



# Factors Contributing to the Success of a Resettlement Project: A Case Study on Batanghari Dam Project, Indonesia

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**Abstract:** The construction Batanghari dam project has made Pulau Panjang village have to be relocated. The reason for resettlement is because this village might be entirely inundated due to Q100 flood. The resettlement program is considered to be successful. This paper investigates what factors contributed to its success and a case study is adopted to achieve the objective. Three interviews with government officials and a focus group discussion with relocated community were conducted to get a primary data. Data was analysed using content analysis. It was found that there four factors contributed to the success of the resettlement program: program socialisation conducted by government, self-selection of relocation area by the community, ease of accessibility and livelihoods, and a better quality house provided for the community.

**Keywords:** resettlement project, success factors, dam project, flood inundation

## 1. Introduction

Indonesia is the third largest rice producer in the world after China and India [1]. According to Indonesia Ministry of Agriculture [2], total area of rice field in Indonesia is 76.6 million hectares, and the production is 70.8 million ton per year. About 94% of total area of rice field is irrigated. In order to maintain and increase rice production, government of Indonesia has built dams and irrigation system in many places, including Batanghari dam.

Batanghari dam is located at the Batanghari river, about 200 km to the east of Padang City (Figure 1), the capital of West Sumatera Province. The dam construction is carried out by PT. Pembangunan Perumahan for four years, started from 1998 and costed IDR 217 billion. The funding came from the Loan from Japanese Government. The dam construction increases the flood risk of one village, which called Pulau Panjang. This village which located about 5 km at the upstream of Batanghari dam might be entirely inundated if Q100 flood takes place. As a result, government of Indonesia relocates this village.

Resettlement of an entire village whether it is as a result of development or due to disaster is not an easy task and many end with failure. The relocation of villages in Flores, in Banda Aceh, or in Mentawai was not so successful. The worst is the houses being built were abandoned by the beneficiaries and they go back to their original land. However, the relocation of Pulau Panjang village can be categorised as a success by looking at the economy of its community. Thus, this paper investigates the factors contributes to the success of the resettlement program.



Figure 1 Location of Batanghari Dam

## 2. Literature Review

Resettlement according to Jha et al [3] is 'a process whereby a community's housing, assets, and public infrastructure are rebuilt in another location'. In other terminology, WCDRR [4] uses the word 'relocation' to express the condition where people move physically to different location. Since the meaning is the same, in this paper, the word relocation and resettlement will be used interchangeably.

Moreover Jha et al. [3] stated that there are three reasons why relocation is needed, first is because people have already been displaced by disaster, second because the current area is uninhabitable, and finally to reduce the vulnerability to the risk of future disaster. The relocation of Pulau Panjang village due to the construction of Batanghari dam falls into the last category. The dam construction exposes Pulau Panjang inhabitants into flood risk. It can be seen as a preventive measure before flood occurs.

WCDRR [4] states that relocation is a complex task that requires a holistic approach and should be seen as

the last options. It is costly, have the potential to reduce people's access to livelihoods, and can disrupt their social network. As a results, it has to be managed carefully. Jha et al [3] claim that relocation is more likely to be successful when:

- affected communities participate in critical relocation and implementation decisions (site selection, identification of basic needs, settlement planning, housing designs, and implementation);
- livelihoods are not site-specific and so are not disrupted;
- water, public transport, health services, markets, and schools are accessible and affordable;
- people are able to bring with them items of high emotional, spiritual, or cultural value (religious objects, salvaged building parts, statuary or other local landmarks);
- people belonging to the same community are resettled together to a new site;
- emotional, spiritual, and cultural attachment to the old site is not excessively high;
- housing designs, settlement layouts, natural habitat, and community facilities conform to a community's way of life;
- social, environmental, and hazard risk assessments confirm that risk cannot be mitigated in the old location, while the community can be assured of the suitability of the relocation site;
- communication with target groups is frequent and transparent, and mechanisms to resolve grievances are effective; and
- Relocation and assistance to mitigate its economic impacts are adequately funded over a reasonable period of time.

### 3. Methodology

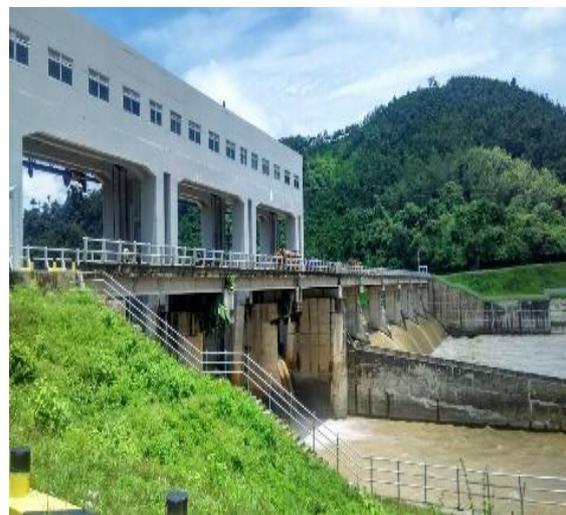
The research method adopted for this study is a case study as it can provide a deep analysis on the factors contributing to the success of resettlement program due to the construction of Batanghari Dam. Dam construction was carried out between 1998 and 2002, while the housing construction in relocation area started in 2002 and handed over to community in early 2003.

The primary data were collected by conducting unstructured interviews with three government officials, and focus group discussion (FGD) with community in April 2016. Respondents were invited to answer questions dealing with what they perceive as the factors that contributing to the success of resettlement program due to the construction of Batanghari dam. Interviews with government officials were conducted in Padang and Sungai Dareh (10 km from batanghari dam), while FGD were conducted in the project location. Qualitative data was analysed

using content analysis by deploying NVivo 10 software.

### 4. Case Study

Batanghari dam which located at Dharmasraya Regency is part of Batanghari irrigation system. It is constructed to be a replacement for small dams along Batanghari River, such as Pisang Rebus, Piruko, Palangko, and Siat. These small dams were operated using pump and had a very high operating costs. The catchment area of Batanghari River is 4.450 km<sup>2</sup> and the 100-year flood (Q100) is 86 m<sup>3</sup>/s. The type of dam is Single Fail Type Concrete and the size is 121 m wide. The capacity of the dam is 25,20 m<sup>3</sup>/s and propose to irrigate 18.936 ha of rice fields in West Sumatera and Jambi province. Figure 2 shows the Batanghari dam.



*Figure 2 Batanghari dam*

As mention earlier, the dam construction can inundate Pulau Panjang village which located at the riverbank of Batanghari River. Thus, people of this village have to be relocating into a new village which called Kampung Baru. It is located about 2 km from Batanghari dam and 3 km from original village. The new location administratively lies at the border of Solok Selatan Regency. It is 100 km away from the capital of Solok Selatan Regency, but only 15 km from the capital of Dharmasraya Regency. Figure 3 shows the location of Batanghari dam, Kampung Baru village, and Pulau Panjang village.

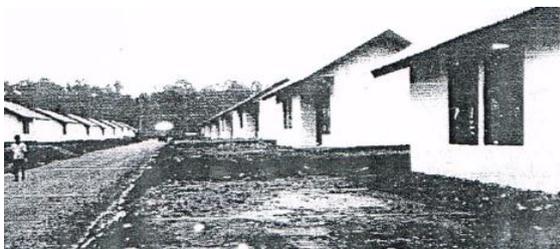
The relocation of Pulau Panjang village involved the construction of 126 new houses for 126 families. Each family entitled to have a Type-50 house (Figure 4). Type 50 means that the space of the house is 50m<sup>2</sup>. It has two bedrooms, a kitchen, a bathroom, and a family room. The construction began in 2002 and handed to community in April 2003. It is funded by government budget. In this location, social facilities such as primary school and mosque are also been built. The landscape of the resettlement area in 2003 can be seen in Figure 5.



**Figure 3** Location of Batanghari dam, Kampung baru village, and Pulau Panjang village



**Figure 4.**Original house (Type 50) provided by government



**Figure 5.**Original landscape of the resettlement area in 2003

## 5. Finding and Discussion

Nowadays, by looking at the physical look of this area (Figure 6), such as houses and cars, it can be judged that the resettlement area has developed significantly

into a much better place. In other words, it can be said that the resettlement program is considered to be very successful.



**Figure 6.**Extended/new houses built by community in the resettlement area in 2016

The content analysis conducted by deploying NVivo software suggests that there are four factors contributed to the success of the resettlement program in case study area. The factors are as follows:

### a) Program Socialisation

The indigenous ethnic group of West Sumatra Province is Minangkabau. In this tribe, 'Ninik Mamak' is a kind of institution that consists of several leaders of different clan in one village. Thus, ninik mamak has a strong influence in community.

The socialisation of the resettlement program firstly conducted through Ninik Mamak. There are six clans in Pulau Panjang village. According to government official who did the socialisation, he explained the details of the Batanghari dam project, the purpose and its benefit to community, the impact of the construction to Pulau Panjang village, and the resettlement program to Ninik mamak of the six clans. After Ninik Mamak understood the condition and agreed on the plan, the next step is to socialise it to entire community. As Ninik Mamak has already discussed it with their own clan, the effort for second process is easier than the first one.

Program socialisation plays an important role on the success of the resettlement program. Since the community understand why they have to be relocated to the new location, the execution of the relocation will be easier.

### b) Site Selection

Jha et al [3] and da Silva [5] highlight the importance of site selection in resettlement program. Community

has to be involved in this process as lack of community participation can lead to failure.

In this case study, the selection of the relocation area was decided by the community. Ninik mamak and their community discussed the best place to move. Government only gave a suggestion on the selection criteria. Some important criteria that need to be considered are accessibility of the new site and sustainability of livelihood. The relocation was then decided at Kampung Baru village which was entirely a new area. Originally the site was a forest. It is located about 3 km from their original place and 2 km from Batanghari river dam. It is located at a hilly land and free from flood risk.

The site chosen by community was actually their own land. Community gave this land to government to be developed, thus there was no land acquisition cost. According to Ophiyandri et al [6] this process of site selection can be considered as a community-based approach.

#### c) Accessibility and Livelihoods

Accessibility is the major issue in any resettlement program. Kampung baru village chose by the community is because its accessibility. This new village has a road access to the capital of Dharmasraya Regency which located about 10 km to the north.

Comparing to their original village, this new area has big advantages. The original land (Pulau Panjang village) does not have an access road. The only transportation mode is by boat, and to reach the nearest road, community has to travel 5 km to the downstream of Batanghari river. It is where the Batanghari dam is located. This mode of transportation is costly and takes considerable time.

Other advantage of the new relocation area, it is close to the economic activities. Market, government offices, higher schools at Dharmasraya Regency can be reach in less than 30 minutes from Kampung Baru village. This condition acts as a catalyst for community economy and development. Figure 6 can be a proven how develop the village nowadays.

#### d) Housing Quality

The house provided by government for the beneficiaries is better than what the community have in their original village. The type 50 house is bigger than the standard house normally granted by government for community. In Aceh reconstruction after tsunami 2004, the houses provided by NGO and government were the type 36 houses [7]. According to

community, the new houses in relocation site are bigger than their original house in ulau Panjang village. So there is a kind of satisfaction from the community to get a new bigger house.

In addition, the new houses made of clay brick. This type of material considers as a better one compare to a wooden house. Since their old houses mostly are wooden houses, community perceives that their new houses come up with a better quality. Another feeling of satisfaction emerged due to this condition. As a result, community eagerly moved to the relocation site.

#### 6. Conclusions

The resettlement program due to the construction of Batanghari dam considers being successful. There are four factors contribute to the success: program socialisation conducted by government, self-selection of relocation area by the community, ease of accessibility and livelihoods, and a better quality house provided for the community.

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