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**SPECIAL ISSUE: LIVELIHOOD REHABILITATION OF INVOLUNTARILY
RESETTLED PEOPLE BY DAM CONSTRUCTION PROJECTS: CASES IN ASIA**

Guest Editors: Mikiyasu Nakayama & Ryo Fujikura

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A long-term evaluation of families affected by the Bili-Bili Dam development resettlement project in South Sulawesi, Indonesia

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A series of surveys and interviews were conducted with families relocated from the site of the Bili-Bili Dam project in South Sulawesi, Indonesia, to remote transmigration areas in the same province. At the time of the survey, all families had received their full amount of cash compensation for relocation. In addition, they had been given an opportunity to join the Transmigration Programme (TP) to receive land and houses for free; however, many suffered from hardships and their strong attachment to their homeland forced them to return. The results of this survey show that families who joined the TP did in fact use their compensation money to purchase small pieces of land and homes close to their original village. Those who were successful and saved money while living in TP areas, as well as those who sold their land in the TP areas, mostly returned to the dam vicinity and were able to purchase land and homes in that area. It is therefore concluded that this resettlement scheme was successful.

Keywords: Indonesia; Bili-Bili Dam; resettlement; transmigration

Introduction

Most dam construction projects require significant land acquisition and the relocation of families living in the affected area. These dams are often constructed in remote and mountainous regions where the people rely substantially on agriculture as a means to provide for their families. Resettlement is considered an integral aspect of the socio-economic impact of such projects, and thus land-for-land compensation schemes with additional technical assistance for renewing agriculture have often been preferred over cash compensation (World Bank, 2002). In practice, those residing in peri-urban settings or areas with general economic growth may prefer other income-generating options (World Bank, 2004).

This paper discusses the compensation and resettlement scheme of the Bili-Bili multi-purpose dam project on the island of Sulawesi in Indonesia. The Bili-Bili Dam is located on the Lenebang River, in the district of Gowa, 31 km from the city of Makassar, the capital of South Sulawesi Province. The main purposes of the dam are to control the flooding in Makassar, to supply drinking water to Makassar and its surroundings, and reservoir's capacity is 270 million cubic metres, which is capable of irrigating over 24,000 hectares of paddy fields and benefiting more than 10,000 farmers. The dam is equipped

with a small-scale electric hydropower plant (17 MW) and the reservoir area provides a recreation spot for the community and for tourists visiting a resort in the upriver district. While the Bili-Bili Dam project spurred economic development in the city of Makassar and the surrounding regions, 2085 families that had lived in the submerged area were displaced. The Ministry of Public Works and the District Government of Gowa reached an agreement with the project-affected families (PAFs) on the issue of land acquisition in 1987; the relocation scheme began in 1990 and was completed in 1997. The scheme was characterized by cash compensation with the option to join the Transmigration Programme (TP), where each PAF was promised two hectares of farmland and a house. All PAFs were free to decide whether to join the TP or to relocate to another location of their own choosing.

In a previous study, the authors conducted a survey of residents of the TP areas and discovered that many residents had quit farming and subsequently returned to the reservoir vicinity of their original homes. They did this despite the improved living conditions of the TP areas when compared to the living conditions of their original homes. The main reason for this return was emotive in nature: they preferred to live in their original home towns (Rampisela, Solle, Sadi, and Fijikura, 2009). In this study, a survey was conducted of PAFs who had returned from the TP areas to the vicinity of their original homes in the district of Gowa. The goal was to examine their reasons for returning and evaluate their living conditions. The effectiveness of the relocation programme for this particular dam project is also discussed.

Resettlement

The number of PAFs and their destination of relocation is summarized in Table 1. More than half of the PAFs (1079 families, 51.8%) chose to resettle in the vicinity of the reservoir in Gowa district. These particular PAFs were able to purchase land in the vicinity because the amount of compensation they had received was sufficient to buy other land close to their original homes. They enjoyed improved living conditions with respect to housing and electricity and were better off than the original residents (Rampisela et al., 2009). Another 415 families (19.9%) relocated to urban areas. Although it was difficult to identify and thus interview such families, it is likely that they quit farming and changed their occupation, relocating to Makassar or other cities including Sungguminasa.

There were 591 PAFs (28.4%) that chose to join the TP. These PAFs had owned small plots of land or no land at all and did not obtain sufficient compensation money to buy land in the vicinity (Rampisela et al., 2009). Transmigration areas in Mampuju and Luwu were several hundred kilometres away from their original homes; these residents had no option except to join the TP and receive land for living and cultivation (Figure 1).

Table 1. Relocation destinations of the Bili-Bili Dam's project-affected families (PAFs).

Destination of resettled PAFs	Number of PAFs	Relocation periods
1 Reservoir vicinity	1079 (51.8%)	1989–1995
2 Urban areas	415 (19.9%)	1989–1995
3 Luwu District (transmigration)	200 (9.6%)	1990–1991
4 Mampuju District (transmigration)	392 (18.8%)	1991–1995
TOTAL	2,085 (100%)	1991–1995

Source: PPLH Umbas (1998).

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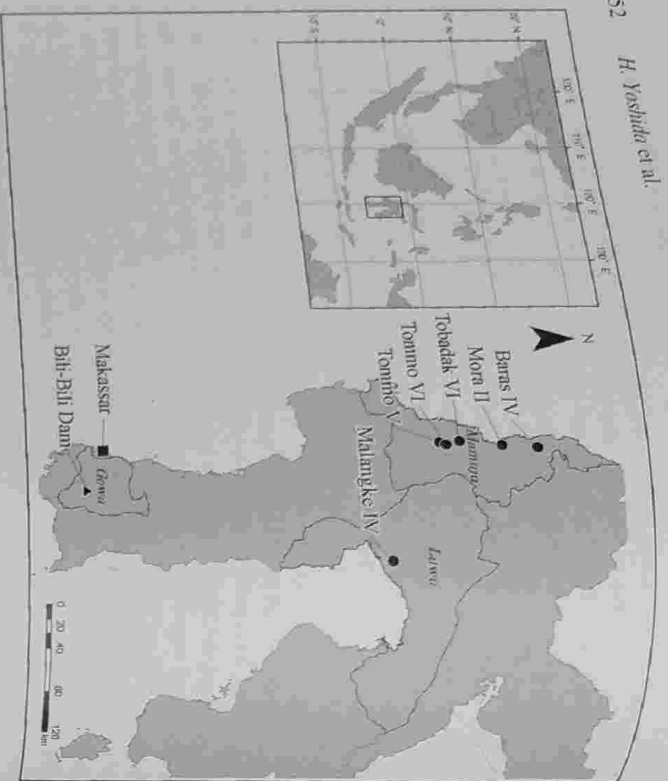


Figure 1. Location of resettlement areas, the city of Makassar and the Biti-Biti Dam on the island of Sulawesi in Indonesia. *Source:* Prepared by the authors based on International Steering Committee for Global Mapping (2009).

It should be noted that the TP was not developed specifically to accommodate PAFs but rather to accommodate transmigrants from densely populated islands, including Java and Bali. Throughout the twentieth century, the Dutch and subsequently the Indonesian governments set up internal migration policies in Indonesia to tackle the problems caused by population pressure on the land resources in Java and Bali in order that the people could attain self-sufficiency with their rice production. These policies entailed moving populations from the overcrowded islands to the thinly populated neighbouring islands of Sumatra, Kalimantan and Sulawesi. At the beginning of the TP, each transmigrant family was offered a piece of land and tools for slash-and-burn farming (Barracl & Poncet, 2007). Presently, every family joining the TP is offered two hectares of farmland and a house; however, they are not allowed to sell the land or the home within the first five years of settlement. This could be an opportunity for landless or poor farmers to become self-employed farmers if they can withstand hardships during the early stages of cultivation.

The Ministry of Transmigration agreed to allocate a certain amount of land for PAFs in the TP areas in the districts of Mamuju and Luwu. The conditions offered to these PAFs were identical to those offered to the transmigrants from Java and Bali.

Some of the infrastructure in Mamuju, including roads and drainage, was not fully developed in the early stages of its receiving transmigrants (around 1991). Prior to the full development of these infrastructures, the PAFs and other transmigrants experienced significant hardship. They often were forced to travel long distances for crop trading; the lack of flood-control infrastructure often resulted in harvest failures. Those who were unable to bear the hardships left Mamuju. Tommo V, the central subdistrict of the Mamuju transmigration area, hosted 194 PAFs (including transmigrants from other islands).

however, 115 PAFs (59.3%) left, leaving only 71 PAFs (40.7%) residing there until 2007. PAFs that were able to overcome the early difficulties were generally satisfied with their lives and stated that they wished to continue living in the area (Yoshida et al., 2010).

A dispute over land rights in Luwu occurred between local inhabitants and PAFs as a result of mismanagement in acquisition of communal lands by the Ministry of Transmigration (Rampisela et al., 2009). Although 200 PAFs registered for the TP, 59 PAFs decided to quit prior to departure for Luwu. Of the 141 PAFs who were relocated to Luwu, 100 PAFs (70.9%) left, and only 41 (29.1%) remained until 2004. According to interviews with 8 PAFs in Luwu, all of them first resettled in a village called Malangka IV; however, each PAF was given only 0.25 hectares of land despite the government's promise of 2 hectares each. Therefore, they were once again forced to relocate – to Sepakat, another village in Luwu, where they were given 1 hectare of land. This is still only half as much as was promised by the TP, but they managed to make it work. All PAFs suffered from water shortages caused by lack of infrastructure.

PAFs returning to reservoir vicinity

A survey was conducted, targeting PAFs returning from transmigration areas to the reservoir vicinity (hereafter, 'returnees'), to examine the role of the TP as an additional option in the relocation scheme. A total of 101 returnees were interviewed at 6 villages in the Mamuju and Parangloe subdistricts of Gowa District between December 2010 and January 2011. Returnees in the villages were identified by asking respondents to supply, for the purposes of this study, the names of other returnees they knew. 48 returnees from Luwu and 53 returnees from Mamuju were located. Although no data were available concerning the destinations of PAFs who left the transmigration areas, the number of returnees from Luwu interviewed amounted to nearly half of the PAFs who left Luwu.

The survey covered the following issues:

1. Compensation received
2. Reasons for returning to the dam vicinity
3. Living conditions before, during and after transmigration

The surveyed returnees were either heads of PAF households or members who had experienced life in a transmigration area. Their ages ranged from 24 to 80, with 58% between the ages of 40 and 70. There were 7 returnees who were more than 70 years old. In terms of gender, 67 were male and 34 were female. Most of the returnees had a limited educational background, having completed only primary school or less. The average length of stay in the transmigration area was 3.8 and 2.7 years for returnees from Mamuju and from Luwu, respectively. The combined average was 3.23 years, with 53% returning and from Luwu between 1992 and 1995.

The survey results indicated that 79% of returnees considered their cash compensation in accordance with the promised amount; the remaining 21% considered it less than the promised amount. In terms of overall satisfaction, 70% considered the amount to be satisfactory, while the remaining 30% considered it unsatisfactory. Regarding how they spent their compensation money, 85% of returnees purchased homes and/or land where they presently live. Other uses included food, education and motorcycles. About 10% used the money for pilgrimage to Mecca and 9% spent it on wedding ceremonies.

Most of the returnees from Luwu (40 of 48) stated that their main reason for leaving the transmigration area was land-related problems (Table 2). Twenty-four returnees experienced frequent flooding resulting in a decreased crop yield. Sixteen returnees gave

Table 2. Families' reasons for returning to the reservoir vicinity.

Reasons	From Mamuju		From Luwu		Total
	Original vicinity	TP area	Original vicinity	TP area	
Low productivity/income/floods	15	3	24	16	39
Land disputes	6	14	0	4	19
Insurmountable hardship	3	4	4	0	11
Desire to reunite with families remaining in the original vicinity	4	8	0	0	12
Livelihood unfavorable/safety reasons	8	53	0	48	61
Desire for better access to children's education	0	0	0	0	0
Health and age-related problems	0	0	1	0	1
TOTAL	33	78	29	52	101

land disputes as the main reason. Returnees from Mamuju also suffered from floods, but only a small percentage experienced land disputes. The next most important reason for returning was their desire to reunite with wives and children who had accompanied their husbands to the transmigrating areas but immediately returned to their original homelands (14 returnees from Mamuju and 4 returnees from Luwu). Eight returnees from Mamuju stated that health and age-related problems were the main reason for returning. Twenty-one returnees from Mamuju were older than 60, while only 7 returnees from Luwu were...

Living situation

Most returnees from Mamuju had owned more land in the transmigrating area than they did in their original homelands and present location (Table 3). In contrast, most returnees from Luwu had owned less land in the transmigrating areas. The number of those who were landless in their present location increased among returnees from both Mamuju and Luwu.

A common pattern of changes in occupation was observed among returnees (Table 4). In their original homes, many of the returnees were self-employed farmers (SEFs, farmers who work their own lands) and some were tenant farmers. The number of SEFs increased in the transmigrating areas and then decreased to the lowest point at their present location.

The above data concerning land ownership and occupation suggest that self-employed farming was not attractive enough to prevent other returnees from leaving the transmigrating areas. This analysis is well supported by findings from previous interviews with PAFs in the transmigrating areas. Most PAFs remaining in Luwu worked as public officers, including as teachers and policemen. About 40% of PAFs in Mamuju continued...

Table 3. Land ownership of returnees.

Land ownership (ha)	Mamuju			Luwu		
	Original vicinity	TP area	Present location	Original vicinity	TP area	Present location
> 2.0	10	5	4	6	2	4
2.0	2	32	0	0	0	0
1 to <2.0	19	7	6	9	2	3
0.1 to <1.0	17	9	33	32	44	32
0	5	0	10	1	0	9
Total	53	53	53	48	48	48

Table 4. Changes in the occupation of returnees.

Occupation	Mamuju		Luwu	
	Original vicinity	TP area	Present residence	Original vicinity
Self-employed farmer	45	52	35	42
Tenant farmer	5	1	7	6
Government employee	0	0	0	0
Company employee	1	0	0	0
Trader/businessman	1	0	0	0
Labourer	0	0	3	0
Unemployed	0	0	5	0
Others	1	0	1	0
Total	53	53	53	48

living in the transmigrating area, having improved their income and living standards by growing cash crops. It is possible that some returnees preferred being tenant farmers rather than SEFs; growing new crops is more risky than cultivating rice under the conventional crop sharing system. Although agriculture is still the dominant livelihood in the reservoir vicinity, 22.9% of returnees worked in non-agricultural sectors as traders, construction labourers, and doing other jobs. This suggests that job opportunities in non-agricultural sectors have increased in the last two decades.

In terms of homes for the returnees, 24% were in very good condition, 68% in moderate condition and 8% in poor condition. When comparing the current conditions to previous ones (both before and during the transmigrating period), the current housing conditions are far superior. On the other hand, a minority of returnees (14%) claimed that their pre-transmigration (original) housing condition had been superior to their current homes. A smaller percentage (3%) claimed that the housing conditions during the transmigrating period had been superior to their current homes.

A similar tendency was observed regarding utilities and properties/assets (Table 5). Their current conditions were much better compared to the previous conditions; about 52% of the returnees owned a refrigerator, often indicative of upper-class status. This included 31 of the 53 returnees from Mamuju and 21 of the 48 of returnees from Luwu. Owning motorcycles as well as the physical qualities of one's home were often the indicators of upper-middle class or upper-class households (which included 56% of returnees). Even controlling for the contribution of Indonesia's national economic development during the...

Table 5. Comparison of assets and utilities of returnees.

Assets	Mamuju		Luwu		Total	
	Original vicinity	TP area	Present residence	Original vicinity	Present residence	Original vicinity
TV	17	4	51	9	3	44
Motorcycle	9	3	40	5	0	26
Refrigerator	0	1	31	2	1	14
Access to electricity	13	1	52	5	1	21
Own toilet	11	18	47	18	23	42
						29
						41
						89

past decades, it is possible to conclude that the living conditions of PAFs were presently better than before.

Water access, however, had greatly decreased compared to previous conditions. All returnees had had access to wells in the transmigration area, but only 30% had such access at the time of survey; 32% now had access to PDAM (Perusahaan Daerah Air Minum, the regional state water company). A similar tendency was observed when it came to irrigation regional state water access: 46% of returnees claimed that access to irrigation during transmigration was better than their current access. Only 9% claimed to have better irrigation access presently, while 9% claimed to have worse access. This water problem was partly attributed to their coming back to the region; at the planning stage of the regional development project, including construction of the Bili-Bili Dam and its irrigation system, there was no consideration of such a large number of PAFs returning to the vicinity.

For the sake of corroboration and cross-checks, the survey asked questions regarding various levels of satisfaction. The responses were as follows: 80% were satisfied with their current occupation, 92% were satisfied with their current living conditions, and 96% had no plan to relocate. Many of the returnees lived in fairly good conditions, 24% in very good conditions, and 8% in poor conditions. These results were consistent with the level of satisfaction expressed concerning their jobs and living conditions.

Reasons for returning

Among the reasons given for returning to the reservoir vicinity, the most common ones were land disputes and poverty in TP areas. However, their housing conditions and utilities had improved, and many ranked as middle-class citizens in their present villages. Previous to this survey, it was assumed that the returnees were poor, that this was why they had joined the TP, and that they had failed to establish a livelihood in their transmigration area. A deeper analysis of the returnees' behaviour (i.e. their purchasing of homes) revealed what may have been the real reasons for returning. Regarding their present homes, 85% of returnees purchased them between 1990 and 1999. The remainder purchased their houses within two years of returning to the reservoir vicinity (Table 6). About 85% of returnees purchased their present homes using their own funds, while 13% inherited their homes from their parents or received them from the local government (2% moved in with other relatives). This is consistent with their responses concerning spending the compensation money: 64% had purchased land and homes and 21% had purchased only land. Some of

Table 6. Number of project-affected families who were relocated and who purchased their present home, in four time periods.

Period	Mamuju			Luwu		
	Relocated to TP	Returned to reservoir vicinity	Purchased/built present home	Relocated to TP	Returned to reservoir vicinity	Purchased/built present home
1 1990-1991			5		4	8
2 1991-1995	53	32	18		36	20
3 1995-2000		14	21		6	11
4 2001-2006		7	7		2	9
TOTAL	53	53	51*	48	48	48

*Two of the returnees moved in with relatives and do not own their own homes.

returnees admitted that they had raised additional funds to build their present homes by illegally selling their old homes and land in the TP areas. There were only two returnees who did not own their own homes and they were currently living with relatives.

Based on an analysis of the data, a pattern of behaviour can be identified for returnees from the transmigration areas:

1. They were all relocated to transmigration areas but returned to the dam vicinity because they found the conditions in the transmigration area too difficult and/or they wanted to live closer to their families.
- 2a. Those who had received enough cash compensation purchased land and/or homes in their original vicinity.
- 2b. Those who had successfully saved money in the transmigration areas bought land and homes by adding to their compensation cash.
- 2c. Those who had not been able to make enough money in the transmigration areas returned to the dam vicinity and are currently living with family or other relatives.
3. Much of the land in the transmigration areas was illegally sold to others or given to the recipients' children.

Discussion and conclusion

The resettlement scheme for the Bili-Bili Dam development provided cash compensation for all PAFs and offered the additional option to join the TP. The cash compensation provided many options for the PAFs, and about 70% purchased land close to their original vicinity or relocated to urban areas. Given that the PAFs were not an isolated ethnic minority in the region and also that Indonesia has experienced rapid economic growth throughout the past two decades, even the PAFs who relocated to the reservoir vicinity may still engage in non-agricultural sectors of work.

Cash compensation, however, does not necessarily provide opportunities for the poor. The landless and the small-scale landowners received less compensation and they may not have been able to restore their quality of life. The TP provided such disadvantaged groups with opportunities to gain new land and to increase their income.

While all participants in the TP experienced hardships, 40% of PAFs in Mamuju successfully established their livelihood. Most returnees also obtained land and homes in the reservoir vicinity by taking advantage of the TP and are satisfied with their present conditions. The operation of the TP at Mamuju and Luwu was not satisfactory, and those who participated in the TP suffered from various hardships throughout their first years. However, those who were able to overcome the difficulties and manage to capitalize on opportunities improved their lives to levels that exceeded their pre-transmigrant lives.

The survey found that 8% of returnees lived in poor conditions. This is consistent with findings from other interviews in the reservoir vicinity and in the transmigration area of Luwu. These individuals had been landless in their original location and had a limited capacity to make use of new opportunities because of the low level of human, social and physical capital accessible to them. When faced with land disputes in Luwu, most PAFs returned to the reservoir vicinity; however, those who wanted to return but did not have the money to do it had to remain in Luwu. These individuals are the most vulnerable against major events such as relocations and disputes; they tend to be at the bottom of the social ladder and to have no voice in development programmes. Careful attention should be paid to this group, and necessary assistance, including vocational training and support for

children's education, should be combined with cash compensation and other safety-net programmes.

This paper analyzed the life and occupation changes of PAFs from the Bili-Bili Dam project. The resettlement scheme was fairly successful, except for a small number of poor families who benefitted from neither the cash compensation nor the TP. Some families' returning from the TP areas does not necessarily mean that the resettlement scheme was a failure; the return was mostly due to the poor operation of the TP, which caused many problems for the residents and resulted in some of them illegally selling their land. The diversity of the lives of the PAFs mirrored the demographic change currently taking place in Indonesia; Sulawesi has been experiencing rapid economic growth, and the rapid urbanization of the city of Makassar has increased job opportunities in non-agricultural sectors. More people are encouraging their children to obtain higher education and to work in these urban sectors. In this context, cash compensation was relevant to most of the PAFs. The TP gave the disadvantaged group additional support both directly and indirectly, although there was much room for improvement in its implementation.

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