

Summary of Terminal Evaluation

1. Outline of the Project																													
Country : The Republic of the Philippines	Project title : Project for Strengthening the Flood Management Function of DPWH																												
Issue/Sector : Disaster Management	Cooperation Scheme : Technical Cooperation Project																												
Division in Charge : Global Environment Department	Total cost (As of May. 2010) Total: about 375Million JPY																												
Period of Cooperation : Jul. 2005 -Jun. 2010	Partner Country' s Implementing Organization : Department of Public Works and Highways (DPWH) Flood Control and Sabo Engineering Center (FCSEC)																												
	Supporting Organization in Japan : Ministry of Economy, Trade and Industry (METI)																												
	Related Cooperation :																												
<p>1-1 Background of the Project</p> <p>The Government of the Philippines requested the Government of Japan to undertake a technical cooperation project in order to develop the capacities of flood control and sabo engineers by means of establishing the Flood Control and Sabo Engineering Center (FCSEC) within Department of Public Works and Highways (DPWH). In response to the request, Japan International Cooperation Agency (JICA) launched the project for Enhancement of Capabilities (ENCA) in flood control and sabo engineering of DPWH with its aim to enhance the capacities of the engineers of DPWH regional offices. The ENCA project operated for the period of three years from January 10, 2000 to January 9, 2003, and following the recommendations made by the terminal evaluation in July 2002, DPWH and JICA agreed to extend the project as ENCA Stage Two until June 30, 2005.</p> <p>Based on the recommendation made by the terminal evaluation for ENCA Stage Two, JICA dispatched the Preparatory Study Team to the Philippines in May 2005. As a result of the Preparatory Study, the project for Strengthening the Flood Management Function of DPWH (hereinafter referred to as "the project") was proposed and the Record of Discussions (R/D) was signed on June 2, 2005. The project was launched on July 1, 2005, and will be completed on 30 June 2010.</p> <p>1-2 Project Overview</p> <p>(1) Overall Goal: More effective and appropriately designed flood control and sabo structures/facilities are implemented by DPWH in accordance with the technical standards, guidelines and manuals.</p> <p>(2) Project Purpose: The flood management function of DPWH is strengthened through research and development, training, information management, implementation of pilot projects and creation of the internal support mechanism.</p> <p>(3) Output :</p> <p>Output 1 Pilot projects are implemented using the technical standards, guidelines and manuals.</p> <p>Output 2 Research is conducted for developing/updating technical standards, guidelines and manuals; and assessing efficient countermeasures for flood control and sabo.</p> <p>Output 3 Improve knowledge and skills of DPWH engineers on flood control and sabo through training programs.</p> <p>Output 4 Information Management System is established for a more effective flood management function of DPWH.</p> <p>Output 5 The internal support mechanism is created to sustain the development of technology and organization in the field of flood control and sabo engineering.</p> <p>1-3 Inputs (As of Feb. 2010)</p> <p>< Japanese side ></p> <table style="width: 100%; border: none;"> <tr> <td style="width: 40%;">Long-term expert</td> <td style="width: 10%; text-align: center;">6</td> <td style="width: 30%;">Provision of equipment</td> <td style="width: 20%; text-align: right;">App. JY10,557 thousand</td> </tr> <tr> <td>Short-term expert</td> <td style="text-align: center;">12</td> <td>Operational cost</td> <td style="text-align: right;">App. JY13,245 thousand</td> </tr> <tr> <td>Acceptance of trainees in Japan</td> <td style="text-align: center;">8</td> <td></td> <td></td> </tr> </table> <p>< Philippines side ></p> <table style="width: 100%; border: none;"> <tr> <td style="width: 40%;">Counterparts</td> <td colspan="3">27 (including those who were replaced during the project)</td> </tr> <tr> <td>Provision of facilities</td> <td colspan="3">Administrative and dormitory buildings</td> </tr> <tr> <td>Operational cost</td> <td style="width: 20%;">For local operation</td> <td style="width: 20%;">App. JY</td> <td style="width: 20%; text-align: right;">95,013</td> </tr> <tr> <td></td> <td>For pilot project</td> <td>App. JY</td> <td style="text-align: right;">102,175</td> </tr> </table>		Long-term expert	6	Provision of equipment	App. JY10,557 thousand	Short-term expert	12	Operational cost	App. JY13,245 thousand	Acceptance of trainees in Japan	8			Counterparts	27 (including those who were replaced during the project)			Provision of facilities	Administrative and dormitory buildings			Operational cost	For local operation	App. JY	95,013		For pilot project	App. JY	102,175
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2. Evaluation Team																													
Members of Evaluation Team	<p>1. Mr. Shiro Nakasone (Leader) Director, Disaster Management Division1, Water Resource and Disaster Management Group, Global Environment Department, JICA</p> <p>2. Mr. Daisuke Kuribayashi (Technical Advisor for Flood Control) Senior Researcher, Public Works Research Institute, International Centre for Water Hazard and Risk Management</p>																												

	<p>3. Mr. Masaru Tohei (Technical Advisor for Sabo) Inspector, Minister's Secretariat, Ministry of land ,Infrastructure, Transport and Tourism</p> <p>4. Mr. Wataru Ono (Evaluation Planning) Deputy Assistant Director, Disaster Management Division1, Water Resource and Disaster Management Group, Global Environment Department, JICA</p> <p>5. Mr. Hideyuki Kubo (Evaluation Analysis) Global Link Management Co., Ltd.</p> <p>6. Mr. Domingo C. Rosario, Engineer III, the Development Planning Division, Planning Service Department, DPWH</p> <p>7. Ms. Madelyn B. Loyola, Engineer III, the Development Planning Division, Planning Service Department, DPWH</p>	
Period of Evaluation	9 Feb. 2010 – 25 Feb. 2010	Type of Evaluation: Terminal evaluation
3. Results of Evaluation		
3-1 Summary of Project Accomplishment		
<u>Output 1:</u>		
<p>Three pilot projects have been implemented for the purpose of capacity building of engineers at FCSEC and DEO by applying TSG/Manual. Two of pilot projects have been already completed, and the other is under construction (It will be completed by the end of this project) In the course of the project implementation, FCSEC engineers have been fully involved in a series of professional work such as; planning (M/P and F/S), designing and construction supervision. According to the engineers involved, eight TSG/Manual were frequently referred to during the implementation of the pilot project.</p> <p>It should be noted that the case of Kinanliman river is the very first experience of DPWH/FCSEC to develop M/P and F/S for flood control through the direct involvement of their engineers (the Santa Fe case is the first hands-on experience for sabo dam construction). With the technical guidance provided by Japanese experts, the engineers involved in the work have largely improved their understanding and skills on the M/P and F/S development and acquired knowledge and skills on a new type of countermeasures.</p>		
<u>Output 2:</u>		
<p>Since October 2008, the revision process of the TSG/Manuals that were produced during the first phase JICA project (i.e. ENCA) has been undertaken. Weekly technical meetings have been organized in which staff from FCSEC, BOD, BOC, PS, BORS and BOM participate. In the meetings, participants examine sentence by sentence in each of TSG/Manual and revise them so as to make them more comprehensive in content and user friendly in expression. Then four kind of technical report regarding TSG/Manual have been made by FCSEC so far. Moreover, based on request from district office, Soil Cement Method has been introduced as economical method and implemented technical transfer to district officers.</p> <p>A range of research experiments have been conducted at the Hydraulic Laboratory in order to assess the appropriateness of countermeasures for flood control and to experiment proposed low-cost structures. In total, 16 experiments were conducted during the project period in which 6 were for the former purpose and 4 were for the latter including the assessment of soil cement techniques. The results of the experiments for the assessment of proposed countermeasures at three pilot sites were reflected to the actual operations of the pilot projects. It should be noted that planning, designing, development and data collection of the research experiments can now be managed by FCSEC engineers unless experiments are too complicated.</p>		
<u>Output 3:</u>		
<p>So far 22 training courses have been organized for four major topic areas and the number of total participants is 558. The result of the ex-post evaluation that was conducted by DPWH one year after the training implementation for 6 training courses includes (the total number of training participants is 140 for the 6 courses and interviewees of the ex-post evaluation were 103; i.e. 74% of the total participants): (a) 36% of participants say they apply knowledge in their current work much/very much which they learned during the course and 59% say they apply skills; and (b) 85% of participants' supervisors say the training has improved overall performance of the trainees by a large extent.</p>		
<u>Output 4:</u>		
<p>For gathering data on flood control inventory throughout the country, the project/FCSEC distributed a jurisdiction map to 138 DEOs nationwide in 2006 and requested them to provide with location and concerned data of existing flood control structures within their coverage area. The response rate was 100% for the first inventory. The second round of data collection (i.e. data updating) was conducted in 2009. The rate was 62% for the second time. These data are incorporated into the electric file in the excel format and drawings and photographs are stored as a hard copy. It is expected that data updating operation will be conducted every 2-3 years.</p> <p>The library at the FCSEC building was upgraded. Books and materials concerning flood control have been stored pertinently, the list of these books and materials was elaborated and a computer retrieving system was developed.</p>		
<u>Output 5:</u>		
<p>Internal mechanisms of supporting and elaborating effective functioning of FCSEC for flood control with the support of concerned branches of DPWH have been created through the establishment of JCC and TWG. JCC has been convened for 6 times as of February 2010. Overall monitoring of the project activities and their progress is the main topic of discussion. TWG has been organized for 8 times and addressed issues on pilot project implementation.</p> <p>DPWH launched the preparation process of M/P and F/S for 12 river basins nationwide and created a steering committee and technical working group for the conduct of M/P and F/S. In the steering committee, Head of FCSEC serves as vice-chairperson. In the technical working group, project manager of FCSEC serves as chairperson and one engineer is a</p>		

group member.

The status of FCSEC is "Project Management Office", which implies that the Office might be closed upon the project termination. FCSEC/JICA/Embassy of Japan have repeatedly expressed the requirement of the FCSEC permanency at JCC meetings in order to utilize quality knowledge and skills of FCSEC for addressing flood control issues of the country. However, the permanency has not been realized yet.

Project Purpose:

The interviews to the C/P by the evaluation team revealed that some C/P who have been involved in the pilot project and research teams have substantially enhanced their professional capacity through the project implementation. The former acquired knowledge and skills in formulating M/P and F/S on flood control on which he could not address before the project started, and the latter can now manage the planning, designing and execution of research experimentation at the hydraulic laboratory even without external technical advice. When the laboratory was constructed in 2002, he could not manage the work at all. Aside from these C/P, the Japanese experts confirmed that most of C/P gradually improved their knowledge and skills related to flood control in various fields such as planning, designing, construction supervision, research and information management.

A survey result regarding the use of TSG/Manual by DEO indicates that there are at least several cases in which DEO refers to TSG/Manual for planning, designing and construction of flood control structures.

Overall Goal:

The Quezon 1st DEO, that was in charge of the pilot project implementation at the Kinanliman, has extended flood control work at the Kinanliman river with their own initiative beyond the pilot project. DEO engineers, who used to construct flood control structures without planning and due designing, are now applying new knowledge and skills which they have learned through the pilot project and able to construct more effective and appropriately designed flood control structures in accordance with TSG/Manual.

FCSEC presented the outline and concept of National Flood Management Framework Plan at the NDCC cabinet meeting on Feb.28, 2006, which is the highest coordination body for disaster preparedness, disaster operations and rehabilitation from disaster. However, the Plan has not yet been taken into considerations officially.

On the other hand, FCSEC is still tentative Project Office. It is necessary that FCSEC becomes permanent organization so that the role of FCSEC will be functioned appropriately in Government of Philippines.

3-2 Evaluation Results

(1) Relevance

Relevance of the project is very high based on the following reasons. First, floods, slope failure and debris flow have caused loss of more than 700 lives and 8 billion pesos annually in the Philippines so that flood control activities are critically important to address the issue. Second, flood control is relevant in the context of national policies in the Philippines including the Medium-Term Public Investment Program (2005-2010) and the Strategic Plan of DPWH (2004-2010). Third, the identification of project target group is highly appropriate. Principal target group of the project is DPWH staff at the level of RO/DEO as well as FCSEC engineers. Since the project purpose is to strengthen technical and administrative capacity of DPWH, it is appropriate that their staff at field level are the main target group. Fourth, an approach adopted in the project is highly pertinent for the achievement of project purpose. The project was designed in such a way that Japanese experts build up the technical capacity of FCSEC engineers with hands-on experiences and FCSEC engineers then enhance knowledge and skills of local DPWH staff at the RO/DEO level. This approach is pertinent in relation to the project purpose as it leads to strengthening the capacity of DPWH staff. Fifth, the project is highly relevant to aid policy of the Japanese government. The country assistant program for the Philippines stipulates environmental protection and disaster prevention as one of four priority areas of cooperation.

(2) Effectiveness

Effectiveness of the project is high based on the following reasons. First, the project purpose is achieved at the certain level in a sense that (1) knowledge and skills of FCSEC engineers have been enhanced to a large extent in terms of planning (i.e. MS and F/S), designing and construction supervision of flood control projects (relatively small-scale); research; training; and information management compared with their capacity five years ago; and (2) eight out of ten RO/DEO which responded to a questionnaire already utilize TSG/Manual that were produced by FCSEC/ENCA. Second, the causal relationship of five outputs and project purpose is strong and they contributed toward the achievement of project purpose. Among others, one of the most important aspects in the project implementation is the direct involvement of FCSEC engineers in the entire process of planning, designing and construction supervision (and maintenance that will be followed in coming months) .This has successfully enabled to strengthen the capacity of FCSEC.

(3) Efficiency

Efficiency of the project is high based on the following reasons. First, four outputs are produced at the satisfactory level and one (output 5) at the moderate level at the time of the terminal evaluation. Second, in producing output 1, the strategy of the pilot project implementation is very appropriate. Japanese experts (both long-term and short-term) provided technical and management guidance and suggestions to FCSEC engineers and the engineers then provided the same to DEO engineers and contractors in the field. This strategy has efficiently functioned for FCSEC engineers to digest technical knowledge and enhance their skills. Third, shortage of C/P and slow disbursement of local budget negatively affected the effective implementation of project activities and the achievement of outputs. In addition, the PMO status of FCSEC also negatively

affected the project implementation because the employment of FCSEC engineers is on the temporal basis so that they need to worry about a new employment opportunity toward the end of the project. It is likely that the technical capacity of FCSEC engineers could have been further strengthened if these obstacles were removed. Despite these difficulties regarding the provision of inputs (from the Philippines side), activities have been conducted and outputs are being produced. This is largely thanks to strenuous efforts by FCSEC engineers and Japanese experts. It should be noted, however, that the shortage of inputs cannot be justified even though activities are conducted and outputs are produced.

(4) Impact

Impact of the project is high based on the following reasons. First, during the survey by the evaluation team, no negative effects are identified or reported that are brought about by the project. Second, the following positive effects are identified: (A) some RO/DEO are reportedly using TSG/Manuals produced by FCSEC/ENCA for designing and constructing flood control structures within their jurisdiction area; (B) FCSEC plays a crucial role in developing M/P and F/S for 12 river basin throughout the country, which is the major study of DPWH at the moment; and (C) the following positive effects are observed at respective pilot project sites: a) In the Kinanliman river pilot project, engineers at the DEO have acquired new knowledge and skills regarding flood control through the 1st and 2nd phases of the Kinanliman flood control project (which are the pilot project supported by the JICA project). They have then applied such knowledge and skills at the 3rd phase of the Kinanliman flood control project (which is the DEO's own work beyond the JICA project). In addition, residents nearby the site highly appreciate the construction of the flood control structure as has removed the risk of flood at the site. This was already demonstrated on September 26, 2009 when large typhoon hit the area. Residents were no longer required to evacuate but could just stay at home. B) In the Santa Fe pilot project, engineers at the DEO have learned cost-effective and low-emission soil cement techniques and they now plan to use the technique for the construction of flood control structures. An idea of applying the soil cement technique at other DEOs is also emerging.

(5) Sustainability

Sustainability of the project is ambiguous at the time of the terminal evaluation because the organizational support to FCSEC by the government is not clear as of mid-February 2010. If the rationalization plan is endorsed by the government and FCSEC holds permanent status, human resource and finance are secured even after the termination of the project. Hence, FCSEC could function toward overall goal and sustainability can be considered as high. If the FCSEC permanency is not realized, provision of human resource and finance would continue over the next couple of years thanks to the study on 12 river basin but the shortage of staff and slow disbursement of budget would prevail as the case of now. Furthermore, the role of the FCSEC and its expertise will not be sustained after the termination of the M/P and F/S development unless the permanency is realized. There is a serious risk that the enhanced capacity of FCSEC might fade away if the engineers are moved to other positions inside or outside DPWH upon the termination of M/P and F/S development process. Sustainability is considered as low in such a case.

3-3 The factors that promoted the realization of effects

(1) Factors that concerning to Planning

None

(2) Factors that concerning to the Implementation Process

Project management and monitoring have functioned appropriately. Communication among Japanese experts and C/P has been smooth and status and progress of project activities are effectively shared through formal monthly meetings as well as informal discussions. All the Japanese experts and C/P mention that project decision making process has been satisfactory within FCSEC/the project. FCSEC compiled a project progress report every three months and submitted it to NEDA as a formal monitoring report.

C/P engineers have been seriously and actively involved in the project activities. This perception is supported by all the Japanese experts. Questionnaire survey and individual interviews to C/P clearly indicate that the method of technology transfer by Japanese experts is very appropriate and all of the C/P, including FCSEC director, appreciate the work and effort of the Japanese experts.

One critical issue is the decision making by DPWH regarding budget disbursement and C/P assignment. With repeated requests from FCSEC/the project, these issues are to some extent improved at early 2010.

3-4 The factors that impeded the realization of effects

(1) Factors that concerning to Planning

None

(2) Factors that concerning to the Implementation Process

Due to shortage of C/P and slow disbursement of local budget, the implementation of project activities has been delayed compared with the original plan. In particular, the implementation of pilot project activities was affected. The lack of C/P assignment also caused the existing C/P to address many different jobs in parallel. Despite such difficulties, all the planned activities will be completed by the end of the project. There is one concern, however, that the construction of sabo dam at Santa Fe river, one of the pilot project sites, might not be completed by the end of the project if the release of remaining budget (5 million pesos) is delayed.

3-5 Conclusion

We conclude the project is very positive overall, at the time of the terminal evaluation, and the five evaluation criteria results are favorable, except that sustainability is dependent on the policy choice by the government of the Philippines. Furthermore, we find that the enhanced knowledge and skills of FCSEC engineers, which were materialized through their actual experiences of the project implementation, are truly precious assets in addressing flood control issues in the Philippines as there is no such quality expertise within the country other than in FCSEC. If permanency of FCSEC is realized, sustainability would be improved and overall goal would be achieved.

3-5 Recommendations

- ◆ Policy aspect: DPWH and other concerned agencies are strongly requested to make their best efforts to realize the FCSEC permanency in order to address flood control issues in the Philippines through the utilization of quality knowledge and skills of FCSEC, which are the best capacity in the country. Furthermore, DPWH is requested to pay more attention to the importance of addressing flood control and allocate more budget to its activities at the RO/DEO level.
- ◆ Technical aspect: FCSEC and DPWH are requested to adopt human resource policy at FCSEC that its engineers acquire a range of knowledge and skills regarding flood control from planning to designing, construction supervision and maintenance. This has to be materialized through their direct involvement in the actual experiences in the project implementation in the field, as the current pilot project is doing. Furthermore, DPWH is strongly advised to effectively utilize knowledge and skills that are stored at FCSEC in addressing flood control issues throughout the country.
- ◆ Organizational aspect: In order to ensure capacity building of FCSEC engineers as mentioned above, DPWH and FCSEC are requested to allocate a number of positions at FCSEC and secure the budget for its operation. It is also suggested that skilled, mid-level and young engineers are working together in order to share quality knowledge and skills for future generation in the country.
- ◆ M/P and F/S: In the process of M/P and F/S of the 12 river basin, DPWH is requested to assign FCSEC to be in charge of the implementation of M/P and F/S and also to provide fund for modeling and testing proposed countermeasures at the Hydraulic Laboratory.
- ◆ Technical advice by a Japanese expert: JICA is requested to support the provision of technical advice by a Japanese expert to FCSEC engineers when it is required since the scale of M/P and F/S of the 12 river basin is rather large compared with that of the three pilot projects. The expert should hold due capacity in terms of both technical expertise and communication skills for the establishment of respectful interpersonal relationships with FCSEC engineers.

3-6 Lessons Learned

- ◆ Capacity building of local engineers in flood control can be more effective if local engineers have direct involvement of in the entire process of flood control activities such as planning, designing and construction supervision with technical advices by Japanese experts.