

INEQUALITY OF HOUSEHOLD INCOME IN INVOLUNTARY RESETTLEMENT AT KOTO PANJANG

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Abstract

This research examined inequality of household income transferred due to the construction involuntary resettlement of the Koto Panjang dam in Kampar District, Riau Province. Dam construction caused the displaced of the households in the location. The households received compensation in the form of buildings and land. Even though the displaced household received the same compensation but some households had better lives while others were worse. This condition showed the inequality of household income in the new location. This study used primary data that obtained through questionnaires in 3 sub-districts of 10 villages. The analytical tool used to see the income inequality was the Gini ratio. This study found that the inequality of household income transferred in Koto Panjang was moderate. This showed that the households that have been moved due to the construction of the Koto Panjang Dam have been quite good compared to before.

Keywords: Household Income, Inequality, Involuntary Resettlement

INTRODUCTION

The construction of dams in Indonesia has started since the early 1980s. It is noted that the number of dams in Indonesia is 209 dams (Kementerian PU, 2017). One of them is the Koto Panjang dam located in the middle of Sumatra Island in the border of Riau Province and West Sumatra Province, The Koto Panjang dam construction project was started in response to the rapid development in the increasing demand

for electricity.

The construction of this dam has forced households in the location were forced to move to the new settlements. The Government anticipated by carrying out Involuntary Resettlement for displaced households and has the aim to improve the conditions of community livelihoods or at least restoring the economic and social conditions of the displaced people (ADB, 2011) Therefore involuntary resettlement was a government

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activity to relocate and rebuild people's lives better than before relocation (Asthana, 1996).

Dam construction was needed to increase economic growth and development of an area (Witrianto, 2014). On the other hand dam construction and resettlement of residents also had negative impacts on the community, including reduced land ownership, reduced access to natural resources, household income decline, as well as economic disparity between communities (Tilt and Drew, 2016). This has the potential for poverty in a large number of people who have been displaced (Cernea, 2007).

Most of the displaced people were farmers and experienced difficulties in livelihoods in new places. Where there are 38.35 percent of the majority of household head livelihoods are farmers (BPS, 2017). This showed that agricultural land was the main productive resource for farmers, so the loss of agricultural land caused farmers not to have livelihoods and was a major cause of poverty for households displaced by the impact of dam construction (Andrianus, *et. al.*, 2018)

Construction of dams for the benefit of the Koto Panjang hydropower project had an impact on the displacement of households that occupy areas that will be used as dams. Displaced households received compensation for buildings and new land in new settlements based on the number of family heads when transferred. All

families affected by the dam receive compensation in the form of buildings and land of the same size (Witrianto, 2014). Even though the same compensation had been given, in the form of buildings and the same land, some households have better lives while others are worse, this condition indicates the inequality of household income in the new location (Ridwan *et. al.*, 2018).

Some reports state that the living conditions of settlers after dam construction are worse. For example, a third-party ex-post evaluation report sponsored by JBIC presented that nearly 70% of households had worse living conditions than before relocation. However, another study conducted by Karimi, *et. al.*, (2005) showed that settler conditions after relocation were better than before relocation. However, comparisons using these criteria can be considered invalid because they depend on people's perceptions of the conditions of the settlers. In particular, this method failed to take into account how many changes in household welfare conditions after relocation (Ridwan, *et. al.*, 2018). Therefore this study examines the inequality of household income based on income distribution that is influenced by the work of the head of the household. The lower the level of household welfare, the greater the level of inequality that occurs between households and this research is needed to see whether an increase in household welfare has an impact on the inequality in the Involuntary Resettlement of

the Koto Panjang dam in Kampar Regency, Riau Province.

REVIEW OF LITERATURE

Involuntary Resettlement

Involuntary resettlement occurs when a decision to transfer is made and forced to move in to a new location and when there is no possibility to stay in the old location. Involuntary resettlement can be caused by environmental degradation, natural disasters, conflicts or development projects. This is related to the loss of housing, income, land, livelihoods, assets, access to resources and services, among others (World Bank 2011). Thus involuntary resettlement is process to help people who displace from their house replace housing, assets, livelihoods, land, access to their resources and services and to restore their socio-economic and cultural conditions.

Resettlement refers to the displacement of people from one place to another that is over whelmed by strength, lacking of the agreement from people who affected by settlers (Cernea, 2007). In general, resettlement is divided into two categories: voluntary resettlement where displacement is induced by development and resettlement caused by disasters, conflicts etc. Then involuntary resettlement refers to a process where people are compensated for assets lost in the development process but lived in the same location, or receive compensation and relocate to a new place (Hartanto, 2015). The

differences between involuntary resettlement and voluntary resettlement is the readiness of household to move (Andrianus, *et. al.*, 2018). Thus In some cases, the purpose of resettlement is to restore or continue community livelihoods in the new location.

The Involuntary Resettlement Program initially focused solely on physical and housing development. Economic and social that change in society have not shown significant improvement. Moved households cannot seek business opportunities to continue their lives. Even existing business opportunities are relatively difficult to undergo and develop (Wicaksono, 2011).

As a result, people's lives are not better even declining compared before (Wiranata, 2010). Thus involuntary resettlement programs are not only to improve physical and housing development but also to improve non-physical activities such as living standards and livelihoods of the people so that they can improve welfare for the community.

The result of the study shows that good resettlement can avoid poverty for affected people and can reduce community poverty by creating sustainable livelihoods (Mesaakh, 2003). However, inadequate resettlement can cause local rejection of the project, increase political pressure, cause large project delays and delay the loss of project benefits as a result of avoidable delays sometimes, can go far beyond the additional costs of good resettlement (ADB, 1995).

However, well implemented and managed involuntary resettlement program can prevent households or communities displaced from the risk of poverty (Andrianus, *et. al.*, 2018). Thus involuntary resettlement has a good impact if it is managed well and has a bad impact if it is not managed properly.

Income Inequality

Analysis of household income inequality is based on the distribution of household income, which is mainly influenced by the work of the head of the household. When analyzing income distribution one must consider the dynamics, because the income and composition of the household develops over time. Problems with income inequality cannot be separated from the problems of poverty and welfare.

According to (Todaro, 2006) there are several measurements to measure inequality; Todaro distinguished two measures of income distribution and functional income distribution. In the distribution of individual income measures, this measurement directly calculates the amount of income received by each individual or household. This measurement is measured by how much income a person receives from his salary, or from other sources such as savings, profits, rent, etc. Whereas the distribution of income distribution is a measure that focuses on land, capital and labor where the theory of functional income distribution basically questions the percentage

of overall labor income and compares it with the percentage of total income distributed in the form of rent, interest and profit.

Arsyad (2010) argues that the problem of equity is a very complex matter to overcome inequality, because inequality is often related to the social values of a society. Some people view equity as a valuable goal with the element that is closely related to social justice, so that equal income is needed to determine welfare in society. The results of the previous study were conducted by (Ridwan, *et. al.*, 2018) who measured income inequality using 2014 Indonesian agricultural survey data which found that refugees had lower land inequality but higher income inequality between households. Thus there is still income inequality in involuntary resettlement programs.

RESEARCH METHODOLOGY

In analyzing the impact of socio-economic of households that affected by displacement due to dam construction, the research focused on income inequality between households in Kampar district related to the Koto Panjang dam construction project in Riau Province, where Kampar district was the most displaced due to construction of the Koto Panjang dam.

This study used questionnaires that distributed between households with samples taken in each village 30 households with a total sample of 300 samples. The following is a table of

research locations and the number of respondents in Kampar regency, Riau Province.

Table 1. Location of Respondents

No	Villages	Households	Location
1	Desa Pulau Gadang	30	Kecamatan XIII Koto Kampar
2	Desa Koto Masjid	30	
3	Desa Tanjung Alai	30	
4	Kelurahan Batu Bersurat	30	
5	Desa Pongkai Istiqomah	30	
6	Desa Koto Tuo	30	
7	Desa Muara Takus	30	
8	Desa Gunung Bungsu	30	
9	Desa Mayang Pongkai	30	
10	Desa Muara Mahat Baru	30	
Total		300	

This study used the Gini ratio index which looks at the level of income inequality between households. The Gini ratio index (Jeekins, 1999) is measured by:

$$G = 1 + (1/N) - \left(\frac{2}{mN^2} \right) \sum_{i=1}^n (n - i + 1) y_i$$

Then the Gini index value ranges from 0 and 1, where: iinequality is low if the Gini index is less than 0,4, moderate inequality if the Gini index is between 0.4 - 0.5. High inequality if the index is Gini greater than 0.5 which indicates a high inequality of income distribution. The closer it is to zero, the better the distribution,

the closer it gets to one, the income distribution gets worse or worse (Canita and Dewi, 2017).

RESULT AND DISCUSSION

Household Income

Household income in this study is calculated based on the income received by the head of the household based on the main livelihood of the head of the household. Here is the average data income of head of household with 3 sub-districts and 10 villages in Kampar sub-district, Riau Province.

Table 2. Average Household Income per Month (IDR)

Villages	Average Income
Desa Pulau Gadang	1.753.333
Desa Koto masjid	3.289.500
Desa Tanjung Alai	1.476.601
Kelurahan Batu Bersurat	1.703.333
Desa Pongkai Istiqomah	1.974.667
Desa Koto Tuo	2.415.000
Desa Muara Takus	2.031.667
Desa Gunung Bungsu	1.863.333
Desa Mayang Pongkai	3.933.333
Desa Muara Mahat Baru	5.333.333

In the table above the condition of the average household income in 10 villages was the object of research in Koto Panjang. in the table, the average household income in each village varies. The village with the highest income is the new Muara Mahat village with an average income of IDR. 5,333,333 while villages that have the lowest average income were Tanjung Alai village with an average income of IDR. 1,476,601. It means that the village of Muara Mahat is the

most successful village in the resettlement of the Koto Panjang dam construction project while the village of Tanjung Alai is one of the villages that has been less successful in the resettlement of the Koto Panjang dam construction project relocation.

The promised compensation in the form of a rubber plantation was unsuccessful. The rubber land promised by the government could not be harvested at the appointed time, even many failed and died. This condition occurred due to the mistake of giving rubber seedlings by the government. Planted seeds were not superior seeds. This is what causes the lowest income of households in the village of Tanjung Alai compared to other villages. Then the total of the average household income is seen in the following summary of household income statistics.

Tabel 3. Summary of Statistics of Total Household Income

Variable	Mean	Std.Err	95% conf.Interval	
Income (n=300)	2.557.410	130.283	2.316.443	2.829.276

It can be seen that the average income of households in three sub-districts with 10 villages affected by the construction of the Koto Panjang dam in Riau Province is IDR.2.577.410. the average household income is above the Regency minimum wage which is IDR. 2,315,002 in 2017, it can be concluded that the average household income in Koto Panjang is already prosperous. Even though in detailed villages, there was still household income below the Provincial Minimum

Wage (PMW).

This statement is in line with previous research by Karimi and Taifur (2013), which states that the level of welfare of households after relocation is higher than before relocation where the majority of the population has experienced an increase in real income. Before resettlement, 82% of the population earns less than IDR 1,000,000 per month, after resettlement, 83% of the population earns more than this. This shows that there is an increase in the welfare of households in involuntary resettlement households after relocation.

Inequality of Household Income

This study calculated how large the income inequality of settler households after the construction of dams. The measurement of inequality in household income is based on measuring the imbalance of the index Gini ratio. The inequality of household income after relocation using the index Gini ratio. Inequality of household income can be seen in table 4.

Tabel 4. Summary of Statistics of Total Gini Ratio in 10 Villages.

All Obs	GE (-1)	GE (0)	GE (1)	GE(2)	Gini Rasio
	0,37162	0,27652	0,28095	0,37437	0,40108

Table 4 above is the result of data processing of household income after relocation where the Gini ratio index is obtained at 0.40108 which indicates that the inequality of household income after relocation is included in the category of moderate inequality, using a measure according to

the index value of Gini which only ranges from 0.4 to 0.5, which means the level of inequality of household income is still uneven. These results indicated that the construction of the Koto Panjang dam has reached the goal of increasing the development of the welfare of the community but not in leveling income between households. This may be due to inappropriate and inadequate compensation given to households. New places are not in line with their old work before relocation. This is in line with the results of a previous study by Ridwan, *et. al.*, (2018) using 2014 Indonesian agricultural survey data that compared economic structure and income inequality before and after relocation and found that refugees had land inequality lower but higher income inequality between houses after relocation. Then the table below shows a comparison of the level of inequality of household income between villages.

Table 5. Gini Ratio per Village

No	Village	Gini Ratio
1	Koto Masjid	0.44981
2	Pulau Gadang	0.39030
3	Tanjung Alai	0.94819
4	Batu Basurek	0.27834
5	Koto Tuo	0.29816
6	Pongkai Istoqomah	0.37319
7	Muara Takus	0.34867
8	Gunung Bungsu	0.24502
9	Mayang Pongkai	0.27938
10	Muaro Mahat Baru	0.25083

The table shows that almost all levels of income inequality with 10 villages have similar

inequalities. If seen from the index of inequality the income of households between villages is included in the category of low inequality with the Gini index which ranges between 0.2-0.3. However, it is different from Tanjung Alai village which shows a high level of inequality that exceeds the index value of 0.5, indicating that the village of Tanjung Alai is the village with the lowest income level and the highest inequality of household income between villages. This proves that the level of inequality of household income is largely determined by the level of well-being owned by the household. Figure 1 shows a more detailed picture of the condition of inequality in income distribution between households.

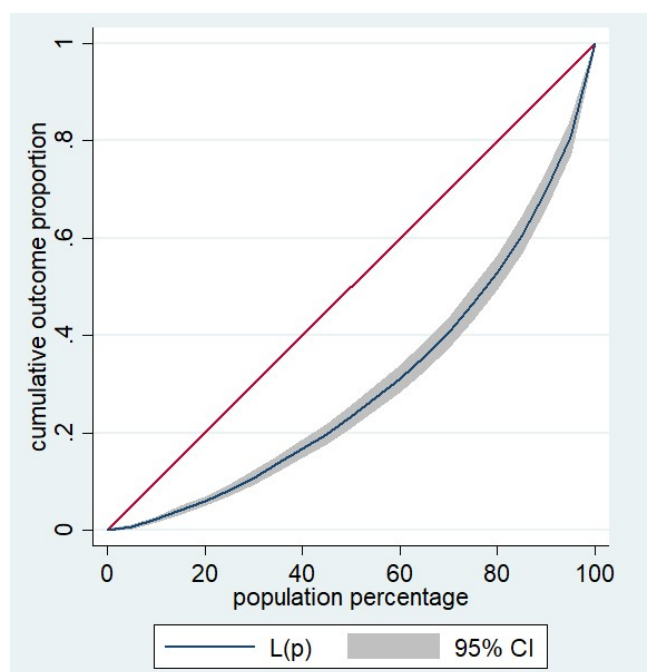


Figure 1. Household Income of Distribution

Figure 1 shows the Lorenz curve of Koto Panjang involuntary resettlement households in the Kampar district of Riau Province after

relocation. The level of inequality of involuntary resettlement of household income Koto Panjang can also be seen from the Lorenz curve that occurs, if it is sunken if it goes down the diagonal line then inequality what happens is getting bigger. In the figure it can be seen that the level of income inequality is in the middle of the inequality away from the diagonal line. The Lorentz Curve Line (colored red) below the diagonal line (which shows perfect equalization) shows that the Lorentz Curve is quite far with a diagonal line or perfectly equalized line, which means that the distribution of total income of involuntary resettlement households and inequality is included in the medium category.

CONCLUSION

The results of this study indicated that in general the average of household income after relocation is higher than before. Even though the income has increase, however, reviewing the inequality of household income, the settlement of Koto Panjang dam in Kampar district, distribution of inequality in household income is classified as moderate inequality. This shows that the construction of the Koto Panjang dam has reached the goal of increasing community welfare development but not in equalizing income distribution between households.

This may be due to the work of the head of the household in the new place not in accordance with their old work before being transferred

with the compensation given inadequate to the household and vice versa the compensation given in the form of buildings and land is not used properly to continue their lives in a new place so that there is income inequality between households. This is a contribution factor to the inequality of displaced household income due to the construction of an involuntary resettlement in the Kampar district of Riau Province.

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