



## Resettlement Issues of Cirata Dam Project: A Post-project Review

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**ABSTRACT** *Forced population displacement caused by dam construction has been regarded as the most serious issue of water resources development. Nevertheless, the best practice is still not yet established. This paper aims to examine the performance of the involuntary resettlement scheme applied to the Cirata Dam project in Indonesia to obtain clues for improvement. Aquaculture development in the reservoir succeeded in creating new jobs for resettlers. Most resettlers ended up with less farmland than they had previously owing to the increase in land price. The land-for-land compensation scheme is preferable to cash compensation. Participation of resettlers in the planning and implementation of the resettlement scheme still had room for improvement. Some intermediate mechanism, between villagers and those implementing the resettlement scheme, should be devised. More careful and streamlined efforts should have been made as regards the secondary development of the project, so that those displaced could enjoy the benefits.*

### Introduction

A former senior adviser for social policy and sociology of the World Bank mentioned that “Forced population displacement caused by dam construction is the simple most serious counter-developmental social consequence of water resources development” (Scudder, 1997, p. 42), and a senior environmental adviser at the World Bank echoed, saying that “Involuntary resettlement is arguably the most serious issue of hydro projects nowadays” (Scudder, 1997, p. 42).

Despite the fact that involuntary resettlement has been regarded a major issue in dam construction projects, the best practice is still not yet established. This partly stems from the fact that very limited detailed surveys have been conducted in the past on the involuntary resettlement issue. Conducting post-project reviews on previously implemented resettlement schemes, in association with dam construction projects, should be instrumental towards establishment of a better methodology to deal with the issue.

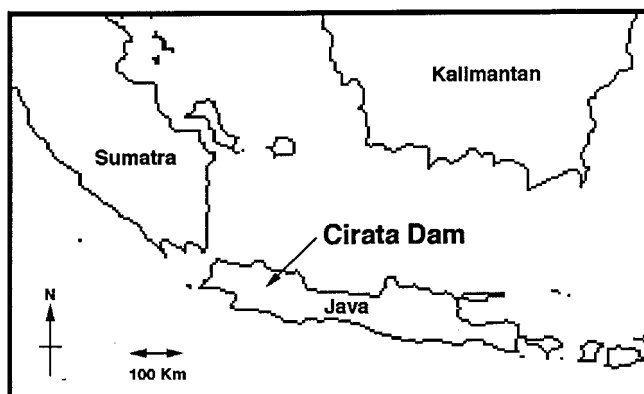


Figure 1. Location of Cirata Dam.

The aim of this paper is to examine the performance of the involuntary resettlement scheme applied to a dam construction project, namely the Cirata dam on the island of Java, Indonesia. This is done by comparing what was originally planned and what actually happened, so that some clues may be gained to improve resettlement schemes for future dam construction projects, within both Indonesia and other countries.

## Cirata Dam Project

### *Overview of the Project*

The Cirata dam was constructed on the upper Citarum River in West Java, Indonesia (Figure 1). The major purpose of dam construction was hydropower generation for Java Island, and Cirata power station was completed in 1988 with a capacity of 500 MW. The project was partly financed by a loan provided by the World Bank.

The Cirata dam was constructed as the third major dam on the Citarum river in West Java just a few years after the Saguling dam, which is located about 20 km upstream of the Cirata dam site. The Citarum river originates in the Bandung Plain and flows into the Java Sea with a catchment area of 6590 km<sup>2</sup> and average annual rainfall of 2232 mm (PLN, 1990). The project site of the Cirata dam is located just upstream of the Jatiluhur reservoir. The Cirata dam itself is a 125-m high concrete-faced rockfill dam with a crest length of 453.5 m and volume of 3.9 MCM of rockfill. The gross storage of the reservoir is 2160 MCM with a high water level of 220 m above mean sea level.

The flooded area for the Cirata dam amounted to 6612.45 ha with land use as shown in Table 1. As a result of the dam construction project, 6335 households comprising 27 978 people were obliged to resettle. Since the reservoir was constructed in the highly populated region of West Java, finding alternative land within Java island was not feasible for all the resettlers. The resettlement scheme was thus destined to be complicated. Creation of jobs other than agriculture was therefore essential (Soemarwoto, 1990).

The resettlement scheme applied in respect of the Saguling dam was found not to be fully satisfactory and had room for improvement (Nakayama, 1998). Both of these dams were planned and constructed by the Indonesian National

**Table 1.** Area for reservoir inundation

Type	ha
Dry farmland	3119.40
Rice field	1653.90
Forest	563.25
Residential area	1275.90
Total	6612.45

Source: PLN (1990).

State Electric Company (Perusahaan Umum Listrik Negara—PLN) with loans provided by the World Bank and OECF. The resettlement scheme for the Cirata dam was thus supposed to be based on the lessons obtained through implementation of the scheme for the Saguling dam.

### Scaling of Impacts on Human Settlements

The environmental impact assessment for the planned Cirata dam was started in 1982 by the Institute of Ecology (IOE) of Padjadjaran University in Bandung, Indonesia under contract from PLN, as was the case with the Saguling dam (Nakayama, 1998). Both the Saguling and Cirata dam projects were, as a result of funding by the World Bank, among the initial projects in Indonesia to which serious attention was paid as regards their impacts on the environment. For the Saguling dam, possible impacts of the planned dam were identified by the flow-diagram method (Bisset, 1987), while no flow diagram was developed exclusively for the Cirata dam. The scaling of the impacts, namely identification of impacts to be caused by construction and operation of the then planned Cirata dam, was simply to follow that of the Saguling dam. This implies that the same sort of impacts were assumed to be likely to emerge with the planned Cirata dam.

### Resettlement Plan

The World Bank, which partly financed the Cirata dam project, has a policy towards involuntary resettlement in that compensation must be provided for all the losses incurred by resettlers, namely housing, other immovable assets, loss of employment and income-generation opportunities, and that the compensation should be fair, reflecting market price and replacement values, and sufficient to let resettlers re-establish a self-sustaining livelihood (Schuh *et al.*, 1988). In 1990, the World Bank issued an Operational Directive on involuntary resettlement (World Bank, 1990). The following components in the Operational Directive seem relevant to the Cirata dam project:

- (1) The World Bank encourages a land-for-land approach for resettlers, by providing them with replacement land at least equivalent to the land lost.
- (2) Attention must be paid to the availability of sources of off-farm income (e.g. fishing) to complement farm income.
- (3) A temporary freeze on land transactions within the relocation area should be considered.
- (4) Valuation of lost assets should be made at their replacement cost.

**Table 2.** Number of families to be affected by the project

Type	Number
Families living in the inundated area	6 335
Families living above the inundated area, but having land in the inundated area	2 192
Families living above the inundated area, but having permanent or temporary jobs in the inundated area	2 497
Total	11 024

Source: IOE (1983).

The Operational Directive was issued after development of the resettlement scheme for the Cirata dam project. However, the general policy of the Operational Directive is compatible with the World Bank's previous policy (Schuh *et al.*, 1988). Whether or not this policy of the World Bank was fulfilled in the case of the Cirata dam needs to be examined.

The total number of families to be affected by the Cirata dam project was estimated to be 11 024 families, as shown in Table 2. Those in the first category of 6335 families (about 35 000 people) had to be resettled, while those in other categories also needed to be compensated against their loss in terms of land or job. The land to be lost was fairly fertile and had traditionally been used as paddy fields for rice cropping and as dry farmland for other crops. Of 7456 ha of land to be lost as a result of the project (by inundation and for power station construction), 86% was owned by those in the first category and the rest by those in the second category.

The resettlement team organized by PLN for the Cirata project decided to resettle only those in the first category, with alternatives shown in Table 3. No plan was made to resettle those in categories 2 or 3 (IOE, 1983). The emphasis regarding alternatives for resettlers was on transmigration and aquaculture, the former because promoting transmigration was the national policy, the latter because the development of aquaculture, which was then ongoing in the Saguling dam area, was felt to be promising.

**Table 3.** Resettlement programme of Cirata Dam

Alternatives	Number of families targeted (%)
Transmigration	2000 (31.8)
Aquaculture	2000 (31.8)
Construction and secondary development	
—unskilled (temporary)	1000 (15.8)
—skilled	250 (3.9)
Own choice	1050 (16.7)
Total	6300 (100)

Source: IOE (1983).

**Table 4.** Destination of resettlers

Place of relocation	Number of families (%)
Transmigration	1745 (25.7)
Around reservoir	4745 (69.9)
Outside reservoir area	100 (1.5)
Untraceable	196 (2.9)
Total	6786 (100)

Source: IOE (1992).

## Impacts Observed on Human Environment and Plan for Mitigation

### *Destination of Resettlers*

Table 4 indicates the destination of those who relocated from the inundated area. The majority (69.9%) of the resettlers decided to move to the area around the reservoir. The major reasons for moving to the neighbouring area included: having children or parents in the area (23.3%), having jobs in the area (20.0%), not knowing where to go (18.9%), wishing to be closer to the market (14.4%) and possessing land in the uninundated area (12.2%).

### *Land Ownership and Indemnity Provided*

Land ownership of resettlers before and after inundation is shown in Table 5. About 25% of resettlers lost ownership after resettlement, while only 4% of them newly acquired ownership (IOE, 1987). That is, land ownership of resettlers after relocation decreased by 21%. One of the major reasons for such a difference in land ownership was the gap between the indemnity paid for inundated land and the prevailing market price of the same land.

Table 6 shows the indemnity and prevailing market price of land in the villages subjected to inundation as surveyed in 1987 (IOE, 1987). In most provinces, the prevailing market price was found to be higher than the indemnity. The same amount of indemnity (i.e. 720 Rp/m<sup>2</sup> for rice field, 480 Rp/m<sup>2</sup> for dry farmland, and 480 Rp/m<sup>2</sup> for homegarden) was applied to all the land subjected to inundation. The land price in practice differed greatly among villages or within a village as a result of many factors. However, this aspect was not taken into consideration in determining the indemnity for each resettler.

Table 6 also suggests that a big difference existed in land price within the

**Table 5.** Land ownership before and after resettlement

Situation	Number of families (%)
Previously had, now do not have	947 (20)
Previously and now have	1142 (24)
Previously did not have, now have	206 (4)
Previously and now do not have (landless)	2450 (52)
Total	4745 (100)

Source: IOE (1987).

Table 6. Indemnity and market price of land

Village	Inside inundated area				Outside inundated area				Paid compensation						
	Irrigated	Rain field	Dry field	Home-garden	Irrigated	Rain field	Dry field	Home-garden	Irrigated	Rain field	Dry field	Home-garden	Rice field	Dry field	Home-garden
Ciroyom	2700	*	1400	2100	3200	3300	1600	2600		3300	1600	2600	720	480	480
Margalaksana	2500	2000	1300	1300	*	3400	1700	1700		3400	1700	1700	720	480	480
Margaluyu	1300	1200	1000	1000	2100	2100	1600	1500		2100	1600	1500	720	480	480
Sukamulya	3000	2000	2500	2300	4100	3400	3900	3400		3400	3900	3400	720	480	480
Leuwikoja	4500	3900	4000	2700	6100	5100	4900	9500		5100	4900	9500	720	480	480
Cikidang															
Bayabang	4100	4600	2000	3300	7000	2700	4900	2200		2700	4900	2200	720	480	480
Kertajaya	2500	2500	1300	1300	2800	2000	4300	5400		2000	4300	5400	720	480	480
Sindangjaya	2200	1900	2300	2400	2400	1900	2600	1500		1900	2600	1500	720	480	480
Citamiang	3500	3200	2600	1300	2600	5600	3500	1800		5600	3500	1800	720	480	480
Sinargalih	1300	1300	1900	1700	2300	2300	1800	1800		2300	1800	1800	720	480	480
Tegal Datar	1300	1300	2200	1600	1600	1800	2500	2500		1800	2500	2500	720	480	480
Pasir Jambu	2000	1600	1500	1600	3000	3500	1700	1600		3500	1700	1600	720	480	480
Average price Rp/m <sup>2</sup>	2600	2300	2000	1900	3400	3100	2900	3000		3100	2900	3000	720	480	480

Source: IOE (1987).

inundated area. The same amount of indemnity was nevertheless given to those displaced, regardless of the price or productivity of the land they possessed.

Resettlers felt that the indemnity should be adjusted according to the conditions of the area, such as productivity. They also wanted negotiations to be made between the local people and the indemnification committee to clarify this issue.

### *Transmigration*

The initial resettlement plan envisaged, as shown in Table 3, that 31.8% of resettlers would be relocated into regions other than Java Island, in accordance with the national transmigration plan. This goal was generally met, as shown in Table 4, in that 25.7% of resettlers immigrated under the transmigration scheme. Though some 6% discrepancy exists between what was planned and what actually happened, this still signifies the difference between resettlement schemes applied in respect of the Saguling and Cirata dams. In the case of Saguling dam, despite the fact that 18.8% of resettlers were supposed to relocate outside Java Island under the transmigration scheme (IOE, 1980), only 2.4% of resettlers actually relocated through the transmigration scheme (IOE, 1984).

More resettlers favoured the transmigration scheme in the Cirata area than in the Saguling area. Even at the beginning of the project, about 11% of the inhabitants showed a willingness to transmigrate in the Cirata case, as compared with 3% in the Saguling case (Boyle, 1991). The results of interviews with the chiefs of villages and community leaders revealed that the transmigration scheme was perceived positively by resettlers in the Cirata case. This was particularly so for those who possessed only a small amount of land or had no permanent job (IOE, 1985).

One of the reasons for successful implementation of the transmigration scheme at the Cirata project site was that resettlers could obtain first-hand information about the destination to which they would relocate. For example, in Leuwikoja village, information about the condition of the transmigration site in the Jambi area, Sumatra, was conveyed by former village residents who had been resettled and had paid a visit to their relatives in their home village. Knowing the fact that their village would be submerged, those who had already resettled in the Jambi area suggested that others should immigrate to that same area, because the Jambi area was fertile and because many friends and acquaintances were already there. The villagers even decided to dispatch representatives to the Jambi area at their own cost, to let them examine the conditions of that location. For the villagers who were obliged to relocate in the near future, the presence of friends or relatives who had already resettled in the transmigration area had aroused their interest to follow. The idea that they could rejoin their former acquaintances in the transmigration area was instrumental in their participation in the transmigration scheme, in that they would not be neglected as newcomers thanks to the custom among villagers of helping each other, as was the case in their home village (IOE, 1984).

### *Aquaculture Development*

Development of aquaculture in the Saguling and Cirata reservoirs has been regarded as a success story by the World Bank in terms of creation of new jobs for resettlers (Costa-Pierce, 1997).

The project site of the Cirata dam, namely West Java, had been densely populated. It was assumed from the outset of resettlement planning that providing all the resettlers with the same amount and quality of land after relocation would be difficult. Aquaculture development was hence promoted for the purpose of creating new jobs for resettlers, who were not willing to immigrate to other islands under the transmigration programme and wanted to remain in the same area as their former residence.

The Saguling dam was the prototype of large-scale aquaculture development in a reservoir within Indonesia. The feasibility studies for the Saguling dam, conducted in the mid-1970s, recommended that aquaculture development should be integrated into the project plan, in conjunction with the resettlement scheme, as a part of the project loan (Boyle, 1991).

The idea of aquaculture development is partly owed to the fact that small-scale aquaculture, along with rice farming, had traditionally been exercised by farmers on the project site. Moreover, a large demand for freshwater fish existed in the nearby city of Bandung. The per capita consumption of fish was estimated to be 9.6 kg per year in the Bandung area. With a population of 4.2 million in 1980, the total demand in the Bandung area for fish was said to be about 40 000 tons per year, while local production of fish in the Bandung area was then only 1575 tons per year (IOE, 1982). It was thus assumed that the aquaculture produce from the Saguling and Cirata reservoirs would be absorbed by the city of Bandung.

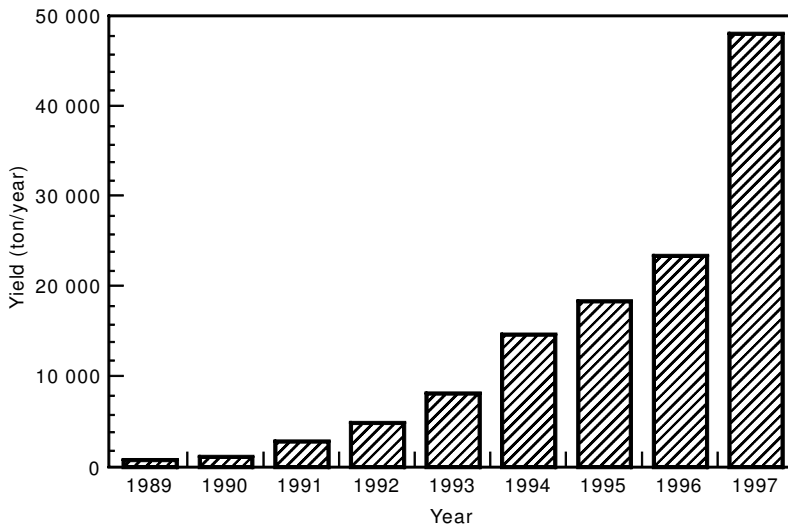
Developing aquaculture with floating-net cages on a reservoir was a new endeavour in Indonesia. This component was not included in the World Bank's loan for the Saguling dam, but was included in the loan for the Cirata dam. The funds provided were used to develop the floating-net cage aquaculture technology and to implement this, first in Saguling and then in Cirata reservoir. To transfer aquaculture technologies, a 'hands-off extension approach' was used. Farmer-to-farmer visits were sponsored for resettlers from the planned Cirata reservoir area. Those to be displaced from the area were sponsored to visit the 'aquaculturally developed' regions of the Saguling reservoir to learn about aquaculture. Training for resettlers to change from agriculture to aquaculture was also provided (Costa-Pierce, 1998).

The endeavour has been successful and the fish catch in the Cirata reservoir has steadily increased so far, as shown in Figure 2. The fishermen typically earn 1.5 to 2 times the net income previously earned out from rice-field agriculture in the same area.

### **Construction and Secondary Development**

The resettlement plan anticipated, as shown in Table 3, that about 20% of resettlers could be absorbed by construction work for the dam or by secondary development. It turned out, however, that only a very limited number of resettlers could obtain a job on the construction work (IOE, 1985), because of (a) educational background, (b) lack of skill, and (c) lack of connection with the contractor, three factors on which recruitment of workers for dam construction depends. The resettlers in general had disadvantages in this respect. For example, 35.3% of resettlers had education only in elementary school, only 2.4% had enrolled in secondary school, only 1.3% had education in high school, and only 0.13% of resettlers had studied at university, while drop-outs from elementary





**Figure 2.** Yield of aquaculture in Cirata Reservoir. *Source:* Local Fishery Office at Cirata.

school amounted to 29.3% and 31.3% of resettlers never had any education (IOE, 1985). Thus the resettlers did not for the most part have a sufficient education level or skills to be employed as workers for dam construction.

Efforts were, however, made by the government to improve people's economic position by provision of extension services. The major institutions which provided extension services included the Fishery Office (49.1% of services), the Agriculture Office (22.6%), the local village government (10.2%) and the IOE (5.3%). These figures clearly show that the most efforts were concentrated on fishery by aquaculture, and agriculture. Table 7 shows the content of extension services provided, as surveyed by IOE in 1992 (IOE, 1992). Most of the extension services were in fact in fishery and aquaculture, and rather limited efforts were made, in terms of these services, to let resettlers rebuild their livelihood as construction workers or through secondary development. What resettlers expected out of extension services is shown in Table 8. Though fishery and aquaculture-related topics comprise the major share, resettlers also hoped to enhance their knowledge in such fields as home industry, security, trading and stall-keeping, furniture making, and running a cooperative. Such intentions on the part of the resettlers did not seem to be fully met through the extension services provided.

### **Problems Identified and Suggestions for Improvement**

#### *Inadequate Indemnity to Rebuild Livelihood in Agriculture*

One of the major negative impacts observed was that the amount of land owned by resettlers decreased, whereas land is still the main source of income for resettlers engaged in agriculture. This situation occurred because the market

**Table 7.** Content of extension services provided

Content	Ratio (%)
Fish-trap fishery	32.6
Fish processing	26.1
Home industry	9.8
Floating-net fish management	6.5
Welding	6.0
Fish fodder	3.3
Fence-system fish management	2.7
Animal husbandry	2.2
Cooperative	1.6
Agriculture	1.6
Rice-fish culture	1.6
Floating-net construction	1.1
Trade and vending	0.5

Source: IOE (1992).

price of the land in neighbouring areas was higher than the indemnity given, as shown in Table 6.

This difference between indemnity and prevailing market price existed from the outset of the project. Some land in the villages of Sukahaji and Ciroyom was purchased to develop access roads to the project site, in the early stages of project implementation (IOE, 1981). Table 9 shows the difference between the indemnity and prevailing market price of land in these villages around 1981. As shown in Tables 6 and 9, the indemnity provided for most resettlers was, though increased by 20% as compared with the case in 1981, apparently much less than the prevailing market price. No corrective measure was taken in terms of indemnity and the World Bank's policy of "providing resettlers with replacement land at least equivalent to lost land" was not fully met.

Moreover, the market price of land apparently increased at the project site, presumably through land speculation in anticipation of a large demand for land by resettlers. The government issued a decree to avoid land speculation by prohibiting land transactions around the project site. Apparently the decree

**Table 8.** Content of extension services desired by resettlers

Service desired	(%)
Less capital floating-net aquaculture	18.2
Agriculture	18.2
Home industry	13.2
Trading and stall-keeping	12.1
Fish processing	11.6
Security	6.1
Furniture making	5.5
Running a cooperative	3.3
Knowledge on tourism	1.1
Skill in electronics	0.6
Others	7.2

Source: IOE (1992).

**Table 9.** Indemnity and market price of land for access road construction

Village	Rice field		Dry farmland	
	Indemnity	Market price	Indemnity	Market price
Sukahaji	600	896	400	651
Ciroyom	600	750	400	573

Note: In Rp/m<sup>2</sup>.

Source: IOE (1981).

failed to function as intended. The increase in land price was in fact observed in the early days of the project, between 1979 and 1981, in the villages in the Cirata dam catchment (IOE, 1981).

It is clear that the way of calculating compensation applied to the Cirata dam was not fully appropriate. In some cases, resettlers agreed to the rather low indemnity because they were told that they should be willing to make a sacrifice for the sake of development. Furthermore, in many cases coercion was employed rather than persuasion (IOE, 1981). The people affected by the project were therefore on the losing end, and the previously mentioned policy of the World Bank, suggesting that the living standard of resettlers should at least be maintained after relocation, was at higher risk of not being implemented.

Some suggestions may be made for an improvement in the way of dealing with indemnity, as follows:

- (1) A land-for-land compensation policy should be put into practice, rather than cash compensation, so that resettlers could be provided with replacement land at least equivalent to their lost land, without being worried about any increase in land price as a result of speculation.
- (2) Enforcement of the decree, to avoid land speculation, should be strengthened.
- (3) If cash compensation, rather than land-for-land compensation, must be employed and the decree fails to function such that an increase in the price of land is observed, indemnity should be adequate to allow those displaced to acquire new land which has the same productivity as the land they owned previously.
- (4) The same indemnity should not be applied, in the case of cash compensation, to the entire project area, and should be dependent on the productivity and market price of each resettler's land.

#### *Limited Ownership in Aquaculture Development*

The aquaculture development in the Cirata reservoir was a success in terms of the development of a floating-net cage aquaculture system and the yield obtained. The idea of aquaculture development was to create new jobs for resettlers. The question to be asked is whether the resettlers have enjoyed all the benefits from the aquaculture development. In other words, careful examination needs to be made as to whether resettlers have secured ownership of the aquaculture development.

The results of a survey conducted in 1996 revealed that of about 25 000 floating-net cages in the Cirata reservoir, only 48% was owned by resettlers (estimated to be around 1200 families), while the remaining 52% was held by entrepreneurs living in Bandung and Jakarta (Costa-Pierce, 1998). The fact that only half of the floating-net cages were owned by resettlers contradicts the provincial laws of West Java, which stipulate that only the resettlers should be allowed to obtain an 'aquaculture permit' for the Cirata reservoir. There did in fact exist ways for non-resettlers to obtain these permits: they undermined ownership of the aquaculture by employing resettlers as managers or labourers in aquaculture in return for 'shadow ownership'. In this manner, even though an aquaculture permit may be in the name of a resettler it is in fact under the control of an outsider (Costa-Pierce, 1998).

The resettlers thus failed to enjoy all the benefits of aquaculture to which they were entitled. Moreover, owing to a lack of control over the number of fish-net cages in the reservoir, there exists a potential risk of massive fish kills resulting from over-grazing, as observed in part of the Saguling reservoir. Enforcement of the provincial laws should have been undertaken by the provincial government to safeguard the resettlers' privilege and sustainability of the aquaculture development.

Another issue, which also prevented resettlers from securing ownership of the aquaculture, was that a considerable amount of capital was initially required to be involved in aquaculture. It was estimated in the early 1990s that at least US\$1217 was needed for the construction of two floating-net cages and for the initial operation. Two cages were enough to enable a family of five to live well above the poverty line. This capital was very difficult to secure for the majority of people, as the per capita GNP of Indonesia was then US\$555 (Gunawan, 1992). A possible solution to this issue is to let resettlers organize a collaborative group or an association to develop aquaculture, as experimented with in the Saguling reservoir, so that they could obtain loans to meet the initial cost for aquaculture development. Provision of training for resettlers is a prerequisite to enable them to set up in this type of new lifestyle and business unproblematically.

#### *Lack of Participation by Resettlers in Planning and Implementation*

One of the major problems observed in the Saguling dam project was that too much attention was paid to the transmigration programme at the beginning of the project and that other alternatives were not fully explored. Such a situation made implementation of the resettlement scheme somewhat disorganized, and the participation of resettlers in resettlement planning was generally lacking under these circumstances.

In the Cirata dam project, the situation was not as bad as in the Saguling dam case. However, participation of resettlers in the planning phase is greatly to be desired. For example, some resettlers complained that they failed to get the indemnity immediately, because it was paid according to the altitude of the land. They thus received it only piecemeal, as payment proceeded progressively according to altitude of the land. Such a problem could have been avoided if the resettlers had participated actively in the planning and implementation of the resettlement scheme.

As shown in this study, few discussions were held between resettlers and the

indemnification committee about how the indemnity should be determined. Two factors seem to be behind this: (a) the attitude of officials towards the resettlers, and (b) mechanisms within a village to enable participation. In the first case, those involved in the project implementation on behalf of the PLN stated that involving the resettlers at an early stage of implementation of the resettlement plan would lead to unrest, speculation and manipulation. This attitude was based on an assumption that resettlers were unable to comprehend the plan to the extent that they could make suggestions to improve the plan, and that trying to involve resettlers may simply amplify their worries. Though such a risk may exist, their lack of participation and insufficient provision of information about the planned project in fact led to unrest and mistrust among the resettlers (IOE, 1981).

In the second case, the lack or loss of mechanisms within a village was reported in some villages. The village chief or 'community leader' usually plays a pivotal role in building consensus among villagers. However, once such people had left the village after receiving their compensation, the remaining villagers suffered from lack of the means to convey their feelings to local government or other institutions involved in implementation of the project.

The lessons gained from the Cirata dam project and suggestions for future projects are as follows:

- (1) The resettlement process inevitably causes many social changes to a village and villagers, and the usual mechanisms within a village for participation by villagers may abruptly cease to function, for example following the departure of the village chief after he has received his indemnity. Such mechanisms in a village should therefore not be relied upon. Some new and lasting means, such as involvement of neutral third parties, should be employed.
- (2) As long as officials are suspicious about the capacity of villagers, they could not be instrumental in promoting the participation of villagers in a project. Some intermediate means, a neutral body, is needed between officials and villagers for the purpose of encouraging dialogue. Involvement of neutral third parties may be a viable option from this point of view.

#### *Limited Benefits for Resettlers from Secondary Development*

Employment of resettlers in the construction works on the Cirata dam project did not happen, to say the least as initially hoped, any more than was the case with the Saguling dam. Since lack of skill and education of resettlers is the fundamental factor, no quick solution to overcome the problem seems to exist. The number of resettlers to be absorbed by construction work should be estimated cautiously in future projects, based on the bitter experience gained through the Saguling and Cirata dam projects.

A possible minor solution of this issue, if not the ultimate solution, is to give subsidies to construction companies so that they employ resettlers as on-the-job trainees in construction work. In this manner, resettlers may gain the skills and experience for this work, and they may continue working in construction projects even after completion of the dam.

Though some secondary development materialized in the project area, only a very small number of resettlers enjoyed the resultant benefits. For example, along a newly developed road on a project site 159 new small shops emerged,

though only seven of these were owned by resettlers and the rest by people from other areas (IOE, 1985).

Some mechanism is required to channel the benefits of secondary development to those affected by the project. Provision of training in the use of compensation and establishment of credit facilities should be among the options considered. Also, the discrepancies between the extension services provided and what resettlers wished to learn should be avoided by careful planning and participation of resettlers in the future, so that proper and timely skills may be acquired by the resettlers.

## Conclusions

Thanks to the guidance of the World Bank, fairly detailed environmental impact assessments were carried out on the Cirata dam project. The present post-project evaluation study revealed some important findings regarding planning and implementation of the resettlement scheme applied to the project.

The Cirata dam project was, together with the Saguling dam project, an innovation in the context of aquaculture development in the reservoir for the purpose of creating new jobs for those displaced. The fact that aquaculture development in the reservoir succeeded in creating new jobs for resettlers should be highly applauded. It should be a model for dam construction projects in future, in particular when provision of farmland for resettlers, as a substitute for the land they possessed previously, is difficult owing to paucity of farmland around the project site. However, the resettlers failed to secure all the benefits they were entitled to enjoy. A better scheme, in terms of both institutional arrangements and enforcement of legal framework, is thus needed to establish ownership on the part of resettlers and to maintain the sustainability of aquaculture development.

As regards provision of farmland for those displaced, resettlers mostly ended up with less farmland than they had owned previously, as a result of an increase in land price due to land speculation. The measures taken by the local government, in the form of a decree to prevent land speculation, apparently failed to function. From the viewpoint of the principle that no resettler should be worse off after relocation, the resettlement scheme implemented was not satisfactory in terms of provision of farmland for those displaced. The land-for-land compensation scheme is clearly preferable to cash compensation in this regard. However, if for some reason cash compensation is the only option, giving indemnity according to the prevailing market price of land should be a solution.

Participation of resettlers in the planning and implementation of the resettlement scheme still had room for improvement. Very limited discussions were held between the resettlers and the officers who implemented the scheme. This can be illustrated, for example, by the way in which indemnity was determined and also how it was paid to those displaced. The conventional decision-making process within a village may not function in the case of involuntary resettlement, in particular in the implementation phase, owing to 'collapse' of the village. Some intermediate mechanism, between villagers and those implementing the resettlement scheme, should therefore be devised. Encouraging involvement of neutral third parties may be a viable option here.

Also, more careful and streamlined efforts should have been made in respect of secondary development of the project, so that those displaced could enjoy the

resultant benefits. Provision of training to enable farmers to take up new jobs related to the secondary development and establishment of credit facilities should be instrumental in this regard. This is no less important for the Cirata dam project, where a number of resettlers were unable to remain as farmers after relocation owing to the lack of farmland as substitute for the land they used to own around the project site.

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### Note

The buying rates for conversion of US dollars to Indonesia Rupiah (Rp) in the late 1980s, when the Cirata dam was constructed and commissioned, were as follows:

1985	1131
1986	1655
1987	1647
1988	1711
1989	1796
1990	1817

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