

Country	Papua New Guinea	
Project	Yonki Hydroelectric Project	
Borrower	Government of Papua New Guinea	
Executing Agency	Papua New Guinea Electricity Commission	
Exchange of Notes	July 1986	
Loan Agreement	January 1987	
Loan Amount	¥9,572 million	
Loan Disbursed Amount	¥7,400 million	
Project Summary and OECF Portion		
<p>This project aims to raise the facilities utilization rate for the existing Ramu I Power Station (three 15MW hydraulic turbine generators) located on a high plateau on the island of New Guinea by building a dam on the Yonki River some 2 km upstream on the Ramu River to reduce the large fluctuations in water flow during the dry season and rainy season, and also to add two 15MW hydraulic turbine generators to the same power station, in order to provide stable and cheap electric power.</p> <p>This project is co-financed with the World Bank and the European Investment Bank (EIB), and the ODA loan covers part of the civil engineering work and the entire cost of the hydraulic turbine generators (including both foreign-currency and local-currency costs.)</p>		
Comparison of Original Plan and Actual	Plan	Actual
(1) Project Scope		
1) Yonki Dam (the World Bank, OECF, EIB co-financing)	Earthfill type	Same as left
Height	60m	Same as left
Volume of dam	$1.9 \times 10^6 \text{ m}^3$	$2.75 \times 10^6 \text{ m}^3$
Total reservoir volume	$335 \times 10^6 \text{ m}^3$	$332 \times 10^6 \text{ m}^3$
2) Generator/related facility (ODA loan)		
Generating facility capacity	30MW (15MW × 2 stations)	Same as left
3) Consulting (the World Bank)	Execution	Same as left
4) Staff training (the World Bank)	Staff training/training facilities/overseas training	Same as left (however, training facilities were barely expanded.)
5) Strengthening of executing agency (the World Bank)	Standardization of operation standards(technical assistance)etc.	Same as left
6) Plan of Rural Electrification Development Project (the World Bank)	Plan of development project/Power supply for neighboring villages of the dam/execution of test projects	Development project was only planned, and others not implemented.
(2) Implementation Schedule		
Signing of civil engineering work contract	August 1986 ~ December 1990	September 1986 ~ August 1991
~ Completion of civil engineering work	: 53 months	:61 months
(3) Project Cost		
Figures in the parentheses are ODA loans.		
• Foreign currency portion	\$ 63.1 million (¥6,843 million)	\$81.5 million (¥5,430 million)
• Local currency portion	\$54.3 million (¥2,729 million)	\$59.39 million (¥1,970 million)
Total project cost	\$117.4 million (¥ 9,572 million)	\$140.9 million (¥7,400 million)
Exchange rate	\$1 = ¥242.65 = 1.014 kina	\$1=¥136.15 =0.92 kina

Analysis and Evaluation

(1) Project Scope

The project scope was not changed. The adjustments that were performed within the project scope consisted in the addition of civil engineering work and the procurement of additional valves. The former was required due to the poor soil quality, and additional civil engineering work was performed as the second best alternative, but the occurrence of a landslide made additional work necessary. The fact that the weakness of the soil could not have been predicted during the preliminary soil quality survey, and the fact that thorough reinforcement was required to prevent the occurrence of additional landslides made the additional work unavoidable. The latter item of the procurement of additional valves was due to the fact that this was needed for water conveyance for the power station whose construction is planned next. Considering the losses that would be incurred if the existing power station had to be idled as the result of the future construction, this additional procurement is thought to represent an economical choice. With regard to the staff training covered by the World Bank loan, the training facilities were barely expanded. This shortcoming arose from the lack of coordination between the World Bank and the executing agency, and while the expansion of such facilities was not the direct aim of the project, its implementation should have been sufficiently considered.

(2) Implementation Schedule

The project was completed eight months later than planned due to the landslide. This delay was due to the thorough investigation performed following the incident and the resulting design changes, and thus this prolongation in the implementation schedule is considered to have been required. Other than this, the construction work went as planned, and even compared to the average construction speed, this project was implemented with praiseworthy speed.

(3) Project Cost

The overall project incurred a cost overrun of approximately 20%. The major reason for this cost overrun was the countermeasures for the landslide, and is considered to have been necessary and unavoidable given the necessity of guaranteeing the safety of the dam. The portion covered by the ODA loan ended up with a 22.7% cost underrun due to the sharp appreciation of the yen (approx. 57%).

(4) Implementation Scheme

The fact that, despite the occurrence of the landslide, the project was delayed only eight months is due in large part to the prompt response of the executing agency, and this point should be commended. Despite being a co-financed project, the donors maintained close coordination with one another, and no particular problems did occur regarding their cooperation with one another.

(5) Operations and Maintenance

Considering that the executing agency adequately handled the power generation runner and seal accidents that occurred after the power station started operating, there were no particular problems with regard to operations and maintenance. With regard to operations, the fact that, despite flat demand for electric power due to the current stagnation of the economy of Papua New Guinea, the power station is operating at 70% capacity deserves to be commended.

Project Effects and Impacts

In addition to the fact that the power station of this project accounts for 67.9% of the total electrical power output of the power facilities of the Ramu system and 80.5% of the total annual electric power output, this project also contributes to improve the power configuration (hydraulic/combustion ratio, reservoir/run-off ratio). Furthermore, the executing agency is expected to improve its financial status in the medium term, and the development of the surrounding environment is expected to have a positive repercussion effect.

Notes

Report Date : January 1998