

Internal Ex-Post Evaluation for Technical Cooperation Project

conducted by Indonesia Office/ December, 2013

Country Name	The Institutional Revitalization Project for Flood Management in JABODETABEK
Republic of Indonesia	

I. Project Outline

Background	<p>In Jakarta, the topographical conditions of having 10 rivers running on the flat alluvial fan repeatedly caused flood damage for long time. Also, the recent concentration of population and unregulated formulation of overcrowded residential areas increased the city's vulnerability to floods. While river and drainage improvement would take long time, studies such as by JICA pointed out several urgent issues related to non-structural measures including lack of record and data on current situation of rivers and related facilities, underutilization of existing river structures and drainage, ambiguity of probable flood area and criteria for flood alert, and insufficient consideration for prevention of runoff increase.</p>				
Objectives of the Project	<ol style="list-style-type: none"> Overall Goal: Non-structural flood mitigation measures are planned and implemented to reduce flood damage in JABODETABEK (Jakarta, Bekasi, Bogor, Depok and Tangerang). Project Purpose: Institutional capabilities for flood mitigation in JABODETABEK are improved by taking non-structural measures. Assumed steps for achieving the project goals¹: This project develops draft manuals and guideline on non-structural measures through data collection and analysis in the pilot area and training. The drafts are verified and revised after actual flooding, and then finalized. By utilizing the manuals and guideline in all river water systems in JABODETABEK, including non-pilot areas, non-structural measures ((i) management of river and operation of drainage structures, (ii) provision and communication of flood information and evacuation, and (iii) prevention of runoff increase) are planned and implemented, and consequently, flood damage is reduced. 				
Activities of the project	<ol style="list-style-type: none"> Project site: Whole JABODETABEK area, including the Ciliwung river basin (including the western banjir canal) and Central Jakarta as the pilot area. Main activities: Collection and analysis of basic data (including OJT), development of textbooks, training/seminars/workshops based on the textbooks, presentation and discussions at various meetings, and development of guideline and manuals by the counterpart personnel. Inputs (to carry out above activities) <table border="0" style="width: 100%;"> <tr> <td style="width: 50%;"> Japanese Side <ol style="list-style-type: none"> Experts: 10 persons Trainees received: 4 persons Equipment: vehicles, office equipment, survey equipment, etc. Cost for hiring local consultant </td> <td style="width: 50%;"> Indonesia Side <ol style="list-style-type: none"> Staff allocated: 62 persons Land and facilities (project office) Others (project operation cost) </td> </tr> </table> 			Japanese Side <ol style="list-style-type: none"> Experts: 10 persons Trainees received: 4 persons Equipment: vehicles, office equipment, survey equipment, etc. Cost for hiring local consultant 	Indonesia Side <ol style="list-style-type: none"> Staff allocated: 62 persons Land and facilities (project office) Others (project operation cost)
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Project Period	March 2007 to March 2010	Project Cost	326 million yen		
Implementing Agency	Directorate of River, Lake and Reservoir, Directorate General of Water Resources, Ministry of Public Works				
Cooperation Agency in Japan	Ministry of Land, Infrastructure, Transport and Tourism, Yachiyo Engineering, Co. Ltd.				
Related Projects (if any)	<p>Japan's cooperation: The study on comprehensive river water management plan in Jabotabek (Development Study, 1997), Ciliwung-Cisadane River Flood Control Project (Japanese ODA Loan, 1998-2007), the Urgent Study on Flood Damage in JABODETABEK (Development Study, 2002), Project for Capacity Development of Jakarta Comprehensive Flood Management (Technical Cooperation, 2010-2013; hereafter "the subsequent (technical cooperation) project")</p> <p>Other donors' cooperation: Western Java Environmental Management Project (World Bank, 1999-)</p>				

II. Result of the Evaluation

1 Relevance

This project has been highly relevant with Indonesia's country development policy "reduction of damage caused by natural disaster" as set in the National Medium-Term Development Plan (2004) and "reduction of floods and non-structural measures" as set in the , National Medium-Term Development Plan (2010-2014), development needs "development of data related to flood control", "good utilization of existing river structures", "determination of probable flood area and flood warning criteria", "consideration of prevention of runoff increase" and "reduction of floods through non-structural flood mitigation measures in the Ciliwung river basin", as well as Japan's ODA policy, Country Assistance Program (2004) at the time of both ex-ante and project completion. Therefore, relevance of this project is high.

2 Effectiveness/Impact

Under this project, seven draft manuals and one draft guideline for non-structural measures (hereafter "the (draft) manuals") were developed by the counterpart personnel who received technical transfer. To fully achieve the project purpose

¹ Reviewed at the time of the ex-post evaluation.

“improvement of institutional capabilities for flood mitigation”, the project planned to finalize the draft manuals through verification of adaptability and revision after actual flooding situations. However, there was no flooding during the project implementation period. When a flood occurred after project completion in January 2013, the draft manuals were not brought to the field as urgency and mobility were given higher priority, and adaptability of those documents were not verified, either. Nonetheless, Director General of Water Resources signed and approved the draft manuals as the ones that could be utilized in operation. Therefore, the project purpose was achieved to a certain extent.

With respect to the overall goal, hydrological data of the pilot area have been continuously collected, analyzed and used for integrated flood control planning under the subsequent project. The above-mentioned manuals have been distributed to relevant organizations. Cooperation among those organizations for prevention of runoff increase² has also been promoted under the subsequent project that took over this task. Updating of the Inventory of Rivers and River Structures and maintenance of river structures have been carried out mostly in accordance with the manual. On the other hand, the models developed such as the flood runoff model and the comprehensive flood analysis model have not been used for flood control operation as effectiveness of those models has not been fully recognized. Also, review of the criteria for alert operation based on analysis of river capacity and water level has not taken place in current operation because it would need more facility investment and human resource development. As for flood damage, the implementing agency explained that the same amount of rainfall would not always cause damage, and thus it would be difficult to assess whether damage has decreased.

Therefore, effectiveness/ impact of the project is fair.

Achievement of project purpose and overall goal

Aim	Indicators	Results
(Project Purpose) Institutional capabilities for flood mitigation in JABODETABEK are improved by taking non-structural measures.	Status of utilizing inventory database system	(Project completion) The draft Inventory of Rivers and River Structures was developed through On the Job Training(OJT). The draft Manual for Inventory of Rivers and River Structures (Manual 1) was developed by counterpart personnel. (Ex-post evaluation) Ciliwung-Cisadane River Basin Office (BBWSCC) has revised the Inventory with use of the manual. Although the manual was not verified/ revised in actual flooding events, it was used for integrated flood control planning in the subsequent project.
	Improvement of management of rivers and operation	(Project completion) Data analyses were carried out through OJT, and the draft Maintenance Manual on River Structures (Manual 2), the draft Manual of River Facility Evaluation (Manual 3) and the draft Operation Manual on Gates and Pumps (Manual 4) were developed by counterpart personnel. (Ex-post evaluation) BBWSCC and Special State Capital of Jakarta (DKI Jakarta) have used the manuals for operation and maintenance of their facilities.
	Status (frequency) of utilizing flood risk map and criteria for alert operation	(Project completion) Activities such as GPS survey in the Ciliwung river basin, development of the comprehensive flood analysis model and application of this model to flooding simulations, development of the flood risk map, and recommendation on criteria for flood alert operation were carried out through OJT. The draft Manual of Drawing up Probable Flood Area (Manual 5), the draft Manual for Post Flood Survey (Manual 6), the draft Flood Alert Manual (Manual 7) and the draft Runoff Control Guideline (Guideline 1) were developed by counterpart personnel. (Ex-post evaluation) BBWSCC (in charge of flood alert operation in JABODETABEK) sometimes refers to the manuals, but the existing criteria for alert operation is used.
(Overall goal) Non-structural flood mitigation measures are planned and implemented to reduce flood damage in JABODETABEK.	The damages for life and property caused by flooding will be reduced in JABODETABEK area.	(Ex-post evaluation) The flood in January 2013 caused 41 deaths and evacuation of 45,000 people. 98 out of 267 sub districts in DKI Jakarta were flooded. In lower areas along the coast, flooding lasted for one week. However, the same amount of rainfall would not always cause damage, and thus it would be difficult to assess whether damage has decreased.
	(Alternative indicator) The manuals developed under this project are utilized by relevant organizations including local government units as official operational directions.	(Ex-post evaluation) The draft manuals were approved by Director General of Water Resources and distributed to relevant organizations. BBWSCC and DKI Jakarta have referred to them for operation and maintenance of drainage facilities. Also, they have been referred to by BBWSCC in providing flood information and by DKI Jakarta (Disaster Department) in evacuation operation. In an event of flooding, an emergency response team consisting of relevant organizations is formed, and ex- counterpart personnel of this project join the team and utilize the knowledge they gained from the project.

Sources : Project Completion Report and response to the questionnaire by the implementing agency.

3 Efficiency

While the inputs were mostly appropriate for producing the outputs of the project, and the project period was as planned, the project cost was slightly higher than the plan (ratio against the plan: 116%) because of the revision of the project implementation structure and dispatch of an additional long-term expert. Therefore, efficiency of the project is fair.

4 Sustainability

² The necessity for prevention of runoff increase was mentioned in the draft Water Resources Management Strategic Plan that is to be approved within 2013, and the plan will be developed into the Basin Water Resources Management Plan to be developed within 2015.

In the policy aspect, this project is still given importance in Indonesia as non-structural measures are instructed in existing government regulations related to rivers and natural resource management. Also, the draft Water Resources Management Strategic Plan for the Ciliwung-Cisadane river basin (to be approved within 2013) mentions the integrated flood control plan focusing on prevention of runoff increase that were handled by this project. On the other hand, there is no policy or regulation that gives official status to the manuals. Institutionally, cooperation among organizations related to the Ciliwung-Cisadane river basin has progressed: the Coordination Team of Water Resources Management for Interprovincial River Basin (TKPSDA), consisting of 58 organizations including Directorate General of Water Resources, related provincial government organizations, NGOs and the private sector, was officially launched in June 2013. By this, the system of implementation, monitoring and evaluation of integrated flood control was developed. In the technical aspect, while many ex-counterpart personnel were transferred, other staff can follow most contents of the manuals that are on the knowledge they use in their daily operation. However, without a system of extending the transferred knowledge from ex-counterpart personnel to other staff, there is uncertainty in continuity of more advanced knowledge transferred under this project. In the financial aspect, non-structural measures are implemented using national budget but without specific expense item as they are part of the government's routine operation. Therefore, it cannot be confirmed whether sufficient budget is allocated.

From these findings, it is considered that the project has some problems in the policy background as well as technical and financial aspects of the implementing agency; therefore, sustainability of effectiveness of the project is fair.

5 Summary of the Evaluation

For the project purpose of improving institutional capabilities for flood mitigation in JABODETABEK by taking non-structural measures, a series of draft manuals was developed by counterpart personnel who received technical transfer, while the planned verification of adaptability and revision of those documents based on actual flooding occurrence did not take place. For the overall goal, Ciliwung-Cisadane River Basin Office and DKI Jakarta have referred to the manuals in operation and maintenance of river structures and other work. Some non-structural measures such as prevention of runoff increase have been taken over to the subsequent technical cooperation project, but some others proposed by this project have not been adopted. As for sustainability, some problems were observed in the policy, technical and financial aspects such as lack of policy back-ups to the manuals, transfer of ex-counterpart personnel and concerns on securement of budget. On efficiency, project cost slightly exceeded the plan.

In the light of above, this project is evaluated to be partially satisfactory while the expected results have been attained to a certain extent in terms of effectiveness/impact and sustainability.

III. Recommendations & Lessons Learned

Recommendations for Implementing agency:

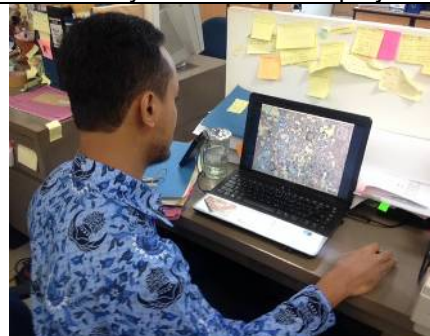
Recognition of the necessity for non-structural flood control measures has been further enhanced among relevant parties thanks to the subsequent technical cooperation project. As a result, it was agreed that non-structural measures handled by the projects would be reflected in the Water Resources Management Strategic Plan (POLA) and the Basin Water Resources Management Plan (RENCANA) that are to be planned. The Indonesian side is required to formulate POLA and RENCANA based on this agreement and to ensure a steady promotion of non-structural measures. In addition, it is desirable that application of the models developed under this project to flood prediction, which has not taken place in current operation, be considered in terms of cost effectiveness.

Lessons learned for JICA

The subsequent project was successful in further enhancing recognition of non-structural measures but did not follow-up some uncompleted tasks of this project such as verification of the draft manuals. When planning a new project, particularly the one in the same field of cooperation as the precedent project, it is desirable to take over the idea (overall goal) of the precedent project and include activities to follow-up the items that were implemented as much as possible. Also, as flood control needs to involve many organizations but transfer of staff is inevitable, it is important to propose a system to disseminate the outputs of technical transfer to those other than the counterpart personnel of the project. Selection of counterpart personnel is important, too. In this respect, the selection made in this project – a balanced mix of senior and junior personnel of relevant organizations – was appropriate in that it enabled smooth decision-making and in view of sustainability of effects of the project.



Manuals prepared by the Project



Flood simulation modeling utilized by the staff