

Regional Case Study

Feasibility Study of Mernek Milik Kita (MERLITA) Program using Social Return on Investment (SROI) Method

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Abstract

The MERLITA (Mernek Milik Kita) program is a community development program for PT Pertamina (Persero) Fuel Terminal Maos Cilacap, which was carried out in Mernek Village, Maos District, Cilacap Regency. This program aims to increase the income of farmers and farm laborers by changing the function of planting rice for consumption into superior seeds. In addition, it also encourages environmentally friendly and sustainable agricultural practices because these seeds can reduce the use of urea which can reduce greenhouse gas emissions. The MERLITA program has a significant impact on economic and environmental development in Mernek Village, the community around Mernek village feels the impact. Therefore, in this paper, the results of the Impact Assessment of the program using the SROI method will be given. The measurement results obtained the value of the SROI ratio of 1.34, indicating that every 1 rupiah invested has an impact value of Rp. 1.34. This situation proves that the MERLITA Program is still feasible to be conducted and still positively impacting Mernek Village economy.

Keywords: impact assessment; MERLITA; SROI; community development

1. Introduction

Indonesia is the third-largest rice producer in the world. Rice is the main food ingredient for approximately 200 million Indonesians (Arningsih et al., 2017). Given the vital role of rice, the supply of superior quality rice and improvements in the agricultural sector for the welfare of farmers and farm laborers is critical and a priority for the government (Suryana et al., 2009). Rice commodity is a great potential in Indonesia, spread over several areas to fulfill the daily needs of residents or residents in the area. One of them is in Mernek Village, Maos District, Cilacap Regency, which has agricultural land with rice commodities and a rice field area of 293.40 Ha (BPS Cilacap, 2019). As many as 60% of the people work as farmers, with 15% farmers and 45% farm laborers (Anonymous, 2000). All rice fields are technically irrigated rice fields whose facilities, including dams, primary canals, secondary canals, and tertiary canals, are built and maintained correctly. The tertiary channel network goes directly to the rice fields so that water distribution is more even and the level of leakage during distribution can be controlled.

The natural conditions in Mernek village are very supportive of becoming an agricultural area with superior rice seed producers and a breeding center for superior quality seeds. However, based on field conditions, the majority of Mernek villagers grow rice as consumption rice. Therefore, the MERLITA

(Mernek Milik Kita) Program is programmed to support the community in realizing the potential of rice planting to become a producer of superior seeds. According to David (2005), the demand for superior quality rice is increasing along with the increasing level of community income, which encourages the supply of superior quality rice. The MERLITA program is a development program from PT Pertamina (Persero) Fuel Terminal Maos which began to be implemented in 2020, resulting in the provision of superior variety seeds from the Sukamandi Seed Center to be planted in 35.65 hectares of rice fields by involving 37 farmers and farm laborers. In addition to providing seeds, it also assists in procuring processing facilities for prospective dry paddy seeds (*calon benih kering sawah* - CBKS) into ready-to-plant seeds, including constructing drying floors and warehouse shelters for the Sumber Rejeki Gapoktan. Assistance and group capacity building in each phase of seed breeding following government criteria and the marketing and sales phase for the Sumber Rejeki Gapoktan and Ngudi Rahayu Bumdes have also been carried out to optimize the MERLITA program. The MERLITA program is expected to help increase farmers' and farm laborers' income in Mernek village and encourage environmentally friendly and sustainable agricultural activities. The seeds of superior varieties produced (Ciherang, Mekongga, and The Inpari 32) that do not require N nutrients can reduce the use of urea fertilizer. Reducing the use of urea has a positive impact on the environment, one of which contributes to reducing greenhouse gas emissions.

The increasing demand and needs of non-private organizations (NPOs), non-governmental organizations (NGOs), and industries to measure and evaluate their social responsibility program, makes some researchers propose numerous frameworks and methodologies (Leon, 2021). The result of the measurement is used to highlight their accountability and keep the trust of other stakeholders involved in their business process (Nielsen et al., 2020). Cost-benefit analysis (CBA), social accounting, social return of investment (SROI), and basic efficiency resource (BER) analysis are used eventually as the measurement tools of social value, which include innovation program and organization performance. SROI may become the best methodology since it includes CBA and social accounting measurement compared to other technology. The SROI framework can monetize the social impacts and further consider the appropriate improvement for the case of sustainability (Davies et al., 2020). However, this sophisticated approach needs more data to evaluate the program's sustainability (Segovia-vargas et al., 2021). In response to the research background, this research was used to evaluate the social innovation program rarely found in the scientific paper, especially in the Indonesian case. This paper may be an excellent example of many environmental and social innovation programs conducted by industries, NGOs, or NPOs.

The impact or outcome given from the MERLITA program can be measured by conducting an evaluative assessment using SROI methodology. The impact measurement method widely used by social entrepreneurs in measuring business performance is the Social Return on Investment (SROI) method because it is considered appropriate in understanding impact investing, which aims to determine the social impact (Millar and Hall, 2013). This paper aims to determine the social impact that will be felt by the Mernek village community with the MERLITA program using the SROI (Social Return on Investment) method by making a theory of change with the investments made. This measurement are conducted to the farmers, farmworkers, and community groups, namely the Sumber Rejeki Gapoktan and Bumdes Ngudi Rahayu.

2. Methods

The assessment is carried out for breeding seeds on agricultural land covering an area of 34.15 hectares or 96% of the total land area that received the MERLITA program in planting season 3 of 2020. Meanwhile, the assessment for the impact of processing candidate dry paddy seeds (*calon benih kering sawah* - CBKS) into ready-to-plant seeds uses 30% of total CBKS production with the assumption of weight loss when they become ready-to-use seeds by 20%. The scope of the study was limited to the following considerations:

1. The MERLITA program has just started in planting season 3 of 2020 and planting season 4 has not yet started.
2. The area of land that is assessed is not 35.65 Ha or 100% due to crop failure due to the attack of rice snail pests on an area of 1.5 Ha.
3. Assessment related to processing CBKS grain into ready-to-plant seeds is only 30% because 70% is sold by farmers in the form of CBKS grain to other seed companies.

The study of measuring the impact of the MERLITA Program using the Social Return on Investment (SROI) method was conducted in Mernek Village, Maos District Cilacap Regency in June-July 2020. This study refers to the principles and guidelines for assessing the SROI Network UK (Social Value International). The type of SROI assessment used is evaluative. The evaluative SROI assessment method is based on program achievements and impacts that stakeholders have stated by taking into account the materiality element, namely relevant and significant (The SROI Network, 2012)

The study of measuring the impact of the MERLITA Program using the Social Return on Investment (SROI) method went through several stages as follows (Leon, 2021):

1. Define scope and identify key stakeholders.
2. Mapping impacts or outcomes.
3. Collects outcome-related events and assigns value.
4. Impact fixation.
5. Calculating SROI.
6. Report and discussion

Data collection is carried out by reviewing documents or literature studies related to Mernek Village and data from the MERLITA Program of PT Pertamina (Persero) Fuel Maos Terminal. Interviews were also conducted with the head of the MERLITA program, the Sumber Rejeki Gapoktan, and the head of the Mernek village. The calculation and monetization approach used in all impacts is attempted to be reasonable by providing assumptions or examples of similar matters or using the size and standard of prices prevailing in the community according to the context of the program. With an estimate of changes in currency values, the total value of the impact (outcome) after the resulting discount will be converted into one value in the form of present value. The equation (1) is used to calculate the present impact value after the discount.

$$\text{Present Value} = \frac{\text{Impact Value After Year 1 Discount}}{(1+r)^2} \quad (1)$$

Note that the impact value after discount is the impact value after deducting deadweight, drop-off, and attribution. r is the interest rate determined by Bank Indonesia for that year. Meanwhile, the Value of Social Return on Investment (SROI) is calculated using the equation (2).

$$SROI = \frac{\text{Present Value}}{\text{Total Investment Value}} \quad (2)$$

3. Result and Discussion

3.1 The Theory of Change in MERLITA Program

Through the MERLITA program, PT Pertamina (Persero) Fuel Terminal Maos intervened to obtain the impact that would occur. In order to be able to carry out the right step in creating an optimal impact, a theory of change (Silalahi et al., 2018) is carried out by including some interventions (SROI Report, 2012) of activity planning by looking at the actual conditions that exist in Mernek Village. The expected condition because of some intervention can be seen in Figure 1.

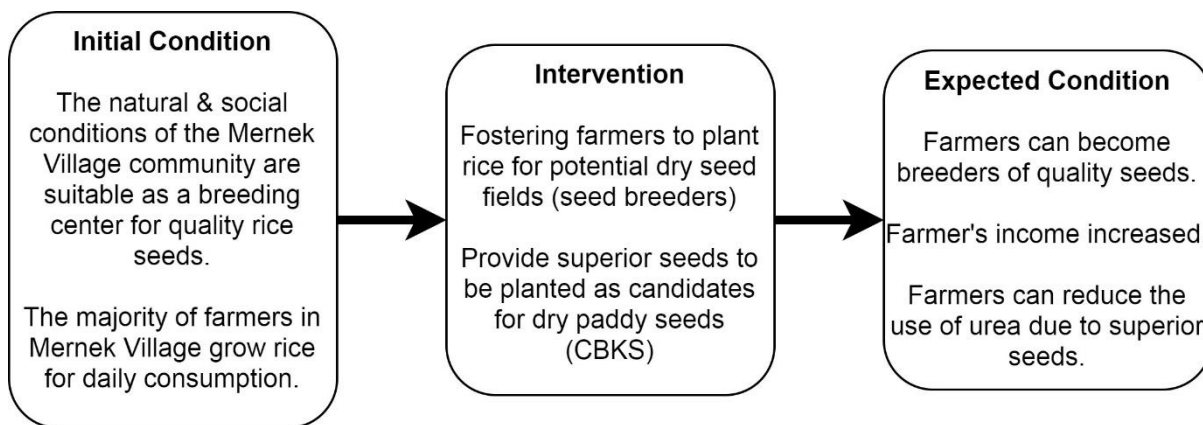


Figure 1. Theory of Changes in Mernek Village Farmers

Figure 1 explains that the intervention was carried out by fostering farmers and farm laborers to plant rice to become rice breeders and provide rice seeds with superior quality. The rice seeds provided are superior varieties of Ciherang, Mekongga, and Inpari 32, which do not require much N nutrition or urea fertilization. The expected impact of the intervention is that farmers and farm laborers in Mernek Village can become breeders of superior varieties of rice seeds. The availability of seeds, high productivity potential, and resistance to pests and diseases are the main factors that will encourage the supply of rice or rice with the quality desired by the local community (Sayaka and Hidayat, 2015). The sale value of prospective dry paddy seeds (CBKS), which is greater than the selling value of consumption grain, and a reduction in the budget for purchasing urea fertilizer, is expected to increase farmers' income and the economy in Mernek Village. Interventions were also carried out for the Sumber Rejeki Gapoktan, overseeing all farmer groups in Mernek Village. So far, the Sumber Rejeki Gapoktan have been limited to incidental meetings to discuss the activities of farmer groups, so intervention is made to the Sumber Rejeki Gapoktan to increase productivity a positive impact on the community's economy.

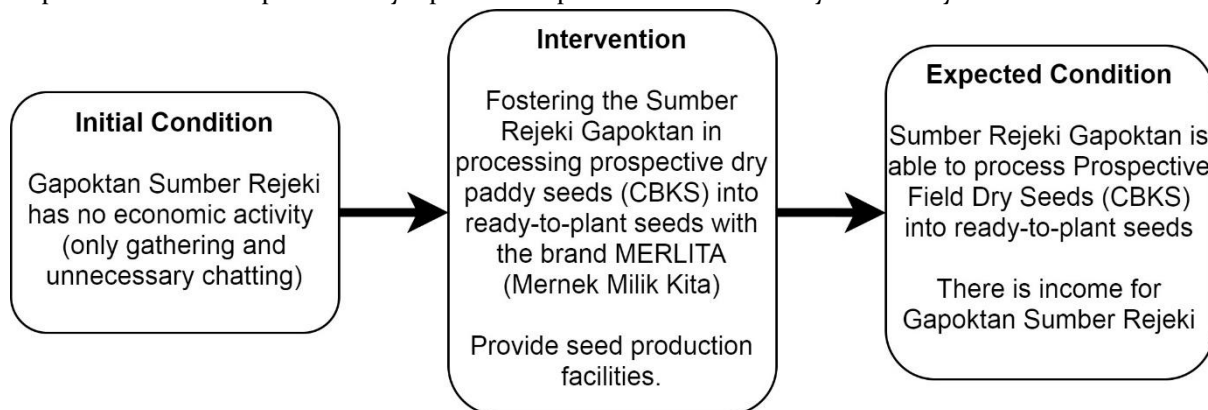


Figure 2. Theory of Changes in The Gapoktan Sumber Rejeki

The intervention carried out is by providing production facilities to process prospective dry paddy seeds (CBKS) into ready-to-plant seeds (See Figure 2). These facilities include drying floors, warehouse shelters, and activity support equipment. In addition to facilities, PT Pertamina (Persero) Fuel Terminal Maos also conducts group coaching. The purpose of the intervention is that the Sumber Rejeki Gapoktan can process prospective dry paddy seed (CBKS) grain into ready-to-plant seeds so that it becomes income for group members. Another group that received intervention from PT Pertamina (Persero) Fuel Terminal Maos was Ngudi Rahayu Bumdes to get the expected impact. The intervention was carried out by fostering the Ngudi Rahayu Bumdes to market and sell seeds produced by the Sumber Rejeki Gapoktan under the selling brand MERLITA. Through the intervention carried out, it can positively impact new income and the welfare of group members. The intervention diagram can be seen in Figure 3.

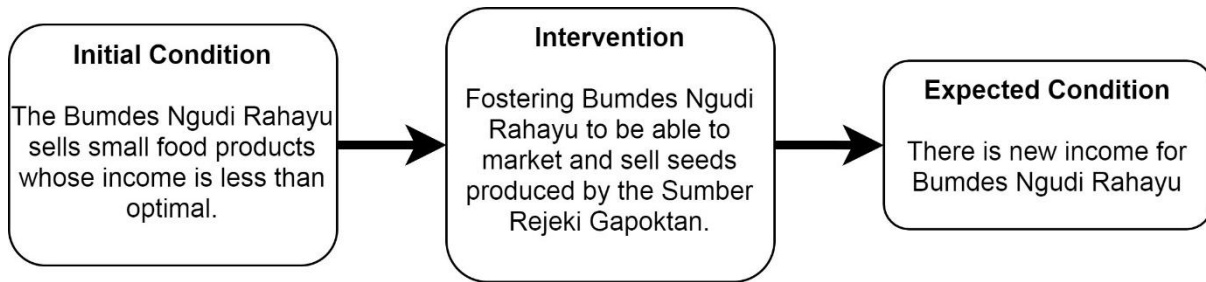


Figure 3. Diagram of the Theory of Change of Bumdes Ngudi Rahayu

3.2 Stakeholder Identification and Impact Mapping

Stakeholder identification and mapping of impacts or outcomes received are carried out by applying a materiality screening system. In this case, the stakeholders and impacts included have met the materiality element, which is relevant to the program and significant. Stakeholder identification and impact mapping from the MERLITA program can be seen in Table 1.

Table 1. Stakeholder Identification and Impact Mapping

| No | Stakeholder Name | Role in Program | Impact |
|----|---|--|--|
| 1. | Seed Farmer | Program recipient (seed breeder) | <ul style="list-style-type: none"> Increased revenue Savings on the purchase of urea |
| 2 | Gapoktan Sumber Rejeki | Program recipient (Processing of prospective dry paddy seeds or CBKS into certified ready-to-plant seeds) | <ul style="list-style-type: none"> New income from selling MERLITA (Mernek Milik Kita) seeds to Bumdes Ngudi Rahayu |
| 3 | Bumdes Ngudi Rahayu | Program recipient (Certified seller of ready-to-plant seeds) | <ul style="list-style-type: none"> New income from selling MERLITA (Mernek Milik Kita) seeds to consumers. |
| 4 | PT Pertamina (Persero) Fuel Terminal Maos | Donor or program giver | |

The calculation and monetization approach of all mapped impacts from each stakeholder can be seen in Table 2.

Table 2. Impact Calculation and Monetization Approach

| No | Impact | Calculation Approach | Monetization Approach | Data source |
|-----------|--------------------|--|---|---|
| 1. | Seed Farmer | | | |
| a. | Increased revenue | Calculating the difference between the selling price of consumption grain and the selling price of prospective dry rice seeds. | Multiplying the difference between the selling price of consumption grain and the selling price of prospective dry seed paddy fields by the total production on the land receiving the MERLITA program (Mernek Milik Kita). | Interview with the Head of the Sumber Rejeki Gapoktan and the Head of the MERLITA Program (Mernek Milik Kita) |

| No | Impact | Calculation Approach | Monetization Approach | Data source |
|----------|--|---|--|---|
| b. | Savings on the purchase of urea | Calculating the difference in the budget requirement for urea fertilizer per hectare of land before the program and after the program | Multiplying the difference in the budget requirement for urea fertilizer per hectare of land between before and after the program by the total land area of the MERLITA program recipients (Mernek Milik Kita) | Interview with the Head of the Sumber Rejeki Gapoktan and the Head of the MERLITA Program (Mernek Milik Kita) |
| 2 | Gapoktan Sumber Rejeki | | | |
| a. | New income from selling MERLITA seeds (Mernek Milik Kita) to Bumdes Ngudi Rahayu | Calculating profit from selling MERLITA (Mernek Milik Kita) seeds per kg to Bumdes Ngudi Rahayu | Multiplying the profit from selling MERLITA (Mernek Milik Kita) seeds by the whole seeds sold to the Ngudi Rahayu Bumdes. | Interview with the Head of the Sumber Rejeki Gapoktan and the Head of the MERLITA Program (Mernek Milik Kita) |
| 3 | Bumdes Ngudi Rahayu | | | |
| a. | New income is derived from the selling of MERLITA seeds (Mernek Milik Kita) to the consumer. | Calculating profit from selling MERLITA (Mernek Milik Kita) seeds per kg to consumers. | Multiplying the profit from selling MERLITA (Mernek Milik Kita) seeds by the whole seeds sold to consumers. | Interview with the Head of the Sumber Rejeki Gapoktan and the Head of the MERLITA Program (Mernek Milik Kita) |

3.3 Impact Events Calculation

The calculation of the all impacts event on each activity stakeholder can be seen in Table 3.

Table 3. Calculation of All Impacts

| No | Impact | Event Count |
|-----------|--------------------|---|
| 1. | Seed Farmer | |
| a. | Increased revenue | <p>Based on interviews with the Head of the Sumber Rejeki Gapoktan and the Head of the MERLITA (Mernek Milik Kita) Program, the following information was obtained:</p> <ul style="list-style-type: none"> The selling price of consumption grain is Rp. 4,200,- per kg, and the selling price of prospective dry rice seed (CBKS) is Rp. 4,500,- per kg. Land productivity in Mernek Village per hectare reaches 7 tons. Thus, the total production on land that received the MERLITA (Mernek Milik Kita) program and successfully harvested an area of 34.15 Ha was 239.05 Tons or 239050 kg. <p>The total impact of increased income: ((selling price of CBKS grain - selling price of consumption grain) x total production from the MERLITA program) ((Rp 4,500/kg – Rp 4,200/kg) x 239,050 kg)</p> |

| No | Impact | Event Count |
|----------------------------------|--|--|
| b. | Savings on the purchase of urea fertilizer budget. | <p>Based on interviews with the Head of the Sumber Rejeki Gapoktan and the Head of the MERLITA (Mernek Milik Kita) Program, the following information was obtained:</p> <ul style="list-style-type: none"> • The need for urea fertilizer in one planting period before the MERLITA program is 100 kg/Ha, and after the MERLITA program is 50 kg/Ha. • The price of urea fertilizer is IDR 2,000/kg. • The area of land for program recipients who have succeeded in harvesting is 34.15 Ha <p>The total impact of budget savings for purchasing urea fertilizer: (Urea/Ha (kg) requirement before the program-Urea/Ha (kg) need after the program) x 34.15 Ha x 2,000 Rp/kg (100 kg/Ha – 50 kg/Ha) x 34.15 Ha x Rp 2,000/kg</p> |
| 2. Gapoktan Sumber Rejeki | | |
| a. | New income from selling MERLITA (Mernek Milik Kita) seeds to Bumdes Ngudi Rahayu | <p>Based on interviews with the Head of the Sumber Rejeki Gapoktan and the Head of the MERLITA (Mernek Milik Kita) Program, the following information was obtained:</p> <ul style="list-style-type: none"> • Sumber Rejeki Gapoktan only processes 30% of CBKS grain produced by seed breeders or equivalent to 71,715 kg in planting season 3. • Weight loss from CBKS grain into ready-to-plant seeds by 20%. • The cost of producing CBKS into ready-to-plant seeds is IDR 7,000/kg • The selling price of ready-to-plant seeds from Gapoktan Sumber Rejeki to Bumdes Ngudi Rahayu is IDR 10,000/kg <p>The total impact of new income for the Sumber Rejeki Gapoktan: (Total weight of CBKS processed x (100%- 20% depreciation) x selling price of ready-to-plant seeds) – (Total weight of CBKS being processed x cost of producing CBKS to ready-to-plant seeds) (71,715 kg x 80% x Rp 10,000/kg) – (71715 kg x Rp 7,000/kg)</p> |
| 3 Bumdes Ngudi Rahayu | | |
| a. | New income from selling MERLITA (Mernek Milik Kita) seeds to consumers. | <p>Based on interviews with the Head of the Sumber Rejeki Gapoktan and the Head of the MERLITA (Mernek Milik Kita) Program, the following information was obtained:</p> <ul style="list-style-type: none"> • Bumdes Ngudi Rahayu buys ready-to-plant seeds from the Sumber Rejeki Gapoktan for IDR 10,000/kg • Bumdes Ngudi Rahayu sells ready-to-plant seeds to consumers for IDR 11,000/kg • Bumdes Ngudi Rahayu bought all (100%) ready-to-plant seeds produced by Gapoktan Sumber Rejeki, namely 80% of CBKS or 57,372 kg. |

| No | Impact | Event Count |
|----|--------|---|
| | | Total impact of new income for Ngudi Rahayu Bumdes: (The seed selling price of Bumdes Ngudi Rahayu seeds to consumers – Purchase price of seeds from Gapoktan Sumber Rejeki) x Total Seeds (Rp 11,000/kg – Rp 10,000/kg) x 57,372 kg |

3.4 Scoring and SROI Calculation

The assessment and calculation of SROI are carried out in 3 steps. The first step is to determine the investment value. The second step is to determine the impact value, then last step is performing an SROI analysis. The existing investments in the MERLITA (Mernek Milik Kita) program in Mernek Village, Maos District, Cilacap Regency can be seen in Table 4.

Table 4. Total Investment Value

| No | Description | Value |
|-----------|--|-----------------------|
| 1. | Seed Farmer | |
| a. | Increased revenue | Rp 71,715,000 |
| b. | Savings on the purchase of urea | Rp 3,415,000 |
| 2. | Gapoktan Sumber Rejeki | |
| a. | New income from selling MERLITA (Mernek Milik Kita) seeds to Bumdes Ngudi Rahayu | Rp 71,715,000 |
| 3. | Bumdes Ngudi Rahayu | |
| a. | New income from selling MERLITA (Mernek Milik Kita) seeds to consumers. | Rp 57,372,000 |
| | Outcome | Rp 204,217,000 |
| | Deadweight (0 %) | 0 |
| | Drop Off | 0 |
| | Attribution (32 %) | Rp 66,000,000 |
| | Total Impact (Outcome) after Discount | Rp 138,217,000 |

Notes :

- Deadweight is considered to zero because the impact calculation has taken into account the control conditions, namely rice farming for consumption or those that do not receive the MERLITA program. Thus, all programs will not occur without the intervention or the MERLITA program.
- Drop Off is considered zero because the parameters calculated in this assessment have all occurred.
- Attribution is calculated at 32% due to the village head of Mernek lending his land to build a drying floor and production warehouse shelter and the head of the Sumber Rejeki Gapoktan lending the warehouse.

With an estimate of changes in currency values, the impact value after the resulting discount will be converted into one value in the form of present value. Equation (1) and (2) calculate the present impact value after the discount. In this calculation, the interest rate refers to the interest rate set by Bank Indonesia in 2020, which is an average of 4.5%.

$$\text{Present Value} = \frac{\text{Rp } 138,217,000}{(1+4.5\%)^0} \quad (3)$$

$$\text{Present Value} = \text{Rp } 138,217,000$$

The determination the value of social return on investment (SROI) for the MERLITA program in Mernek Village using the following equation.

$$\text{SROI} = \frac{\text{Rp } 138,217,000}{\text{Rp } 102,583,830} = 1.34 \quad (4)$$

Based on the calculation, the Social Return on Investment (SROI) value for the MERLITA Program is 1.34. The value of this ratio indicates that the MERLITA program is still feasible to implement in Mernek Village because it can positively impact the Mernek village community by the increasing of the income of farmers and group members and the productivity of the community in Mernek Village.

As it is stated by Nielsen et al. (2020), the SROI framework is not used by many organization because there is lack of comparability in the present literatures. This condition happens due to the SROI calculation need robust resources and investments. In this study, SROI value from the MERLITA program provides and contributes on valuing the program benefits to improving the local economy. The estimated SROI value also reveals that this social innovation program is potentially implemented and developed for larger scale. This methodology implies a good practical example for other social innovation project. Despite of the successfulness of the analysis for defining the social value of the program, this analysis may still have a large subjectivity because there is no program comparison at the same social object (Moron and Klimowicz, 2021). Therefore, this study may give a viewpoint that the program, MERLITA, provides a significant improvement for the development of Mernek Village.

4. Conclusions

The MERLITA program conducted by PT Pertamina (Persero) Maos Terminal in Mernek Village, Maos District, Cilacap Regency, has an SROI ratio value of 1.34. This situation shows that every IDR 1 invested has a benefit or impact value of IDR 1.34. Thus, the MERLITA Program is still considered feasible. This program could increase the area of seed breeding grounds, increase the production capacity of ready-to-plant seeds by Gapoktan Sumber Rejeki and add interventions related to environmentally friendly or sustainable agricultural practices so that the value of impacts related to the environment.

5. Acknowledgment

The author would like to express the deepest gratitude to the surveyor team working very well in this program.

6. References

- Arningsih, N, R, Putra I, G, S, A, Dharma, P. 2017. Analisis usaha penangkaran benih padi (Kasusu di Subak Kusamba, Desa Karangdadi, Kecamatan Dawan, Kabupaten Klungkung). *E-Jurnal Agribisnis dan Agrowisata* 6 (2).
- BPS Cilacap. 2019. Kecamatan Maos dalam Angka 2019. Cilacap : Badan Pusat Statistik.
- David, C.C. 2005. Philippine hybrid rice program. Paper Presented at the SEARCA-ADSS, 21 June 2005. Los Banos, Philippines.
- Davies, L.E., Taylor, P., Ramchandani, G., Christy, E. 2020. Measuring the social return on investment of community sport and leisure facilities. *Managing Sport and Leisure* 26(1-2): 93-115.
- Anonymous. 2020. Monografi Desa Mernek tahun 2020.
- Millar, R., & Hall, K. 2013. Social Return on Investment (SROI) and performance measurement: the opportunities and barriers for social enterprises in health and social care. *Public Management Review*, 15(6): 923-941.
- Moron, D., Klimowicz, M., 2021. Using the social return on investment (SROI) as a measure of the effectiveness of social innovation projects implemented under public policies. *Social Enterprise Journal*, 17(2): 302-327.
- Nielsen, J.G., Lueg, R., Liempd, D.V., 2020. Challenges and boundaries in implementing social return on investment: An inquiry into its situational appropriateness. *Nonprofit Management and Leadership* 31(3): 413-435.
- The SROI Network. 2012. A Guide to Social Return on Investment. UK Cabinet Office: Office of the Third Sector.

- Leon, S.V., 2021. The social return on investment methodology as a tool for valuation and impact assessment for libraries: a case study. *Journal of Australian Library and Information Association* 70(2): 177-193
- Sayaka B, Hidayat, D. 2015. Sistem pembenihan padi dan karakteristik produsen benih padi di Jawa Timur. *Analisis Kebijakan Pertanian*. 13 (2): 185-202
- Segovia-Vargas, M.J., Camacho-Minano, M.M., Alberto, F.C.P., Gelashvili, V. 2021. Sheltered employment centres: Sustainability and social value. 13(14): 7900.
- Silalahi D.C.G, Santoso, H, Suliantoro, H. 2018. Analisis social return on investment pada kewirausahaan sosial : studi kasus di Upreneur AIESEC Undip. *E-Jurnal UNDIP*.
- SROI Report. The Value of Early Intervention Identifying the social return of Barnardo's Children's Centre services. July 2012.
- Suryana, A., S. Mardianto, IK. Karyasa, dan P. Wardana. 2009. Kedudukan padi dalam perekonomian Indonesia. *Balai Besar Penelitian Tanaman Padi*. Karawang.