# Mid-Term Evaluation Report
# on
# The Project for Sustainable Smallholder Irrigation Development and Management
# in
# Central and Southern Kenya
# (SIDEMAN)

June 2008

JAPAN INTERNATIONAL COOPERATION AGENCY
KENYA OFFICE

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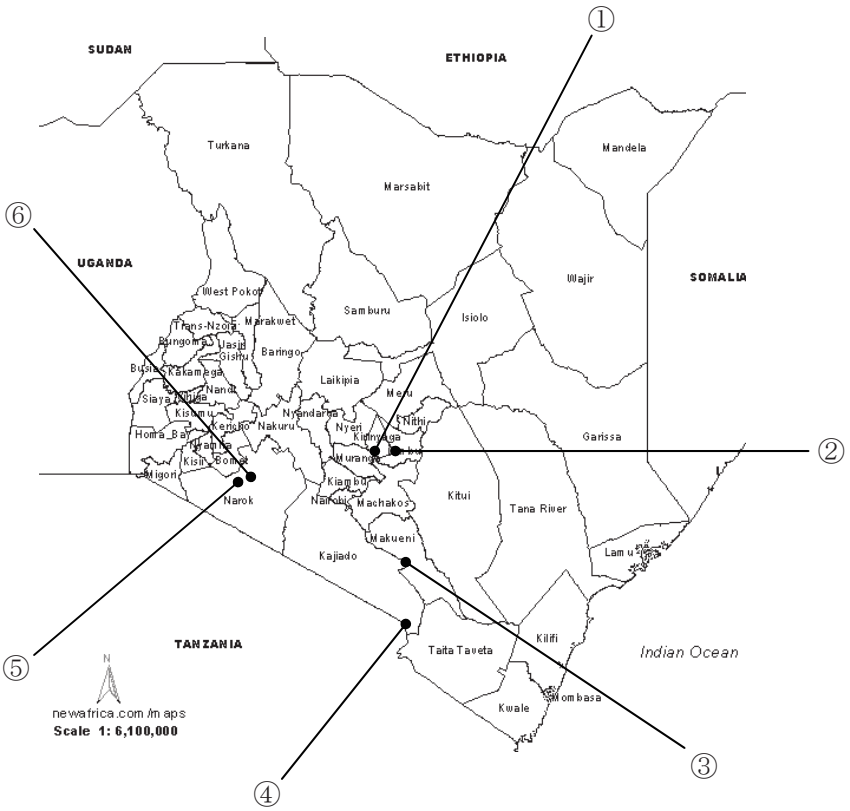
# Contents

# Location Map of Pilot Schemes




Profile of Pilot Schemes

| | Scheme [Division] | District [Province] | Source | Proposed Irrigation Area (ha) [Total (ha)] | Number of Farmers | Annual Rain (mm) |
|---|---|---|---|---|---|---|
| ① | Kiarukungu [Mwea] | Kirinyaga [Central] | Thiba River | 60 [300] | 294 | 700 |
| ② | Kiambindu [Evurori] | Mbeere [Eastern] | Thuchi River | 160 [400] | 400 | 500 |
| ③ | Kyeekolo [Kilungu] | Makueni [Eastern] | Keekolo Spring | 10 [30] | 100 | 1000 |
| ④ | Kisioki [Oloitokitok] | Loitokitok [Rift Valley] | Rombo Spring | 90 [150] | 450 | 500 |
| ⑤ | Kanunka B [Osupuko] | Narok South [Rift Valley] | Kanunka River | 60 [100] | 90 | 700 |
| ⑥ | Koseka [Osupuko] | Narok South [Rift Valley] | Kanunka River | 60 [113 | 67 | 700 |

# Pictures of Project Activities and Project Sites

IDD (Irrigation Drainage Department) training

Pipe installation by farmers in Kiambindu

IWUAs trainig in Kiambindu

Intake weir constructed by the Project in Kisioki

Maasai lady harvesting tomatoes in Koseka

Irrigation farmer in Kanunka B

# Evaluation Summary Sheet

<table>
<tr><td colspan="3">1. Outline of the Project</td></tr>
<tr><td colspan="2">Country : Kenya</td><td>Project title: Sustainable Smallholder Irrigation Development and Management in Central and Southern Kenya (SIDEMAN)</td></tr>
<tr><td colspan="2">Sector: Agriculture Development / Rural Development</td><td>Cooperation scheme: Technical Cooperation Project</td></tr>
<tr><td colspan="2">Section in charge: JICA Kenya Office</td><td>Project total cost (up to March 2008): JPY 1,82,445,000<br>Local cost in Kenya (up to 15 April 2008) :<br>KES 46,942,304, JPY 79,038,780 equivalent</td></tr>
<tr><td>Period of cooperation</td><td>8th December 2005 to 7th December 2010<br>(Record of Discussion was signed on 8th December 2005)</td><td>Partner country related organization: Department of Irrigation and Drainage, Ministry of Water and Irrigation, Government of Kenya</td></tr>
<tr><td colspan="3">1-1 Background of the project<br>The Vision 2030 intends to transform Kenya into a middle income country by 2030. Towards this end, the government recognizes the increase in productivity of agriculture through increased use of fertilizer and development of irrigation in ASALs as prime movers to socio-economic development of the areas. JICA acknowledges the priority given to development of irrigation by the government of Kenya. Kenya has collaborated with the government of Japan in addressing some of the issues that have stagnated irrigation development in the country. A development Study on Smallholder Irrigation Development was conducted in Mt. Kenya Region from 1997 to 1999 and it identified a number of challenges facing the smallholder irrigation development in Kenya. A mini-project type of technical cooperation in smallholder irrigation development succeeded the study from 2000 to 2003 developed the following outputs: 1) Guideline for smallholder irrigation development, 2) Framework for formation and management of irrigation water users association, and 3) Training master plan for irrigation personnel. SIDEMAN is a follow-up initiated by the Ministry of Water and Irrigation with JICA in order to test and verify the outputs of the Mini-Project.<br><br>1-2 Project Overview<br>(1) Project goal:The methodology established through the Project will be used for other smallholder irrigation scheme development.<br>(2) Project purpose:Methodology for development of sustainable smallholder irrigation system is verified in the selected schemes.<br>(3) Outputs:<br>1. Irrigation infrastructure of pilot sites are provided<br>2. Irrigation water users' associations (IWUAs) of pilot sites are responsible for O&M of their irrigation system.</td></tr>
</table>

3. Improved irrigation and drainage services are provided to farmers.

(4) Inputs (as at the Project's mid-term):

Japanese Side

a) Experts dispatched
   Long term experts (2 persons)
   Short term experts (4 persons)

b) Project expenses (Local cost)
   KES 46,942,304 , JPY 79,038,780 equivalent
   (Equipment KES 15,933,363)

c) Training in Japan
   Counterpart training (2 persons)

Kenyan Side

a) Counterpart Personnel (C/P)
   A total of Kenya 16 counterparts have been involved

b) Operational Expenses
   To date, a total of KES 9,388,410 was allocated by the Kenyan government during the 2006/07 and 2007/08 financial years as direct operational costs for project activities

**2. Evaluation Team**

| | |
|---|---|
| Members of the Evaluation Team | JICA Team leader, Dr. Ryuzo Nishimaki, JICA HQ<br>JICA Team (Evaluation Analysis), Mr. Stephen Mogere, JICA Kenya Office<br>JICA Team (Evaluation Planning), Ms. Etsuko Masuko, JICA Kenya Office<br>JICA Team (Irrigation Expert), Mr. Humphrey Mwathe, JICA Kenya office<br>GOK Team leader, Eng. Charles Koske, Director, IDD, MWI<br>GOK Team (Economist), Ms. Hellen Musyoki, MWI<br>GOK Team (Engineer), Eng. George Kahuro, SIDEMAN, MWI<br>GOK Team (Engineer), Mr. Gideon Maithya, Central Province, MWI<br>GOK Team (Engineer), Eng. Raphael Ogendo, Rift valley Province, MWI |
| Period of Evaluation: May to 25th June | Type of Evaluation: Mid-Term Evaluation. |

**3. Results of Evaluation**

**3-1 Summary of evaluation results**

**(1) Achievement of Outputs and Activities**

Output 1

The draft designs were done in all 6 schemes. In Kiambindu, 22% of the pipes were installed. In Kisioki and Kyeekolo, construction and procurement amounting to 32% and 20% of the total cost has been achieved respectively. There was underestimation of cost of construction and the difference is between 2 to 7 times when compared to the cost of ex-ante evaluation.

Output 2

16 IWUAs trainings have been conducted and a total of 530 farmers (27% of the target) have received training at scheme level. The training components have improved cohesiveness among the farmers groups, created social capital of farmers and the farmers are now more willing and ready to contribute

towards scheme development, operation and maintenance.

Output 3

As for IDD staff, 86 participants (29% of the target) have attended different courses. As for in-country trainings for farmers, 4 trainings have been conducted and total of 150 farmers (38% of the target) have been trained. The trainings have developed confidence and cohesiveness for the IDD staff and farmers respectively. However, specialized training in specific crops and common interest groups need to be considered in future.

**(2) Issues relative to the Implementation Process**

Generally, the level of outputs is behind the schedule relative to the implementation plan. Reason for this is;

Conducting feasibility studies and approvals of designs

A lot of time was used in conducting feasibility studies and approvals of designs.

Costs of construction materials and services

There is drastic increase in the costs of construction materials and services.

Issues to be considered for better understanding of local communities

These include; Land tenure system and local culture, Low levels of literacy, Low involvement of women and the youth.

Counterparts' involvement

The involvement of some of counterparts has not been at sufficient levels to produce outputs as expected due to different assignments besides SIDEMAN.

Coordination of SIDEMAN

The DIOs were observed to have too much work to handle.

Communication

PMT communicates directly with DIOs, sidestepping PIOs. The PMT should delegate more and focus on supervisory role.

**3-2 Results of the Evaluation as per the five evaluation criteria**

**(1) Relevance**

The Project goal and purpose are still relevant. The Project is in line with both Kenyan development strategy and Japanese aid policy. The SIDEMAN project pilot schemes are representatives of different scenarios for irrigation development and lesson learned could be used in the whole country.

**(2) Effectiveness**

The interaction of the cost of infrastructure construction, recent water sector reforms and the ability for the communities to participate in smallholder irrigation development is a good test case for the methodology that is being verified. There is great expectation that SIDEMAN will increase income and food security of farmers when the infrastructure is in place, judging through the experience that the use of the existing pipe improved food security in Kiambindu, though this effect was not directly related to the inputs of the Project.

**(3) Efficiency**

Efficiency was rated as moderate. There is however need for improvement. The farmer/IWUAs training have strengthened the farmer groups and they are now moderately equipped to operate and manage their irrigation systems. The capacity of IDD staff has improved and the engineers have gained more confidence. The available funds can only install part of the infrastructure. There is therefore need for rational use of the available resources to intervene in a way that the farmers will see a positive change either by more farmers starting to irrigate or the farmers get more water than before. Some parts of the infrastructure may be done later by the farmers once their income increases. Cost cutting measures like in built capacity to conduct the EIA need to be considered.

**(4) Impact**

In order to achieve the overall goal, more budget source for irrigation infrastructure is necessary.

Impacts identified

Impacts are feasible and no negative impact so far.

a) Policy level impact: Approach toward farmers under SIDEMAN and SIPMK by KfW are different although the two projects are under the same department. Farmer contribution should not be fixed at 10% but the communities should be encouraged to contribute more.
b) Technical impact: The IDD staff has more confidence in design of farmer training programmes and irrigation schemes, and management of construction works. The farmers are better organized and are contributing towards scheme development.
c) Social and cultural impact: Participation of both male and female was noted to be influenced by the culture of the community. Women participation in decision making among the pastoralist Maasai community is slowly but steadily improving. More young people have become members of the irrigation schemes especially in Kiambindu and Kiarukungu, however, in Narok South, young ladies do not attend training although they are active in farming.
d) Economical impact: Irrigation farming is improving and diversifying the income of farmers, especially for women and the youth.
e) Farmers have had more sense of ownership of the process.

Achievement forecast of Overall Goal

Despite the identified project constraints, achievement of the overall goal is feasible. In order to achieve the overall goal more budget source for irrigation infrastructure is necessary.

**(5) Sustainability.**

The sustainability of the methodology after termination of the project is relatively high from following aspects.

Institutional

Capacity of IDD engineers and IWUAs improved. Farmers' awareness of their role in O&M is very high.

Financial

The budget for irrigation sector development has increased 3 times from 2005 to 2008. The concept of cost sharing has been introduced by the Project.

Training

Cost of IWUA training was judged by DIO to be attainable with GOK resources and can therefore be done in other schemes.

**3-3 Conclusions**

During the past two and half years, the Project has shown good progress so far despite slight delay of the achievement level of outputs. Enhanced capacity development in IDD and strengthening of IWUAs should be used for accelerated infrastructure development during the second half of the project in order for the effect to be seen.

**3-4 Recommendations**

General implementation process

1. Project monitoring: There is need for both experts and counterparts to discuss and refer to the PDM and project document
2. The "Project" feeling: A misconception in the project. The "project" notion needs to be clarified in view of Japan technical cooperation project
3. Performance contract: The projects activities should form part of the performance contract.
4. Discuss current level of funding: Clarity of issues of budget flows (AIEs), from GoK and smooth JICA's funding budget flows should be discussed with counterparts.
5. Inclusion of the PIO office in SIDEMAN: There is need to involve the PIOs in SIDEMAN implementation.

Infrastructure construction

6. Critical infrastructure structures: In view of the budgetary limitation, it is advisable to intervene in phases and have crucial structures to ensure that all schemes get some infrastructure and have access to reliable water supply.
7. The making of cost effective purchases and use of local community labor, as is now the practice, is recommended.
8. IDD should encourage more contribution by the farmers and not to stick to 10% stipulated.
9. Micro-credit financial institutions should be encouraged to support construction and marketing of the farm produce
10. Designs and approvals: The panel of engineers to guide the quality of design should be institutionalized within the project.

IWUAs strengthening

11. Continue more training: Conduct more training at irrigation scheme level and encourage all irrigators to attend all training courses
12. Involve all categories of water users
13. Mainstream gender issues
14. Involve the youth more
15. Increase farmer to farmers training approach

Capacity development

16. Introduce more specialized professional courses for IDD staff

17. Strengthen the EIA /socio-economic survey capacity in-house at IDD
18. Train other officers in the MWI working with DIOs in the SIDEMAN project sites
19. The PMT should delegate some activities to the DIOs, PIOs e.g. farmer trainings.
20. The issue of transport for the DIOs should be addressed. Provision of vehicles to DIOs should be considered.

3-5 Revision of the PDM

The Evaluation Mission Team recommended for the revision of the PDM.

**REPORT OF THE JOINT EVALUATION TEAM**
**ON THE TECHNICAL COOPERATION PROJECT FOR**
**SUSTAINABLE SMALLHOLDER IRRIGATION DEVELOPMENT AND MANAGEMENT**
**IN CENTRAL AND SOUTHERN KENYA, SIDEMAN PROJECT**

The JICA Evaluation Team (hereinafter referred to as "the JICA Team") led by Dr. Ryuzo NISHIMAKI and the Kenya Evaluation Team (hereinafter referred to as "the Kenya Team") led by Ms. Hellen MUSYOKI formed a Joint Evaluation Team (hereinafter referred to as "the Team") and conducted the mid-term evaluation of the technical cooperation project on Sustainable Smallholder Irrigation Development and Management in Central and Southern Kenya, SIDEMAN Project (hereinafter referred to as "the Project") between 15th April 2008 and 23rd June 2008. The Evaluation Team evaluated the implementation, performance and achievements of the Project based on the Record of Discussions (R/D) signed in 8th December 2005.

During the evaluation period, the Team conducted field surveys, interviews and held a series of discussions in respect to desirable measures to be taken by the Government of Kenya and Japan for the successful implementation of the Project.

The Team agreed on the contents of the Mid-term Evaluation Report as described in the document attached hereto. Further, the Team agreed to recommend to their respective organizations the matters referred to in the attached document.

Nairobi, 24th June 2008

**Dr. Ryuzo NISHIMAKI**
Team Leader
Joint Evaluation Team
Japan International Cooperation Agency (JICA)

**Eng. Charles KOSKE**
Director, Irrigation and Drainage Department (IDD)
Ministry of Water and Irrigation
The Republic of Kenya

| Ministry of Water & Irrigation | Japan International cooperation Agency |
|---|---|

Mid-Term Evaluation Report

# The Project for Sustainable Smallholder Irrigation Development and Management in Central and Southern Kenya; SIDEMAN Project

*JICA Technical Cooperation*

June 2008


**Dr. Ryuzo NISHIMAKI**
Joint Evaluation Team Leader
Japan International Cooperation Agency (JICA)

**Eng. Charles KOSKE**
Director, Irrigation and Drainage Department (IDD), Ministry of Water and Irrigation, Government of Kenya (GoK)

List of Abbreviations and Acronyms

| | |
|---|---|
| IDD: | Irrigation and Drainage Department |
| MWI: | Ministry of Water and Irrigation |
| JICA: | Japan International Cooperation Agency |
| PDM: | Project Design Matrix |
| ODA: | Official Development Assistance |
| SIDEMAN: | The Project for Sustainable Smallholder Irrigation Development and Management in Central and Southern Kenya |
| ASALs: | Arid and Semi-Arid Lands |
| MDG: | Millennium Development Goal |
| NEPAD: | New Economic Partnership in Africa Development |
| CAADP: | Comprehensive Africa Agriculture Development |
| NIB: | National Irrigation Board |
| WRMA: | Water Resources Management Authority |
| WSRB: | Water Service Regulatory Board |
| EMCA: | Environment Management and Coordination Act |
| IWUAs: | Irrigation Water Users Associations |
| SRA: | Strategy for Revitalizing Agriculture |
| ERS: | Economic Recovery Strategy |
| SNT: | Strategy for National Transformation |
| MIAD: | Mwea Irrigation Agricultural Development |
| DIO: | District Irrigation Officer |
| PIO: | Provincial Irrigation Officer |
| PO: | Plan of Operation |
| PCC: | Project Coordination Committee |
| PSC: | Project Steering Committee |
| GI: | Galvanized Iron |
| PVC: | Poly Vinyl Chloride |
| BPT: | Break Pressure Tank |
| O&M: | Operation and Maintenance |
| C/P: | Counterpart |
| WUAs: | Water Users Associations |
| PMT: | Project management Team |
| AIEs | Authority to Incur Expense |

Table of Contents

Annexes

1. Present Project Design Matrix
2. Revised Project Design Matrix
3. Assignment of Japanese experts
4. List of Equipment Provided by the Government of Japan
5. Acceptance of Kenya Counterparts Personnel for Training in Japan
6. Allocated Budgets by the Government of Japan for Local Cost, Expenditure
7. Assignment of Kenyan Counterpart Personnel
8. Plan of Operations
9. Evaluation Grid

4

# 1. Objectives and Methodology of Evaluation

## 1.1. Objective of the Evaluation

(1) To assess if the project has been implemented smoothly and if it is likely to produce the desired outputs and achieve project goal and purpose. The evaluation is based on the five evaluation criteria (Relevance, Effectiveness, Efficiency, Impact and Sustainability).

(2) To discuss the PDM and if necessary suggest or recommend revision of the PDM for the remaining cooperation term.

(3) To identify challenges on any aspects of the Project Implementation and propose necessary solutions.

## 1.2. Method of the Evaluation

Evaluation was conducted by the Joint Evaluation Committee, which was composed of evaluation members from the Japanese and the Kenyan sides in accordance with the R/D. The activities included report analysis, field survey, and discussions with counterparts, experts, farmers and relevant stakeholders.

The five evaluation criteria are defined as follows;

(1) Relevance

Relevance refers to consistency with Project Purpose and the overall goal in connection with the development policy of the Republic of Kenya as well as the needs of beneficiaries and alignment to the Japan ODA policy.

(2) Effectiveness

Effectiveness refers to the extent to which the expected benefits of the project have been achieved as planned in the project document, and examines if the benefit was brought about as a result of the Project or from external factors.

(3) Efficiency

Efficiency examines if the input of the Project was sufficiently converted

into the output.

(4) Impact

Impact refers to direct and indirect, positive and negative effects caused by implementing the Project, including the extent to which the overall goal and project purpose have been attained.

(5) Sustainability

Sustainability refers to the extent to which Kenya can further the methodology, and the benefits generated by the Project can be sustained under the country's policies, technologies, systems and financial state.

1-3 Members of the Evaluation Team

(1) Japanese side

| Name | Assignment | Occupation/Institution |
|---|---|---|
| Dr. Ryuzo Nishimaki | Team leader | Senior Researcher (Rural development) Department of Rural Development, JICA |
| Mr. Stephen Mogere | Evaluation Analysis | Consultant, Monitoring and Evaluation JICA Kenya Office |
| Ms. Masuko Etsuko | Evaluation Planning | Assistant Resident Representative, JICA Kenya Office |
| Mr. Humphrey Mwathe | Irrigation Expert | Consultant Agriculture sector, JICA Kenya Office |

(2)Kenyan side

| Name | Assignment | Occupation/Institution |
|---|---|---|
| Ms. Hellen K. Musyoki | Economist | Senior Economist, Monitoring & Planning Department, MWI |
| Eng. George W. Kahuro | Engineer | Project Manager SIDEMAN, MWI |
| Mr. Gideon M. Maithya | Engineer | Provincial irrigation officer Central Province, MWI |
| Eng. Raphael Ogendo | Engineer | Provincial irrigation officer Rift valley Province, MWI |

6

## 2. Outline of the Project

Country: Kenya

Project title: Sustainable Smallholder Irrigation Development and Management in Central and Southern Kenya (SIDEMAN)

Sector: Agriculture and rural development

Cooperation scheme: Technical Cooperation Project

Division in charge: (Kenya) Ministry of Water and Irrigation (MWI), Department of Irrigation & Drainage (IDD)

(Japan) JICA Kenya Office

Period of cooperation: December 2005 to December 2010

Partner country's implementing organization: Ministry of Water & Irrigation, Department of Irrigation & Drainage (IDD).

2-1 Background and Introduction of the Project

Kenya's economy is agriculture based with agriculture contributing 24% of the GDP and 65% of the export earnings. Agriculture is mainly rain-fed inspite of 85 % the country being Arid and Semi-Arid Lands (ASALs) with less than 750 mm of rainfall per annum.

The overall economic growth increased from 0.6% in 2002 to 6% in 2006. Over the same period, agriculture growth has been significant from minus 0.3 to 5.4%. Poverty level remains high though with some improvement from 56 to 46% over the same period (Economic Survey, 2007). The contribution of agriculture sector to the country's economy is significantly high, and therefore the sector still needs much more attention and improvements. The country needs more efforts if the MDG 1 on poverty and food security is to be achieved by 2015.

Kenya is a signatory of New Partnership in Agriculture Development. (NEPAD) and is committed to implementation of Comprehensive Africa

7

Agriculture Development (CAADP) pillar one (1) on increased land under improved water management.

Irrigation development in Kenya is still low with only 110,000 ha is developed against a potential of 540,000 ha mainly through smallholder or private commercial farmers. The general experience from large scale irrigation development in the lower reaches of the Tana River basin (Hola, Bura and Tana delta) and Lake Victoria basin have had challenges as far as sustainability of irrigation is concerned. More efforts are being put in place to enhance partnership in the operation and management of the irrigation schemes by the National Irrigation Board (NIB). NIB is responsible for national irrigation schemes and is transferring management to farmers in order to increase the role played by farmers. The Government will therefore rehabilitate and develop irrigation schemes in the country to increase production of crops and increase community participation.

The elevation of Irrigation and Drainage Sub-department to Irrigation and Drainage Department (IDD) in MWI is an important point in recognition of irrigation as a necessity in the country's development. The MWI will also finalize the review the Irrigation Act to reflect the socio-economic changes in the sub-sector and to facilitate greater participation of farmer's in irrigation development and management through the water users' organizations. A draft irrigation policy has been developed awaiting approval by the government.

The government has increased the development budget from Kshs 26,204,000 in 2003/2004 to the current level 2007/208 of Kshs 744,000,000.The current allocation to NIB is Kshs 420,000.000 whereas smallholder irrigation under IDD has been allocated Kshs 301,000,000.

The Water act 2002 and accompanying water sector reforms has separated the roles of water resource management and water service provision and has established Water Resources Management Authority (WRMA) and Water Service Regulatory Board (WSRB) respectively. WRMA has developed a Water Resources Management Strategy that provides the direction in the way water is efficiently used, conserved, protected and controlled. This has a

8

direct effect on one, cost of irrigation infrastructure and two, water use fees paid by the farmers based on volume of water used.

The WRMA rules comply with Environment Management and Coordination Act (EMCA, 2000) regulations and therefore environmental consideration needs to be incorporated in smallholder irrigation development. The rules have provisions for the establishment of Water Resource Users' Associations (WRUAs) but are silent on irrigation water users' associations (IWUAs) and so it's important that IWUAs are entrenched in the new irrigation policy.

The Vision 2030 intends to transform Kenya into a middle income country by 2030. Towards this end, the government recognizes the increase in productivity of agriculture through increased use of fertilizer and development of irrigation in ASALS as prime movers to socioeconomic development of the areas. This is in conformity with Strategy for Revitalizing Agriculture (SRA) and Economic Recovery Strategy for growth and wealth creation (ERS), a predecessor of Vision 2030. Tana basin irrigation development is one of the flagship projects in the vision 2030. In the Strategy for National Transformation (SNT) 2008 to 2012 which is the first phase of vision 2030, the area under irrigation is expected to increase from 110,000 ha to 210,000 ha in five years. Private sector is at the same time expected to play a greater role in smallholder irrigation in management of irrigation facilities, infrastructure construction and provision of extension services.

Japan International Cooperation Agency (JICA) acknowledges the above issues and places agricultural and rural development among its five main intervention areas for Kenya. The project is in line with Japan mid-term policy of grass root development, development of the individual and capacity development of the people to take lead in development.

Towards this end, the government of Kenya has collaborated with the government of Japan in addressing some of the issues that have stagnated irrigation development in the country.

*Examples of past collaboration*:

(1) Mwea Irrigation Agriculture Development whereby irrigation infrastructure was improved by Japanese Grant Aid in order to increase water for irrigation was achieved. Mwea irrigation Agriculture Development centre (MIAD) was implemented through past technical cooperation by JICA from 1992 to 1997. MIAD has become a centre for rice seed production and training for farmers and irrigation personnel. The SIDEMAN project has utilized the facilities in the last two years for farmer and IDD staff training.

(2) The Development Study on Smallholder Irrigation Development in Mt. Kenya Region that was conducted from 1997 to 1999. The study identified the weakness in smallholder irrigation development in Kenya as follows:

i. Lack of irrigation policy,
ii. Weak farmers' institutions/water users associations,
iii. Poor marketing arrangements for horticulture produce,
iv. Weak financing mechanisms for smallholder irrigation,
v. Inadequate technical know how on irrigated horticulture production and
vi. Poor co-ordination of actors in smallholder irrigation sub –sector.

(3) Mini-project type of technical cooperation in smallholder irrigation development implemented from 2000 to 2003. The project was conceptualized as a follow up of the above development study developed the following outputs:

i. Guidelines for smallholder irrigation development,
ii. Framework for formation and management of irrigation water users association,
iii. Training master plan for irrigation personnel.

The Project on Sustainable Smallholder Irrigation Development and Management in Central and Southern Kenya (SIDEMAN) was a follow-up initiated by the Ministry of Water and Irrigation with JICA in order to test and verify the outputs of the Mini-Project.

Implementation of the project started in December 2005 after the signing of the Record of Discussions (R/D).

This Joint Mid-term Evaluation has been conducted to evaluate the progress of the Project and hold consultation on the envisaged activities in the later half of the project period.

2-2 Summary of the Project

Project goal: The methodology established through the Project will be used for other smallholder irrigation scheme development.

Project purpose: Methodology for development of sustainable smallholder irrigation system is verified in the selected schemes.

Outputs

1. Irrigation infrastructure of pilot sites are provided
2. Irrigation water users' associations (IWUAs) of pilot sites are responsible for O&M of their irrigation system.
3. Improved irrigation and drainage services are provided to farmers.

## 3. Project Implementation Process

### 3-1. Inputs

#### 3-1-1 Japanese Side

a) Experts dispatched

Long term experts

1. Chief Advisor / Participatory Water Management, February 2007 to present
2. Coordinator / Training Planning, December 2005 to Present

Short term experts:

1. Chief Advisor / Participatory Water Management, November 2005 to March 2006
2. Chief Advisor / Participatory Water Management, April 2006 to October 2006
3. Third country expert from Philippines Irrigation Water Users Associations, September 2006 to October 2006
4. Third country expert from Philippine, Irrigation Water Users Associations, March 2007 to June 2007.

A complete list of experts dispatched from Japanese side is shown in Annex 1.

b) Equipment provided

Machinery and equipment were provided from the Project commencement to April 2008. A list of main equipment is shown in Annex 4.

c) Training supported

Training of IDD staff

Two IDD courses are targeted each year. Five (5) courses have been conducted at the time of mid-term evaluation. A total of 70 officers have been consequently trained.

Counter part training:

Two (2) counterparts have attended irrigation and drainage management course in Japan. Two (2) more officers attended group training course in course Japan.

Technical exchange program:

Two counterparts and the project Chief Advisor visited the two countries (Thailand and Philippines) to assess areas of technology transfer. The team identified Philippines to share similar irrigation approach with Kenya and could also learn more from its experience.

The Permanent secretary MWI, the Director of irrigation department together with the project advisor visited Malawi for 4 days (22nd to 26th August 2006)

Country focused training

Ten (10) IDD officers and the project Chief Advisor attended technical exchange training in Philippines (3rd to 15th March 2007) to see the irrigation situation in Malawi and learn from the irrigation policy. Two counterparts have attended group training course in Japan.

Farmer training

Four (4) in-country courses have been conducted.

Sixteen (16) irrigation water users' association trainings have been conducted at field level.

d) Project expenses

As of the 15th April, 2008, a total of Kshs 46,942,304 of JPY 79,038,780 amount equivalents were disbursed as direct expenses.

The detail of the operational expenses including infrastructure is shown in Annex 6.

3-1-2. Kenyan Side

a) Appointment of Counterpart Personnel (C/P)

A total of Kenya 16 counterparts have been involved. The list of counterpart personnel assigned by the Kenyan side is shown in Annex 5.

b) Operational Expenses

The IDD has contributed part of the project operational expenses. To date, a total of KSh. 9,388,410 was allocated by the Kenyan government during the

13

2006/07 and 2007/08 financial years as direct operational costs for project activities. The funds on the Kenyan side are released late.

### 3-2. Achievement of Outputs and Activities

Most of the activities commenced effectively in December 2005 by holding initial orientation meetings with Provincial Irrigation Officers (PIO), District Irrigation Officers (DIO) and headquarter staff. Site visits were undertaken to project sites in December 2005 and January 2006 for the project team to familiarize with the project sites and meet with farmers in each project site.

A plan of operation (PO) was formulated and subsequently approved by the Project Coordinating Committee (PCC) and the Project Steering Committee (PSC). The PO is reviewed and discussed each year with the PCC and PSC and adopted accordingly.

**Output 1: Irrigation infrastructure of pilot sites provided**

The draft designs were done in all 6 schemes. In Kiambindu scheme, Galvanized Iron (GI) and Poly Vinyl Chloride (PVC) pipes were installed 3.6 km, which is 22 % of the total pipe length and one Break Pressure Tank (BPT) was constructed.

In Kisioki scheme, the following has been achieved- intake weir, side weir, river bank protection works and 15 Division Boxes amounting to 32 % of the total cost. In Kyeekolo scheme, portion of pipes and fittings were procured and amounting to 20 % of the total cost.

The current level of infrastructure construction does not guarantee access to water by Kiambindu and Kyeekolo farmers but has improved the water management in Kisioki.

It was observed that there was underestimation of cost of construction and the difference is between 2 to 7 times when compared to the cost at ex-ante evaluation.

The approvals of designs are also taking bit long leaving the farmers and the DIO with a lot of anxiety.

Output 2: WUAs of pilot sites are responsible for O&M of the irrigation system

Sixteen (16) IWUAs trainings have been conducted. A total of 530 farmers have received training at scheme level which represents 27% of the targeted farmers (2000). The training components have improved cohesiveness among the farmer groups, created social capital of the farmers and the farmers are now more willing and ready to contribute towards scheme development, operation and maintenance.

It was also noted that the cost of farmer training has increased by 28% above the 2005 estimates due to price increase of goods and services.

The level operation and maintenance of the irrigation facilities and extent of the IWUAs commitment to the management of facilities could not be objectively judged at the time of this mid-term evaluation since construction of the infrastructure was not complete in most schemes. However, farmers have been reasonably sensitized on O&M through trainings.

Judging on the basis of farmer contribution and participation during construction and the capacity developed through farmer training, the farmers are reasonably prepared for the O&M.

Output 3: Improved irrigation and drainage services are provided to farmers.

Valuable time was spent in capacity development for the farmers, IWUAs & IDD staff.

For example, "as for IDD staff, eighty six (86) participants have attended different courses". These included internally organized IDD courses, technical exchange programme to Thailand, Philippines and Malawi, Country focus training to Philippines, and counterpart training in Japan. About a third (29%) of the targeted number has been achieved at the time of mid-term evaluation. According to the minutes of the PSC meeting held in July, 2007 foreign travel was limited due to budgetary constraints.

Four (4) in-country trainings for farmers have been conducted. A total of one

hundred and Fifty (150) farmers have been trained. This is 38% of the targeted farmers. The IDD staff training and farmers training were positively assessed by the ex-participants. The training has developed confidence and cohesiveness for the IDD staff and farmers respectively. It was however, noted that specialized training in specific crops and common interest groups (CIG) need to be considered in future. Overall, the training was judged reasonably sufficient.

### 3-3. Issues relative to the Implementation Process

Generally, the level of outputs is behind the schedule relative to the implementation plan. This was explained to be due to a variety reasons;

Conducting feasibility studies and approvals of designs

A lot of time was spent to conduct feasibility study and therefore the designs irrigation schemes. The approval of the designs was noted to have taken a little bit longer. The panel to check the designs is not convened on time. On the other hand, Farmers' are anxious and have high expectations to get physical infrastructure from the project. To accommodate farmers' concerns, construction of some of the schemes started.

Costs of construction materials and services

Due the world economic difficulty, inflation has shot up in an almost high peak during the last two to three years. World fuel prices have shot up, costs of constructions has inevitably gone up. Overall, this has increased project costs than had been anticipated. The cost of construction was under-estimated by between 2 to 7 times. The cost training has increased by 28% above the 2005 estimates. Consequently, available project budget is not enough to construct all irrigation facilities as per design. All the six schemes have been sensitized and are expecting construction of infrastructure.

Issues to be considered for better understanding of local communities

These include; land tenure system and local culture.

For example, in Kyeekolo (Makueni), Kanunka B and Koseka (Narok South), there are irrigators who are neither land owners nor members of the water IWUA. They hire land and produce crop. This category is oftentimes not trained and their participation in development and O&M is not documented.

16

Understanding land use tenure system would be critical to getting full participation to strengthen IWUAs.

Other issues for consideration include;

- The levels of literacy are low in Narok South and Makueni schemes. This would have implications on approach to farmers' trainings
- Involvement of women and the youth in IWUAs decision making process especially among the strongly communal schemes were noted to be low. This can be very disempowering if involvements is reduced due to the community's cultural construct.

Counterparts' involvement

The involvement of some of counterpart has not been at sufficient levels to produce outputs as expected due to different assignments besides SIDEMAN Project. This is partly due to the fact that SIDEMAN project was not part of their performance contract against which they would be evaluated.

It was noted that due to uncertainty of the availability of resources from partner countries including JICA, the projects have not been part of the performance contract signed between the DIO and the Director of Irrigation and Drainage Department. The performance contract is however, being considered for the 2008/09.

Furthermore, interviews with PMT indicated that the attitude of the meaning of "project" within the public service certainly meant extra incentives in monetary terms which were not the case with SIDEMAN. Change of attitude among staff members to embrace SIDEMAN not as extra work load but as part of their responsibility is necessary.

Coordination of SIDEMAN

The DIOs were observed to be implementing 2 to 8 other irrigation projects under the GOK budget or irrigation component under other collaborating partners. It was generally observed that one (1) person (DIO) in the pilot

project districts attended all courses offered under SIDEMAN. He is also the link person with the headquarters with little involvement of others and in his absence the activities of SIDEMAN project were at stand still (for example, in Kirinyaga and Narok South).

Communication

It was noted that the PMT communicates directly with DIOs and the PIOs are not in the picture of SIDEMAN implementation. Communication between the farmers and DIOs is quite good. There is direct communication between the farmers and PMT especially in during training. There is need for PMT to delegate some activities to DIOs. The role of PMT should however be supervisory. There is also room to improve on the communication for decision making between Japanese experts and counterparts.

## 4. Results of the Evaluation

Five Evaluation Criteria

In accordance with the terms of reference of this evaluation mission, the project was appraised under the five evaluation criteria namely, relevance, effectiveness, efficiency, impact and sustainability. The evaluation's findings under these parameters are described in detail in the following subsections.

### 4-1 Relevance

The project goal and purpose are still relevant.

Agriculture is among the important sectors in the economic pillar of vision 2030 which is a successor of ERS.I Development in the ASALs is still a national priority and irrigation development is seen as a mean to achieve the objective.

In the Strategy for National Transformation (SNT) 2008 to 2012 under the vision 2030 the area under irrigation is expected to increase from 110,000 ha to 210,000 in five years. Private sector is at the same time expected to play a greater role in smallholder irrigation in management of irrigation facilities, infrastructure construction and provision of extension services.

The SIDEMAN project pilot schemes are representative of different scenarios for irrigation development and lessons learned could be used in the whole country. Already the curriculum for farmers training is being used by the DIO during the training in other programmes. Judging from the few farmers of Kiambindu who are receiving water from the old water pipeline, the pilot schemes are going to improve the food security and income of the farmers.

The Project is also in line with Japanese aid policies and priorities and supports field oriented programs that address poverty and rural equity. The project activities are in accordance with approaches in the agricultural and rural development sector of JICA country program that promotes projects on rural poverty reduction, income generation and food security.

The importance of the project in the selected rural areas was noticeable by the large turnout of farmers (74% Kiarukungu) in most schemes at the time of mid-term evaluation.

Four (Koseka, Kanunka B, Kyeekolo and Kisioki) of the pilot irrigation schemes have been in existence for more than 20 years and still need external support. The twin project focus on infrastructure and capacity development is therefore quite appropriate.

Once the guidelines for irrigation development, WUA framework and training master plan are verified and revised, the materials will be the foundation for sustainable smallholder irrigation development.

The process of scheme development involves approval of the design by a panel of engineers, close supervision of construction works and competitive bidding for materials and services which ensures satisfactory quality. The training curriculum for farmer training is in use by DIO in other programmes.

The water act 2002 and water resources Management rules 2007are adversely affecting the cost of infrastructure (Water use fees, master meter, lining of canals etc)

It was noted that hiring and leasing of irrigated land is common in most irrigations schemes. The landlord/tenant/members of household interaction in a common phenomenon and there is need to understand the situation especially during selection of trainees and design of training modules.

4-2 Effectiveness

The implementation of the six (6) pilot irrigation schemes together with training of farmers and IDD staff is providing real cases studies and experiences. The interaction of the cost of infrastructure construction, recent water sector reforms and the ability for the communities to participate in smallholder irrigation development is a good test case for the methodology that is being verified.

20

The project will increase income and food security of the farmers as in the case of Kiambindu whereby through the use of the existing smaller six (6) inch pipe there is an improvement of the food security and the farmers are no longer receiving famine relief food. Though this effect is not directly related to the inputs of SIDEMAN project there is great expectation that the same will be achieved when the infrastructure is in place. The respective communities are aware of their responsibility in O&M as observed during the interviews.

4-3 Efficiency

Efficiency was rated as moderate. There is however room for improvement.

The farmer/water user's associations' training has strengthened the farmer groups and they are now moderately equipped to operate and manage their irrigation systems. The farmers are currently better informed about the running of the irrigation schemes than before.

The capacity of IDD staff has improved and the engineers have gained more confidence. The equipment provided through the project has made the offices more active.

The available funds can only install part of the infrastructure. There is therefore need for rational use of the available resources to intervene in a way that the farmers will see a positive change either by more farmers starting to irrigate or the farmers get more water than before. It was a general observation during the evaluation that farmers in the pilot scheme expect some intervention from the project in form of physical infrastructure. In view of the available funds and escalating price of construction of irrigation facilities and training, it is rational to start with critical irrigation facilities that will ensure that the farmers have access to water. The lining of canals may be done latter by the farmers once their income increases.

Cost cutting measures like in built capacity to conduct the EIA need to be considered. A lesson may be learned from DANIDA project on Decentralized Agriculture Support Structures (DASS) whereby due to the size of projects DASS has discussed with NEMA and EIA has been replaced by

21

Environmental audit.

4-4 Impact

4-4-1 Impacts identified

It is still very early to expect project interventions impacts. However, impacts are feasible. Overall, there is no negative impact of the project so far.

The identifiable impacts through the interview and questionnaire survey of the Project team and target groups are as follows.

(1) Policy level impact

- Grant component of 10% and 50% in SIDEMAN and SIPMK (Smallholder Irrigation Program, Mount Kenya) by KfW respectively are different although the two projects are under the Director of Irrigation and Drainage. This is a big issue since the DIO is dealing with the farmers under the two projects.
  - Farmers under SIDEMAN had contributed more than the stipulated 10% contribution.
  - It was suggested that farmer contribution should not be fixed at 10% but the communities should be encouraged to contribute more.

(2) Technical impact

- The most visible technical impact is on the IDD staff. The IDD staff has more confidence in design of farmer training programmes, design of irrigation schemes and management of construction works.
- The IDD headquarters staff is better equipped to mobilize and develop the capacity of IWUAs. This is due to logistical support.
- The farmers are better organized. They are contributing towards scheme development

(3) Social and cultural impact

<u>Women participation.</u>

Participation of both male and female was noted to be influenced by the culture of the community. In Kiambindu and Kiarukungu case, both male and female have been attending the in-country training at MIAD. This is not the case with other schemes in Narok South, Makueni, and Loitokikok.

22

Women participation in decision making among the pastoralist Maasai community is slowly but steadily improving. Inclusion of women in IWUAs committee and ensuring their participation has proved critical to empowering women.

Strengthening of water users association

More young people have become members of the irrigation scheme especially in Kiambindu and Kiarukungu. It was however observed that young ladies do not attend training in Narok South although they are active in farming.

(4) Economical impact

- The construction of works is creating direct employment in the community.
- Irrigation farming is improving the income of farmers and food security. Diversification of sources of incomes at household levels has improved incomes especially for women and the youth.

(5) Change in attitudes of the stakeholders. Farmer perception on their role has changed and there is more sense of ownership of the process.

4-4-2 Achievement forecast of Overall Goal

Despite the identified project constraints, achievement of the overall goal is feasible. In order to achieve the overall goal, more budget source for irrigation infrastructure is necessary. The SIDEMAN project provides the budget for irrigation infrastructure though that can't cover 100%.

**4-5 Sustainability**

In view of the current national policies, financial, organizational and technical aspects, it could be deduced that the sustainability of the methodology after termination of the project is relatively high from following aspects:

Institutional

- Capacity of IDD engineers has reasonably improved
- At the time of mid-term evaluation over 20 officers are currently undergoing training at different levels and institutions.

23

- Strengthened local institutions. The water users' associations have been strengthened and have formulated by-laws to govern the irrigation schemes
- Farmers' awareness of their role in O&M is very high.

Financial

- The budget for irrigation sector development has increased development from Ksh. 26,204,000 in 2005 to Ksh. 744,000,000 in 2008.
- The MWI has contributed a total of Ksh. 9,388,410 over the last 2.5 years in SIDEMAN project.
- The concept of cost sharing has been introduced by the Project in all the schemes.

Training

- Training of farmers was done through local resource persons.
- Curriculum of farmer training was used by DIOs in training in other programmes.
- Cost of IWUA training was judged by DIO to be attainable with GOK resources and can therefore be done in other schemes.

24

## 5. Conclusions

During the past two and half years, the Project has shown good progress so far despite slight delay of the achievement level of outputs.

① Strengthening of IWUAs and IDD capacity development components are on track. However, construction of infrastructure is lagging behind.

② In view of the current level of achievement and the remaining project period, enhanced capacity development in IDD and strengthening of IWUAs should be used for accelerated infrastructure development during the second half of the project in order for the effect to be seen.

③ Relevance of the Project is still high. Efficiency is moderate by the time of the mid-term evaluation. There is however room to improve.

④ Achievement of the Overall Goal is feasible. There is no negative impact though there are identifiable positive impacts. Sustainability from technical and organizational point of view is rather high,

## 6. Recommendations

The following recommendations were made for smooth and effective implementation of the latter half of the Project period.

*General implementation process*

① Project monitoring. There is need for both experts and counterparts to discuss and refer to the PDM and project document. Utilization of these tools to monitor and report set project indicators. This would enable the counterparts to understand JICA procedures as well as the experts on the Kenyan administrative procedures.

② The "Project" feeling. There is a general "project" feeling among the stakeholders and they are discouraged when they do not get some benefits common to other donor projects. The "project" notion needs to be clarified in view of Japan technical cooperation project.

③ Performance contract. The projects activities should form part of the performance contract. A strict reporting process based on indictors both

under the Vision 2030 and SIDEMAN should be put in place.

④ Discuss current level of funding. The current level of funding should be discussed with the stakeholders and set intervention priorities. Clarity of issues of budget flows (AIEs), from GoK and smooth JICA's funding budget flows should be discussed with counterparts.

⑤ Inclusion of the PIO office in SIDEMAN. The DIOs SIDEMAN Project activities need to be linked with the PIOs office which is in charge of the region. There is therefore need to involve the PIOs in SIDEMAN implementation.

*Infrastructure construction*

⑥ Critical infrastructure structures. In view of the budgetary limitation, it is advisable to intervene in phases and have crucial structures to ensure that all schemes get some infrastructure and have access to reliable water supply.

⑦ As a cost saving measure, the SIDEMAN project, has been selectively buying construction materials for some components and the construction has been done by the communities with close supervision by the DIO. The mission recommends this approach to continue where applicable.

⑧ The IDD should encourage more contribution by the farmers and not to stick to 10% stipulated in the Guidelines.

⑨ Micro-credit financial institutions should be encouraged to support construction and marketing of the farm produce

⑩ Designs and approvals. The panel of engineers to guide the quality of design should be institutionalized within the project. An improvement on approval rates of designs is critical.

*IWUAs strengthening*

⑪ Continue more training. Conduct more training at irrigation scheme level and encourage all irrigators to attend all training courses. Trainings for the farming community especially in crop husbandry, water management, marketing, irrigation system maintenance etc could be organized at scheme

⑫ Involve all categories of water users. There is need to understand more on IWUA membership i.e. who is eligible to become a member, and access to irrigation land by other members of the households and tenants. A method should be devised for the various categories of water users to contribute towards O&M.

⑬ Mainstream gender issues. Encourage gender equity in training and other activities within the project. Organize separate trainings for different categories of farmers where cultural barriers restrict combined training.

⑭ Involve the youth more. Encourage training of the youth in particular young women in the pastoralist communities. Timing of such training is also necessary especially utilizing school holidays. The classroom would be used as training venue.

⑮ Increase farmer to – farmers training approach. Consider literacy level during IWUAs trainings and design specific approaches accordingly. Improve the use of class room – lecture approach with demonstrative and farmer to farmers extension.

*Capacity development*

⑯ Introduce more specialized professional courses for IDD staff

⑰ Strengthen the EIA/socio-economic survey capacity in-house at IDD

⑱ Train other officers in the MWI working with DIOs in the SIDEMAN project sites and encourage team work.

⑲ The PMT should delegate some activities to the DIOs, PIOs e.g. farmer trainings.

⑳ The issue of transport for the DIOs should be addressed. Provision of vehicles to DIOs should be considered.

27

## 7. Revision of PDM

The Evaluation Mission Team recommended for the revision of the PDM version 0 shown in Annex 1 according to the actual conduct of the project. Modifications points are shown below.

The revised PDM should be applied during implementation for the latter half of the Project period, as shown in Annex 2.