

## Impact Performance Measurement Using the SROI Method (*Social Return on Investment*) in the Jagapati Mangrove Conservation Program (SIMANJA) PT. Pertamina Patra Niaga Integrated Terminal Cilacap, Indonesia



Oto Prasadi<sup>1</sup>, Hanung Kurniawan<sup>2</sup>, Riyan Rudi Saputra<sup>3</sup>, Sugiana Putri Lestari<sup>4</sup>,  
Ari Gunawan<sup>5</sup>

<sup>1</sup>Teknik Pengendalian Pencemaran Lingkungan, Politeknik Negeri Cilacap

<sup>2,3,4,5</sup> PT. Pertamina Patra Niaga Integrated Terminal Cilacap

**ABSTRACT:** Impact performance measurement activities use the SROI method (*Social Return On Investment*) in the Jagapati Mangrove Conservation Program (SIMANJA) PT. Pertamina Patra Niaga Integrated Terminal Cilacap is an approach to understanding and managing impacts on social values (*social value*), economics, and the environment created by an activity or organization. The measurement process is based on cost-benefit analysis, social accounting, and social audit. Through the SROI study, it is hoped that it can help companies understand and manage the benefits of social, environmental and economic values that impact the implementation of CSR programs. The result of the SROI analysis is a ratio that shows the relationship between investment costs and the resulting impact value. The evaluative type SROI calculation carried out in the 2019-2022 time period has a value of 8.13. This means that for every Rp. 1 invested, will have an impact of Rp. 8.13 rupiah. With a ratio above 8, this shows that this program can be said to be good. The greatest value comes from the environment, where natural improvement factors are very dominant in this program.

**KEYWORDS:** Simanja, SROI method, Kutawaru, Pertamina CSR

### I. INTRODUCTION

Every company that operates is guaranteed to have an impact on the surrounding environment, both social impact and impact on environmental quality. The government through Law Number 40 of 2007 concerning Limited Liability Companies requires companies to be responsible for the impacts they produce. One form of accountability is through activity programs *corporate social responsibility* (CSR) (Law, 2007). CSR which is initially in nature *voluntary* then it turns into an obligation. The form has also changed, from the original grant (*charity*), then developed into community empowerment and community development (Canopy Foundation 2018). As a form of appreciation and evaluation of the performance of the person responsible for business and/or CSR activities in the environmental and social fields, the government through the Ministry of Environment issued Minister of Environment and Forestry Regulation Number 1 of 2021 (PermenLHK 1/2021) to replace Minister of Environment Regulation Number 3 of 2014 concerning the Company Performance Rating Assessment Program in Environmental Management (PROPER) (Ministry of the Environment and Forestry, 2021). Environmental management as intended in PROPER also includes assessment of the implementation of CSR programs. The implementation of PROPER first began in 1996, since its implementation PROPER has undergone several changes. The last change occurred in 2021 through Minister of Environment and Forestry Regulation Number 1 of 2021 (PermenLHK 1/2021) which replaced Minister of Environment Regulation Number 3 of 2014. The last significant change was the increase in the required assessment aspects, one of which was Innovation Social.

Impact performance measurement activities use the SROI method (*Social Return On Investment*) in the Jagapati Mangrove Conservation Program (SIMANJA) PT. Pertamina Patra Niaga Integrated Terminal Cilacap is an approach to understanding and managing impacts on social values (*social value*), economics, and the environment created by an activity or organization. The PROPER award aims to encourage companies to comply with environmental regulations and achieve environmental excellence

# Impact Performance Measurement Using the SROI Method (Social Return on Investment) in the Jagapati Mangrove Conservation Program (SIMANJA) PT. Pertamina Patra Niaga Integrated Terminal Cilacap, Indonesia

(*environmental excellence*) through the integration of sustainable development principles in production and service processes, implementation of the 3R environmental management system, energy efficiency, resource conservation, and ethical and responsible business implementation towards the community through community development programs (*Community Development*) (Bonus. 2015) A measurement framework to help organizations understand and manage the social, environmental and economic value they generate. The measurement process is based on cost-benefit analysis, social accounting, and social audit. In simple terms, SROI is a way to monetize (monetize) the value of social impact so that the impact can be measured in financial units or from a financial perspective. Through the SROI study, it is hoped that it can help companies understand and manage the benefits of social, environmental and economic values that impact the implementation of CSR programs. The result of the SROI analysis is a ratio that shows the relationship between investment costs and the resulting impact value.

## II. METHOD

### A. Data retrieval

Data collection methods and techniques are very important in determining the depth and validity of the data produced. For this reason, the data collection method is carried out by: mix method, namely quantitative-qualitative. This was done to answer questions about the size of the variables found in the data in the field (Nowak, 2007). Data collection using several methods below:

### B. Review document or desk study

In the preparation stage the team will carry out *review* of documents related to study needs, such as:

1. 2021 Social Mapping Report Document,
2. Pertamina Cares for the Environment Report Document on Cilacap Mangrove Ecosystem Rehabilitation 2021,
3. *Scope of work*,
4. SIMANJA 2021 Program Activity Implementation Report Document,
5. Academic literature as a conceptual framework in the preparation of research documents.

### C. Deep interview (in depth interview)

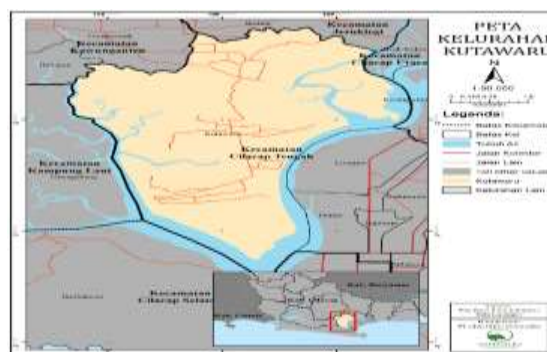
This activity was carried out by several parties who had special roles in implementing the activity. Apart from the CSR PT. Pertamina Patra Niaga Integrated Cilacap, interviews were also conducted with the Kanopi Indonesia Foundation as a companion. Interviews were conducted face to face. The list of respondents who were interviewed is in table 1 as follows

**Table 1. Respondent Data**

No	They inform	Time	Location	Information
1	Naswan and Sutiyono	Tuesday, September 6 2022	Jagapati mangrove activity center	Live interview
2	Sutiyono	Wednesday, September 7 2022	Sutiyono's residence	Live interview

### D. Location

The planting was carried out in Jagapati Village, Kutawaru Village, Central Cilacap District, Cilacap Regency. Jagapati itself is the name of a village, which is unofficial and not located in any administrative regional unit. Its origin is from the name of each settlement that has existed for a long time, even before the government regulated administrative areas. The planting location map derived from potential mapping carried out by the Sida Asih group is in Figure 5 as follows:



**Figure 1. Research location**

## Impact Performance Measurement Using the SROI Method (Social Return on Investment) in the Jagapati Mangrove Conservation Program (SIMANJA) PT. Pertamina Patra Niaga Integrated Terminal Cilacap, Indonesia

### E. SROI calculation

This calculation is the final part of an impact calculation study using the SROI method. Entire *outcome* calculated by taking into account the annual temporal distribution, *discount factor*, and the current value (*net present value*). With expected changes in currency values, the values *benefit*. The resulting value is converted into one value in the form *present value*. Counting *present value* of the impacts that occur using the formula:

In this calculation, the *r* value is the interest rate. The interest rate value refers to the interest rate figure set by Bank Indonesia. The average annual interest rate in the evaluative SROI type is taken for that year. Meanwhile, in SROI type *forecast*, the interest rate is taken assuming an annual average of 4.4%. Current value (*net present value*) is then used to calculate the final value in the calculation.

The final value of the SROI calculation is a comparison value, the ratio between the resulting impact value and the allocated investment value. This ratio can be read as; "From so much invested, it will produce so many benefits." For example, the SROI calculation results obtained with a value of 4.33. This means that 1 rupiah of money invested will produce social benefits of 4.33 rupiah. This ratio is calculated using the following formula:

### F. SROI analysis

Social Return on Investment (SROI) is an approach to understanding and managing the impact of social, economic and environmental values created by an activity or organization. A measurement framework to help organizations understand and manage the social, environmental and economic value they generate. The measurement process is based on cost-benefit analysis, social accounting, and social audit.

In simple terms, SROI is a way to monetize (monetize) the value of social impact so that the impact can be measured in financial units or from a financial perspective. The result of SROI analysis is a ratio that shows the relationship between investment costs and the resulting impact. For example, an SROI ratio of 1:5 shows that by investing IDR. 1, a social impact worth IDR 5 is generated.

SROI works by understanding the impact of activity programs that have been/will be implemented. How the change occurs, how activities correlate with the goals to be achieved, and what the roles of stakeholders are. SROI has a framework that focuses on answering five key questions. The five key questions are listed in table 1 as follows:

**Table 2. List Of Key Questions In framework Sroi**

Question	Information
Who changed?	Calculate everything that changes. People, groups of people, organizations or institutions and environments
How did they change?	Focus on all positive changes and negative changes that occur. There are not only expected changes, but also unexpected changes
How do you know about these changes?	Collecting evidence of change that does not only come from the opinions of certain people or society or institutions
How big a change has occurred?	Calculate all changes and influences provided by activities. Not only positive influences, but also negative influences.
How important are the changes that occur?	Understand how important the changes are

SROI analysis which converts non-financial values into financial values can be carried out using an objective approach through research results or a subjective approach with certain treatments. In the process of converting a certain value into financial value, the approach used may be different. This difference in approach may result in differences in the final calculation. So that an activity program that is assessed by several different parties, with different approaches, can have different results.

SROI calculations in an activity program can be used at two different stages. Calculations at these two different stages make SROI have two types. The two types are as follows;

- Evaluative type, which is carried out retrospectively and based on existing factual results. Evaluative SROI is usually carried out at the end, when an activity program has been completely implemented.
- Type *forecast*, an estimate that predicts (prospective) how much social value will be created if the activity meets the expected results. SROI *forecast* usually carried out at the beginning of an activity program. SROI type *forecast* can show how an activity program can maximize social impact, as well as function as a measurement tool when the program is completed.

## Impact Performance Measurement Using the SROI Method (Social Return on Investment) in the Jagapati Mangrove Conservation Program (SIMANJA) PT. Pertamina Patra Niaga Integrated Terminal Cilacap, Indonesia

The development of SROI begins with two methods of social calculation known by names *social accounting* and *cost-benefit analysis*. What these two methods have in common is that they all have the same principles. (Suryawati et al. 2011). These principles are as follows:

- Involve stakeholders
- Understand what has changed
- Give value to things that are considered important
- Only include material things into the calculation
- Avoid *claim* excessive
- Transparency
- Verify results

The results of the SROI calculation are expected to be able to show the reality or reality as accurately as possible. For this reason, in its implementation, these principles must not be ignored. In avoiding excessive claims in SROI calculations, there are several *discount factor* which also needs to be taken into account. SROI uses four *discount factor* which can be applied in each *outcome* to determine more accurate impacts. These four impacts are:

- *Deadweight*; changes that will definitely occur even without program intervention.
- *Displacement*; The positive benefits/impacts that occur result in other parties outside the program experiencing losses/negative impacts
- *Attribution*; the changes that occur are actually caused by other parties.
- *Drop-off*; the value of the changes that occur will actually decrease over time

### III. RESULT AND DISCUSSION

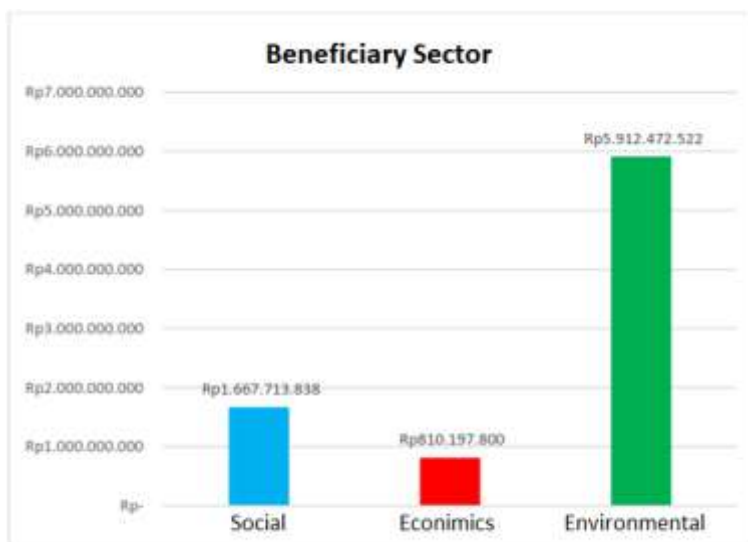
Mangrove planting activities in the Segara Anakan area have been carried out independently since 2016 by several residents who are aware of environmental issues and ecosystem degradation in the area, but it has not developed much, (predominantly Dewi et al. 2016). With intervention from PT Pertamina Patra Niaga Integrated Terminal Cilacap in 2019, the group developed rapidly to the point where it was able to gain profits and increase the size of the mangrove conservation area. So the SROI calculation started in 2019 because it started with intervention from PT Pertamina Patra Niaga Integrated Terminal Cilacap.

The economic beneficiaries of the program are not only group members, but also local residents. Local residents have increased income from working in nurseries and working during planting programs, so that the value of the economic benefits of beneficiaries outside of group members is combined with group members. However, the biggest benefit of the program is the environment, as evidenced by its enormous environmental value. The greatest value from the environment is from the oxygen produced by (Hutabarat et al. 2016). This value refers to published academic texts.

The SROI assessment in the Jagapati Mangrove Conservation Program (SIMANJA) this time was carried out evaluatively, but with very intensive group activities, the SROI type calculation was actually *forecast* can be done with a record of having *logframe* measurable.

The legal status of management of the activity area is legally owned by the state and managed by Perhutani. The Jagapati Mangrove Conservation Program (SIMANJA) activities currently do not have a legal scheme. This condition is very risky of a conflict of interest in the future because it disrupts activities if Perhutani has other policies related to area management. To prevent this and to be safer, groups can have access through Social Forestry schemes.

The division of program beneficiary sectors is summarized in more detail and can be seen in the graph of beneficiary sector values in Figure 6 below:



**Figure 2. Graph of beneficiary sector values**

Based on the graph above, it is known that the greatest benefit value is in the environmental sector with a value of IDR 5,912,472,522, then the second benefit is from the social sector with a value of IDR 1,677,713,838, and the social benefit value is IDR 785,680,376. So the total value of all sectors reaches IDR 810,197,800

**A. Discount Factor**

Calculation *discount factor* It is important to do this to avoid excessive claims on the value of a rupiah *outcome*. Explanation *Discount factor* can be described as follows:

**B. Deadweight**

*Deadweight* is a change that is expected to occur in the group even without intervention from PT. Pertamina Patra Niaga Integrated Terminal Cilacap. This factor can almost be said to be close to zero, so it can be ignored. This is because before the program intervention, there were only a number of residents who planted mangroves without any special purpose. Mangroves are planted in small quantities, involvement of related parties is minimal and group capacity is still low. Pratama et al. (2017). With intervention, planting activities become focused and have a wider impact (Prasadiet al., 2016).

**C. Displacement**

*Displacement* is a condition where the positive impact that occurs on program beneficiaries also has a positive or negative impact on other parties outside the program. This factor can almost be said to be close to zero, because planting activities will not have a negative influence on other parties.

*Outcome* what feels closest is that there are people who work for Sida Asih by leaving their previous jobs. With this assumption, then value *outcome* the working person's income must be reduced by the income from the previous job. However, according to information obtained, the people who worked for Sida Asih were people who were not working.

The majority of livelihoods in Kutawaru are fishermen and farmers. Fishermen don't go to sea every day and farmers don't stay in their gardens all day. So on days when they have time, they will work for Sida Asih. Sida Asih actually provides additional income for these residents.

**D. Attribution**

*Attribution* is an impact or change that occurs in the activity process, which is caused by the intervention of another party. In this program, there are many other parties who carry out activities involving Sida Asih. However, these activities are professional activities, where Sida Asih makes the seeds and the other party buys them. Then there are planting activities where other parties employ group members or other residents to plant. These activities cannot be said to be intervention by other parties and can reduce the financial value of the program.

**E. Drop-off**

*Drop-off* is a decrease in value *outcome* which occurs naturally over time. Impact calculation *outcome* carried out includes future impairment. With the same logic, namely a decline due to depreciation of equipment or skills that are not used, there are

## Impact Performance Measurement Using the SROI Method (Social Return on Investment) in the Jagapati Mangrove Conservation Program (SIMANJA) PT. Pertamina Patra Niaga Integrated Terminal Cilacap, Indonesia

several outcome which has improvements in the future. This is because skills are continuously used, so that the abilities of the people who do them continue to improve. One of them is expertise in mangrove nurseries. This skill is continuously used by members of the Sida Asih group until this skill can improve. This increased ability opens up the possibility for group members to gain nursery skills beyond those previously taught.

### CONCLUSIONS

Based on the results of the SROI assessment of the Jagapati Mangrove Conservation Program (SIMANJA), conclusions can be drawn such as the points below:

- The SROI calculation with the evaluative type carried out in the 2019-2022 time period had a value of 8.13. This means that for every Rp. 1 invested, will have an impact of Rp. 8.13 rupiah.
- With a ratio above 8, this shows that this program can be said to be good.
- The greatest value comes from the environment, where natural improvement factors are very dominant in this program.

### REFERENCES

- 1) Dewi, Rose., Zainuri, Muhammad., Anggoro, Sutrisno., Winanto, Tjahjo. 2016. *Analysis of Land Changes in the Segara Anakan Laguna Area During the Time Period (1978 – 2016) Using Multitemporal Landsat Satellites*. *Omni-Aquatics*, 12 (3): 144 – 14, 2016 ISSN: 1858-3873 print / 2476-9347 online
- 2) Fadhila.H 2015. *Value of the Economic Benefits of the Mangrove Ecosystem in Kartika Jaya Village, District Patebon, Kendal Regency, Central Java*. *Diponegoro Journal of Maquare* Vol. 4 No. 3
- 3) Hutabarat, Elisabet Rrb., Mardiasuti, Ani., Mulyani Yeni A. 2016. *Diversity and Abundance of Water Birds in the Segara Anakan River Estuary, Cilacap, Central Java*. *Conservation Media* Vol 21 No.1 April 2016: 65-72
- 4) Ministry of Environment and Forestry. 2016. *Regulation of the Minister of Environment and Forestry Number P.83/MENLHK/SETJEN/KUM.1/10/2016 concerning Social Forestry*. Jakarta
- 5) Ministry of Environment and Forestry (2021). *Regulation of the Minister of Environment and Forestry of the Republic of Indonesia No. 1 in 2021, Indonesian Ministry of Environment and Forestry*.
- 6) Nowak et.al. 2007. *Oxygen Production by Urban Trees the United States*. *Arboriculture & Urban Forestry*.33(3):220-226
- 7) Prasadi, O.et al. (2016) "Morphological Characteristics of the Arcidae Family in Different Waters (Karangantu and Labuan, Banten)," *Journal of Environmental Technology*, 17 (1), hal. 29. doi: 10.29122/jtl.v17i1.1462.
- 8) Pratama, Lalu Wima., Istianto, Andik. 2017. *Mapping Mangrove Forest Density in Segara Anakan, Cilacap, Central Java Using Landsat 8 Imagery at the National Institute of Aeronautics and Space (Lapan), Jakarta*. *J. Floratek* 12(1): 57-61
- 9) Law. 2007. *Law of the Republic of Indonesia Number 40 of 2007 concerning Limited Liability Companies, Law*.
- 10) Pratama, Lalu Wima., Istianto, Andik. 2017. *Mapping Mangrove Forest Density in Segara Anakan, Cilacap, Central Java Using Landsat 8 Imagery at the National Institute of Aeronautics and Space (Lapan), Jakarta*. *J. Floratek* 12(1): 57-61
- 11) Canopy foundation. 2018. *PT. Natural Resources and Biodiversity Management Roadmap. Pertamina (Persero) Lomanis BBM Terminal 2018-2022*



There is an Open Access article, distributed under the term of the Creative Commons Attribution – Non Commercial 4.0 International (CC BY-NC 4.0 (<https://creativecommons.org/licenses/by-nc/4.0/>)), which permits remixing, adapting and building upon the work for non-commercial use, provided the original work is properly cited.