

Sustainable Livelihood Assessment (SLA) To Support Improvement Of The Welfare Of Conflict Victims In Poso

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Abstract : Empowerment of residents in conflict areas in the Poso Regency has had social and economic impacts. The condition of the people in the conflict area after several years of empowerment activities has improved. In this study, what supporting factors for sustainable resources can sustain an increase in the residents' capacity so that they could optimize the potential of existing resources is the question. The aims of this study are: (1) to analyze the support from resources in bolstering sustainable livelihoods in the conflict area, and (2) to analyze aspects of income increase and equalization. The study was conducted in 3 conflict villages in Poso: Padalembara and Pinedapa Villages in Poso Pesisir District and Masani Village in South Poso Pesisir District. The results of the study show that the greatest resource support for realizing a sustainable life for residents in 3 villages were social resources in Padalembara and Masani villages and human resources in Pinedapa Village. The support of these resources has resulted in an income increase and equality in the 3 villages.

Keywords: Gini index, asset pentagon, Poso, SLA

I. INTRODUCTION

Background

The empowerment program to assist conflict-affected communities in Poso Regency had been implemented for approximately 5 years from 2014 to 2019. The program was implemented using an empowerment approach that promoted dialogic communication. It succeeded in rehabilitating the conditions of plantation agribusiness in this region and introducing various agricultural, fishery, and animal husbandry activities to residents in 3 villages, Padalembara, Pinedapa, and Masani Villages. These three villages were conflict areas with the highest intensity and experienced the greatest impact from the Poso Regency conflict.

Rebuilding conflict-affected communities requires specific peace-building approaches and strategies, not only to prevent conflicts from reoccurring but also to create a harmonious society within the sustainable peace-building framework (Grayman 2016; Trijono 2009). In this case, the support of local resources plays an important role in realizing sustainable livelihoods. Nasrnia et al (2021), stated that the main strategic to sustainable livelihood is resilience, which is a more broader strategic change than simply responding to the existence of human life in its ecosystem (Thulstrup 2015). In the sustainable livelihood asset approach, people-centered development is always prioritized (Shakoori and Bahrami 2014; Pandey et al. 2017a; Quandt 2018; Quandt et al. 2017).

In the conflict resolution approach, reducing radical actions based on ideological reasons is complicated and requires the right timing, process, and approach. Especially in conflicts caused by religion or belief, theological circles often rule out social science and humanities methodology approaches in pursuing deradicalization actions because they are considered irrelevant from a spiritual perspective and assume that it will reduce religion to being just an ordinary object of science (Yunus 2014). However, social factors often become entry points in conflict resolution. In this case, Malik (2017) proposed a local wisdom approach to assist the conflict resolution process as in Aceh or a community capacity strengthening approach as proposed for reducing conflict in West Nusa Tenggara (Retnowati 2018; Fatony 2017).

What has been conducted in Poso Regency through the empowerment program is enabling the community to carry out agricultural activities in their area and maximizing the potential of resources at the local level which includes the economic, human, social, and cultural potential of residents, so that they could improve their welfare independently and sustainably. The activities carried out in Poso in the context of increasing the people's welfare and freeing themselves from poverty are in line with Prasetyo's research (2010) which showed that the community-based economic development participation model of action research is an important program to be developed as an effort to alleviate poverty and food insecurity. This model can increase the community members' awareness to maximize their potential through their creative power, namely filtering, competitiveness, and comparability (Sumardjo et al. 2019; Sumardjo et al. 2020).

To what extent the program could achieve its objectives to increase the income of conflict victims, and what resources support this achievement are the questions of this research.

Research Purposes

This research generally aims to observe the impact of community empowerment activities carried out in conflict areas in the Poso Regency. The specific research objectives are as follows:

1. Analyzing resource support to bolster sustainable living in conflict areas.
2. Analyzing aspects of increasing and equalizing income.

II. METHOD

Location

The research was conducted in Padalembara and Pinedappa Villages in Poso Pesisir District and Masani Village in South Poso Pesisir District. The three villages were chosen because they were high-conflict intensity areas in Poso Regency.

Time

The research was carried out from February 2021 to March 2022. Data collection was carried out from January to March 2022.

Analysis method

Sustainable Livelihood Assessment (SLA)

To answer the question of what potential resources could support sustainable livelihoods for the people, especially due to changes in the environment, the SLA analysis is used. The potential resources analyzed include natural resources (NR), economic resources (ER), social resources (SR), physical resources/infrastructure (IR), and human resources (HR) potentials.

This analysis adopts the Sustainable Livelihood Framework which was developed as one of the tools in natural resource management which focuses on the following principles: (1) placing the community's social and economic activities as the center of analysis, (2) assessing policy interventions and development activities that cross-sectoral boundaries, (3) building connections between macro-micro, (4) being

responsive and participatory, (5) building strength, (6) considering sustainability in a broad sense, the economy, social, institution, and environment (Allison and Horemans 2006).

The methodology in the SLA analysis uses a framework developed by the Institute of Development Studies published in Working

Paper No. 72 (1998) written by Ian Scoones. The publication written by Scoones (2007) stated that the framework for this approach was developed to evaluate poverty alleviation programs in developing countries and to observe how people depend on the sources of livelihood around them. The general framework of analysis in the SLA is shown in Figure 1.

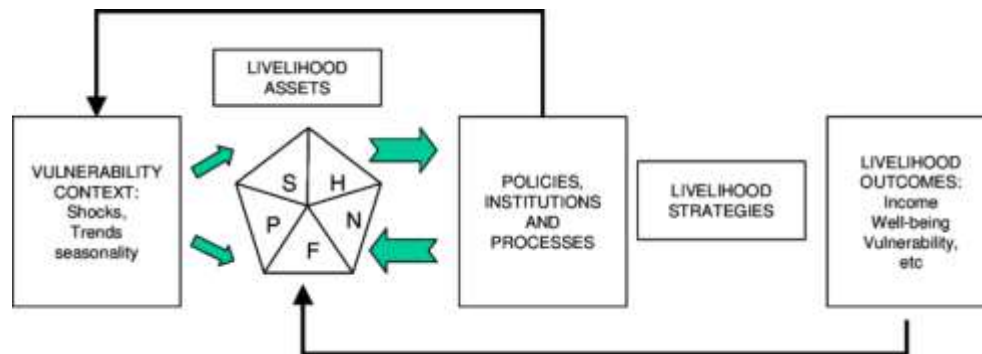


Figure 1. SLA-Sustainable Livelihood Analysis Framework (DFIS 1999)

As shown in Figure 1, the Sustainable Livelihood Framework is based on the vulnerabilities found in society due to natural and environmental pressures. Analysis of the livelihood carrying capacity is studied using the Asset Pentagon which consists of 5 types of community capital: human capital, natural capital, physical capital, financial capital, and social capital. In another study, another type of capital was added, political capital, which is also often merged into social capital.

Measurement of each score per type of capital and its index uses the following formula:

$$\text{Score} : T \times P_n \dots\dots\dots 1$$

$$\text{Index} : (\text{total score})/Y \times 100 \dots\dots\dots 2$$

The Likert scale used is as follows:

- 1 : weak livelihood asset strength
- 2 : inadequate livelihood asset strength
- 3 : adequate livelihood asset strength
- 4 : strong livelihood asset strength

5 : very strong livelihood asset strength

The score results are further categorized based on Kavanagh (2004) as follows:

- 0 > score > 1 : unsustainable
- 1 > score > 2 : low sustainability
- 2 > score > 3 : moderate sustainability
- Score > 3 : high sustainability

Data to describe human capital is obtained by exploring the strengths and weaknesses of the human resources in the community and what potentials could be developed to reduce community vulnerability, for example, by observing the composition of vulnerable groups, the number of people with disabilities, daily behavioral patterns, et cetera. What support is provided by the natural environment and what hazards it may pose are the data and information in the natural capital aspect, while the extent of existing conditions and lack of infrastructure are

assessed through the physical capital aspect. Data and information regarding financial capital are judged based on the strengths and weaknesses of the community in terms of finances, and whether they have sufficient resilience when faced with financial problems. The aspect of social capital is assessed by looking at the extent to which social ties are a strength or a weakness in society. What are the strengths and weaknesses of the community regarding these five types of capital? These aspects will serve as a background for the community or policymakers in formulating the strategies and policies to intervene in supporting the livelihood sustainability in the community. Ideally, the output should be the achievement of a decent income that contributes to the improvement of the people's welfare, a decrease in the level of community vulnerability, a strengthening of the community food security, sustainable use of natural resources, and a reduction in conflict intensity.

The data mentioned above are qualitative and will be converted into quantitative data, then the final results will be illustrated in the asset pentagon diagram.

Income inequality analysis

In this study, the Gini index coefficient was used to determine changes in the level of inequality in people's incomes (Bowman 1974). According to the Central Bureau of Statistics, the Gini Index is based on the Lorenz Curve, a cumulative expenditure curve that compares the distribution of a certain variable (e.g., income) with a uniform distribution that represents the cumulative percentage of the population. The following is the Lorenz curve of people's income before the conflict (BPS 2017).

The Gini Index calculation uses the following formula

f_i = the percentage (%) of the i^{th} class income earners

Y_i = the cumulative amount (%) of income in the i^{th}

Next, the categorization of Gini index values according to Oshima (1976) is as follows:

$G < 0.3$ means Low inequality

$0.3 < G < 0.5$ means Moderate inequality

$G > 0.5$ means High inequality

III. DISCUSSION

Analysis of sustainable livelihood supporting resources in each village

This section will analyze the supporting resources for sustainable livelihood in each village, Padalembara, Pinedapa, and Masani Villages.

Padalembara

Padalembara Village is located in South Poso Pesisir District, Poso Regency has an area of 10 km², and is located in the highlands. This area is divided into three hamlets and 10 RTs. The population of this village is 1,124 people with a population density of 11 people/km² and a total of 278 households. Padalembara Village is a developed village according to the Developing Village Index (DVI or the Indeks Desa Membangun/IDM) status.

This area has been a transmigration destination area since the 1980s. The majority of transmigrants are from Bali and Java Island, especially East Java Province. This is one of the uniqueness of this village where the level of heterogeneity is quite high both ethnically and religiously. Communities live in harmony side by side. This was also

reinforced by the results of the asset pentagon analysis where the social resources (SDS) dimension is the main supporting factor for the sustainable livelihood of the community in the

$$GR = 1 - \frac{\sum f_i |Y_i + Y_{i-1}|}{\dots \dots \dots} \dots \dots \dots 3$$

study area. Tolerance and community cooperation culture indicators had fairly high scores.

Aspect	Index value	Indicator	Score
SDS	4.53	The existence of positive social institutions at the local level	4.00
		Trust between citizens	4.50
		Ease of access/utilization of positive social institutions for community development	4.00
		Tolerance of newcomers who become new residents	4.67
		The community cooperation culture	5.00
		Norms and values that have been agreed upon and obeyed (e.g., religious norms, customs)	5.00

Type	Sustainability
SDM	high
SDA	high
SDI	high
SDS	high
SDE	medium

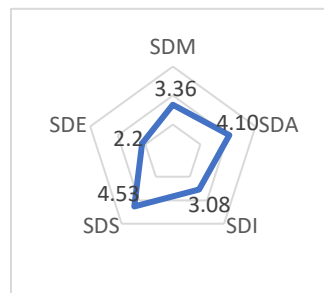


Figure 2. The Padalembara Village Community’s Asset Pentagon

The natural resources dimension is the next supporting factor, where the ease of access to natural resources and the level of land ownership and management of agricultural land are the main reasons. On average, the people in the study areas owned more than 2 hectares of agricultural land.

This is in line with the study results of Putra et al. (2020). The agricultural land is their main source of livelihood. Cultivation of dryland food crops is the main activity for fulfilling their daily needs and considering the condition of the existing natural resources. The main commodities are cacao and coffee.

The lowest value of the supporting factor for the community's sustainable livelihood in the study area was economic resources (SDE). Some of the influencing SDE indicators include the absence of a trading center, the absence of formal and informal financial institutions, the lack of access to logistical distribution, and the lack of non-bank savings (livestock, jewelry, et cetera). In the Infrastructure Resources (SDI) dimension, the main problem is the less-than-optimum availability of infrastructure, especially roads in residential areas and agricultural areas.

The low carrying capacity of SDE and SDI in this village is due to its location in the difficult reach of formal financial institutions, as well as low access to distribution due to the lack of road infrastructure. The government's role is very important to increasing access and supporting capacity of rural infrastructure. Research by Hermes et al (2018) regarding the weaknesses in the services of rural financial institutions states that the causal factors include organizational governance and also external factors of the financial institutions themselves such as macroeconomic, institutional and political conditions.

Pinedapa

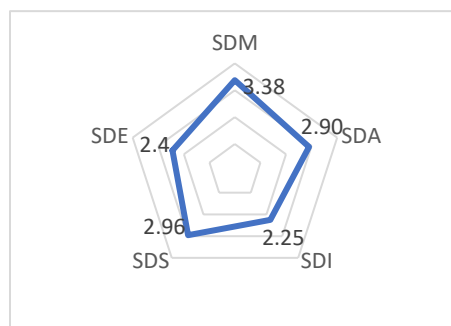
Located in the Poso Pesisir District, Poso Regency, has an area of 60.90 km². As with Masani Village, the Pinedapa Village area consists of lowlands (coastal area) and mountainous highlands. This area consists of 3 hamlets and 6 RTs with a population of 1,595 people, a population density of 26 people/km², and a total of 517 households.

Based on the IDM status, Pinedapa is classified as a developed village. This Village is dominated

by the indigenous Pamona people. The majority of residents are indigenous people whose main livelihood is plantations (cocoa, cloves, durian, et cetera) and aquaculture. The people live in lowland and coastal areas, and, in general, the community settlements are located along the trans-Palu-Poso road. The plantation activities are carried out in forest areas on the mountain.

Based on the Pinedapa Village asset pentagon (Figure 3), the SDM dimension is the main supporting factor for the sustainable livelihood of the Pinedapa community. The availability of human resources with a high-school average educational background is the main capital. Another supporting indicator is the ease of access/utilization of public information (TV, newspapers, internet, social media). However, in the human resource dimension, indicators of the level of community skills in technological innovation and the development of local wisdom still require attention. This low level of technological innovation generally occurs in rural Indonesia, which is why the quality of human resources in rural communities is still relatively low (Darna et al. 2019; Murachman et al. 2021; Niko et al. 2020).

ASPECT	INDEX VALUE	INDICATOR	SCORE
SDM	3.38	The average level of education of productive people	4.00
		Ease in access/utilization to education for school-age children	3.25
		Ease of access/utilization of public information (TV, newspapers, internet, social media)	4.00
		Community skill level (technological innovation/local wisdom level)	2.75



Type	Sustainability
SDM	high
SDA	medium
SDI	medium
SDS	medium
SDE	medium

	Ease of access/utilization of the community to basic health services	2.25
	Availability of education & health workers	4.00

Figure 3. Pinedapa Village's Asset Pentagon

In the infrastructure dimension, almost all the indicators showed low scores. The current situation is that the people of Pinedapa Village are experiencing water shortages due to damage to the water reservoirs that store water from the mountain before it is distributed to residents' homes. This has interfered with the clean water supply in residents' homes over the past few months.

The lowest value of the community's sustainable livelihood supporting factor in the area studied was economic resources (ER). Almost all ER indicators received low ratings such as the absence of formal and informal financial institutions, the absence of trade centers, the lack of access to logistics distribution, the level of difficulty for low-income households in accessing/utilizing financial institutions, and the lack of non-bank savings (livestock, jewelry, et cetera) owned by the people in the area studied.

In the Human Resources Dimension, the low level of community skills (technological innovation/local wisdom level) was one of the limiting factors to sustainable livelihoods.

Masani

Masani Village, located in Poso Pesisir District, Poso Regency, has an area of 21.36 km², consisting of 3 hamlets and 7 RTs. Thirty percent of the Masani Village area is on a mountainous highland area and 70% is a coastal area. The population is 820 people with a density of 46 people/km². This village is classified as a

developing village based on the Developing Village Index (DVI) status.

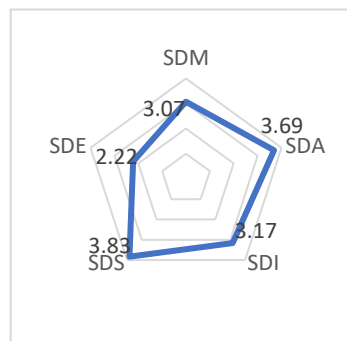
The Masani Village population consists of indigenous people and migrants. The indigenous people generally live in Hamlet 1 which is located in the coastal area. Migrant residents live in Hamlets 2 and 3 which are in the mountains. Migrant communities generally come from South Sulawesi.

Based on the asset pentagon analysis, the largest carrying capacity of the community in the study area lies in social resources (SR) and natural resources (NR). The main supporting aspects of the SR dimension are the existence of mutually agreed norms and values, tolerance for newcomers, and a culture of community cooperation. The people in Dusun 3 which is also known as Dusun Taman Jeka are almost all migrants. Status as migrants built close family ties among them and tolerance in accepting newcomers.

In the natural resources dimension, the main supporting strengths for a sustainable livelihood include the level of land ownership or control of natural resources by the community and the utilization of natural resources. The average area of land tenure per household exceeds 1 ha. Plantations are the main source of livelihood for the community. Cacao, cloves, and fruit trees are the main commodities. For about 20 years, the community has been cultivating cocoa plants. Cacao cultivation is carried out in forest areas and vacant land on the mountain. This is also what

caused the armed conflict between the armed forces and armed civilians in Gunung Biru, disrupting the community's agricultural activities.

ASPECT	INDEX VALUE	INDICATOR	SCORE
SR	3.83	The existence of positive social institutions at the local level	3.11
		Trust between citizens	3.78
		Ease of access/utilization of positive social institutions for community development	3.33
		Tolerance for newcomers who become new residents	4.22
		Community cooperation culture	4.00
		Norms and values that are agreed upon and adhered to (e.g., religious norms, customs)	4.56



Type	Sustainability
SDM	high
SDA	high
SDI	high
SDS	high
SDE	medium

Figure 5. The Masani Village Community's Asset Pentagon

The lowest value of the community's sustainable livelihood supporting factor in the area studied was economic resources (SDE). Some of the influencing SDE indicators included the absence of formal and informal financial institutions, the absence of trade centers, the lack of access to logistics distribution, the degree of difficulty for low-income households in accessing/utilizing financial institutions, and the lack of ownership

of non-bank savings (livestock, jewelry, et cetera) by the community in the area studied. In the human resource dimension, the low level of community skills (technological innovation/local wisdom level) is one of the barriers to sustainable livelihoods.

Income changes

There has been an increase in community income in the three villages from previously an average

of IDR 6,932,801 to IDR 14,970,562 per month. The highest increase in income occurred in Masani Village, which was IDR 15,485,439.39 per month per household. The high increase in income in Masani Village originated from clove cultivation. In the empowerment program, the residents' clove trees had been rehabilitated.

The increase in income according to the results of this study is inline with the results of research on empowering rural communities which was also conducted by Inayah et al. (2019), Pradana et al. (2019), and Sompa (2021)

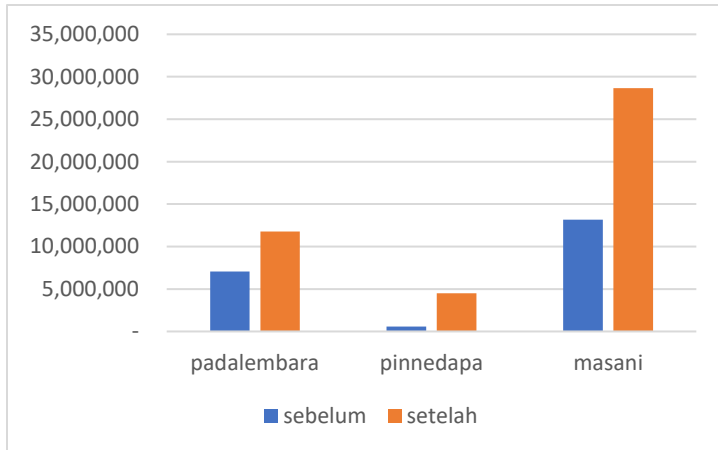


Figure 5. The average income per month before and after the program (IDR)

Change in income inequality

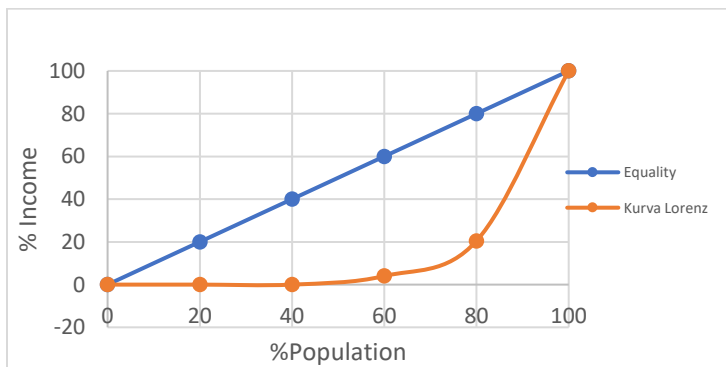


Figure 6. The Lorenz Curve for the Income in Padalembara Village Pre-Conflict

The results of the Lorenz Curve on the income of the Padalembara Village residents before the conflict are shown in Figure 6 which shows that the Lorenz line moved away from the equality line. This indicates that before the conflict

occurred, the residents' income was unequal and not evenly distributed. This is also supported by the Gini coefficient value of **0.70** which means that the level of inequality in society is high. The condition of people's income after the conflict

and the program was then compared. The resulting Lorenz Curve is as follows:

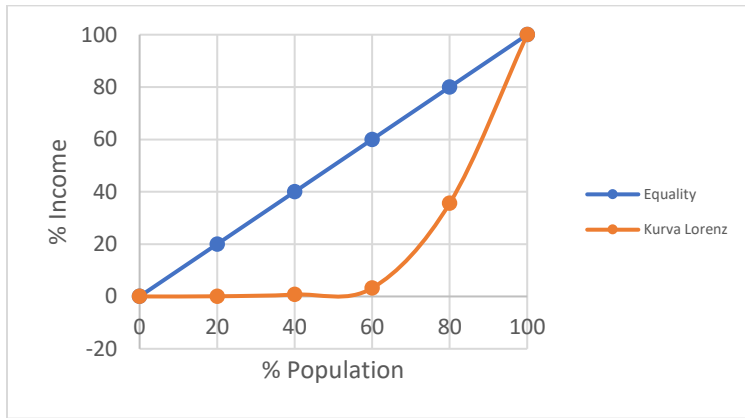


Figure 7. The Lorenz Curve for the Income in Padalembara Village Post-Conflict

In Figure 7, the Lorenz curve shows a slight change in the Lorenz curve line compared to before. The change in question is that the Lorenz curve line is slightly closer to the equality line, which means that people's income inequality has decreased. This is in accordance with the results of the Gini index coefficient calculation which was **0.64**. This is **0.06** smaller than the Gini index coefficient before the conflict and the implementation of the program.

The results of the Lorenz Curve for the income of the Pinedapa Village residents before the conflict are shown in Figure 8, showing that the Lorenz line is farther away from the equality line. This indicates that before the conflict, the people's income was unequal and unevenly distributed. This is also supported by the Gini coefficient value of **0.63** which means that the level of inequality in the society was high.

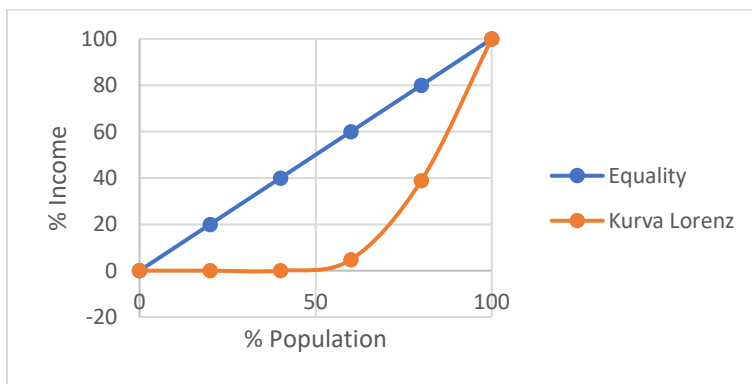


Figure 8. The Lorenz Curve for the Income in Pinedapa Village Pre-Conflict

Then the condition of residents' income after the conflict and the program were compared. The resulting Lorenz Curve is as follows:

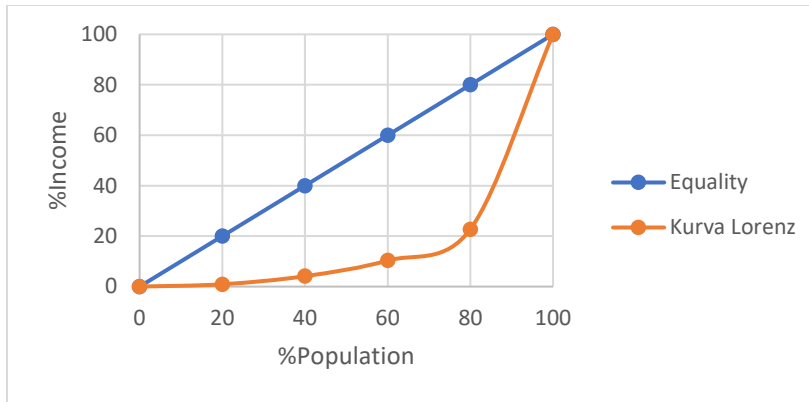


Figure 9. The Lorenz Curve for the Income in Pinedapa Village Post-Conflict

In Figure 9, the Lorenz curve shows that there was a slight change in the Lorenz curve line compared to before. The change in question is that the Lorenz curve line is slightly closer to the line of equality at a certain point. Even though there is a change in the Lorenz curve line, the results of the Gini index coefficient calculation

showed a greater value than before, namely 0.65, which is 0.02 higher. This means that inequality in the average income still exists to the present day. Even though some residents previously had no income and after the conflict, they received income from agricultural produce, there some inequality was still found.

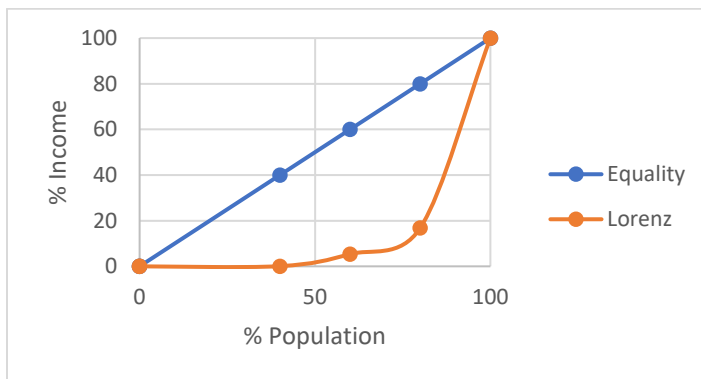


Figure 10. The Lorenz Curve for the Income in Masani Village Pre-Conflict

Meanwhile, in Masani Village, the Lorenz Curve on people's income before the conflict can be seen in Figure 10, showing that the Lorenz line moved away from the line of equality. This indicates that before the conflict, the people's income was inequal and unevenly distributed. This is also

supported by the Gini coefficient value of **0.71** which means that the level of inequality in society was high. It was then compared to the condition of the people's income after the conflict and the program implementation. The resulting Lorenz Curve is as follows:

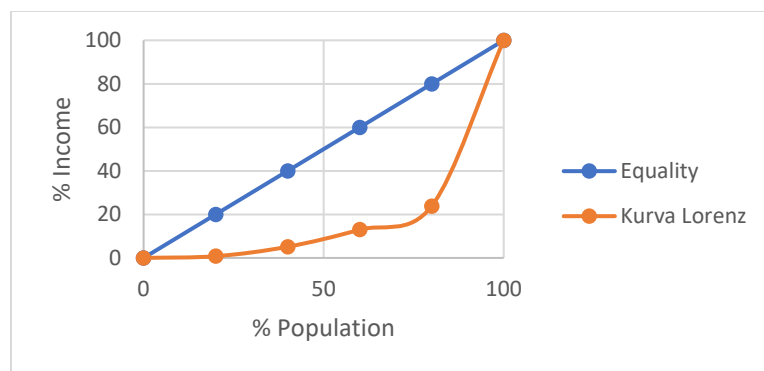


Figure 10. The Lorenz Curve for the Income in Masani Village Post-Conflict

In Figure 10, the Lorenz curve shows a slight change in the Lorenz curve line compared to before. The change in question is that the Lorenz curve line is slightly closer to the equality line, indicating that the inequality in the people's income has decreased. This is in accordance with the results of the Gini index coefficient which was **0.63**, **0.08** less than the Gini index coefficient before the conflict and the program implementation.

IV. CONCLUSION

This study's general conclusion is that the empowerment program implemented using a

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dialogical approach could increase people's income and reduce income inequality in the three conflict villages. The main types of resources that are supporting factors for people in realizing a sustainable livelihood through increasing and equalizing income are social resources (SR) and human resources (HR).

V. ACKNOWLEDGMENT

This research is fully supported by CARE LPPM IPB. Author also thanks to the Doctoral Program in the Management of Natural Resources and the Environment at the IPB Postgraduate School.

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