

## Terminal Evaluation Results

1. Outline of the Project	
Country: Indonesia	Project title: The Institutional Revitalization Project for Flood Management in JABODETABEK
Issue/Sector: Disaster prevention	Cooperation scheme: Technical cooperation project
Division in charge: Disaster Management Division I, Water Resource and Disaster Management Group, Global Management Department, JICA	Total cost (As of September 2009, including scheduled cost): Approx. 320 million yen in total
Period of cooperation: From February 2007 to March 2010	Partner country's implementing organization: Directorate of Rivers, Lakes and Reservoirs, Directorate General of Water Resource, Ministry of Public Works
	Supporting Organization in Japan: Ministry of Land, Infrastructure, Transport and Tourism, Yachiyo Engineering Co., Ltd.
	Related cooperation: None
<p>1-1 Background of the Project</p> <p>Jakarta, in the Republic of Indonesia (Indonesia), is located in the low-lying alluvial fan, where as many as ten rivers flow out of the mountainous area at the south. Because of such geographical conditions, the area experienced flood damage repeatedly for a long time. Also, because of the excessive population concentration and disorderly developed residential areas, vulnerability to flood damage is increasing. Under such conditions, the government of Indonesia formulated a drainage and flood control basic plan in 1973, and mainly implemented drainage projects. However, the worst flood damages in recent years occurred in 1997 and 2002, paralyzing the city functions.</p> <p>JICA implemented the Study on Comprehensive River Water Management Plan in JABODETABEK, which is a development study targeting JABODETABEK. In addition, it implemented the Urgent Study on Flood Damage in JABODETABEK in 2002, which advocated the necessity of measures related to non-structural objects, in addition to measures on structural objects such as the refurbishment of river and flood protection facilities and the development of flood control basins.</p> <p>Based on the results of these studies, the government of Jakarta made a request for technical cooperation necessary for promoting the capacity building of organizations related to flood control projects, in addition to reviewing flood countermeasures, so as to alleviate flood damages in JABODETABEK.</p> <p>In reaction to this request, JICA dispatched a study team to Indonesia from September 11 to October 25, 2005. The team collected and sorted out the basic data related to flood damages that</p>	

occurred in JABODETABEK and countermeasures, and streamlined the issues on the reduction of flood damage in JABODETABEK. The problems pointed out as a result of the work by the study team were as follows: insufficient records and data related to rivers and facilities; insufficient utilization of existing rivers and drainage canals; no clear criteria for flood hazard maps or the issuance of warnings; and lack of consideration on the control of the runoff amount in the basin.

Based on the study, JICA implemented a preliminary study from February to March 2006 and an implementation study in October 2006, and concluded the R/D in relation to the government of Indonesia on the Institutional Revitalization Project for Flood Management in JABODETABEK.

#### 1-2. Project Overview

(1) Overall Goal: Non-structural measures to reduce flood damages in JBODETABAK are planned and implemented.

(2) Project Purpose: Institutional capabilities for flood mitigation in JABODETABEK are improved by taking non-structural measures.

(3) Outputs

1. Organizations related to flood control improve their ability for the management of the river and the operation of the drainage structures.
2. Continuous data processing and analyzing system for flood control measures in JABODETABEK is established.
3. Flood information system for smooth evacuation is established.
4. Problems concerning the runoff increase are presented, and the organizations related to flood control improve their ability to prevent runoff increase.

(4) Inputs (as of September 2009)

<Japanese side>

One long-term expert (Ministry of Land, Infrastructure, Transport and Tourism) and seven short-term experts (consultant experts) in total were dispatched until the terminal evaluation, and two CPs are accepted for training in Japan. Equipment such as vehicles, office equipments and survey equipments were provided. The value of the provided equipment is equivalent to about 8.94 million yen, including the equipment accompanied by expert dispatch. The salary of local staff employed by the project and the local cost, such as the expenses related to activities, accounted for about 24.96 million yen throughout the project.

<Indonesian side>

39 full-time CPs and 23 part-time CPs are allocated as of the terminal evaluation. The project office and a part of the expenses necessary for project activities were provided by the Indonesian side.

2. Evaluation Team

Evaluators	1. Team leader: Kenichi Tsukahara, Senior Advisor, JICA 2. Evaluation planning: Chiaki Kobayashi, Disaster Management Division I, Water Resource and Disaster Management Group, Global Management Department, JICA 3. Evaluation analysis: Akiko Tatera, Global Link Management, Inc.	
Period of evaluation	From September 27 to October 10, 2009	Type of evaluation: Terminal evaluation
3. Results of Evaluation		
<p data-bbox="225 618 440 645">3-1. Achievements</p> <p data-bbox="225 663 1370 741"><u>Overall Goal: Non-structural measures to reduce flood damages in JBODETABAK are planned and implemented.</u></p> <p data-bbox="225 759 1370 1173">As for the “reduction of flood damages in JBODETABAK,” which is the indicator of the overall goal, it is measured when the non-structural measures are actually implemented and a flood has occurred after the project is finished. It is expected that the flood damages are likely to be reduced by the utilization of the manuals prepared in this project as the official operational guidelines by the relative organizations in Indonesia, including the local governments. Thus, on the premise of the final version of the manual being prepared through operational tests utilizing the flood season in 2009 to confirm the effectiveness, it is expected that the overall goal is achieved after the completion of the project, and under the situation of a flood occurring after the non-structural measures are actually implemented.</p> <p data-bbox="225 1238 1370 1317"><u>Project Purpose: Institutional capabilities for flood mitigation in JABODETABEK are improved by taking non-structural measures.</u></p> <p data-bbox="225 1335 1370 1845">As mentioned above, under the current situation, drafts for different manuals have just been completed, and the adaptability and improvement of manuals in Indonesia is scheduled to be implemented by utilizing the flood season in 2009. Although the drafts have reached a certain level of completion in terms of technical aspects, their appropriateness and practicality cannot be confirmed without going through procedures such as operational tests. The same applies to the assumption chart of the flooded area, setting of warning criteria, and notification to river managers and local government staff. Thus, on the premise that the final version is prepared through operational tests utilizing the flood season in 2009 and its appropriateness and practicality is confirmed, it is expected that the project purpose is achieved. In addition, a river ledger is completed to a generally satisfactory level for now, and it is confirmed that the understanding among river management personnel is improving.</p> <p data-bbox="225 1910 325 1937">[Output]</p> <p data-bbox="225 1955 1370 1982"><u>Output 1: Organizations related to flood control improve their ability for the management of the</u></p>		

river and the operation of the drainage structures.

Output 2: Continuous data processing and analyzing system for flood control measures in JABODETABEK is established.

Outputs 1 and 2 aim for the improvement of the abilities of river managers in order to reduce flood damage. CPs, including the Directorate of Rivers, Lakes and Reservoirs, Directorate General of Water Resources, Ministry of Public Works of Indonesia, understand the importance of the management of organizations for adequate maintenance of river management facilities through this project, and wish to prepare guidelines to be utilized in the operation of organizations in the future. According to the plan, it was scheduled that, as for manuals such as instructions on operational control of facilities necessary for river control, the draft is to be prepared before the flood season of 2008, the final version is prepared following the actual operational test during the flood season, and the effectiveness of the final version is confirmed through OJT during the flood season of 2009. However, at the current stage, drafts have just been completed, and the finalization of manuals and the confirmation of effectiveness thereof are scheduled to be implemented during the flood season of 2009. Although the drafts of manuals reached a certain level of completion in terms of technical aspects, their appropriateness and practicality in Indonesia cannot be confirmed without going through procedures such as operational tests. Thus, the achievement in terms of Output 1 at present is evaluated that it can be achieved within the project period, on the premise that the final version is prepared through operational tests during the flood season in 2009 and its appropriateness and practicality is confirmed.

Output 3: Flood information system for smooth evacuation is established.

Flood information necessary for smooth evacuation in the targeted area was collected and sorted through the activities of the project. Based on such information obtained, CPs received technical transfer from Japanese experts and acquired a method to create a basin runoff model, basin overhead view model and a risk map. Further, the flow rate and water level of Ciliwung River were analyzed to review the criteria for warning. Thus, it is considered that Output 3 is already achieved at the current stage.

Output 4: Problems concerning the runoff increase are presented, and the organizations related to flood control improve their ability to prevent runoff increase.

It is found that problems concerning the runoff increase in the basin are being presented, and the ability of river management departments to prevent runoff increase is under improvement. The current problem to be addressed is to inform the urban planning departments in charge of implementing actual regulations. It is expected that Output 4 can be achieved within the project period based on the premise that the understanding level of all related organizations reaches a certain

level as of the time of the revision of prepared draft guidelines and the holding of the Workshop on Runoff Control in November 2009.

### 3-2. Implementation Process

During the period of one and a half years from the start of the project, the implementation did not always proceed smoothly. However, the project started to show smooth and rapid progress thereafter, and it is expected that the scheduled input and activities will be completed by the termination of the project.

Several factors that hindered the smooth operation at the early stage of the project can be pointed out. First, the consultant expert did not fully understand the quality of inputs (such as the expertise of the expert) as well as the amount, and the backup system of the company (consultant expert) did not work properly. Caused by this problem, the coordination among the CPs of this project, having many parties involved, did not go smoothly and it was hard to have them all involved. Also, it took a longer time than expected to obtain necessary data. There were also problems with the consistency of the data, so data collection and sorting required even more time.

After the dispatch of long-term experts and the improvement of consultant expert systems, the overall operation of the project was generally implemented favorably after one and a half years had passed since the start of the project. The Joint Coordinating Committee (JCC) is providing an opportunity to review the progress of the project, identify the problems, and consider solutions. In addition, a support committee was organized in Japan, which worked adequately from the perspective of checking the progress of the programs and providing technical advice.

This project is characterized by being positioned as a public-private partnership, with input from the public side in the form of long-term experts and input from the private side through consultant experts. Relevant parties of the project both in Japan and in Indonesia generally received the concept favorably, evaluating that a system wherein the public sector, good at dealing with policies, and the private sector, having the technology, cooperate with each other. However, the terms of reference (TOR) were not clearly specified for the long-term experts and consultant experts in the Project Design Matrix (PDM), and in some cases caused confusion especially for the implementation of the project.

The communication within the project was generally good after one and a half years had passed since the start of the project. Due to reasons such as that the Indonesian side was unfamiliar with the process of technical cooperation from Japan, or language difficulties, at first there were some difficulties in communicating. However, with mutual effort in trying to understand each other and with the activities of staff locally employed by the project (such as facilitators), the communication improved.

The ownership of related stakeholders was generally high since about halfway into the second

year. CPs actively implemented the activities of which they are in charge, despite their busy schedules, with some of them are also engaged in their regular work, and they have been sufficiently participating in milestone workshops and seminars.

In March 2008, the Director of Rivers Lakes and Reservoirs replaced the position of the project manager (PM), according to the organizational restructuring of the Ministry of Public Works.

### 3-3. Summary of Evaluation Results

#### (1) Relevance

Considering the needs of the targets and the policies of Indonesia and Japan, the relevance of the project is high. As for the design of the project, some problems are pointed out, such as the dissociation of project purpose and the indicators of Output 1 or that of achievement and activities.

The project purpose and the overall goal meet the needs of Indonesia.

The government of Indonesia positions three items as an important strategy in the National Medium-Term Development Plan (2004-2009), namely: (i) realize a country that is secure and peaceful, (ii) building a just and democratic country, and (iii) improve public welfare. Among these, this project falls under (i).

In addition, according to the aid policy of Japan, the Initiative for Disaster Reduction through ODA was announced in January 2005 following the Indian Ocean earthquake and tsunami that occurred in December 2004, which calls for “raising the priority attached to disaster reduction,” and especially the “importance of assistance regarding software.” Thereafter, in 2006, the governments of Japan and Indonesia established the Joint Committee on Disaster Reduction, which indicates aid according to the Initiative for Disaster Reduction through ODA. Also, the JICA Country Program for Indonesia coincides with one of the prioritized area of aid in the cooperation policy for Indonesia, namely, “cooperation for peace and stability.” Thus, the project complies with the aid policy of Japan. From the time of ex-ante evaluation to the present, there have been no changes in the plans explained above.

#### (2) Effectiveness

Based on the high evaluation of the drafts, and on the premise that the draft manuals are revised by the termination of the project through operational tests during the flood season in 2009 and that they are informed to the relative organizations including local governments, it is judged that the effectiveness of the project is high.

Particularly, the improvement of the river ledger and the analysis of flood inundation, which are already being implemented, are reasonable in terms of river management, and continuous utilization by the CPs can be expected.

### (3) Efficiency

The input from Indonesia includes the formulation of working groups for each manual, starting from the third year of the project when the preparation of manuals started to take shape, and the allocation of full-time CPs in charge. The Indonesian PM adequately exerted initiative, and allocated CPs and had them involved in the project despite their busy schedules with ordinary work. At the same time, the Indonesian side provided the project office and a part of the project operational fees.

From the Japanese side, there had been some qualitative problems in the input of consultant experts during the period from the start of the project to the second year. Therefore, the progress of the project was delayed. However, after the replacement of staff in September 2008, the project activities showed rapid progress, and currently, each output is moving forward toward the achievement of the project purpose. In order to establish favorable relationships between Japanese experts and Indonesian personnel, local staff who used to work for the Ministry of Public Works (facilitators) were employed for this project. The part played by these local staff in ensuring smooth progress of the project was an important one. Especially in Indonesia, where organizational restructuring and personnel transfer take place frequently, they contributed largely in information gathering. CPs who participated in the training session in Japan made a presentation on the knowledge acquired through the training after going back to their country, or held seminars on urban rivers, contributing to diffusing the technology to other staff members. Among the two CPs who participated in the training session in Japan, one left the position of CP after the training.

Provision of equipment from Japan was implemented basically as scheduled. Equipment provided is being utilized adequately and is contributing to the achievement of outputs. The equipment is well maintained and managed, and the efficiency is also good in terms of the degree of output achievement to the input.

### (4) Impact

The overall goal of the “reduction of flood damages in JBODETABAK” should be realized after the completion of the project and under the situation where the non-structural measures are taken and a flood actually occurs. It is judged that it should take a few years until the measures to reduce flood damage are implemented, with manuals prepared in this project being used by relative organizations including local governments as the official operational guidelines in Indonesia. However, already a foothold toward this is being established, such as the Directorate of Rivers, Lakes and Reservoirs, Directorate General of Water Resource, Ministry of Public Works (PM) expressing the intention during this terminal evaluation study to utilize the manuals prepared in this project horizontally (utilization among departments) and vertically (national and provincial governments, municipalities, residents). It was also confirmed that the Indonesian side has the intention to prepare operation manuals for each organization based on these manuals. An

implementation system and plan to continue such activities will be important in order to achieve the overall goal.

As for the external conditions included in the PDM, no significant impact is found at the time of the terminal evaluation, although it will be important to continuously monitor the situation. Among the external conditions for stepping up from the project purpose to the overall goal and the appropriate allocation of budget on flood countermeasures, no significant changes in policies related to flood countermeasures, and no rapid changes in natural environment are confirmed. There is no large change so far.

Thus, it is expected that the project will have a strong impact.

#### (5) Sustainability

It is considered that the sustainability of the project is generally high.

Sustainability in terms of policy is generally high. As explained above, this area is also one of the prioritized issues in the development plan of Indonesia. It is considered that this policy will be maintained by the government. In terms of organizational sustainability, as for the Directorate of Rivers, Lakes and Reservoirs, Directorate General of Water Resource, Ministry of Public Works, strong initiative by the Director, who is also the PM, was confirmed. As for the other organizations from which cooperation should be obtained, including the Directorate General of Spatial Planning of the Ministry of Public Works, the Directorate General of Human Settlement of the same, the Special State Capital of Jakarta, West Java Province and Banten Province, it is planned to obtain further involvement in the process of reviewing the draft manuals during the remaining project period. If it is expected that a certain level of cooperative system can be established before the end of the project, collaboration with these relevant organizations may ensure a certain degree of sustainability in the future. In addition, as for financial sustainability, although some Japanese experts expressed their concerns, because there is no necessity to change the current system in order to maintain the output of this project, it is considered that no special expenses will become necessary. Therefore, financial sustainability is also relatively high. It is judged that technical sustainability is also generally high, based on the facts that the translation of manuals prepared in the project from English to Indonesian is being started and that the OJT using the manuals is scheduled to be completed by the termination of the project.

#### 3-4. Factors that promoted or impeded the realization of effects

Factors that promoted the realization of effects are as follows.

Based on the organizational reform of the Directorate General of Water Resources, Ministry of Public Works of Indonesia, the Sub-Directorate of O&M and National Disaster Fighting, which is in charge of flood control management, was transferred from the Directorate of Water Management to



the Directorate of Rivers, Lakes and Reservoirs. Following this, the position of PM was also replaced by the Director of Rivers, Lakes and Reservoirs. Because the project finally matched the work of the directorate, and with the strong initiative of the newly appointed PM, the project progressed rapidly thereafter. In addition, because the Japanese experts approached CPs with persistence, highly favorable relationships were established among the project team. It is considered that this was achieved partly because of the appropriate allocation of locally-employed staff (such as facilitators) working as the coordinators between the CPs and the Japanese experts.

Factors that impeded the realization of effects are as follows.

Among the problems related to the input of consultant experts at the early stage were underestimation of the workload and lack of work performance of some of the consultant experts. There were also delays in the improvement of such problems, and coordination with the JICA side was insufficient. In addition, this project involved many organizations and much time and effort were consumed in the coordination among these organizations.

### 3-5. Conclusion

Until the halfway point of the second year of the project, there were some problems in terms of the efficiency of the input of consultant experts. However, the project made smooth progress in the latter half of the period. Currently, the only remaining works are those to be implemented during the flood season in 2009, in order to confirm the appropriateness of manuals prepared in Indonesia and further development thereof. Thus, it is expected that this project is achieved by the end of the project period.

Manuals prepared in the project are scheduled to be completed by going through the operation/verification at the actual site of operation during the flood season of 2009 and by adding necessary amendments. Because of their nature, the manuals must be constantly revised thereafter by the Indonesian side through continuous operation. In order to achieve the overall goal, that “non-structural measures to reduce flood damages in JBODETABAK are planned and implemented,” it is necessary to establish a system to implement activities in Indonesia after the termination of the project and clearly set a plan therefor during the project period, based on the temporary draft of the final version of the manuals that will be prepared before the end of the project. Considering the active behaviors of the CPs in the process of preparing the manuals so far, it is judged that a high level of sustainability can be expected in the future as well.

### 3-6. Recommendations

- 1) Verification/revision of manuals: Manuals prepared in the project are verified and revised by implementing OTJ to CPs during the flood season starting from October.
- 2) Enhancement of the involvement of related organizations: Upon implementing the OJT

mentioned above, the Directorate of Water Resources in West Java Province and the Directorate of Public Works in Banten Province should also be involved to broadly diffuse the technology.

- 3) Preparation for obtaining approval of the manuals by the government of Indonesia: Make an approach so that the manuals are approved as official documents by the Directorate General of Water Resources, Ministry of Public Works in Indonesia, and also by other organizations for the relevant parts.
- 4) Preparation of a system for basin runoff control measures: In order to reduce the runoff in the basin, confirm that there is a system allowing for collaboration with the urban planning departments even after the project termination, so that collaboration with these departments from the perspective of comprehensive flood control and especially that an adequate control of runoff is ensured in development instructions.

### 3-7. Lessons learned

- 1) Synergy effect of the public-private partnership and the necessity of clearly stating the role sharing: This project is characterized by being positioned as a public-private partnership, with input from the public side in the form of long-term experts and input from the private side through consultant experts. Parties both in Japan and in Indonesia generally received the concept favorably, evaluating that a system wherein the public sector, good at dealing with policies, and the private sector, having the technology, cooperate with each other. However, in some cases confusion was caused in the implementation of the project because of the gray area between the scope of TORs for the long-term experts and consultant experts specified in the PDM. One must note this point when working with similar projects in the future.
- 2) Importance of project management through monitoring according to the PDM: Management of JICA technical cooperation projects is based on monitoring according to the PDM. Therefore, it is necessary that those who implement the project (long-term experts and consultant experts) fully understand the PDM including the background of its preparation. It may be a good idea to open some of the training programs before dispatch also to the implementing parties of the project, including consultant experts, in order to provide them with the opportunity to obtain knowledge related to project management.<sup>1</sup>
- 3) Necessity of improving the coordination among various types of CPs: In the project where there are various kinds of CP organizations involved, it is necessary to build a coordination system in the targeted country, mainly around the implementing organization. At the same time, it is

---

<sup>1</sup> Unlike the long-term experts, consultant experts engaged in private sector initiative technical project (民活技プロ) as of October 2009 are not required to go through the training before the dispatch of experts. However, some of the lectures include those that can be received during the capacity building training or that accept participation by observers. Lectures such as “JPCM (monitoring/evaluation),” corresponding to “Project Management (PM) Capacity Building (プロジェクト・マネージャー力強化),” and “System Trial Exercise (システム試行演習)” are not offered for capacity building training or observatory participation.

important to clearly state the items and periods for each CP to proactively work, and share the information within the project team.