how the benefits of the program are distributed, identify the stakeholders who receive the most tremendous impact, and determine whether these stakeholders are the primary beneficiaries of the program. The following table provides a detailed breakdown of the impact value for each stakeholder involved in the Jayakarta Agro-Educational Tourism Program **(Table 12)**.

Table 11: Investment budget for the Jayakarta Agro-Educational Tourism Program

No	Investment	Investment Fund (Rp)*			
		2021	2022	2023	Total
1	CSR Funds of PT XYZ	334.000.000	441.000.000	624.345.270	1.339.345.270

Source: CSR fund allocation for Precious Metals UBPP, 2021 – 2023

Table 5: Total *impact value* of each *stakeholder*

Stakeholder	*Outcome*	*Impact value*			
		2021	2022	2023	Total
Jayakarta Community House Group	Improved grape cultivation skills	-	6.900.000	9.000.000	15.900.000
	Increasing skills in implementing Fruit Plants in Pots (TANBULAMPOT)	-	45.600.000	57.000.000	102.600.000
	Increased skills in horticultural cultivation	41.600.000	51.200.000	64.000.000	156.800.000
	Increasing organic and inorganic waste processing skills	140.400.000	140.400.000	140.400.000	421.200.000
	Increasing skills in processing organic waste into maggots	14.300.000	17.600.000	22.000.000	53.900.000
	Increased revenue from product sales	-	14.175.000	28.035.000	42.210.000
		5.400.000	13.500.000	18.600.000	37.500.000
	Increased income from the sale of endemic plant seeds	1.575.000	1.575.000	1.575.000	4.725.000
	Reduce household expenses by harvesting the benefits of what you have planted.	1.961.000	2.368.000	3.330.000	7.659.000

Stakeholder	Outcome	Impact value			
		2021	2022	2023	Total
	Increased group health from activities	28.386.000	42.579.000	48.256.200	119.221.200
	Increasing the ability of management to manage Bank Sampah customer money	32.300.000	48.450.000	54.910.000	135.660.000
	Increasing the ability of administrators to sort and manage inorganic waste that is deposited	22.500.000	33.750.000	38.250.000	94.500.000
	Increased cohesiveness among group managers	2.520.000	3.360.000	4.320.000	10.200.000
The Community of Jatinegara Kaum Village	Increasing public awareness in managing waste	31.350.000	64.125.000	89.775.000	185.250.000
	Reduced costs for waste collection fees	2.750.000	5.600.000	7.850.000	16.200.000
	Reducing the risk of flooding due to waste	15.294.620	30.589.240	152.946.200	198.830.060
	Reduced the costs of purchasing organic fertilizer	5.400.000	13.500.000	18.600.000	37.500.000
State University of Jakarta	The increasing number of students who undertake fieldwork practice every year	13.500.000	31.500.000	54.000.000	99.000.000
Visitors to Jayakarta Agro-educational Tourism	Increasing knowledge in horticultural cultivation	22.230.000	136.800.000	79.800.000	238.830.000
	Increasing knowledge regarding organic and inorganic waste processing	17.550.000	63.000.000	108.000.000	188.550.000
	Increased knowledge related to the BSF culture	234.000.000	840.000.000	1.440.000.000	2.514.000.000
	Increase in the number of visitors to Agrotourism	3.510.000	12.600.000	21.600.000	37.710.000
Jatinegara Kaum Subdistrict Government	Helping the government reduce the need for waste transportation	7.500.000	10.050.000	10.950.000	28.500.000
	Counting the number of outreach activities carried out by the Jayakarta Community House Group	12.000.000	29.400.000	18.000.000	59.400.000
	Ease of operation of Smart Waste Bank	12.000.000	14.400.000	18.000.000	44.400.000
PT XYZ Business Unit	Calculating the number of meetings between the company and the Malam group	17.100.000	22.800.000	27.075.000	66.975.000
People's MSMEs	Increasing members' skills in processing food products	82.555.000	105.070.000	150.100.000	337.725.000
	Increased income from MSME sales results	3.500.000	14.000.000	18.375.000	35.875.000

Stakeholder	*Outcome*	*Impact value*			
		2021	2022	2023	Total
	Increasing members' skills in processing food products	16.500.000	21.000.000	30.000.000	67.500.000
		748.391.088	787.681.620	1.835.891.240	2.734.747.400
Total *outcome*		787.681.620	1.835.891.240	2.734.747.400	5.358.320.260
Present Value		711.060.416	1.655.868.712	2.228.582.932	4.595.512.060
Total Investment		334.000.000	441.000.000	624.345.270	1.399.345.270
SROI Ratio		**2,13**	**3,75**	**3,57**	**3,28**

Calculation of *Present Value* (PV) of investment and benefits per year

Present value (PV) is the current value of a sum of money or cash flow that will be received in the future, considering a specific rate of return. The formula used to calculate the present value is **PV(n) = IMPACT(n) / (1 + r)^n,** where r represents the interest rate and n represents the number of periods. The present value highlights that the money we have today is worth more than the same amount in the future due to the time value of money.

The following **Table 13** presents the calculated **Present Value (PV)** for the **Jayakarta Agro-Educational Tourism Program** investment and benefits from 2021 to 2023. This table shows the annual PV for each stakeholder, highlighting the impact each one had based on the corresponding interest rates of 3.5%, 4%, and 5.75%.

Table 6: *Present Value* (PV) of investment from the Jayakarta Agro-educational Tourism Program

Stakeholder	*Outcome*	2021	2022	2023	Total
Jayakarta Community House Group	Improved grape cultivation skills	-	6.441.223,83	8.117.484,35	14.558.708,18
	Increasing skills in implementing Fruit Plants in Pots (TANBULAMPOT)	-	42.568.087,94	51.410.734,22	93.978.822,16
	Increased skills in horticultural cultivation	39.524.940,62	47.795.747,86	57.724.333,16	145.045.021,64
	Increasing organic and inorganic waste processing skills	133.396.674,58	131.064.902,33	126.632.755,88	391.094.332,79
	Increasing skills in processing organic waste into maggots	13.586.698,34	16.429.788,33	19.842.739,52	49.859.226,19
	Increased revenue from product sales	-	13.232.514,18	25.285.963,75	38.518.477,93
		5.130.641,33	12.602.394,45	16.776.134,33	34.509.170,11
	Increased income from the sale of endemic plant seeds	1.496.437,05	1.470.279,35	1.420.559,76	4.387.276,17
	Reduce household expenses by harvesting the	1.863.182,90	2.210.553,34	3.003.469,21	7.077.205,45

Stakeholder	*Outcome*	2021	2022	2023	Total
	benefits of what you have planted.				
	Increased group health from activities	26.970.071,26	39.747.952,11	43.524.327,59	110.242.350,96
	Increasing the ability of management to manage Bank Sampah customer money	30.688.836,10	45.228.593,43	49.525.673,97	125.443.103,51
	Increasing the ability of administrators to sort and manage inorganic waste that is deposited	21.377.672,21	31.505.986,14	34.499.308,49	87.382.966,84
	Increased cohesiveness among group managers	2.394.299,29	3.136.595,95	3.896.392,49	9.427.287,73
The Community of Jatinegara Kaum Village	Increasing public awareness in managing waste	29.786.223,28	59.861.373,66	80.971.906,40	170.619.503,34
	Reduced costs for waste collection fees	2.612.826,60	5.227.659,92	7.080.250,24	14.920.736,76
	Reducing the risk of flooding due to waste	14.531.705,46	28.555.382,86	137.948.709,45	181.035.797,77
	Reduced the costs of purchasing organic fertilizer	5.130.641,33	12.602.394,45	16.776.134,33	34.509.170,11
State University of Jakarta	The increasing number of students who undertake fieldwork practice every year	12.826.603,33	29.405.587,06	48.704.906,11	90.937.096,49
Visitors to Jayakarta Agro-educational Tourism	Increasing knowledge in horticultural cultivation	21.121.140,14	127.704.263,81	71.975.027,91	220.800.431,86
	Increasing knowledge regarding organic and inorganic waste processing	16.674.584,32	58.811.174,12	97.409.812,21	172.895.570,66
	Increased knowledge related to the BSF culture	222.327.790,97	784.148.988,31	1.298.797.496,16	2.305.274.275,44
	Increase in the number of visitors to Agrotourism	3.334.916,86	11.762.234,82	19.481.962,44	34.579.114,13
Jatinegara Kaum	Helping the government reduce	7.125.890,74	9.381.782,54	9.876.272,63	26.383.945,90

Stakeholder	*Outcome*	2021	2022	2023	Total
Subdistrict Government	the need for waste transportation				
	Counting the number of outreach activities carried out by the Jayakarta Community House Group	11.401.425,18	27.445.214,59	16.234.968,70	55.081.608,47
	Ease of operation of Smart Waste Bank	11.401.425,18	13.442.554,09	16.234.968,70	41.078.947,97
PT XYZ Business Unit	Calculating the number of meetings between the company and the Malam group	16.247.030,88	21.284.043,97	24.420.098,76	61.951.173,60
People's MSMEs	Increasing members' skills in processing food products	78.437.054,63	98.083.969,29	135.381.600,12	311.902.624,04
	Increased income from MSME sales results	3.325.415,68	13.069.149,81	16.573.197,22	32.967.762,70
	Increasing members' skills in processing food products	15.676.959,62	19.603.724,71	27.058.281,17	62.338.965,50
		748.391.088	**1.713.824.117**	**2.466.585.469**	**4.928.800.674**
Interest rate		r=3,5	r=4	r=5,75	
Present Value		748.391.088	1.713.824.117	2.466.585.469	4.928.800.674
Total Investment		334.000.000	441.000.000	624.345.270	1.399.345.270
SROI Ratio		2,24	3,89	3,95	3,52

1. Explanation of SROI value

The SROI value of the Jayakarta Agro-Educational Tourism Program over the past three years is 3.52. This means that for every Rp 1 invested by PT XYZ into the program, the program generates Rp 3.52 in economic, social, and environmental benefits. The program's activities have been successful in generating 3.52 times the initial investment in terms of value. The impact results show a significant return on investment, demonstrating the positive contribution of the program to the local community, the environment, and the economy. In reference to Tables 12 and 13, the total benefits and the calculation of the SROI are detailed, ensuring a thorough assessment of the program's impact.

7. Sensitivity Analysis

Sensitivity analysis is a technique used to assess how changes in key variables or conditions affect the results of the SROI. It provides insight into the potential risks or fluctuations in the program's outcomes. In the case of the **Jayakarta Agro-Educational Tourism Program**, the following factors are considered in the sensitivity analysis:

a) **The absence of waste transportation activities** leads to an increase in waste generation.

- If the program's waste management activities are not carried out efficiently, waste generation could rise significantly, reducing environmental benefits.

b) **Pest attacks on maggots** halt the waste processing process through maggot cultivation.

- If pest attacks prevent the maggot cultivation process, it would severely impact organic waste processing and reduce the effectiveness of waste management.

c) **Decrease in the number of agro-educational tourism visitors** due to external factors such as outbreaks (e.g., **Covid-19 pandemic**) or **air pollution**.

- Reduced visitor numbers would directly affect the program's revenue and the spread of knowledge about agro-tourism and waste management, limiting the social and economic benefits the program generates.

These variables highlight the program's vulnerability to changes in external conditions and emphasize the need for careful planning to mitigate these risks. Such factors are critical for understanding how changes can affect the SROI and overall program sustainability.

CONCLUSION AND RECOMMENDATIONS

Conclusion

Based on the results of the SROI measurement of the **Jayakarta Agro-Educational Tourism Program** and the discussion presented previously, the following conclusions can be drawn:

a. **The SROI value** of the **Jayakarta Agro-Educational Tourism Program** is **3.52**. This means that for every **Rp 1** invested by **PT XYZ**, the program generates **Rp 3.52** in **economic**, **social**, and **environmental benefits**. The activities conducted within the program have successfully produced benefits that are 3.52 times greater than the investment made.

b. The total **net benefit**, after deducting the deadweight and attribution elements, is **IDR 4,928,800,674** from 2021 to 2023. These benefits include:

- (a) Increased skills in horticultural cultivation,
- (b) Increased income from sales of horticultural products,
- (c) Increased social capital, such as cohesiveness and solidarity,
- (d) Reduction of organic and inorganic waste generation through maggot cultivation and waste re-creation, and

- (e) The birth and dissemination of environmental-conscious social movements.

c. The investment made by **PT XYZ** through CSR funds in the empowerment category for the **Jayakarta Agro-Educational Tourism Program** amounted to **IDR 1,399,345,270** over a period of three years (2021 – 2023).

d. The **Jayakarta Agro-Educational Tourism Program** responds to and addresses the community's need for an effective, integrated waste management system to reduce waste generation, environmental damage, flood risks, and disease. The new waste management system in the program transforms waste—originally an environmentally damaging object—into a savings investment tool, integrated with environmental conservation through a fun-learning educational package concept. It is hoped that this will foster the creation of **Earth Guardians** in **Jatinegara Kaum Village**.

e. The **novelty and uniqueness** of the **Jayakarta Agro-Educational Tourism Program** include:

- (a) Cultural and religious tourism focused on **Pangeran Jayakarta**,
- (b) Agro-Educational Tourism based on a **fun learning** concept to educate the community on horticulture and waste management,
- (c) Waste management through maggot cultivation, composting, and waste re-creation,
- (d) The development of the **creative economy** through waste saving and the facilitation of the **Jayakarta Joint Business Group (KUBE)** to accommodate MSMEs in **Jatinegara Kaum Village**.

f. In the context of **Life Cycle Assessment (LCA)**, the **Jayakarta Agro-Educational Tourism Program** contributes to efforts to reduce **Global Warming Potential (GWP)** by processing waste to reduce **CH4** emissions and planting trees to support **Net Zero Emissions (NZE)**.

g. The **Jayakarta Agro-Educational Tourism Program** has generated the following changes:

- (a) **Reducing waste generation** by **9.3 tons/year** for inorganic and **5.4 tons/year** for organic waste,
- (b) **Reducing CH4 emissions** by **221.55 kg**,
- (c) **Reducing CO2 emissions** by **7,532.7 kg CO2-eq**,
- (d) **Increasing the average income** of **KTH Rumah Kaum Jayakarta members** to **Rp 99,600,000/year**,
- (e) **Increasing social cohesiveness** among the community,
- (f) **Increasing the number of KTH Rumah Kaum Jayakarta members** from **33** to **47**,
- (g) **Identifying 23 potential customers** for the Waste Bank replication in **Duren Sawit Village**.

Strategic Recommendations

To increase the effectiveness and efficiency of resources and to produce high and widespread impacts for all stakeholders involved, the following strategic recommendations are provided:

a. **Focus on infrastructure development** for agro-edu-tourism activities to attract more visitors by creating new **agro-edu-tourism spots** and destinations.

b. **Collaborate with creative economic development institutions** to enhance product dissemination and marketing of **MSME products** in **Jatinegara Kaum Village**.

c. **Expand the benefits and impacts** of the program by replicating successful strategies with forest farmer groups in other areas near **PT XYZ**.

d. **Optimize periodic mentoring and monitoring**, particularly in administration and reporting, to enhance the independence of the **Jayakarta Community House** (KTH).

e. **Increase collaboration, coordination, and cooperation** with **multiple stakeholders** to ensure that

benefits are maximized across all groups involved.

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