

Country Name	<b>Project for Capacity Building in Irrigation Improvement</b>
Federal Democratic Republic of Ethiopia	

**I. Project Outline**

Background	<p>The Government of Ethiopia considered that low productivity of rain-fed agriculture and vulnerability of agricultural production against drought were the major reasons of food insecurity, and mentioned that irrigation development was one of the solutions. In Oromia Region, it was estimated that there existed more than 1.7 million ha of land suitable for irrigation development. However, in reality, only 23% of the suitable land was cultivated under modern irrigation technology (2005).</p> <p>From September 2005, JICA implemented a technical cooperation project, “the Project for Irrigation Farming Improvement” in Oromia Region with Oromia Water Resource Bureau (OWRB) as a counterpart organization. Through the project, there were achievements at on-farm level, however, it was figured out that irrigation development capacity of OWRB should have been enhanced for successful and effective irrigation development.</p>												
Objectives of the Project	<p>Through developing guidelines and manuals and implementing training on (1) formulating database and master plan on water resource development, (2) planning, design and construction management of irrigation development projects, and (3) irrigation facilities and water management, the project aimed at enhancing capacity of the Oromia Water, Mineral and Energy Bureau (OWMEB) for effective and efficient irrigation development and management and thereby contributing to increasing the number of irrigations functioning effectively and efficiently in Oromia Region.</p> <ol style="list-style-type: none"> <li>Overall Goal: The number of irrigation planning functioning effectively and efficiently is increased in Oromia Region</li> <li>Project Purpose: Capacity of OWMEB in effective and efficient irrigation development and management is enhanced</li> </ol>												
Activities of the project	<ol style="list-style-type: none"> <li>Project site: selected sites in food insecure woredas (districts) in West Harage, East Shewa, Arsi and West Arsi zones in Oromia Region</li> <li>Main activities: (1) Formulating new database and master plan, developing guidelines and manuals and implementing training on water resource development, (2) Developing guidelines and manuals for planning, design and construction management and implementing training on irrigation development projects, and (3) Developing guidelines and manuals for irrigation facilities and water management and implementing training.</li> <li>Inputs (to carry out above activities) <table border="0" style="width: 100%;"> <tr> <td style="width: 50%;">Japanese Side</td> <td style="width: 50%;">Ethiopian Side</td> </tr> <tr> <td>1) Experts: 23 persons</td> <td>1) Staff allocated: 31 persons</td> </tr> <tr> <td>2) Trainees received (in Japan): 14 persons</td> <td>2) Provision of office space and car parking space</td> </tr> <tr> <td>3) Trainee received (in Egypt) 1 person</td> <td>3) Local cost: Utility, training rooms for 2 training courses</td> </tr> <tr> <td>4) Equipment: vehicles, motor cycles, office equipment, equipment for irrigation work such as rain gauge, water level logger, concrete mixer etc.</td> <td></td> </tr> </table> </li> </ol>			Japanese Side	Ethiopian Side	1) Experts: 23 persons	1) Staff allocated: 31 persons	2) Trainees received (in Japan): 14 persons	2) Provision of office space and car parking space	3) Trainee received (in Egypt) 1 person	3) Local cost: Utility, training rooms for 2 training courses	4) Equipment: vehicles, motor cycles, office equipment, equipment for irrigation work such as rain gauge, water level logger, concrete mixer etc.	
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Project Period	June 2009 – May 2014 (Extension Period : May 2012- May 2014)	Project Cost	(ex-ante) 390 million yen, (actual) 562 million yen										
Implementing Agency	Oromia Irrigation Development Authority (OIDA) (As per organizational restructuring, the implementing agency has changed from OWRB to OWMEB in October 2010 and to OIDA in July 2013.)												
Cooperation Agency in Japan	Ministry of Agriculture, Forestry and Fisheries												

**II. Result of the Evaluation**

<p><b>I Relevance</b></p> <p>&lt;Consistency with the Development Policy of Ethiopia at the Time of Ex-Ante Evaluation and Project Completion&gt;</p> <p>The project was consistent with the Ethiopia’s development policy. At the time of ex-ante evaluation, the Plan for Accelerated and Sustained Development to End Poverty (PASDEP)“(2006-2010), Ethiopia's five-year national development plan, mentioned that irrigation development is one of the solutions for the improvement of productivity. At the time of project completion, GTP (Growth and Transformation Plan) 2010/11 -2014/15 notes that agriculture is regarded as a major source of economic growth and improvement of water utilization and expansion of irrigation coverage will remain focus areas.</p> <p>&lt;Consistency with the Development Needs of Ethiopia at the Time of Ex-Ante Evaluation and Project Completion &gt;</p> <p>The project was consistent with the development needs of Ethiopia for irrigation development, in particular, in Oromia Region, in order to stabilize agricultural production and to improve food security. 58 woredas among 133 woredas had a problem in food security. At the time of project completion, the land coverage under irrigation development was still limited.</p> <p>&lt;Consistency with Japan’s ODA Policy at the Time of Ex-Ante Evaluation&gt;</p> <p>The project was consistent with Japan’s ODA Policy to Ethiopia, “the Country Assistance Program for Ethiopia” (2008) prioritizing agricultural/rural development including improvement of irrigation facilities.</p>
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<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 was partially achieved at the time of project completion as among the indicators set to measure the effects of the project, “Developed guidelines and manuals are recognized and disseminated within OWMEB” (Indicator 1) and “Developed training methods and experiences are recognized and utilized within OWMEB” (Indicator 3) were achieved, while “Irrigation development operations are implemented according to the developed guidelines and manuals by OWMEB” (Indicator 2) was not achieved.

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

The effects of the project have partially continued after the project was completed.

OIDA has been utilizing most of the guidelines and manuals developed by the project as minimum standard and continued providing the training programs for capacity building.

Although the implementation of irrigation development operation was not achieved by the end of the project period (indicator 2), this aspect has been achieved after the project completion, as the number of irrigation development operations implemented in accordance with the guidelines and the manual during the past three years showed an increasing trend across Oromia Region. As for “Planning, design and construction management on irrigation development”, the number of irrigation projects that were designed, constructed and managed utilizing experiences of the project and guidelines in Oromia Region has increased. Moreover, it is confirmed that in almost all newly planned irrigation projects at OIDA office the guidelines and manuals developed by the project have been utilized in major parts of operation mainly during bidding process i.e. while preparing TOR for procurement of consultants and contractors for design and construction works.

The database development has faced some limitation: Much of collected and mapped information on water resources, scheme inventories and usage patterns (such as record of cultivated crop type, irrigated area land size, number of beneficiary farmers and others) annually remains incomplete, as the data has not been regularly updated and all the required detailed information the project envisaged has not been collected. Besides, there is considerable variation in data completeness and quality when compared with the initially developed format which has not been updated after project completion. Nonetheless, there is a plan to develop web based database management system by OIDA through support of a project called Small Scale Micro-Irrigation Support, a capacity building program supported by Government of Canada and Government of Netherlands, in which Oromia Region is one of the target regions. There is a progress on master plan development. Based on experience gained through the project as well as utilizing the manual prepared for this purpose, OIDA is developing “Irrigation Potential Water Resource Assessment” of seven river basins across the entire region.

The number of newly established Irrigation Water Users’ Associations (IWUAs) and strengthened IWUA has showed an increasing trend in past three years. OIDA is implementing its operation in line with the manuals through establishing IWUA for handing over of every completed irrigation projects in order to ensure community ownership and sustainability of schemes.

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

The Overall Goal was achieved at the time of ex-post evaluation as the many irrigation development was implemented in accordance with the guidelines and manuals as described above. Besides, the number of irrigation sites in Oromia Region utilizing the project experiences showed increasing trend and functionality rate of those irrigation facilities is relatively high: According to the response from OIDA, the functionality rate of small scale irrigation schemes in Oromia Region during the past four years is 82%. Although such improvement in functionality rate at regional level can be due to the increasing regional government attention securing budget for development of small-scale irrigation in region. However, the project contributed to this improvement in functionality by addressing the necessity of “improvement of quality construction works”, “improvement of skills and knowledge of woreda experts in scheme O&M”, and “improvement in scheme administration and management by IWUA and others” through enhancing the capacity of OIDA staff at regional and zonal levels by developing training manuals in order to train woreda staff, who are the primary actors for supervision of quality construction works as well as O&M of irrigation schemes.

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

Although the project goal targeted only for Oromia Region, after the completion of the project the developed manuals and guidelines were distributed to other regions as well as to a national level. No land acquisition and resettlement occurred under this project, and no negative impacts on the natural environment were observed.

<Evaluation Result>

In light of the above, the effectiveness/impact of the project is high.

Achievement of Project Purpose and Overall Goal

Aim	Indicators	Results
(Project Purpose) Capacity of OWMEB in effective and efficient irrigation development and management is enhanced	Indicator 1: Developed guidelines and manuals are recognized and disseminated within OWMEB.	Status of the Achievement: (Project Completion) achieved (Ex-post Evaluation) continued (Project Completion) 14 guidelines and manuals were prepared and disseminated in May, 2014 as the standards of the irrigation development in Oromia Region. (Ex-post Evaluation) The guidelines and manuals are available both in softcopy and print outs formats. Except one manual, all the rest guidelines and manuals have been still positioned and employed as minimum standards for irrigation development and management activities throughout the region. Manual of Runoff Analysis has not been used, as the application of models this manual were not well practiced. OIDA experts preferred to use other models which possess better computational efficiency.

	<p>Indicator 2: Irrigation development operations are implemented according to the developed guidelines and manuals by OWMEB.</p>	<p>Status of the Achievement: (Project Completion) not achieved (Ex-post Evaluation) achieved</p> <p>(Project Completion) As the final versions of the guidelines and manuals were just distributed in all zones in May, 2014, they were not utilized in all irrigation related activities. (Ex-post Evaluation)</p> <p><b>Number of irrigation development and operations implemented in accordance with the guidelines and manuals*</b></p> <table border="1" data-bbox="762 304 1528 855"> <thead> <tr> <th colspan="3">Component</th> <th>2014</th> <th>2015</th> <th>2016</th> <th>2017</th> </tr> </thead> <tbody> <tr> <td rowspan="2">Database development and master plan development on water resource development</td> <td rowspan="2">Irrigation water resource potential assessment for both target and non-target zones (%)</td> <td>Planned</td> <td>NA</td> <td>35</td> <td>75</td> <td>100</td> </tr> <tr> <td>Actual</td> <td>5</td> <td>35</td> <td>75</td> <td>87.4</td> </tr> <tr> <td rowspan="4">Planning, design and construction management on irrigation development</td> <td rowspan="2">Study and Design (n)</td> <td>Target zones</td> <td>15</td> <td>25</td> <td>39</td> <td>48</td> </tr> <tr> <td>Non target zones</td> <td>433</td> <td>501</td> <td>564</td> <td>NA</td> </tr> <tr> <td rowspan="2">Construction of Small Scale Irrigation schemes (n)</td> <td>Target zones</td> <td>9</td> <td>20</td> <td>35</td> <td>50</td> </tr> <tr> <td>Non target zones</td> <td>499</td> <td>525</td> <td>550</td> <td>541</td> </tr> <tr> <td rowspan="2">Facility management and water management</td> <td rowspan="2">Number newly established IWUAs (n)</td> <td>Target zones</td> <td>17</td> <td>40</td> <td>66</td> <td>116</td> </tr> <tr> <td>Non target zones</td> <td>5,183</td> <td>7,618</td> <td>9,631</td> <td>9,942</td> </tr> </tbody> </table> <p>*Note: Indicated figures in percentage (%) and number (n) are cumulative of each successive year</p>	Component			2014	2015	2016	2017	Database development and master plan development on water resource development	Irrigation water resource potential assessment for both target and non-target zones (%)	Planned	NA	35	75	100	Actual	5	35	75	87.4	Planning, design and construction management on irrigation development	Study and Design (n)	Target zones	15	25	39	48	Non target zones	433	501	564	NA	Construction of Small Scale Irrigation schemes (n)	Target zones	9	20	35	50	Non target zones	499	525	550	541	Facility management and water management	Number newly established IWUAs (n)	Target zones	17	40	66	116	Non target zones	5,183	7,618	9,631	9,942
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	<p>Indicator 3: Developed training methods and experiences are recognized and utilized within OWMEB.</p>	<p>Status of the Achievement: (Project Completion) achieved (Ex-post Evaluation) continued</p> <p>(Project Completion) 32 training courses were conducted and 75 titles of training textbooks were prepared. More than 1,400 experts participated in the training, and utilized the training materials for their daily duties. (Ex-post Evaluation)</p> <p><b>Number of training courses held</b></p> <table border="1" data-bbox="762 1160 1528 1312"> <thead> <tr> <th>Component</th> <th>2014</th> <th>2015</th> <th>2016</th> <th>2017</th> </tr> </thead> <tbody> <tr> <td>Database development and master plan development on water resource development</td> <td>1</td> <td>-</td> <td>2</td> <td>2</td> </tr> <tr> <td>Planning, design and construction management on irrigation development</td> <td>-</td> <td>2</td> <td>3</td> <td>5</td> </tr> <tr> <td>Facility management and water management</td> <td>1</td> <td>1</td> <td>2</td> <td>2</td> </tr> </tbody> </table>	Component	2014	2015	2016	2017	Database development and master plan development on water resource development	1	-	2	2	Planning, design and construction management on irrigation development	-	2	3	5	Facility management and water management	1	1	2	2																																		
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<p>(Overall Goal) The number of irrigation planning functioning effectively and efficiently is increased in Oromia Region</p>	<p>Indicator 1: The number of irrigation sites in Oromia Region utilizing the Project experiences is increased.</p>	<p>(Ex-post Evaluation) achieved. - The number of irrigation sites in Oromia Region utilizing the project experiences in terms of constructed SSI schemes has increased by 16% in the past three years. According to OIDA, approximately 75,190 ha was developed by using the Small Scale Irrigation schemes by 2015.</p> <table border="1" data-bbox="762 1473 1528 1581"> <thead> <tr> <th rowspan="2">Construction of Small Scale Irrigation schemes (n)*</th> <th>2014</th> <th>2015</th> <th>2016</th> <th>2017</th> </tr> </thead> <tbody> <tr> <td></td> <td>508</td> <td>545</td> <td>585</td> <td>591</td> </tr> </tbody> </table> <p>*Note: Number of constructed schemes in each year presents a cumulative of last year and additionally constructed schemes in the given year</p> <p>- The functionality rate of Small Scale Irrigation schemes in Oromia region during the past four years is 82% as illustrated in the table below.</p> <table border="1" data-bbox="802 1715 1493 1921"> <thead> <tr> <th>Status of irrigation sites' functionality</th> <th>Number</th> <th>Percentage</th> </tr> </thead> <tbody> <tr> <td>Functional</td> <td>553</td> <td>82%</td> </tr> <tr> <td>Partially Functional</td> <td>31</td> <td>5%</td> </tr> <tr> <td>Non Functional</td> <td>91</td> <td>13%</td> </tr> <tr> <td>Total Constructed</td> <td>675*</td> <td>100%</td> </tr> </tbody> </table> <p>*Note: Total Constructed number (675) indicates all constructed Small Scale Irrigation schemes in Oromia region not only by OIDA (utilizing the project experiences i.e.=591) but also through different organizations' projects i.e. NGOs in the region.</p>	Construction of Small Scale Irrigation schemes (n)*	2014	2015	2016	2017		508	545	585	591	Status of irrigation sites' functionality	Number	Percentage	Functional	553	82%	Partially Functional	31	5%	Non Functional	91	13%	Total Constructed	675*	100%																													
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Source : JICA documents, Questionnaire and interviews with OIDA, the questionnaire survey with OIDA officials (n=20)

< Remarks >

The model irrigation schemes were constructed as a part of OJT, thus completion of construction of facility and its functionality are not included in the project scope. At the time of Ex-post Evaluation, among the five model irrigation schemes, 60% (three schemes) are either partially functional (n=2) or functional at full scale (n=1). The other two model schemes were not functional and have not operated for the

past one year. The major reasons for non-functionality of the other two model schemes are (1) The construction works is not completed at Awade spate irrigation scheme and (2) Siltation problem at Bura spate irrigation scheme stopped its service since last year. To solve the aforementioned problems, West Arsi zone in collaboration with OIDA has finalized the necessary preparation and bid advertisement made to undergo the remaining and corrective construction activities at Awade spate irrigation site.

The issues of the model irrigation schemes are attributed to a lack of clarification between the project and OIDA on necessary tasks to be done by OIDA after the project completion. There is also a technical problem that the guidelines developed by the project remain too general with weak focus on site-specific conditions, such as soil type, yet uniformly applied to all the model sites. Local contractor's technical level and capacity are also very low, which cannot be addressed by OIDA's effort only.

### 3 Efficiency

The project cost exceeded the plan (the ratio against the plan: 144%) and the project period significantly exceeded the plan (the ratio against the plan: 167%). The project period was extended for two years in order to complete the outputs. Activities were delayed because (1) Some equipment was stolen and consequently more time was needed to collect necessary data. (2) The number of Japanese experts were not sufficient to accomplish the activities. Therefore, the efficiency of the project is low.

### 4 Sustainability

#### <Policy Aspect>

The policy of promoting irrigation development in Ethiopia is consistent. Agriculture is regarded as a major source of economic growth and emphasis and priorities are given to 'improvement of water utilization and expansion of irrigation coverage' in both Growth and Transformation Plans of the country including Growth and Transformation (GTP-II) (2015/16-2019/20) and Ethiopia's Agricultural Sector Policy and Investment Framework (PIF) (2010-2020).

#### <Institutional Aspect>

OIDA, established as an independent institution on July 2013, has been mainly responsible for the works of study and design, contract administration, construction and supervision management, and irrigation scheme administration as well as community mobilization and stakeholder coordination tasks. OIDA has appropriate organizational structure and clear responsibility for the implementation of irrigation development and management activities at various levels. It is found that nearly 60% of the positions are occupied by the required number of staff (n=221 out of 367), while the remaining positions have still remained vacant. 60% of respondents (n=20) replied that the existing number of man power is sufficient to run irrigation developments and management activities compared to the actual volume of work. According to OIDA Human Resource Department this gap was due to absence of allocated budget for the fiscal year of 2017/18. However, they have started recruitment of staff to fill almost majority of the vacant positions in the fiscal year of 2018/19.

#### <Technical Aspect>

There are a few problems in the technical aspects. According to the results of the questionnaire survey for this ex-post evaluation, the adequate number of counterparts trained by the project is still working at OIDA and OIDA has sustained sufficient skills and knowledge in undertaking the required irrigation development activities. However, there is no established mechanism to regularly follow up the constant application and updating of guidelines and manuals where required and capacity of developing database and master plan is still limited. There is also a difficulty of documents management when officers transfer, as job handover is not commonly practiced at OIDA.

#### <Financial Aspect>

OIDA has secured the necessary financial resources as it is evident from the increase in the allocated budget in the last three years for irrigation development and management as shown below as well as from the results of the questionnaire survey for this ex-post evaluation.

#### **Budget allocation for OIDA**

(Unit: ETB)

	2014/15	2015/16	2016/17
Budget from Regional government	83,882,149.00	97,157,357.00	113,984,840.00
Other funding source: Agriculture Growth Program (AGP)	NA	282,119,486.00	132,815,909.00
Other funding source: International Fund for Agriculture Development (IFAD)	101,154,868.02	25,261,459.36	46,000,000.00

#### <Evaluation Result>

In light of the above, the sustainability of the effectiveness through the project is fair.

### 5 Summary of the Evaluation

The Project Purpose was partially achieved at the time of project completion. The effects of the project have continued, as OIDA has continuously utilized the guidelines and manuals developed by the project and provided the training programs. The number of irrigation projects that were designed, constructed and managed utilizing experiences of the project and guidelines in Oromia Region has increased. As for the efficiency, both project cost and project period exceeded the plan. As for the sustainability, some problems have been observed in terms of the technical aspect.

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

### III. Recommendations & Lessons Learned

#### Recommendations for Implementing Agency:

- Although there is a practice to collect and map information on water resources, scheme inventories and usage patterns annually, much of this information remains incomplete and not easily accessible in same format as developed by the project. Therefore, it is recommended that by the time of annual planning for 2019, OIDA plans and organizes series of trainings on database development. In addition, it should also develop a regular updating system to monitor the updates and quality of data at least once in year.
- Although manuals and guidelines developed by the project has been utilized as minimum standard by respective offices at all levels, there is no established mechanism to regularly follow up their uniform application and updating where required. By the time of annual

planning time for 2019, OIDA is recommended to plan and implement a regular visit to make supportive supervision to zonal offices to ensure that the manuals and guidelines have been used at all level in a uniform manner.

- Bura Spate irrigation scheme stopped its service due to the siltation problem. OIDA is recommended to allocate the required budget and make necessary preparations works to conduct the remaining and corrective construction activities at Bura Irrigation scheme as soon as possible. Also, Awade Spate irrigation scheme, which is currently under the process of the bid advertisement for the remaining construction, needs to be completed as soon as possible. At Sogido&Sarawebea irrigation scheme and Hirna irrigation scheme, which are partially functional, restoration and additional construction as well as removal of siltation should be conducted in a prompt manner.
- There is no common practice at OIDA to handover the jobs and documents from predecessor to successor. OIDA is recommended to fully enforce the smooth transition of technique and experience from predecessors to newly-employed staffs.

#### Lessons Learned to JICA

1. The guidelines and manuals developed by the project have been continuously utilized after the project completion. Respondents of interviews at OIDA reveal that the following interrelated factors for its success and that can be taken as lessons for others.

(1) Interactive and Participatory Approach: The project's approach during preparation of the manuals was very participatory and highly interactive as it organized a number of consultative workshops while developing each manual.

(2) Strong ownership: Due to the above-mentioned factors there is a strong ownership from the counterpart organization side, which resulted effective utilization of the guidelines and manuals.

Therefore, similar projects should (1) ensure active involvement of counterparts though organizing different consultative workshops both at the initial planning/design and implementation stages is important, (2) make sure, that before preparing manuals and guidelines, they assess actual situation, address existing problems based on the local context and needs of counterparts, plan and set the design/application standards in accordance with various site specific conditions. And thus, projects give due emphasis in creating strong ownership.

2. On the other hand, among five model irrigation schemes, two have stopped providing its intended services and the other two operates only partially. In technical point of view, this is due to uniform application of general guidelines to all the model schemes that have different cite-specific conditions. Also, a lack of clear demarcation of responsibility between the project and OIDA on construction of the model schemes caused delay of resuming the construction by OIDA after the project completion. Therefore, when constructing irrigation facilities as a part of OJT, similar projects should clearly define the scope of construction works within the project framework and present the demarcation of responsibility between counterparts and projects. If projects' input to construction of infrastructure remains partial during the implementation period, it is necessary to identify the post-project tasks to be done by counterparts so as to facilitate completion of whole facility.



Sogido Small Scale Irrigation main canal constructed by the project



Burra irrigation site (Non-Functional)