

Country Name	Establishment of participatory water management system in Golestan province														
Islamic Republic of Iran															
I. Project Outline															
Background	<p>While agriculture had been an economic key sector in Islamic Republic of Iran, annual average precipitation of the country had been approximately 250mm, and securing sufficient amount of water had been an important issue. Thus, Iranian government had promoted irrigation development in important rain-fed agricultural areas such as Golestan province, and irrigated agricultural areas in the province had increased by approximately 40% during ten years from 1996. At the time of ex-ante evaluation (2008), the rate of agricultural workforce in the province was 46%, which was the highest in the country, and the rate of agricultural land (approximately 540,000 ha) among total land area in the province was as high as 26%, and mainly feed crops, wheat and barley were cultivated. JICA conducted a technical cooperation for development planning project, “The Study of Improvement of Irrigation, Drainage and Agricultural Development for Gorgan Plain, Golestan Province” in 2002. As a result, development plans for two areas including Tazeh Abad area were formulated, which indicated directions of (1) farming, (2) irrigation drainage and (3) strengthening of agricultural production cooperatives. Iranian government installed irrigation facilities with its own funds based on the development plans, however, these facilities were not sufficiently functioning and agricultural productivity and farmers’ income remained in a low level, due to insufficient farming instructions for farmers and weakness of farmers’ organizations (especially on water management).</p>														
Objectives of the Project	<p>Through preparing a water management plan, establishing the model of participatory water management in pilot sites, and developing capacities of Golestan Jihad-e-Agriculture Department (JAO) for participatory water management in Tazeh Abad area of Golestan province, the project aimed to develop the system to extend the participatory water management model to the area, thereby increasing water productivity in the area and extending participatory water management system in other parts of the province and nationwide.</p> <ol style="list-style-type: none"> Overall Goal: (1) Water productivity is increased by introduction of the model of participatory water management in Tazeh Abad area. (2) Experience and knowledge of Tazeh Abad area is utilized to establish participatory water management system in other parts of Golestan province and nationwide. Project Purpose: The system to extend the participatory water management model to Tazeh Abad is developed within Golestan JAO. 														
Activities of the Project	<ol style="list-style-type: none"> Project Site: Tazeh Abad area in Golestan province Main Activities: Preparation of a farming plan, an irrigation plan, a plan for operation and maintenance (O&M) of irrigation and drainage facilities and GIS database of Tazeh Abad area, establishment of water management organization, implementation of seminars and trainings for farmers in the area to share the knowledge and skills on water management and farming management, preparation and implementation of a farming plan, an irrigation and drainage plan and a plan for O&M of irrigation and drainage facilities in pilot sites for establishing the model of participatory water management system, preparation of a capacity development training plan and training materials on the participatory water management model, implementation of trainings and preparation of a provincial extension plan etc. Inputs (to carry out above activities) <table border="0" style="width: 100%;"> <tr> <td style="width: 50%;">Japanese Side</td> <td style="width: 50%;">Iranian Side</td> </tr> <tr> <td>1) Experts: 12 persons</td> <td>1. Staff Allocated: 23 persons</td> </tr> <tr> <td>2) Trainees Received in Japan: 20 persons</td> <td>2. Office space in Golestan JAO</td> </tr> <tr> <td>3) Trainees Received in third country: 3 persons</td> <td>3. Local cost</td> </tr> <tr> <td>4) Equipment: vehicle, irrigation measurement equipment, sprinkler, pumps etc.</td> <td></td> </tr> <tr> <td>5) Operational expenditure</td> <td></td> </tr> </table> 			Japanese Side	Iranian Side	1) Experts: 12 persons	1. Staff Allocated: 23 persons	2) Trainees Received in Japan: 20 persons	2. Office space in Golestan JAO	3) Trainees Received in third country: 3 persons	3. Local cost	4) Equipment: vehicle, irrigation measurement equipment, sprinkler, pumps etc.		5) Operational expenditure	
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Project Period	January 2009 – January 2014	Project Cost	(ex-ante) 500 million yen, (actual) 417 million yen												
Implementing Agency	Ministry of Jihad-e-Agriculture (MOJA), Golestan Jihad-e-Agriculture Department (JAO)														
Cooperation Agency in Japan	Rural Development Bureau, Ministry of Agriculture, Forestry and Fisheries														

II. Result of the Evaluation

<Special Perspectives Considered in the Ex-Post Evaluation>

- Target figures for Indicators 1 and 2 of the Overall Goal is stated as “increasing by --%” and numerical targets are not set in the PDM (Ver2), which was used in the terminal evaluation. In the PDM (Ver3), which was revised in the Joint Coordination Committee (January 2014) at the time of project completion, the target figure for Indicator 1 only is set as “1.2kg/m³” and Indicator 2 is deleted (its reason is unknown). Thus, regarding Indicator 1, not a percentage but the figure “1.2kg/m³” is used (a target crop is wheat). Regarding Indicator 2, based on the achievement level at the time of the terminal evaluation, which was 3.0t/ha (wheat, 2013), if the same level of yield (3.0t/ha) is achieved in the whole Tazeh Abad area, Indicator 2 is evaluated as “achieved”, if the yield is 1.5 – 2.4t/ha (50% - 80% of 3.0t/ha), indicator 2 is evaluated as “partially achieved”, and if the yield is less than 1.5t/ha (50% of 3.0t/ha), Indicator 2 is evaluated as “not achieved”.

1 Relevance

<Consistency with the Development Policy of Iran at the Time of Ex-Ante Evaluation and Project Completion>

The project was consistent with Iran's development policy on 'water management through participation of farmers' as set forth in the "the Fourth National Development Five Year Plan (2005-2010)" and "the Fifth National Development Five Year Plan (2010-2015)".

<Consistency with the Development Needs of Iran at the Time of Ex-Ante Evaluation and Project Completion>

At the time of ex-ante evaluation, after the completion of JICA development study in 2002, the Iranian government was mainly installing irrigation facilities with its own funds, however, these facilities were not sufficiently functioning, due to insufficient farming instructions for farmers provided by officials of provincial agricultural department, weakness of farmers' organizations and lack of irrigation plan management and maintenance of canals etc. In addition, cropping plans and farming methods proposed in the development study were not adopted, there were some agricultural fields where salt damage occurred, and thus agricultural productivity in the region was low and farmers' income remained in a low level. At the time of project completion, Ministry of Jihad-e-Agriculture (MOJA) emphasized in its medium to long term policy promotion of participatory water management by farmers for relegating maintenance of irrigation facilities to agricultural cooperatives etc., and thus needs for the project were continuously confirmed.

<Consistency with Japan's ODA Policy at the Time of Ex-Ante Evaluation>

At the time of ex-ante evaluation, "water resource management" was included in Japanese government's priority areas of assistance to Iran¹. Thus, the project was consistent with Japan's ODA policy.

<Evaluation Result>

In light of the above, the relevance of the project is high.

2 Effectiveness/Impact

<Status of Achievement for the Project Purpose at the time of Project Completion>

The Project Purpose had been mostly achieved by project completion. The Provincial Extension Plan of the participatory water management model was formulated by the Provincial Extension Team, which was comprised of Golestan JAO divisions (Agriculture Extension and Coordination, Water, Soil, Technical and Engineering Affairs, Agronomy, Flora Production and Land Affairs divisions), Golestan Rural Cooperative Organization (RCO) and project members in Gonbad and Alia-bad prefectures in the province etc. In addition, aiming at extending the model nationwide, the provisional National Extension Team was established, which was comprised of MOJA departments (Water and Soil, Agronomy Department and Agriculture Trade and Industry Development Departments), MOJA affiliated organizations (Agriculture Research, Education and Extension Organization (AREEO) and Rural Cooperative Central Organization of Iran), the Ministry of Energy (MOE) and stakeholders of Golestan JAO, and the National Extension Plan was formulated (Indicator 1). Establishment of a permanent unit in Golestan JAO for the purpose of extending the model within the province, which was called the unit for extending the participatory water management model, was being considered. At the time of project completion, the head of the unit was resident, budget for extension workers within the unit in the fiscal year of project completion was secured, and these workers were rotated to duty in the unit (Indicator 2). Water management trainings were conducted for 18 times in total for farmers and staffs of the water management unit established in the Peyvand Rural Production Cooperative (PRPC), which is a farmers' organization in Tazeh Abad area, and a total of 195 people participated. Trainings on farming (agronomy) for farmers were conducted for 15 times in total, and a total of 186 people participated. Training on extension of the participatory water management model for staffs of Golestan JAO (Accala, Alia-bad and Gonbad prefectures) was also conducted, and a total of 15 staffs participated (Indicator 3).

<Continuation Status of Project Effects at the time of Ex-post Evaluation>

Project effects have mostly sustained since project completion. Regarding Indicator 1, the Provincial Extension Plan stated above has been updated twice by the Provincial Extension Team and used in provincial extension activities and trainings by concerned personnel of Golestan JAO since project completion. The National Extension Plan has also been updated twice by the National Working Group of Sustainability and Dissemination of Participatory Water Management (hereinafter called "the National Working Group", see below for organization details), and used by MOJA and MOE for establishing models of irrigation development utilizing surface water and ground water in the country since project completion. Regarding Indicator 2, the unit for extending the participatory water management model mentioned above has been operational as Golestan Participatory Water Management Office (GPWMO), and in charge of extension of the participatory water management model in the province, coordination with each relevant organization for the extension and assistance in selecting model extension areas etc. since project completion. At the time of ex-post evaluation, one head and one technician are resident in the office; however, sufficient number of staff is not assigned due to lack of budget², and thus, in addition to part-time technicians who support operation of GPWMO, experts from Golestan JAO divisions (Agriculture Extension and Coordination, Water, Soil and Technical and Engineering Affairs, Agronomy, Flora Production and Land Affairs) also provide technical assistance. At the time of ex-post evaluation, an approval of establishment of official Participatory Water Management Department (PWMD) was requested to MOJA, and expected to be approved by the end of fiscal year 2018. According to GPWMO, the office will be upgraded to PWMD as soon as its establishment is approved, and then necessary budget will be allocated and new hiring of permanent staff will become possible. Moreover, the Provincial Extension Team mentioned above has also been operational (the team is in charge of planning on extension of the participatory water management model in the province, and GPWMO is in charge of its implementation), and the team has nine to ten members in total from divisions of Golestan JAO (Agriculture Extension and Coordination, Water, Soil and Technical and Engineering Affairs, Agronomy, Flora Production and Land Affairs), the Director of Golestan JAO, the representative of PRPC and Golestan Regional Water Authority etc., and budget for its activities is allocated by Golestan JAO at the time of ex-post evaluation. According to the team, the number of members and budget amount are sufficient for its activities. The National Extension Team mentioned above is operational as the National Working Group at the time of ex-post evaluation, which is comprised of MOJA departments (Water and Soil and Agronomy Departments), AREEO, RCO, Iran Water Resource Management Company, MOE (Operation and Protection Bureau of Water and

¹ Source: ODA Country Data Book (2008)

² The amount of budget allocation to GPWMO was 850 million Rial in 2014, 420 million Rial in 2015 and 10 billion Rial in 2016. While the budget in 2014 and 2015 was allocated by Golestan JAO, the budget was determined to be allocated by MOE according to discussions between MOJA and MOE, and as a result, the budget in 2016 was allocated by Golestan Regional Water Authority, which is under MOE, as necessary budget for introducing participatory water management in a new activity area (Zarringol-Ghare). While the budget amount in 2016 was sufficient to conduct GPWMO's activities, it is not a permanent budget allocation, and thus early approval of PWMD by MOJA is desired.

Wastewater) and Golestan JAO, and in charge of updating the National Extension Plan of the participatory water management model, formulating the national guideline, conducting surveys on irrigation conditions and potential extension sites and selecting extension areas etc. According to the group, it has eight to nine members at the time of ex-post evaluation, which is sufficient to undertake above tasks, and while the group does not have its independent budget, necessary budget is allocated for each activity from MOJA and MOE. Regarding Indicator 3, trainings on participatory water management and meta facilitation have been conducted for eleven times in total during 2015 and 2016 for working-level staffs in governmental organizations in Golestan province and other provinces (Khorasan Razavi province and Khuzestan province etc.) since project completion, and 252 people in total participated. Trainings on farming and water saving irrigation have also been conducted for 26 times in total for the water management unit in PRPC and farmers etc., and 675 people in total participated. “The Technical Guideline for Participatory Water Management Model”, which was prepared under the project, is utilized in these trainings.

<Status of Achievement for Overall Goal at the time of Ex-post Evaluation>

The Overall Goal has been achieved by the time of ex-post evaluation. Water productivity³ for planting wheat in the whole Tazeh Abad area has achieved the target figure since project completion, except for 2015 when a lot of irrigation water was required due to salt damage, as shown in the table below (Indicator 1). Land productivity (average yield) for planting wheat in the area has mostly achieved the target since project completion (Indicator 2). Moreover, the number of irrigation canals maintained by farmers (participatory water management) in the country has increased since project completion as shown in the table below (Indicator 3). The number of water users associations formulated reflecting the experience in Tazeh Abad area (water users associations formulated for participatory water management) in the country has also increased, and there are five associations in Golestan province, 32 associations in Khuzestan province, 29 associations in Khorasan province, one association in East Azerbaijan province and one association in Ardabil province at the time of ex-post evaluation (Indicator 4). The number of irrigation plots where water management is conducted utilizing Tazeh Abad experience (irrigation plots where participatory water management has been adopted) in the country has also increased, and there are two plots in Golestan province, three plots in Khorasan province, more than one plot (the actual number is unknown) in East Azerbaijan province and one plot in Ardabil province at the time of ex-post evaluation (Indicator 5). Such increase has been derived from the fact that effective use of water is regarded an important issue at both national and regional levels due to a shortage of water in the country, GPWMO has introduced efforts of this project to other provinces, and trainings on the participatory water management model have been conducted in other provinces etc.

<Other Impacts at the time of Ex-post Evaluation>

No negative impact on natural and social environment has occurred under the project. As other impact, in Tazeh Abad area, while land productivity (average yield) for planting barley was 2,200kg/ha in 2010 and 2,110kg/ha in 2013 during project implementation, it increased to 3,200kg/ha in 2015 and 3,300kg/ha in 2016 after project completion. According to Golestan JAO, participatory water management plan and improved farming system etc. introduced under the project are considered to have contributed to the increase.

<Evaluation Result>

In light of the above, through the project, the Project Purpose had been achieved by project completion, project effects have mostly sustained at the time of ex-post evaluation, and the Overall Goal has been achieved. Therefore, the effectiveness/impact of the project is high.

Achievement of Project Purpose and Overall Goal

Aim	Indicators	Results
(Project Purpose) The system to extend the participatory water management model to Tazeh Abad is developed within Golestan JAO.	1. Establishing the action plan for extending participatory water management by Golestan JAO	Status of the Achievement: achieved (continued) (Project Completion) The Provincial Extension Plan of the participatory water management model was formulated by the Provincial Extension Team by the time of project completion. Aiming at extending the model nationwide, the National Extension Plan was also formulated. (Ex-post Evaluation) Both the Provincial Extension Plan and the National Extension Plan have been updated and utilized since project completion.
	2. Allocation of necessary budget and allocating appropriate personals in Golestan JAO	Status of the Achievement: mostly achieved (mostly continued) (Project Completion) Establishment of the unit for extending the participatory water management model within Golestan JAO was being considered, the head of the unit was resident, budget for extension workers within the unit in the fiscal year of project completion was secured, and these workers were rotated to duty in the unit. (Ex-post Evaluation) The unit stated above has been operational as GPWMO and is waiting for approval to be upgraded to PWMD. As soon as it is approved, necessary budget will be allocated and new hiring of permanent staff will become possible. The Provincial Extension Team and the National Extension Team established during project implementation have also been operational and necessary budget and staff have been allocated.
	3. Number of trained members of Peyvand RPC and staffs of Golestan JAO for the Participatory Water Management	Status of the Achievement: mostly achieved (continued) (Project Completion) A total of 195 people participated in water management trainings conducted for farmers and staffs of the water management unit established in PRPC. A total of 186 people participated in trainings on farming conducted for farmers. A total of 15 staffs participated in training on extension of the participatory water management model conducted for staffs of Golestan JAO.

³ Water productivity = yield per unit of land in farm fields (t/ha) / (effective rainfall (m³/ha) + irrigation water (m³/ha))

		(Ex-post Evaluation) A total of 252 people participated in trainings on participatory water management and meta facilitation conducted for working-level staffs in governmental organizations in Golestan province and other provinces since project completion. 675 people in total participated in trainings on farming and water saving irrigation conducted for the water management unit in PRPC and farmers etc.																												
(Overall Goal) (1) Water productivity is increased by introduction of the model of participatory water management in Tazeh Abad area.	1. Increasing Water Productivity by -- % in Tazeh Abad area (Increasing to 1.2kg/m ³)	(Ex-post Evaluation) achieved Water productivity for planting wheat in the whole Tazeh Abad area since project completion is as below. It has achieved the target except for 2015. [Average Yield of Wheat and Water Productivity]																												
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	2. Increasing land productivity of representative farms by -- % in Tazeh Abad area (Achieving a yield of 3,000kg/ha)	(Ex-post Evaluation) mostly achieved As shown in (1) in the table above, land productivity for planting wheat in the whole Tazeh Abad area has mostly achieved the target since project completion.																												
(2) Experience and knowledge of Tazeh Abad area is utilized to establish participatory water management system in other parts of Golestan province and nationwide.	3. Increasing number of irrigation canals which maintained by farmers	(Ex-post Evaluation) achieved The number of irrigation canals maintained by farmers (participatory water management) in the country is as below. [Number of Irrigation Canals Maintained by Farmers]																												
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Source: Terminal Evaluation Report, JICA document, interviews with Golestan JAO, Zaringol Ali-Abad regional office, Laleh Kesht Rural Production Cooperative, Toosab Consulting Engineers (a company contracted with Golestan Regional Water Authority), and PRPC

3 Efficiency

Both project cost and project period were within the plan (the ratio against the plan: 83% and 100%, respectively). Therefore the efficiency of the project is high.

4 Sustainability

<Policy Aspect>

Reinforcing water saving irrigation, efficient water use and increasing the number of water users' associations etc. are continuously targeted in "the Sixth National Development Five Year Plan (2016-2020)", which is effective at the time of ex-post evaluation.

<Institutional Aspect>

As stated above, sufficient number of staff is not assigned in GPWMO due to lack of budget at the time of ex-post evaluation, and if current staffs leave the office, it might seriously affect sustainability of the project effects. However, as soon as establishment of PWMD is approved by MOJA, necessary budget will be allocated and new hiring of permanent staff will become possible. Moreover, the Provincial Extension Team and the National Working Group have also been operational, and sufficient number of staff is assigned. In PRPC, there are five executive members, five administrative board members, 37 water user group leaders, one officer and two service staff, and according to PRPC, these are sufficient numbers for their current scale of activities.

<Technical Aspect>

Many project counterparts (C/Ps) still work in Water and Soil, Agronomy, Performance Evaluation and Accountability divisions of Golestan JAO, RCO and some prefecture offices etc., and coordinate with GPWMO appropriately. Regarding the technical level of GPWMO, as stated above, in addition to the head and the technician who are resident, GPWMO has technical support from part-time technicians (most technicians have obtained a bachelor's degree and a master's degree, and have work experience of over 20 years) and other divisions of Golestan JAO, and thus there is no major problem. As soon as establishment of PWMD is approved by MOJA, necessary budget will be allocated and new hiring of permanent staff who have appropriate level of technical skills will become possible. Regarding

the technical level of the Provincial Extension Team and the National Working Group, there is no major problem, as experts of each field from related government agencies and organizations participate in these team and group, and these team and group coordinate with each other. Cooperation from the private sector is also provided to efforts for participatory water management among GPWMO, the Provincial Extension Team and the National Working Group, and thus technical capabilities are complemented. Regarding PRPC, there are several technicians, and water management required for the water use for the scale of their agricultural production at the time of ex-post evaluation is properly conducted, and thus there is no major problem in its technical level. In addition, as stated above, trainings for working-level staffs in governmental organizations in Golestan province and other provinces, the water management unit in PRPC and farmers etc. have continuously been conducted, and “the Technical Guideline for Participatory Water Management Model”, which was prepared under the project, is utilized. Equipment provided under the project such as a vehicle, irrigation measurement equipment, sprinkler, pumps etc. are still utilized, and periodical inspection and repair are conducted by Golestan JAO, GPWMO and PRPC. There is no problem in most equipment, while the rain gauge has not been usable for almost six months, as a technician who can repair the rain gauge has not been identified. While technical transfer on how to repair the rain gauge was conducted to one person in charge of maintenance during project implementation, a long time has been required for the repair and a company and/or a technician who can repair it is being searched at the time of ex-post evaluation.

<Financial Aspect>

As stated above, while GPWMO does not have sufficient budget at the time of ex-post evaluation, as soon as establishment of PWMD is approved by MOJA, necessary permanent budget will be allocated. As for the Provincial Extension Team, necessary amount of budget has been allocated from Golestan JAO, and as for the National Working Group, necessary budget has been allocated from MOJA and MOE. For income of PRPC, water use charges collected from each farmer, equipment renting fees, farm land renting fees and sales income of seedlings etc. are included, and according to PRPC, these income are sufficient to continue participatory water management at the time of ex-post evaluation.

<Evaluation Result>

In light of the above, slight problems have been observed in terms of the institutional and financial aspects of the implementing agency. Therefore, the sustainability of the effectiveness through the project is fair.

5 Summary of the Evaluation

Through the project, the Project Purpose had been achieved by project completion, project effects have mostly sustained at the time of ex-post evaluation, and the Overall Goal has been achieved. Regarding sustainability, some problems have been observed in terms of the institutional and financial aspects, and early approval of establishment of PWMD by MOJA is desired.

Considering all of the above points, this project is evaluated to be highly satisfactory.

III. Recommendations & Lessons Learned

Recommendations for Implementing Agency:

As stated above, while GPWMO practically plays a major role in extending the participatory water management model, permanent budget and human resources cannot be sufficiently secured, as it is waiting for approval of establishment of PWMD by MOJA at the time of ex-post evaluation. If current staffs leave the office, it might seriously affect sustainability of the project effects. Thus, MOJA should approve establishment of PWMD as soon as possible.

Lessons Learned for JICA:

As stated above, the rain gauge provided under the project has not been usable for almost six months due to breakdown. When equipment is provided in a project, technical training on maintenance method should be carefully provided to people in charge in implementing agencies and related people, whether it is possible to conduct repairs and procure spare parts locally should be checked, and information on reliable agents should also be provided to implementing agencies.



Irrigation canal in the region where participatory water management is conducted



Meteorological observation facility procured under the project