

Summary of the Results of Water Resource Information Center Project Terminal Evaluation

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| 1. Outline of the Project | |
| Country: Syrian Arab Republic | Project title: The Establishment of the Water Resources Information Center |
| Issue/Sector: Water resource/water resource development | Cooperation scheme: Technical Cooperation Project |
| Division in charge: Water Resource Management Team 2, Group III, Global Environment Department | Total cost (as of the time of evaluation, including the estimate by June 2007): 560 million yen |
| Period of Cooperation | (R/D): March 2002 June 15, 2002-June 14, 2005 Extension period for R/D: March 2005 |
| | Counterpart Organization: Project Managing Organization: Ministry of Irrigation (Damascus) Project Implementing Organization: Water Resources Information Center (WRIC) Supporting Organization in Japan: Ministry of Land, Infrastructure, Transport and Tourism |
| <p>1-1. Background of the Project</p> <p>The Syrian Arab Republic (Syria) has recently suffered from severe water shortages. This is due to increasing water demand triggered by a growing population as well as industrial development, which require more water for daily living, irrigation, and industrial applications. The region also faces diminishing rainfall. For some watershed, renewable hydrological balance is always minus, causing lower levels and deteriorated water quality due to overuse of groundwater. Despite this, the water resources management system of the Syrian Ministry of Irrigation has yet to become well established. In fact, it seems like no effective policies for allocating water resources have been carried out so far.</p> <p>Faced with this situation, JICA implemented the Development Study on “The Study on Water Resources Development in the Northwestern and Central Basins of the Syrian Arab Republic (PHASE I)” (August 1996–October 1997) in response to a request from the Syrian government. The survey found that implementing a feasibility study (F/S) is a pressing issue for establishing water resource management systems targeting the Barada-Awaj basin, considering the necessity of addressing the shortfall in water supply and adequate allocation of water resources. The Barada-Awaj basin covers the area where the Syrian capital of Damascus is located, and the survey was implemented for five targeted river basins. Following the result, the Development Study on “The Study on Water Resources Development in the Northwestern and Central Basins of the Syrian Arab Republic (PHASE II)” (November 1998–January 2000) was carried out. Based on this, a project for establishing water resources information management system in the Barada-Awaj basin was proposed. In light of the proposal, the Syrian government requested that Japanese Government implement a technical cooperation project to establish the Water Resources Information Center.</p> <p>The project started in June 2002 as a three-year project. However, in response to a proposal from the terminal evaluation team in October 2004, the terms of the cooperation were extended to June 2007. It was decided that the terminal evaluation would be carried out after October 2004 (when the previous terminal evaluation was implemented).</p> <p>1-2. Project Overview</p> <p>(1) Long-term goal</p> <ul style="list-style-type: none"> • Integrated and sustainable water resources management in the whole basins of the Syrian Arab Republic is achieved. <p>(2) Overall Goal</p> <ul style="list-style-type: none"> • Integrated and sustainable water resources management in the Barada-Awaj Basin and Coastal Basin is achieved. <p>(3) Project Purpose</p> <ul style="list-style-type: none"> • A center enabling appropriate management of water resources information is established. <p>(4) Output</p> <ol style="list-style-type: none"> 1) A water resources information system is established at the Main center and two Basin centers of | |

WRIC.

- 2) The WRIC staff acquire the necessary techniques for hydrological and meteorological observation, data collection and data processing.
- 3) A section is established within WRIC for capacity building and continuous human resources development is conducted.
- 4) A section is established within WRIC to maintain the water resources information system and the continuous maintenance is conducted.
- 5) A system is established to enable the staff of WRIC to provide necessary information on water resources management to decision –makers , planners and researchers by utilizing the water resources information system.

(5) Input

Japanese side:

Long-term Expert: 3 persons

Equipment: 761,700yen

Short-term Expert: 7 persons

Local cost: 19,273,000 yen

C/P Trainees received: 6 persons

Syrian side:

Counterparts: 78 persons

Project land, facilities, and existing observation equipment provided: Local cost: 32,499,300 Syrian pounds (SP, equivalent to JPY 72,914,000, including labor costs)

2. Evaluation Team

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| members | Team Leader: Takeo Ishikawa, Team leader, Water Resource Management Team 2, Group 3 Global Environment Department Water Resource Management: Yosuke Sasaki, Executive Director/Director-General of the Secretariat, Infrastructure Development Institute, Member of Advisory Committee Water Resource Management: Hisao Ushiki, JICA Senior Advisor, /Member of Advisory Committee Evaluation Planning: Akimasa Matsuzaki, Water Resource Management Team 2, Group 3, Global Environment Department Evaluation Analysis: Yoko Harada, research associate, Global Link Management | |
| Evaluation period | November 25, 2006 to December 14, 2006 | Type of Evaluation: Terminal Evaluation |

3. Results of Evaluation

3-1. Confirmation of Actual Achievement

(1) Project Purpose

Project purposes were successfully achieved. Both hydrological chronological tables and water resource reports have already been published using the database developed through the project. The quality of the reports leave much room for improvement; still, the content and format have gradually improved with the help of user comments and the like.

(2) Outputs

1) Output 1

The targeted indicators are attained. Approximately 95% of the equipment provided to the Project during the cooperation period is in operation at the time of the Terminal Evaluation Study. New database and application software were fully developed to accommodate the data collected at the equipment provided through the Grant Aid Assistance (GA equipment). The application has been continuously improved as any shortcoming arises. Further, three centers have been connected with the ISDN lines for the transmission of the collected and processed data.

2) Output 2

The technology transfer for observation, data collection and data processing has been duly completed, and accordingly, the targeted indicators are mostly attained. In addition to the pilot and the GA equipment, the observation data is collected from 97.5% of the 292 stations run by Ministry of Irrigation as of October 2006. Further, the WRIC has been receiving the historical and the current data from Ministry of Defense and Ministry of Agriculture and Agrarian Reform although the delivery of the data is usually delayed by almost a year. The collected data is processed in accordance with the established data processing procedure and its accuracy is confirmed in the process. The processed data is uploaded into the database, from which the graphs and charts are generated. The CP is advised to observe strictly the data processing procedures in order to enhance the accuracy of data and to follow the rule that the processed data should be uploaded to the Main Center database within three months after the raw data is collected.

3) Output 3

CP have been engaged in the Counterpart-to Counterpart training (C2C training), which started in August 2005 aiming to secure the Project sustainability and to support Ministry of Irrigation technically for the expansion of WRIC to other parts of the country. As of October 2006 57 training programs were organized and 893 in total participated. In general, the participants contented with the training.

4) Output 4

The technology transfer for the proper maintenance of WRIC equipment has been completed. The maintenance of the computer system, the IT hardware and the observation equipment have been properly conducted by CP in accordance with the manuals and the check lists prepared by the Project. So far, no major problem has been encountered. However, in order for the major maintenance tasks to be properly conducted, necessary budget should be allocated by Ministry of Irrigation to WRIC.

5) Output 5

The targeted indicator has been achieved. The Monthly Report has been distributed to Ministry of Irrigation (Minister, Vice Minister, and each directorate office), Ministry of Defense, Ministry of Agriculture and Agrarian Reform and Ministry of Housing and Construction since March 2006.

3-2. Summary of Evaluation Results

(1) Relevance

Overall evaluation result: A

The 10th Development Policy issued in May 2006 emphasizes the importance to formulate and enact the sound and sustainable water resources management policy to effectively mitigate the serious water shortage faced by the country. The data and information collected and accumulated by the WRIC through the Project implementation greatly supports the government in this aspect. The Project also conforms the JICA's Country Strategy Plan which expresses its strong commitment to the area of water resources management

and efficient water use in Syria.

(2) Effectiveness

Overall evaluation result: A

The Project Purpose has been already achieved. The Annual Records of Hydrology and the Water Resources Report have been already published. Although the quality of the Reports is a subject to further improvement, their contents and formats are continuously under revision, incorporating the comments from users. The extension period was well utilized for the Project to produce the expected outputs and, subsequently, to achieve the Project Purpose.

(3) Efficiency

Overall evaluation result: A

Most of the inputs were appropriate in terms of number/volume, quality and timeliness of provision. The inputs were utilized well and contributed to the realization of expected outputs. By introducing the C2C training, without additional inputs from the Japanese experts, much more staff acquired knowledge and skills than originally expected. However, the turn-over rate of trained CP remains high and the Project was required continuously to train new staff throughout the Project period, which had an adverse influence on the progress of the Project.

(4) Impacts

Overall evaluation result: A

The 10th Development Policy confirms that one of the most important achievements in the irrigation sector made during the period of the 9th Development Policy was the establishment of WRIC in cooperation with JICA. Further, the one of the objectives to be attained for the effective water resources management and development during the period of the 10th Development Policy is the establishment of a complete information network linked to the information centers at the basin level. Further, the close contact established and maintained by the Project with the other donors involved in the water resources management sector, which has contributed to facilitation of the donor cooperation and synergy to the great extent.

As regards the Overall Goal, the prospects of its attainment is fairly high, taking into consideration a number of water-related projects in pipeline to mitigate the water shortage in the capital, Damascus. On the other hand, there is some concern over the organizational structure of Ministry of Irrigation in which some duplication of mandates and tasks between WRIC and the Directorate of Integrated Management of Water Resources have been observed. Further, no detail budget plan for 100 million SP earmarked to WRIC in the 10th Development Policy has been released by the government.

(5) Sustainability

Overall evaluation result: B

1) Policy/organizational Aspects:

The 10th Development Policy stresses the need to establish an information network linked with the regional information center and Ministry of Irrigation has committed itself to the expansion of the WRIC. In view of the severe water shortage faced especially by the residents in the capital, Damascus, the government committed towards the effective utilization of the available water resources is highly likely to be continued in future. The managerial performance of WRIC has improved. However, there is a room for further improvement in order to effectively manage and coordinate the activities of not only the existing WRIC but also those new centers to be established in the coming years.

2) Financial Aspect:

As regards the financial sustainability, the 10th Development Policy earmarked 100 million SP for the WRIC. However, concerning the discrepancy between the planned budget and the actual disbursement for the past years, it is not necessarily certain that the disbursement is effected as planned.

3) Technical Aspect:

The level of technical capability of the core staff is highly satisfactory. It is expected that they will be able to sustain and expand the present WRIC activities after the completion of the Project.

However, the number of the core staff with sufficient technical capability is minimum so that any activity could be stagnated i case of their resignation.

To ensure the technical sustainability, WRIC should create a firm system in which the in-service training and OJT are effectively managed and the technology transfer is continuously carried out among CP. In this aspect, the sufficient financial and logistical support from the government and Ministry of Irrigation is essential.

3-2. Factors that promoted realization of effects

The C/P played a central role in this project in fully understanding the significance and necessity of data in water resource management. Also, the C/P was highly motivated to learn techniques, and made an enormous contribution for achieving project purpose and outputs by dispatching highly motivated core staff. Recently, local centers (DRD, Lattakia, and Tartus) have had an increasing number of opportunities to accept requests for data from municipal governments and local Ministry of Irrigation bureaus backed by their improved technical capability, increasing the motivation of staff members working for local centers.

3-3. Factors that impeded realization of effects

A high personnel turnover from the start of the project hindered effective project operation. A significant number of persons left the organization and a large portion of persons newly appointed to the project had insufficient knowledge and experience. Therefore, the C/P had to constantly provide basic training to newcomers. The C/P also had to spend too much time procuring consumables and repairing equipment due to extremely complicated internal regulations and budget procedures in the Ministry of Irrigation. This also hindered the smooth operation of the project.

3-4. Conclusion

The WRIC was established with an aim to collect, process and analyze the water resources information of the country, based on which the sound and sustainable water resources management policy is formulated and enacted. The water situation in the big cities and the surrounding areas in some hydrological basins has never been eased for the last five years so that the mandate of the WRIC is still highly relevant with the policy agendas of the country. With the extension of its cooperation period by two years, the Project managed to overcome the shortcomings which were pointed out at the previous Final Evaluation Study in October 2004 and has successfully produced its expected outputs and , subsequently, has achieved the Project Purpose. The perspective of the attainment of the Overall Goal is also fairly high with the condition that the enhancement of the technical capacity of the WRIC staff and the improvement of the management system in WRIC are carried out continuously. Thus, the Evaluation Team has reached the conclusion that the Project is to be finalized in June 2007 as planned.

3-5. Recommendations

(1) Within the project period

1) Intensification of C2C, with the policy of nation-wide expansion of WRIC

Training of the counterparts by the counterparts (Counterpart to Counterpart Training) has been carried out during the two-year extended phase with good responses from the participants.

C2C should be continued within the project period and succeeded in the WRIC's nation-wide extension. The activities should be recorded with the prescribed schedule of 2006/2007 and its detailed accomplishments by the WRIC.

2) Allocation of budget for the maintenance of the WRIC facility, securing procurement route of spare parts only available from abroad.

Self-reliance is indispensable for WRIC to sustain operation after the project termination, so the sustainability should be pursued through securing the budget and spare parts procurement for the system.

3) Conservation of well-ordered data-flow

Data-flow from the WRIC to other institution of the Ministry, in particular, Directorate of Integrated Management of Water Resources should be kept in the prescribed order. All the data from the Local Center of WRIC must be transferred solely to the Main Center at the first step. Further transfer should be monopolized and authorized by the Main Center.

Data legitimacy is important in operating WRIC, therefore the well-ordered data-flow should be

kept as its authorized function.

(2) After the project period

- 1) Establishment of routine activities to cooperate and coordinate within the WRIC institutions for the water resources management in Syria

Regular meetings and trainings have been established during the project execution, and provided remarkable effects to the organized works among the centers. These should be maintained further after the project termination.

- 2) Creation of regular activities for the regional cooperation with neighboring countries

Water resources are the common international issue in the region where Syria is located. Syrian achievement in WRIC project may be reflected to the bilateral cooperation with neighboring countries. Regular events such as symposiums and training courses, organized by WRIC, will be welcomed in the region. These events on water resources will enhance integration, consistency and cooperation there.

- 3) Incentives for the WRIC personnel

High-level and long-experienced technical personnel are the essential components of the WRIC work. In order to secure such personnel and to expand such human resources, incentives are to be used effectively. Ministry budget should be allocated for this purpose.

- 4) Demarcation of functions between WRIC and Directorate of Integrated Management of Water Resources

WRIC was designed for comprehensive management of water resources information, monitoring system, data acquisition, data storage, data analysis and authorized information service. Some duplication of the duty exists between WRIC and Directorate of Integrated Management of Water Resources at present. It is necessary to define the roles of WRIC and Directorate of Integrated Management of Water Resources after establishing WRIC local centers in the whole Syria in a way that WRIC will be in charge of data collection, quality control, data input and analysis, basin water balance, and provision of water resource information. Whereas Directorate of Integrated Management of Water Resources will be in charge of water policies, water law, water resource management. For the time being, WRIC solely will be responsible for the above mentioned tasks in the area where WRIC centers have been established and Directorate of Integrated Management of Water resources shall continue their previously assigned duties in the rest of the regions.

- 5) Moving in to the Ministry's new headquarters

Long-awaited Ministry's headquarters building is coming near the completion. Many subordinate offices, so far scattered elsewhere in Damascus, will be soon accommodated in a single complex. WRIC should be effectively integrated into the new headquarters both in physical sense and organizational sense.

- 6) Forming project teams through the government and private sector

The project team consists of two long-term experts (including a chief advisor) dispatched from the Ministry of Land, Infrastructure, Transport and Tourism, as well as some short-term experts selected from the private sector on an as-needed basis. Forming the team by this combination can bring these benefits: (1) perspective and decision-making at the state level by having experts from government agencies and (2) economic and efficiency aspects by having experts from the private sector. Therefore, the team structure was highly optimized for this project. This system can be applied to similar projects to be implemented in the future.

- 7) Voluntary implementation of operations other than Terms of Reference (TOR) by consultants

Through this project, team members performed a significant volume of duties not specified in the TOR. This was because the project members voluntarily performed TOR tasks in consideration of project duties as a whole, as a result of good and collaborative relationships established between project members.

To promote the project successfully, JICA must consider promoting teamwork in the future as well.

3-6. Lessons Learned

- (1) Importance of incentives to promote positive attitude of the counterparts.

The job undertaken by the counterparts is not necessarily satisfactorily rewarded comparing to the equivalent jobs in non-governmental or commercial sector. This fact has brought a serious set-back for

the Syrian counterparts to engage in their duties with positive prospect.

Incentives for human resources in the counterpart agency, therefore, should be carefully examined and discussed in the preparation period of the project.

- (2) Collaboration and mutual understanding between the field work members and office work members.
Through giving opportunities to the office work members (data processor, analysis etc.) to get to know the field work (data observation and collection) in the Centers, a working atmosphere which promotes collaboration among them and mutual understanding has been enhanced with improvement of the self-esteem of the field members.
Generally in developing countries, job duties are clearly separated and personnel reshuffling, exchanges, or promotion beyond job boundaries are not common. However, exchange between C/Ps with different job duties in the same project can create a sense of unity based on the social background of the C/P.
- (3) Promotion of recognition and coordination with other related agencies through symposium
The project has organized international symposiums for the last four years annually on the water resources management, inviting related governmental, non-governmental organizations, as well as other related donor agencies, totaling nearly 600 participants.
Active participation gave other organizations more recognition of WRIC, contributing to the development of collaborative relationships. Instead of simply holding meetings with other donors, it is strongly recommended that awareness of WRIC's presence be raised to offer participants opportunities to stimulate one another.
- (4) Human network and reliance between both parties
Through a series of cooperation in the past decades, human network and mutual reliance have established between the both parties. Participation of those involved in the human network from both sides has created a good atmosphere in which the both parties dedicate to attain the project goal. Needless to say, however, long-term assistance by a single organization may have the side effect of hindering the development of self-sustainability.
- (5) Project Design Matrix
PDM, especially verifiable indicators for the capacities ante-ex project in quantitative manner, should be carefully elaborated in order that the project be monitored and evaluated appropriately, avoiding ambiguity.