

## Simplified Ex-Post Evaluation for Technical Cooperation Project

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Project Name	Model Planning Project for Water-Saving Measures on Large-Scale Irrigation Scheme	January 2010 – December 2010

### I Project Outline

Country Name	People's Republic of China			
Project Period	June 2001-May 2006			
Executing Agency	Ministry of Water Resources (Department of International Cooperation of Science and Technology (国际合作与科技司), Department of Rural Water Management, China Irrigation and Drainage Development Center (Beijing)), Gansu Province Bureau of Water Resources, Shaanxi Province Bureau of Water Resources, Hunan Province Bureau of Water Resources			
Cooperation Agency in Japan	Ministry of Agriculture, Forestry and Fisheries of Japan			
Total Cost	910 million yen			
Related Projects (if any)	N.A			
Overall Goal	1. To improve irrigation efficiency and water use efficiency in the priority model irrigation zones 2. To prepare appropriate water-saving improvement plans in at least the model irrigation zones			
Project Objective(s)	Water-saving irrigation technology that can be spread all over the land of China will be established through verification in the priority model irrigation zones.			
Output[s]	1. Survey and planning methods will be developed for the preparation of appropriate water-saving improvement plans. 2. Water management technologies will improve. 3. Paddy field-level water-saving technologies will be developed			
	Inputs (Japanese Side)		Inputs (Chinese Side)	
Experts	10 for Long term, 14 for Short term		Staff allocated	82
Equipments	220 million yen		Equipments	
Local Cost	120 million yen		Local Cost	63.4 million Chinese yuan
Trainees Received	49		Land etc provided	Land and facilities
Others			Others	

### II Result of the Evaluation

Summary of the evaluation
<p>The relevance of this project is very high. In terms of effectiveness, its objective and outputs have been essentially attained. The expected effect of the overall goal has also been produced. The project was implemented mostly as planned except for the delay caused by the prevalence of the severe acute respiratory syndrome (SARS). As both the interim and terminal evaluation reports stated that the execution process was very smooth. It could be said that the project had high efficiency. There were no problem associated with any aspect of the project, including the government's policy, counterpart organization's system, technologies, and financial position. Its sustainability was also high.</p> <p>&lt;Recommendations&gt;</p> <p>In the project design matrix (PDM) of this project, the verifiable indicators for outputs were higher than those for the project objective in the level of difficulty. Seemingly the actual operation process was not affected because these inconsistencies were shared among the interested parties of the project (Japanese experts and Chinese counterparts). However, these logical inconsistencies in the PDM, together with some ambiguous notation, constitute serious obstacles to proper evaluation of the achievement results of this project. Therefore, it is desired that JICA, in the future, should prepare and modify as well the PDM in a right way at the right time during the implementation of the project and at the time of evaluations, so that in-house and outside interested parties can judge the achievements of this project with common understanding.</p> <p>&lt;Constraints of this evaluation study&gt;</p> <p>Since the PDM of this project has some inconsistencies in the level of difficulty between the verifiable indicators for the project objective and those for outputs, which posed a problem in the terminal evaluation, the achievement results of the project were assessed in this ex-post evaluation by taking such inconsistencies into account.</p>

1 Relevance
<p>(1) Relevance with the Development Plan of China</p> <p>The National Tenth Five-Year Plan with Long-Term Goals (2001-2005) of the Chinese government sets down two long-term goals to be accomplished by 2015: the first is to extend the country's effective irrigated area of 53 million ha to 58 million ha, and the second is to raise the irrigation water utilization rate in the country from the current 40% to 60%, with special focus on water-saving improvement projects in large-scale irrigation zones. China's National Eleventh Five-Year Plan (2006-2010) also calls for development of water-saving agriculture in the regions suffering chronic water shortage. To this end, the Chinese government mapped out its policy course: the irrigation water utilization coefficient needs to be improved from the current 0.4 to 0.5 while restraining the total volume of agricultural water (zero growth) in the whole country; water-saving irrigation technology needs to be fostered; and water-saving irrigation facilities are to be constructed.</p> <p>As explained above, therefore, the project has been consistently relevant to the development policy of China during the implementation period.</p> <p>(2) Relevance with the Development Needs of China</p> <p>China is poor in water resources. The volume of water resources per capita in China is not more than 1/4 of the world average level. Agriculture cannot function without irrigation especially in arid and semi-arid regions in northwestern China. On the other hand, the increasingly accelerated change of China's socioeconomic system has caused a harsh struggle among agricultural, industrial and household sectors competing for water resources. Appropriate distribution of water resources to the respective sectors is one of the crucial policy issues the Chinese government is currently facing. Large-scale irrigation zones, particularly, may have a great impact on the local economy as they need a large volume of irrigation water while they are the principal production bases for supply of agricultural products in China. It is a pressing need for China to drastically improve technology and systems so that the improvements of obsolete water facilities can be carried out systematically and efficiently. China is also experiencing growing urgency to address this issue in order to solve the problem of wasteful use of water resources. As explained above, therefore, the project had been relevant to the development needs of China during the implementation period.</p> <p>(3) Relevance with Japan's ODA Policy</p> <p>In the Japanese government's Economic Cooperation Program for China (planned in 2001), focus was on cooperation towards resolving environmental and other global issues as one of the focal area/issue for assistance. Encompassed in this scheme of cooperation is the assistance to China in the area of water resources. In addition, it is addressed in the Country Assistance Plan that the cooperation projects for China is to focus on environmental and other global issues and it has decided to start support to China in the "sustainable use of water resources."</p> <p>As above, therefore, the project was relevant to the Japanese government's ODA policy.</p> <p>This project has been highly relevant to China's development plan, development needs, as well as Japan's ODA policy; therefore, its relevance is high.</p>

2 Effectiveness / Impact
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<p>(1) Achievement of Project Outputs and Project Objective(s)</p> <p>The verifiable indicator 1-1 for Output 1: "verification of water-saving effects in the priority model irrigation zone is practicable," has been achieved (terminal evaluation report). As to the indicator 1-2 for Output 1: "developed methods (manual) are being utilized in the model zones," the manual has been distributed to large- and medium-scale irrigation zones nationwide and is being used, thus it is thought to have been essentially achieved (terminal evaluation report). As to the indicator 1-3 for Output 1: "farmers' awareness of water saving improves," a survey has been conducted using questionnaires and hearings, and it is recognized that awareness of water-saving among farmers themselves is improving, thus it is thought to have been achieved (terminal evaluation report).</p> <p>The indicator 2-1 for Output 2: "appropriate water management methods that are based on facilities improvement and system reinforcement and their water-saving effects will be compiled," has been achieved (terminal evaluation report). With respect to the indicator 2-2 for Output 2: "the amount of water lost for each area unit will be reduced within the scope of the model project," it is thought that water loss is being reduced considering the improved results in "water supply efficiency," thus it is judged to have been achieved (terminal evaluation report). With respect to the indicator 2-3 for Output 2: "compiled methods are incorporated into the model irrigation zones," specific water-saving improvement plan for each model irrigation zone has not been reviewed as yet (information from JICA), thus it has not been achieved.</p> <p>The indicator 3-1 for Output 3: "paddy field-level water-saving methods and their water-saving effects will be compiled," has been achieved (terminal evaluation report). The indicator 3-2 for Output 3: "the amount of water lost per unit area will be reduced in the model paddy field," has been achieved as the water use volume is being reduced (terminal evaluation report). As to the indicator 3-3 for Output 3: "compiled methods are incorporated into the model irrigation zones," specific water-saving improvement plan for each model irrigation zone has not been reviewed as yet (information from JICA), thus it has not been achieved.</p> <p>The verifiable indicator for the project objective "water-saving improvement planning manual is framed by the Ministry of Water Resources," is same as the indicator 1-2 for Output 1 and it has been achieved as mentioned above. The Manual was officially published in November 2005 (6,000 copies) and the copies were distributed among farmer representatives at a national assembly hosted by the Department of Rural Water Management of the Ministry of Water Resources. Since then, it is required for all large- and medium-scale irrigation zones nationwide to follow the model irrigation schemes provided for in the Manual (according to the executing agency).</p> <p>As above, some output indicators are still expected to be achieved, though, considering the other factors together, it could be said the intended project outputs have essentially been achieved.</p> <p>On the other hand, as to the project objective, though its indicator overlaps with that of the output level (indicator 1-2 for Output 1), it could be concluded that the objective (water-saving irrigation technology that can be spread all over the land of China will be established through verification in the priority model irrigation zones) has been fully achieved as the Manual has been distributed and is being utilized in the model irrigation zones nationwide.</p>
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(2) Achievement of Overall Goal, Intended and Unintended Impacts

In relation to the overall goal indicator that states “To reduce source water intake volume per area in the priority model irrigation zones,” the ‘source water intake volume’ criterion was changed to ‘water supply efficiency’ at the time of terminal evaluation in view that source water intake volume is affected by weather conditions and farming operations. This has been followed in this ex-post evaluation. As a result, improvement in water supply efficiency has been observed in all priority model irrigation zones (Jingtaichuan River Irrigation Zone: 0.64→0.66; Jinghuiqu Irrigation Zone: 0.578→0.583; Shuangpai Irrigation Zone: 0.46→0.49 These values denote: Values in 2006 [completion of the project] → Values in 2009). Thus, it can be judged that this indicator has been achieved. As above, therefore, it can be judged that the intended overall goal has been achieved. The second overall goal indicator that states “To prepare appropriate water-saving improvement plans in at least 20 large-scale model irrigation zones,” water-saving improvement plans have been completed in all large-scale irrigation zones, and work to revise these plans is being carried out step by step (according to the executing agency). Thus, it can be said that this indicator has been achieved.

As one of the ripple effect of this project, the reply from the executing agency mentions the diffusion of the project cycle management (PCM) method that was introduced into China during the implementation of the project. It is reported that the application of the PCM method greatly contributed to the progress management of the project in terms of smooth implementation and achievement level of various stages when China Irrigation and Drainage Development Center, Beijing, was engaged in the World Bank’s “Agricultural Water Use Reform Project for Poor Population” as the executing agency.

There were no reports of serious adverse impacts.

This project has largely achieved its objective; therefore, its effectiveness is high.

3 Efficiency

(1) Outputs

As mentioned earlier in the effectiveness and impacts section, the intended outputs of this project have been achieved.

(2) Elements of Inputs

The inputs for this project are as shown in the project outline. Inputs from both the Japanese and Chinese sides were accomplished in a smooth and efficient way almost as planned except for delays in dispatching Japanese experts to China for about two months due to the prevalence of SARS (according to the interim and terminal evaluation reports). The delayed arrivals did not affect the outcome of the expected outputs. The smooth advance of the project may be attributable to the following facts: the Chinese counterparts were well familiar with cooperation projects with Japan; they have sufficient knowledge and experience of irrigation; and finally, there was almost no change in staffing from the start of the project.

(3) Project Cost, Period of Cooperation

Both the original plan and actual project period were 5 years, so the project was accomplished as planned (100%).

The actual total cost for the cooperation was 910 million yen. However, comparative analysis is not possible, because the projected cost is unknown.

The inputs are appropriate for producing outputs and achieving the project objective; therefore, efficiency of the project is high.

## 4 Sustainability

### (1) Related Policy towards the Project

As described in the Relevance section, China's ongoing National Eleventh Five-Year Plan calls for development of water-saving agriculture. It is also obvious in the Eleventh Five-Year Plan for Water Resources Development (水利发展十一五规划) (2007) that the Chinese government places emphasis upon water-saving reform of large-scale irrigation zones. It is thought that diffusion of water-saving awareness and irrigation is China's important national long-term policy and will be sustained in the future.

### (2) Institutional and Operational Aspects of the Executing Agency

There is no particular problem in these aspects of the counterparts. China Irrigation and Drainage Development Center has already given an assured status nationwide as various projects related to irrigation and rural drinking water as well as those related to comprehensive agricultural development and utilization of water resources are strengthened in recent years here and there in China. More specifically, while there was no change in the number of professionals (40 persons), the number of the staff members of organizations under direct control increased (112 persons at the time of ex-post evaluation) according to the reply received from the center, as compared with the completion time of the project. The institutional structure of this organization is therefore firmly sustained or strengthened.

### (3) Technical Aspects of the Executing Agency

It is reported that the technical level in the field of agricultural water-saving/irrigation of the staff of the Ministry's Irrigation and Drainage Development Center, who were counterparts of the JICA's technical cooperation projects for the center (1993-2000), has improved in full measure and individual skills through project management operations over the years. These counterparts have already reached a level that allows them to provide technical support and services in the fields of agricultural irrigation and drinking water safety throughout the country, and thus they play a central role in special technical research and central-level project management in the field of irrigation and wastewater nationwide. Therefore, there is no particular problem in technical aspects of the counterparts. Maintenance and management of the equipment and facilities furnished under the project is appropriate and there is no particular problem, according to the center's reply.

### (4) Financial Aspects of the Executing Agency

After the implementation of the project, the budget for the Irrigation and Drainage Development Center constantly increased. According to the center's information, the budget for the center in FY2010 is 1.5 times that of FY2006 (the last year of this project). They expect that the budget will increase further, considering China's economic growth, expansion of fiscal revenues, and central and local governments' policies focusing on agriculture.

### (5) Continuity of Effectiveness and Impact

As mentioned in the Effectiveness section, it is confirmed that the Manual prepared by the project is still being utilized in a useful way in model irrigation zones nationwide. The Department of Rural Water Management of the Ministry of Water Resources is the highest administrative body in China's rural water resources sector, and thus, the use of the Manual required by the Department implies binding force as a logical consequence. In addition, plans framed by large- and medium-scale irrigation zones will be examined based on the Manual in the future, meaning that those not in line with the Manual are unlikely to be approved, and consequently may not be given the government's financial support (according to the executing agency).

The Manual is on sale by the publisher and is also distributed at the Irrigation and Drainage Development Center's office. There are many contacts and inquiries every day with questions about the Manual, requesting information on actual implementation procedures. Most of these contacts/inquiries come from experts belonging to provincial bureaus of water resources and their planning divisions, and administrations of model irrigation zones (according to the executing agency). Ripple effects of the project are observed in water-saving improvement plans prepared by large-scale irrigation zones nationwide in addition to the priority model irrigation zones that are the targets of the overall goal. At present, the project effects are also shown to begin utilizing in water-saving improvement plans prepared by medium-scale irrigation zones (according to the executing agency).

Additional information received from China Irrigation and Drainage Development Center is given below:

- \* The model paddy fields created and established in the Shuangpai Irrigation Zone, Hunan Province in the project even now receives many inspection visits and interchange groups from neighboring regions and southern irrigation zones. The Shuangpai Irrigation Zone Administration is planning to set about researches on rice planting and water management in cooperation with universities and research institutions.
- \* The Ministry of Water Resources has decided to develop a uniform national model of large information system along with database so as to promote information management environment in large-scale irrigation zones throughout the nation. The "facility information management system" operated on a trial basis during the project implementation will be incorporated into the "large-scale irrigation scheme information management system" for which R&D activities are ongoing.

No major problems have been observed in the policy background, the structural, technical, financial aspects of the executing agency, therefore, sustainability of the project effects is high.