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Ex-Post Evaluation Report for Kenya Water Supply Projects

KOICA

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2011.12



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The Korea International Cooperation Agency (KOICA) performs various types of evaluation in order to secure accountability and achieve better development results by learning.

KOICA conducts evaluations within different phases of projects and programs, such as ex-ante evaluations, interim evaluations, end-of-project evaluations and ex-post evaluations. Moreover, sector evaluations, country program evaluations, thematic evaluations, and modality evaluations are also performed.

In order to ensure the independence of evaluation contents and results, a large amount of evaluation work is carried out by external evaluators. Also, the Evaluation Office directly reports evaluation results to the President of KOICA

KOICA has a feedback system under which planning and project operation departments take evaluation findings into account in programming and implementation. Evaluation reports are widely disseminated to staff and management within KOICA, as well as to stakeholders both in Korea and partner countries. All evaluation reports published by KOICA are posted on the KOICA website.([www.koica.go.kr](http://www.koica.go.kr))



This evaluation study was entrusted to Re-shaping Development Institute(ReDI) by KOICA for the purpose of independent evaluation research. The views expressed in this report do not necessarily reflect KOICA's position.





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# List of Abbreviations

AfDB	African Development Bank
AWSR	Annual Water Sector Review
CAACS	Catchment Area Advisory Committees
DAC	Development Assistance Committee
DALY	Disability- Adjusted Life Year
DANIDA	Danish International Development Agency
DIA	Development Impact Assessment
EA	Environmental Audit
EC	European Commission
EIA	Environmental Impact Assessment
EMCA	Environmental Management and Coordination Act
ENSDA	Ewaso Ngiro South Development Authority
ERS	Economic Recovery Strategy
FGD	Focused Group Discussion
GAWASCO	Garissa Water and Sewerage Cooperation
GDP	Gross Domestic Product
GIA	Gender Impact Assessment
GNI	Gross National Income
HDI	Human Development Index
HIV	Human Immunodeficiency Virus
IDA	International Development Association
IFAD	International Fund for Agricultural Development
JICA	Japan International Cooperation Agency
KJAS	Kenya Joint Assistance Strategy
KOICA	Korea International Cooperation Agency
LVSWSB	Lake Victoria South Water Services Board
MDG	Millennium Development Goals
MWI	Ministry of Water and Irrigation

M&E	Monitoring and Evaluation
NAIVAWASS	Naivasha Water Sewerage and Sanitation Company
NIB	National Irrigation Board
NWCPC	National Water Conservation and Pipeline Corporation
NWRMS	National Water Resources Management Strategy
NWSB	Northern Water Service Board
NWSS	National Water Services Strategy
ODA	Official Development Assistance
OECD	Organization for Economic Cooperation and Development
O&M	Operations and Management
PMC	Project Management Consultant
PMO	Project Management Office
PRSP	Poverty Reduction Strategy Paper
RVWSB	Rift Valley Water Services Board
SIDA	Swedish International Development Cooperation Agency
SPSS	Statistical Package for the Social Sciences
SWAp	Sector-Wide Approach Program
UN	United Nations
UNICEF	United Nations Children's Fund
UNDAF	United Nations Development Assistance Framework
WAB	Water Appeals Board
WB	World Bank
WGTM	Working Group Technical Meeting
WSB	Water Services Board
WRMA	Water Resources Management Authority
WRUAs	Water Resources Users Associations
WSRB	Water Services Regulatory Board
WSPs	Water Service Providers
WSTF	Water Service Trust Fund
WSTG	Water Sector Technical Group



## **Executive Summary**





## Executive Summary

This evaluation study is intended to provide ex-post assessment of three water supply projects which were implemented by KOICA in Kenya during 2007-2010 and aims at analyzing actual project outcomes and sustainable effects by using the OECD/DAC evaluation criteria of 'relevance, effectiveness, efficiency, and impact and sustainability'.

This evaluation report presents highly objective and fairly rational results in content by adopting newly developed evaluation indicators with comprehensively collected data. For this paper, two evaluation indicators were developed; one is the Performance Evaluation indicator used to verify intended project output at each level of the project by proposing a performance measurement model which is optimized for the water supply project. The other is the Process Evaluation indicator used to assess the project's initial plan and implementation process in terms of alignment with the partner country's system and institutions as well as its capacity for empowerment.

In the comprehensive evaluation results, achieving the effectiveness and impact of the project was assessed as positive overall. Apart from the Suswa project, the Asembo Bay and Tana Basin projects contributed fairly to the improvement of access to safe water of beneficiaries. As result of this improvement, the incidence of waterborne diseases – particularly diarrhea – tended to decrease. Economic effects from decreased time and labor for carrying water were also recognized.

In contrast, the project’s relevance was assessed as deficient because the request-based decision process has slightly attenuated the validity of beneficiary area targeting, and insufficient pre-survey data have made it impossible to make a beneficiaries’ needs based project design. Moreover, a lack of information about the partner country’s project implementing system and other donor countries’ programs have limited the ability to build a strategic plan along with the blueprint.

It was noted that budget constraints were a factor in decreasing the efficiency of the projects. These constraints hampered the main goal of the projects as well as the schematic distribution of the project inputs.

In terms of sustainability, the lack of the project’s exit strategy also produced limitations of keeping the provided facilities in a good working condition and securing proper maintenance for them. Moreover, no strategy for gender and environment mainstreaming was implemented throughout the project process.

Relevance
<p><b>1. Relevance evaluation of project identification procedure</b></p> <ul style="list-style-type: none"> <li>· Water sector assistance is well timed and in-line with the national development strategy of Kenya.</li> <li>· The legitimacy of area targeting was undermined to a certain degree because KOICA’s role in selecting the projected target area was limited.</li> <li>· While the project assessment verified the legitimacy of the suggested project, beneficiaries’ basic data, including gender-disaggregated data, was not collected.</li> </ul> <p><b>2. Relevance of project planning process</b></p> <ul style="list-style-type: none"> <li>· Even though the key implementing organization, the Water Services Board, appropriately participated in the planning process, the lack of understanding of various stakeholders and of local governance systems was identified as a major limitation of the project.</li> <li>· KOICA’s dependence on its bilateral channel with the MWI, without any harmonization with other donor countries, did not raise the visibility of Korean assistance, but it generated a problem of planning the project without a strategic blueprint.</li> </ul>



### **3. Validity of project design**

- Due to the lack of a logical framework, specific and verifiable objectives fitted with the project scale were not planned, and the means to measure performance at each level could not be prepared.
- These projects, which were initiated as a well-timed and prompt intervention for supplying safe water in the project area, had only partial achievement of the goals due to lack of budget and information.
- Because the channels to reflect the needs of various beneficiaries were not prepared enough, it was difficult to assess whether the project plan accorded with the beneficiaries' needs.

## **Effectiveness**

### **1. Improvement of a access to safe water for beneficiaries**

- Asembo project: This project contributed to the improvement of access to safe water, and the beneficiaries reported a high level of satisfaction, especially with the enhanced quality of water.
- Suswa project: Although the facilities were completed as planned, the improvement of access to safe water of beneficiaries was drastically limited by damaged pipelines.
- Tana Basin project: This project highly improved the quality of drinking water, but the impact on the improvement of access to water of beneficiaries was limited.

### **2. Smooth maintenance of the system**

- The traditional training programs and capacity building models that rely on one individual expert's advice are considered inappropriate, short-term, and less effective in strengthening necessary capacities and enhancing the effectiveness of the project.
- The advancement of Korea's status through spreading of its advanced technology was considered positive.

### **3. Improving regional financial soundness through reduction of water treatment costs (Tana Basin Project)**

- Since electricity costs increased due to the well pump machine as much as the water treatment cost decreased, reduction of the operation expenses was not achieved.
- Conversely, alum usage for the high turbidity of Tana Basin water helped guarantee a certain level of water quality and lessened the amount of the precipitate in the settling pond, so that efficiency of the operation was enhanced.

## **Efficiency**

### **1. Resource input and distribution**

- The working period of this project was extended due to an inevitable political disturbance. However, after the construction was restarted, the project was completed without any trouble.

- The budget of these projects was executed according to the plan. However, the scale of the project was reduced in terms of the earmarked budget.
- Conversely, the inefficient distribution of input elements, such as excessive spending of the budget on less demanded aspects, was exposed as a limitation of this project due to resources being distributed based on schematic considerations rather than needs.

## **2. Efficiency of problem-solving structure**

- Although a prompt and close cooperative channel with the WSB was achieved, a limitation was that a consultative group including the various stakeholders was not formed.
- Instead of internal structural problems of the project implementation, project delays were caused by unexpected local affairs such as political unrest, delay of tax exemption, and electricity shortage. These were all cited as the most harmful factors to project efficiency.

## Impact

### **1. Prevention of waterborne diseases**

- Although the beneficiaries stated that exposure to waterborne disease decreased due to the improvement of water quality, it seems premature to precisely measure the impact on the prevention of waterborne disease.

### **2. Economic impact from the reduced labor and hours of water collection**

- The reason that a larger economic impact was noticed more in Asembo than in Garissa was that there was a synergy effect with the local community development program which aimed at income generation. Furthermore, more community organizations were involved in managing the water kiosks in Asembo than in any other areas. This involvement made the impact more sustainable.

### **3. Women's contribution to household income**

- As carrying water for domestic use has traditionally been the burden of women, reducing the time and effort required to get water contributed to economic impact.

### **4. Frequency of absence from school**

- As the time and labor for water collection decreased, the frequency of children's absence from school seemed slightly reduced as well.

### **5. Other impacts**

- By utilizing water resources, a more hospitable environment for life was established.
- There was a slight reduction of conflicts in communities surrounding water sources.

## Sustainability

### 1. Exit Strategy

- No exit strategy for KOICA, and no measure for proper resource input by Kenya after completion of the facilities were prepared. There was also no channel devised to monitor these follow up activities. These show a limitation in managing this project smoothly and obtaining sustainability.

### 2. Sustainability of impact

- The Asembo project looks as if it will be operated appropriately under the management of LVSWSB in the future.
- The effects and impact of the Suswa project cannot be grasped. Although the facilities could be repaired afterward, the intended performance does not seem to be possible in the long run.
- In the case of the Tana Basin project, no better impact could be achieved as long as the capability of the GAWASCO is not strengthened.

## Gender

- Although a gender mainstreaming strategy was not prepared for this project, the performance of the project endeavored to help women's income generating activities and to promote community's participation on the development project. These aspects are perceived as a positive impact of this project.

## Environment

- There was no environmental mainstreaming strategy and no environmental evaluation. Moreover, Kenya did not follow its own domestic environmental regulations. This oversight shows inadequate consideration of the environment in the project implementation.

Below are the short term policy suggestions needed in order to supplement the listed limitations above.

First, in order to strengthen the targeting rationale of project area and module, the project module needs to be diversified, become more flexible, and become localized based on pre-survey results through the development and training of pre-survey frames. Through this advanced project framework, the performance

model and Monitoring & Evaluation system must be improved.

Second, the horizontal and vertical participation of varied stakeholders in the project implementing process must be guaranteed, and a feedback system throughout the life of a project must be secured.

Third, in order for the importance of cross cutting issues to be enhanced, gender and environment mainstreaming strategies of a partner country must be respected and implemented in the process of the project design and delivery, and during monitoring and evaluation.

Fourth, given the project completion, an exit strategy based on capacity gap of partner country (organization) must be devised in order to sustain the effect of the project.

Most limitations of the project which came to the surface through the process evaluation are substantially caused by systemic restraints of the KOICA project implementing. To solve this problem, mid and long term policies are suggested as below.

First, the project identification process needs to be restructured from the current 'request-based' assistance to the consultative approach which actively discovers a new project based on the local needs in the long term perspective.

Second, water supply projects are required to be redirected from peripheral infrastructure building to state-level water resource development and management.

Third, the personnel and budget of KOICA's country office need to be expanded to make Korea's assistance better involved in the sectoral working group among donor states. This will assist in the sharing and accumulating of valuable knowledge

on the water sector which is essential to long term and comprehensive project planning.

Fourth, in order to promote sustainability, impact, and effectiveness of the project, a program based approach is required. This will enable infrastructure building, technical assistance, institutional capacity building, and public awareness to be integrated.





## Overview







# I

## Overview



### 1.1. Background

- Access to clean water is a fundamental right of human beings. Good quality water resources are a necessary element for the sustainable development of human beings and the environment. However, 1.2 billion people—one fifth of world population—do not have access to safe drinking water. Moreover, most of them live in developing countries.
- Children under age 15 account for almost 80% of those who are vulnerable and suffering from poor environment and sanitation. As a result, they are constantly being exposed to serious threats of disease. In particular, diarrhea and waterborne diseases, which are often caused by poor sanitation and/or unsafe drinking water, are pointed out as a main cause of death of children in developing countries.
- In order to respond to water-related problems, the international community has called for 50 to 60 billion dollars of investment per year into the sector by 2030. Due to the critical interlinkage between water and other development issues such as poverty, agriculture, energy, health, biodiversity and preservation of ecosystem, they have also emphasized that an extensive approach and accountable partnership is necessary to overcome the water crisis.
- Korea is continuously increasing the volume of ODA inflows into the water sector in order to counteract the water crisis. According to KOICA, the amount of ODA into the water sector development as grants has increased

4.5 times during the period of 2006-2010. (KRW 2.4 billion in 2006 to KRW 11 billion in 2010.)

- Since the severe drought in East Africa in 2006, the Korean government has been assisting various water-related project in the region. Kenya has been one of countries receiving Korea's assistance. KOICA has provided Kenya a total of 7.77 million US dollars in order for the Kenyan government to implement needed water resource and facility development projects.
- This ex-post evaluation study assesses the results of the three water supply projects in Kenya assisted by KOICA, analyzes the effect and impact of the project, and discusses the defects and improvements of the project process. With this evaluation, valuable lessons will be learned and applied to future project designs and operations.



## ■ 1.2. Objectives

- This project assessment is an ex-post evaluation which is designed to analyze the performance and sustainable effectiveness of the projects based on the OECD/DAC recommended criteria of relevance, efficiency, effectiveness, impact and sustainability.
- By measuring the achievement of the targets at each level and at each upper strategic goal, the evaluation is used to clarify whether or not this project has contributed to the improvement of access to safe water in Kenya. (Performance Evaluation)
- Furthermore, this evaluation is used to examine the role of the KOICA institution and the functioning of the implementation system during the entire period of project cycle management. (Process Evaluation).

<Table 1-1> Evaluation of KOICA water supply projects in Kenya

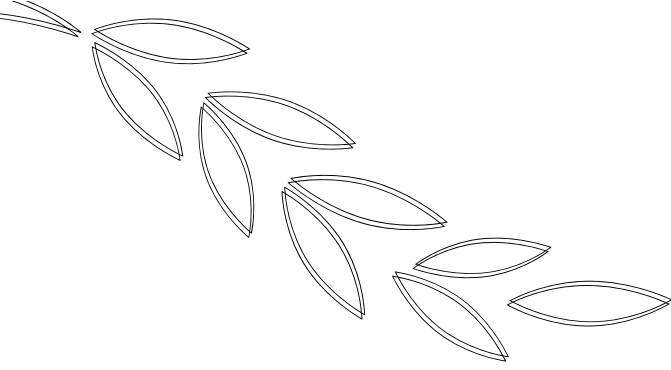
Key projects	Project period	Total budget
The Construction of a Water Treatment Plant for the Asembo Bay-Ndori Water Supply Project	2007-2008	\$1,530,000
The Rehabilitation of the Naivasha -Suswa Water Supply Scheme for Suswa Integrated Water Development	2007-2008	\$890,000
The Development of Large Diameter Wells along the Tana Basin to Supplement the Garissa Urban Water Supply in Kenya	2008-2009	\$2,080,000



### ■ 1.3. Evaluation Scope

- This evaluation carried out a Performance Evaluation verifying whether the project performance produces intended results at each step.
- A Process Evaluation was also carried out. At the project design stage, the team examined the process of how the project inputs and outputs were determined. In the implementation stage, the team examined whether the project implementation procedures were aligned with the recipient country's institutions and system.





## **Evaluation Process and Methodology**





# II

## Evaluation Process and Methodology



### 2.1. Evaluation Questions and Methodology

#### 2.1.1. Evaluation Questions and Criteria

<Table 2-1>Evaluation Questions and Criteria

Division	Criteria	Items	Notes
Process Evaluation	Relevance	<ul style="list-style-type: none"> <li>■ Does this project accord with the priorities of the recipient country as well as Korea?</li> <li>■ Is this project target appropriate?</li> <li>■ Does this project reflect preferential needs of the beneficiaries?</li> <li>■ Does this project include appropriate procedure to reflect the opinion of the recipient country and beneficiaries?</li> <li>■ Is the project plan appropriate to achieve its objective in terms of the project period, budget and scale?</li> <li>■ Is this project cooperated and coordinated with water resource development projects of other institutions?</li> </ul>	Literature search and interview in Korea
	Efficiency	<ul style="list-style-type: none"> <li>■ Was all the project delivery carried out within the planned timeline and budget?</li> <li>■ Was it well-timed and optimally organized to provide human and material resources for the project?</li> <li>■ Was a channel set up to coordinate and communicate among stakeholders?</li> <li>■ What structural factors harm the efficiency of the project?</li> </ul>	Literature search and interview in Korea
	Sustainability	<ul style="list-style-type: none"> <li>■ Was there an appropriate exit strategy set-up?</li> <li>■ Has it been discussed how to arrange the required budget and labor force inputs with recipient country to continue sustainable effect after the project completion?</li> </ul>	Literature search in Korea, Field research in Kenya

<Table 2-1> continued

Division	Criteria	Items	Notes
Process Evaluation	Gender consideration	<ul style="list-style-type: none"> <li>■ Has gender relations and gender equality been considered from the planning stage of the project?</li> <li>■ Is gender-disaggregated data of beneficiaries obtained?</li> <li>■ Is there any measure to encourage women's participation?</li> </ul>	Literature search and interview in Korea
	Environment consideration	<ul style="list-style-type: none"> <li>■ Was there any anti-environment activities causing pollution in the course of project?</li> <li>■ Was appropriate recommendation and remedial action provided?</li> </ul>	Field research in Kenya
Performance Evaluation	Effectiveness (Output)	<ul style="list-style-type: none"> <li>■ Did actual output correspond to the intended one?</li> <li>■ Have facilities had any defects? Do completed facilities work properly?</li> <li>■ Has the provided equipments been used in appropriate purpose?</li> <li>■ Did the expert dispatch and training program enable the project to deliver apposite technical assistance?</li> </ul>	Field research in Korea and Kenya
	Effectiveness (Outcome)	<ul style="list-style-type: none"> <li>■ Has the beneficiaries' access to safe water improved? (Outcome 1)</li> <li>■ Have the water treatment plant, running water system, tubular wells and other installed facilities been maintained in a proper manner? Has the technology to maintain them been delivered properly? (Outcome 2)</li> <li>■ Has the financial soundness of the region been improved through the reduction of water treatment fee? (Outcome 3) in the case of Tana Basin project</li> </ul>	Field research in Kenya
	Impact	<ul style="list-style-type: none"> <li>■ Has the health and life environment of local villagers been improved by the safe water supply?</li> </ul>	Field research in Kenya
	Sustainability	<ul style="list-style-type: none"> <li>■ Has the recipient country injected proper labor forces and budget to manage those facilities mentioned above after the project completion?</li> <li>■ What factors hinder the sustainability?</li> </ul>	Field research in Kenya
	Gender Impact	<ul style="list-style-type: none"> <li>■ What impacts (intended or unintended) has the project produced in terms of gender relations and gender equality?</li> </ul>	Field research in Kenya
	Environment Impact	<ul style="list-style-type: none"> <li>■ What kind of changes (intended or unintended) in life environment and pattern have been caused by the project ?</li> </ul>	Field research in Kenya



### 2.1.2. Evaluation Methodology

- In order to evaluate the water supply projects, the evaluation team made use of both qualitative evaluation methods such as 'Desk review', 'In-depth interview' and 'Focused group discussion' as well as a quantitative survey.

#### 1) Desk review

- Desk reviews, which became the basis of interview and survey questions, utilized various resources from international and domestic literature to consider the specific context of this project as well as evaluation indicators internationally adopted for water resource development projects.
- The desk review included not only project-related documents such as a pre-project report, an executive consultation report, a PMC report, an expert dispatching report, a training program report, a mid-evaluation report, and a project completion report, but also Kenya's national development strategy, water resource development strategy, various water and sanitation indicators and other donors' project reports.

#### 2) Interview with interested parties in Korea

- An interview with interested parties in Korea was conducted to compare and analyze their opinions and suggestions on each evaluation issue.

#### 3) Interview with key stakeholders in Kenya

- An interview with key stakeholders in Kenya was conducted in order to apprehend their opinions on inputs, implementation, and outputs and to compare their opinions with counterparts' in Korea.

#### 4) Beneficiary Survey

- A beneficiary survey was designed to obtain quantitative data on the improvement of access to water as well as the enhanced health environment of the beneficiaries

<Table 2-2> Survey contents

Content	Details
Improvement of access to water	<ul style="list-style-type: none"> <li>▪ cognizance of increased water quantity that is available at home</li> <li>▪ cognizance of water quality</li> <li>▪ increased number of households provided with water supply</li> <li>▪ burden of water charges and degree of handling water bills</li> <li>▪ utilizing rate of water</li> <li>▪ understanding of factors hindering access to water of non-beneficiaries</li> </ul>
Improvement of health and life environment	<ul style="list-style-type: none"> <li>▪ frequency of waterborne diseases at home</li> <li>▪ distinguishing clean water from unclean water</li> <li>▪ necessity of clean water</li> <li>▪ satisfaction level about the improvement</li> <li>▪ reduction of distance of travel to water sources</li> <li>▪ increase of time put into production labors</li> <li>▪ reduction of children's labor hours and increase of frequency of children's commuting to school</li> <li>▪ reduction or increase of conflicts within community</li> <li>▪ increase of income</li> <li>▪ changes into hygienic and eco-friendly life habits</li> </ul>

- The team used non-probability sampling. The sampling size of the survey was determined as 2% of the beneficiary population of 2 respective areas. The beneficiaries who reside within 5km away from the project sites were targeted. Field Surveyors visited all the subject households and directly filled out the survey forms with the beneficiaries' answers after explaining the objective of the survey and answering outline.

<Table 2-3> Sampling Framework

Target area	Sub-target area	Total population	Sampling household	Notes
Garissa	Garissa Town	101,585 (2007)	300 households (1500 heads)	Average member per household : 5
Rarieda	Asembo	54,000 (2007)	216 households (1080 heads)	
Total			516 households (2580 heads)	

※ With the hypothesis that an average household consists of 5 members, sampling size was calculated as 2% of beneficiary population of the project.

※ The Suswa project was not included in the survey because it has not been operated for a long period of time.

- The sample size may be relatively small in order to represent the entire beneficiary population. However, the survey results have been supported by qualitative methods such as beneficiaries' in-depth interviews and focused group discussions.

#### 5) Focused group discussion with stakeholders

- Focused group discussions were carried out in order to listen to various opinions about the results and constraints of the project and to grasp the structure and context of the problems. Discussion participants consisted of 10 to 15 people and included community leaders and people from the implementation agencies.

#### 6) Interview with beneficiaries

- Beneficiaries interviews were conducted in order to verify the survey results and to collect more in depth information regarding the context and changes of the beneficiaries' lives and environment. Also, a gendered dimension of the project was explored. Interviewees were randomly selected from

those women and children who came to water kiosks, markets, and schools in the village to fetch water.



## 2.2. Evaluation Constraints and Limitations

### 2.2.1. Constraints

- This evaluation was conducted after the project had already ended. Many local officials who were in charge of this project at that time were appointed to other positions out of the targeted areas. Therefore, it was difficult to trace the officials in order and interview them. Moreover, the documentation capacity of each project partner was relatively low. They hindered the evaluation team's ability to understand project process as a whole.
- As the project's construction and operation were delayed for one to two years, the project's impact was somewhat difficult to track and verify.
- Due to the lack of baseline data, it was difficult to compare the changes after the project.
- Although this evaluation study was at first designed to objectively prove the impact of the project by referencing various health data from the project areas, such data was not available at the district level.

### 2.2.2. Limitation of Evaluation Methodology

- As the projects supported only a part of water supply system/scheme, it was a fundamental limitation in the ability to clarify the scope of the targeted beneficiaries. For this reason, the entire population in the targeted areas was considered as beneficiaries. This made it difficult to become aware of

the precise targets.

- The sample interviewed/surveyed (sample population) was not statistically representative of the beneficiary group because of time constraints and a budget which limited the sampling size. The field surveyors visited each sample household and carried out face-to-face interviews due to the high illiteracy rate in the target area.
- The survey was initially designed to compare the current situation in 2011 and situation before the start of the project in 2008. However, according to the field survey, those facilities started to work in 2010. Consequently, the survey questions have some flaws.
- Several impacts of the project which were detected from the studies might be a result of other projects and programmes. In this report, it was difficult to distinguish between the direct outcomes and impact from this project and other factors which may be intervening.

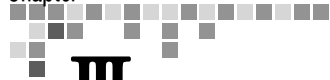




## **Comprehensive Evaluation of Results**







# III

## Comprehensive Evaluation of Results



### 3.1. Relevance

#### 3.1.1. Evaluation of relevance of project identification procedure

##### Key evaluation questions and results

- 3.1.1-1. Is this project aligned with Kenya's national development plan?
- 3.1.1-2. Were the project area and beneficiary targets properly selected?

- Water sector assistance was well timed and in-line with the national development strategy of Kenya
- The legitimacy of area targeting was undermined to a certain degree, because KOICA's role in selecting the projected target area was limited.
- While the project assessment verified the legitimacy of the suggested project, beneficiaries' basic data, including gender-disaggregated data, was not collected.

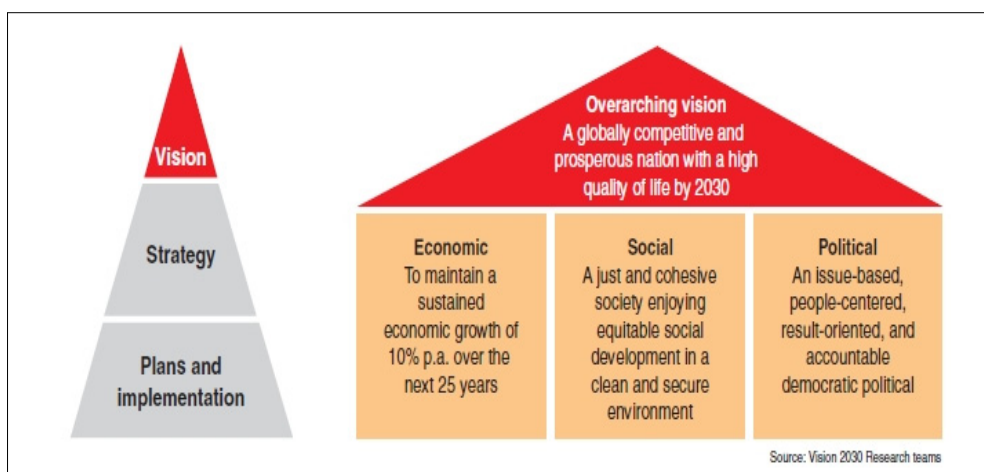
#### 1) Kenya's national development strategy

- In 2001, Kenya published its Poverty Reduction Strategy Paper (PRSP), which outlined its plans for national development and emphasized the importance of water as a basic human need. Water was also identified as a catalyst for economic and social development. According to the PRSP, water pipes have not been extended to reach rural Kenya since 1989 and the water supply system coverage in rural areas remains at 14

to 29%. As a result, access to drinking, agricultural, and livestock water in rural areas has remained relatively low compared to urban areas. For this reason, the PRSP aims to reduce the distance to water sources in poor areas to 2 km or less.

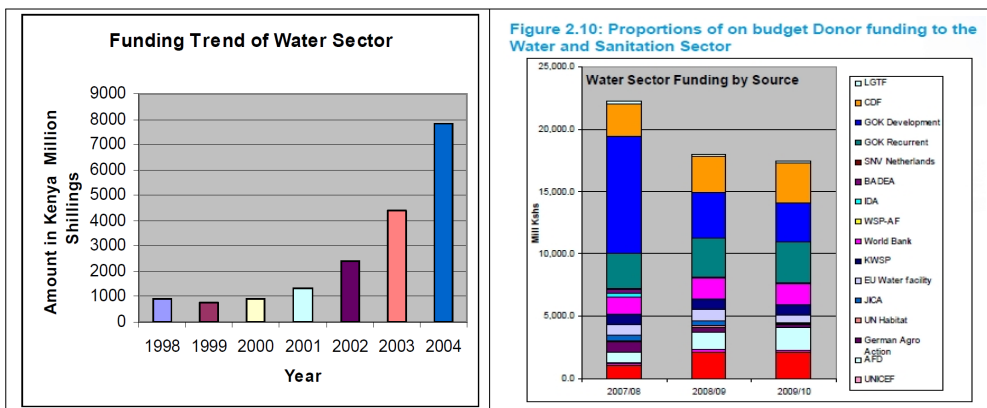
- When the regime changed in 2002, the PRSP was revised to become the Economic Recovery Strategy for Wealth and Employment Creation (ERS, 2003–2007). This new strategy presents a five year road map for economic growth and job creation by focusing on four key elements: ① economic development, ② governance strengthening, ③ infrastructure restoration and expansion, and ④ investment in human resources, specifically the development of the poor. When the ERS ended, it was succeeded by a new, macro development strategy, 'VISION 2030,' which outlines objectives and strategies for national development from 2008 to 2030.
- 'VISION 2030' contains a national vision to enhance the quality of lives and to grow into a nation with global competitiveness and prosperity by 2030. In order to achieve this, it outlines a strategy that stands on three pillars: economy, society, and politics.

<Image 3-1> Kenya Vision 2030



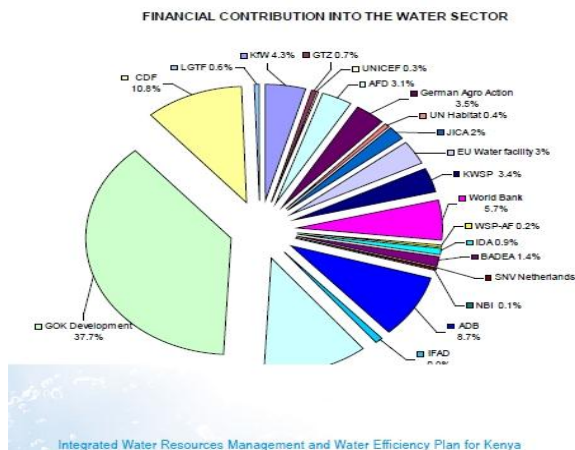
- While water resource development and management plans under VISION 2030 puts more emphasis on the big picture - the overall management of integrated water resource development and water efficiency, rather than on expanding individual water supply schemes, - the National Water Services Strategy focuses more on how to increase people's access to safe water by establishing new projects and/or repairing existing projects.
- The National Water Service Strategy (NWSS, 2007~2015) was established with the aim of providing 80% of the population with safe drinking water and 96% of population with sanitary facilities to reach the Millennium Development Goals (MDGs) by 2015.
- An enormous amount of investment is required for the government to achieve the water supply goals set by the NWSS. The current Kenyan government considerably lacks financial resources and capabilities to carry out these goals.
- During the severe drought that struck east Africa in 2006, the Kenyan government declared a state of emergency and asked for assistance in the restoration and expansion of its water supply system. Aid to the water sector rapidly increased.
- In response to this appeal, the amount of assistance to Kenya's water and sanitation sector has increased three-fold, from 8,000 million KSh to 23,000 million KSh, between 2004 and the post-drought years (2007/2008.) This can be seen in the following graph:

<Figure 3-1> Donor Funding to the Water and Sanitation Sector, Kenya



- In reality, the water resource sector in Kenya shows a considerably high level of dependence on external funding compared to other sectors. According to an interview with the Ministry of Water and Irrigation (MWI), 24 billion KSh of the 36 billion KSh that made up MWI’s annual budget in 2011 came from external financial assistance. Considering the fact that only 5% of the Kenyan national budget depends on external funds, the water sector's dependency on foreign funding and the role of this funding within the Ministry are greater than in any other sectors.

<Figure 3-2> Financial Contribution into the water sector, Kenya



- KOICA's assistance to Kenya's water sector is appreciated as an adequate intervention to support the progress of NWSS (2007~2015) towards the MDGs, as well as the development needs of the recipient country, taking into account the fact that water shortages severely impede the long-term national development of Kenya and that Kenya was severely impacted by the east Africa drought.

## 2) Relevance of targeted area and target beneficiary

- In order to provide effective assistance to countries suffering from nationwide water shortages and budget constraints like Kenya, it is necessary to target beneficiaries in areas where the gap between demand and supply is largest, as identified by an objective assessment.
- KOICA's target beneficiary areas were not selected using appropriate targeting criteria and procedures, but by an optional process that chose the sector in most need from a list of requested projects.
- This is because the project identification was not actively initiated by KOICA itself but by a request from the recipient country. Consequently, KOICA had to choose a project from a list of requested projects made by the recipient country in light of the available budget.
- This type of process made it relatively difficult to maintain the "relevance of the targeting rationale", because it generated constraints in figuring out whether the targeted area was really the one in most need at a national level as compared to other areas, even though it can guarantee the "relevance of the assistance" by verifying that the assistance is substantially necessary in a certain area.
- In addition, the relevance of the project's targeting rationale is put into further question when taking into account the fact that this assistance was heavily influenced by political and diplomatic pressure. According to

the preliminary survey and interview with stakeholders, the Asembo district, where the former Minister of Foreign Affairs and director of the 2007 Election Polling Committee was from, had already planned to receive support for a water supply project to fill a campaign commitment. Korea later promised to support this project at the official ministerial talk between Korea and Kenya in 2006.

- These constraints made it impossible to understand how the project's strategic positioning and comparative advantage fit in with Kenya's overall water supply system.
- As the preliminary survey was carried out after the target areas were selected, it mainly focused on choosing some items which could be implemented in a short time with the limited budget, particularly focusing on those suggested by the regional authorities.
- Although the preliminary survey was meaningful to verify the relevance and the practicality of the project that Kenya requested, it lacked efforts such as the needs assessment, the baseline data collection to concretely identify the scope (number) and needs of the beneficiaries, and the barriers to water access. The lack of baseline data, in particular, resulted in difficulties examining the project outcome against the intended goals.
- Moreover, as gender-disaggregated data was not produced, it was impossible to understand how many female beneficiaries were responsible for carrying water for domestic use.

### 3.1.2. Relevance of project planning process

Key evaluation questions and results
3.1.2-1. Did the partner country appropriately take on a role and participate in the project planning?
3.1.2-2. Was the project planned to be coordinated with other donor countries' activities?

- Even though the key implementing organization, the Water Services Board, appropriately participated in the planning process, the lack of understanding of various stakeholders and of local governance systems was identified as a major limitation of the project
- KOICA's dependence on its bilateral channel with the MWI, without any harmonization with other donor countries, did not raise the visibility of Korean assistance, but it generated a problem of planning the project without a strategic blueprint.

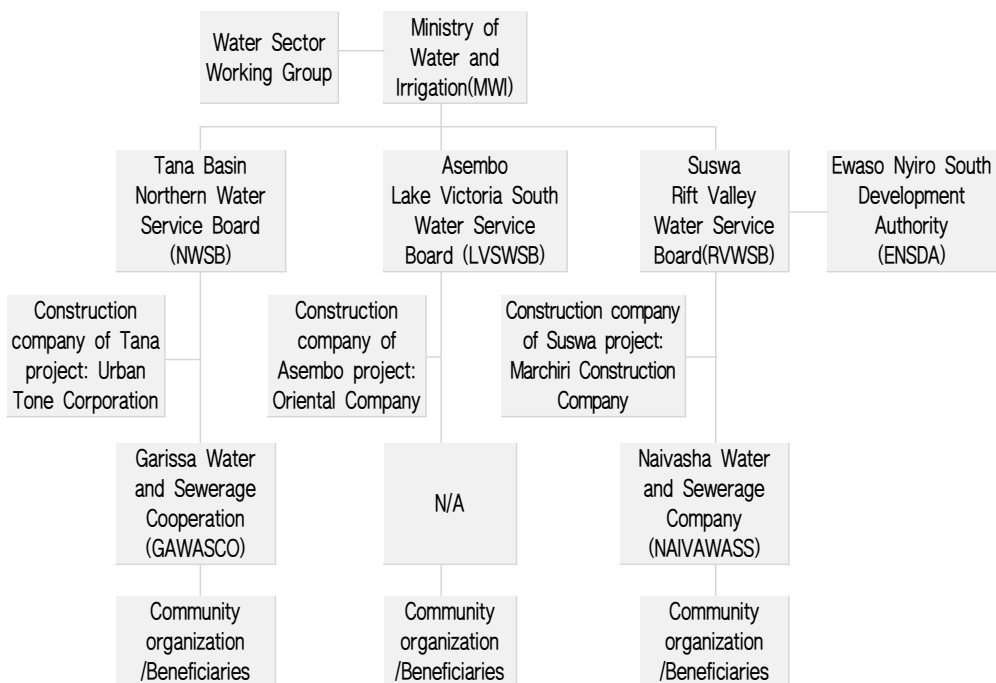
## 1) Role and participation of partner country

### (1) Stakeholder analysis

<Figure 3-3> Key stakeholders in Korea



<Figure 3-4> Key stakeholders in Kenya



- The Kenyan government reorganized relevant institutions at each level by legislating the 2002 Water Act and established a governing system in preparation for water sector reform in 2002.
- Development of the water supply facilities was carried out mainly by eight regional Water Services Boards (WSBs) under the MWI. The completed facilities were leased to the private water supplier, Water Service Provider (WSP), for management and maintenance.
- Not only must the WSP follow the water supply regulations of the WSB, but it must also apply a water tax, as determined by the MWI, in order to receive the government subsidy. The WSP runs the company with revenue generated by imposing this tax on the water that is provided from the leased facilities.

<Table 3-1> The role and responsibility of the WSB and the WSP

Water Service Board(WSB)	<ul style="list-style-type: none"> <li>▪ Efficient and economical delivery of water services</li> <li>▪ Developing water facilities</li> <li>▪ Applying regulations and tariffs on water services</li> <li>▪ Procuring and leasing water and sewerage facilities, contracting Water Service Providers</li> </ul>
Water Service Provider(WSP)	<ul style="list-style-type: none"> <li>▪ Delivery of water and sanitation services</li> </ul>

- Furthermore, volunteers from community organizations can also be considered stakeholders because they manage and maintain the water kiosks, which are co-owned by the community. They accumulated revenue by selling water, which is taxed by the WSP, at a price ranging from 2 to 10 Ksh per 2 liters.

## (2) Participation of recipient country's stakeholders

- The water sector reform, which was launched in 2002, brought about decentralization and privatization of Kenya's water sector. Previously,



water resources were managed by the central government, but after the 2002 reform, regional WSBs were tasked with policy planning and private water suppliers were put in charge of policy implementation.

- The level of participation of the WSB was considered appropriate. As the main counterparts in these three projects, the WSB of each area continuously participated in discussions for creating a detailed action plan. However, the participation of the WSPs and the community organizations, which are also important stakeholders in running the facilities, was very limited. They did not have a chance to be engaged in any of the project planning consultations.
- A major limitation of the project was that the main stakeholders, in particular the WSPs and the community members, did not participate in the project planning and implementation at an appropriate and meaningful level. For example, WSPs of the Tana Basin project have expressed their discontent on the pipeline mapping and core community leaders did not even know about the projects.
- This was because, on one hand, the WSB lacked the capacity to collect public opinions and coordinate them, but on the other hand, the PMC did not have a channel to listen to various stakeholders and reflect their opinions.
- In conclusion, the role and participation of the main implementing organization, the WSB, were considered appropriate, but the projects failed to understand the variety of stakeholders in the process and therefore, failed to ensure meaningful participation of those who would be influenced by the project. This is largely due to the lack of research into local governance systems, which determine each party's roles and responsibilities.

## 2) Harmonization with other donor institutions

- Development assistance institutions working in Kenya have actively adopted the sector-wide approach program (SWAp) to harmonize their assistance activities since 2003. In line with these collaboration efforts, the Kenyan government established the Kenya Joint Assistance Strategy (2007-2012), which associated 17 key development partners (13 donor countries and 4 international institutions) in 2007.
- Several communication channels have been activated thanks to the KJAS, helping harmonize assistance efforts. In the water resource sector, the Working Group Technical Meeting (WGTM), which is co-chaired by the Netherlands and Sweden, has been held monthly, along with other working group meetings.
- Korea has not participated in the KJAS or in any harmonized activities in the water sector because of personnel limitations, specifically that the KOICA Kenya office has only one staff member and no sector-specific expert, which has prevented it from participating in the WGTM.
- Although continuous participation was not possible, Korean assistance could have been better implemented with a specific blueprint that outlined how best to contribute to water resource development in Kenya. The visibility of Korean assistance within the working group could have been raised if there was consultation with a sector-specific working group to gather information about other donor's projects. The project could also have benefited from reflection on the general issues and risk factors within the sector.
- In fact, the MWI and other donor institutions, such as SIDA and JICA, pointed out that Korea's assistance needs to be planned in a more participatory manner by engaging in sector-specific development dialogue through sector working groups in the future.

### 3.1.3. Validity of project design

#### Key evaluation questions and results

3.1.3-1. Were the timeline, budget and size of the project appropriate for the attainment of the objectives?

3.1.3-2. Were the needs of beneficiaries properly reflected?

- Due to the lack of a logical framework, specific and verifiable objectives that fit the project's scale were not planned and the means to measure performance at each level could not be prepared.
- This project, which was initiated as a well-timed and prompt intervention for supplying safe water in the project area, had only partial achievement of the goals due to lack of budget and information.
- Because the channels to reflect the needs of various beneficiaries were not well enough prepared, it was difficult to assess whether the project plan accorded with the beneficiaries needs.

#### 1) Validity of project design

##### (1) Validity of project objective

<Table 3-2> Projects overview

Asembo water treatment plant construction project 2007-2008	Objective	To supply safe water to the Asembo district, thus providing for basic water needs of residents, preventing waterborne diseases, and stimulating regional economic development
	Content	Provided a total of 1.53 million dollars to assist with the construction of the water treatment plant, expert dispatch, provision of equipment, and training
Suswa running water pipeline repair project 2007-2008	Objective	To provide the Suswa district with a safe and steady supply of water for drinking and livestock, thus meeting the basic water needs of residents and stimulating regional economic development
	Content	Provided a total of 890 thousand dollars in assistance for investigation and design of water pipeline repair, establishment and replacement of a water reservoir and water tank, expert dispatch, provision of equipment, and training
Tana Basin development project 2008-2009	Objective	To provide a safe and stable supply of water to the Garisa district, reduce waterborne disease, reduce the cost of water treatment, and improve regional financial security
	Content	Provided a total of 2.08 million dollars in assistance for well development, expert dispatch, provision of equipment, and personnel training in Korea

- These projects consist of four elements: facility construction, equipment provision, expert dispatch, and training. Constructing facilities and providing equipment contributes to lasting infrastructure with proper supplies, or “hardware”. Expert dispatch and training aim to strengthen capacity within the recipient country, a “software” approach.
- However, the project design process did not sufficiently analyze how these elements would bring the intended outcomes. It did not plan the monitoring and evaluation (M&E) system to measure the outcomes attained at each level. It is presumed that this project was planned before the result chain/logical framework approach was implemented by KOICA.
- Based on this, it is also assumed that the objectives of these projects were disproportionately focused on regional economic development, which is beyond the scope of the original project’s objectives of strengthening specific parts of the water system. Because of this, an avenue to set specific, measurable goals that are appropriate in scale, as well as a method for measuring performance at each level, must be devised and adopted in the future.

## (2) Timely response

- Considering that the evaluated projects were all delivered during the period of 2007-2008, when a lot of financial assistance for water sector development flowed into Kenya, and at the same time, the demand for water sector development and water supply rose rapidly, these projects were considered a well-timed intervention. Additionally, a one-year construction period is regarded as appropriate to promptly respond to a drinking water shortage.

### (3) Appropriateness of budget and scale

- These projects were initially planned to strengthen sub-parts of a previously existing water supply system rather than to establish an additional, new water supply system. The Asembo project mainly supported water treatment segments, including water intake, conveyance, treatment, and distribution among the whole water supply system. The Suswa project replaced and repaired some deteriorated pipeline, while the Tana Basin project focused on developing wells and connecting pipelines.
- This was due to the fact that KOICA did not have a sufficient budget to establish or repair a whole system, so from the beginning, the scope of the project was restricted. Under this condition, it is meaningless to measure whether the assigned budget was adequate to achieve the intended goals. This evaluation concentrated on assessing whether the money within the assigned budget was allocated strategically.
- In Asembo, the village residents who had been provided with polluted water from the Victoria Lake, without any treatment or purifying process, were exposed to various waterborne diseases. Considering this, assistance to the water treatment and distribution is understood as a strategic choice.
- In the Suswa project, Kenya asked for a 500 million dollar budget to conduct a feasibility study of the Suswa Integrated Water Development Project, but because water supply was identified as a much more urgent need by the preliminary survey team, repairing the running water system became the priority.
- However, considering that the deteriorated wells, pipelines and poorly sited pipeline route (which passes through a valley that is prone to be swept away during the floods), the 8.5km of pipeline and the water reservoir that were repaired were not assessed as a strategic choice for sustainable water supply, but only as a temporary measure.

- In the case of the Tana Basin project, it was difficult to assess whether the scope of the project was appropriate to achieve the intended objective. This was because the project background and objective that were gathered from interviews with stakeholders during field research differed from those that were collected by the preliminary survey team. It was not clear whether the intention of this project was to substitute the Tana Basin water supply with wells (as stated on the project plan) or to improve the quality of water, particularly during the rainy seasons (as gathered during field research). Please refer to the table below for details.

<Table 3-3> Gap between background and objectives of Tana Basin project

Project action plan	In field research results
<ul style="list-style-type: none"> <li>■ The water supply at Garisa district before: about 8,000 m3 per day</li> <li>■ The volume of water from four planned wells was calculated to be 5,600 m3 per day. The shortage ,about 2,400m3 per day, was planned to be supplemented by three additional wells, to be built by the Kenyan government.</li> <li>■ This project can be understood as part of a plan to substitute the Tana Basin water with groundwater.</li> </ul>	<ul style="list-style-type: none"> <li>■ The water supply at Garisa district before: about 12,000 m3 per day</li> <li>■ At the time, three wells were already completed with the help of Japanese funding, prior to the construction of wells by Korea.</li> <li>■ This project was planned as an alternative measure to improve the turbid water of Tana Basin during the rainy seasons.</li> <li>※ In reality, it was difficult to substitute Tana Basin water with the limited supply of groundwater in a short time frame, since the population of the district was rapidly growing due to the influx of Somalian refugees</li> </ul>

- The gap between the plan and the field research results can be attributed to the lack of policy by the Kenyan government on the direction of this project and to the Kenyan stakeholders' request for assistance without agreement on the purpose and objective of this project.
- This means that KOICA assisted with the Tana Basin project without sufficient

consideration of how it would contribute to the regional water sector development strategy.

a. Reflection of beneficiaries' needs

- The beneficiaries' needs assessment generally analyzes the major issues in the area and ensures that it is accurately addressed in the project. However, this needs assessment was left out of the preliminary survey.
- The beneficiaries of this project were divided into several groups: the village residents who were to be supplied with water (the end-users), those who learned technical skills during the project implementation (the trainees), and the project staff at WSB who collaborated with the dispatched experts, assuming that there was technical knowledge transfer from experts to the local counterparts.
- In terms of project procedure, owing to the limited capability of the WSB, a systemic framework for need assessment was not arranged. It was impossible to grasp whether the residents were satisfied with the project, because no investigation on the scope and demands of beneficiaries or barriers to water access were conducted. Even after the assistance of KOICA was confirmed, there was no supplementary survey or research. As a result, it was very hard to measure how much the satisfaction level of the beneficiaries has changed after the project intervention.
- Because there was no way to effectively gather the opinions of the trainees, who were intended to be beneficiaries of the training program, the demand for knowledge and the technical needs of the community to provide a steady supply of water at the local level were not properly understood. The PMC, the implementing partner of the training program, contributed to the knowledge transfer of Korea's experts by providing courses related to the water sector and to Korea's advanced technology. However, the

courses were assessed to not correspond to the local needs for technology and knowledge. In particular, there were some opinions that this program was not helpful enough to deal with operation and management (O&M) issues that had to be solved urgently, such as the reduction of leaking water.

- In order to discuss whether the staff of the project partner, WSB, can be considered beneficiaries, the main roles of the dispatched experts first need to be considered. The roles of experts on the ground can be divided into two categories: a technical adviser during the project design stage and a supervisor during the project implementation stage. In this sense, the project partner can be considered a beneficiary, because technical capacity is complemented and strengthened by the technical adviser when mapping and designing capabilities are not sufficient at the local level. Considering that the technical needs assessment for the WSB was not formalized, but improvised by spontaneous feedback while the project was being implemented, it can be assumed that technical knowledge transfer was fulfilled to a certain degree if no technical problems were discovered in project operation. One limitation of this approach is that the needs for local management, know-how, and information were not gathered like they were in the preceding case of the training program.



## ■ 3.2. Effectiveness

### 3.2.1. (Outcome1) Improved access to safe water for beneficiaries

#### Key evaluation questions and results

3.2.1-1 Output assessment: Have all facilities and equipment been completed/provided and utilized for their purposes?

3.2.1-2. Attainment of Outcome: Was access to safe water for beneficiaries improved?



- Asembo Project : This project contributed to the improved access to safe water and the beneficiaries reported a high level of satisfaction, in particular with the enhanced quality of water.
- Suswa Project : Although the facilities were completed as planned, the improved access to safe water of beneficiaries was drastically limited by damaged pipelines.
- Tana Basin project : This project highly improved the quality of drinking water, but improved access to water for beneficiaries was limited.

## 1) Asembo project

### (1) Output

- All planned facilities were successfully completed and, at present moment, are functioning smoothly with proper maintenance.
- Water kiosks that provide drinking water to beneficiary residents were completed as planned, and are being smoothly managed and maintained by volunteer organizations made up of residents.
- However, the provided water tank was damaged during a political demonstration and was then picked up by a member of parliament, so it was not checked by the evaluation team during the field visit.

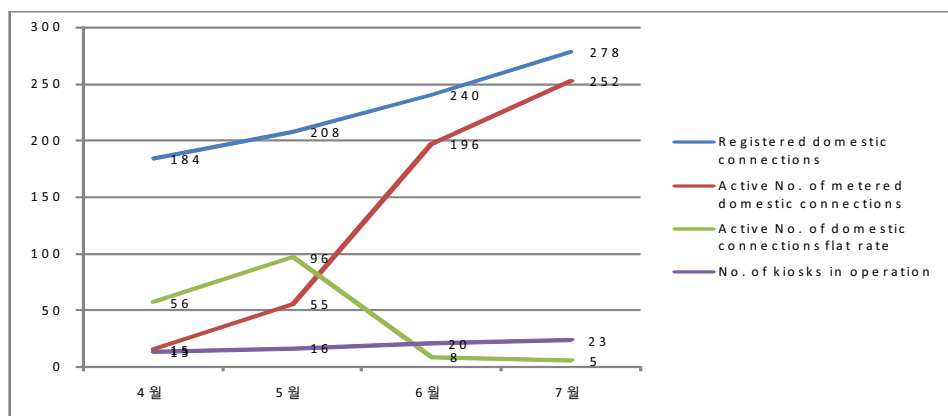
### (2) Outcomes

- Because this project was designed as part of the Asembo water supply system, the outcome evaluation mainly focused on measuring to what extent the objectives of the whole system had been achieved and analyzing the contribution of KOICA to the outcomes.

a. Increase of beneficiary households

- According to the statistics of LVSWSB, the number of beneficiary households has gradually been increasing since the system began to operate in April 2011. (See Figure 3.5)

<Figure 3-5> Changes in numbers of beneficiary households of the Asembo project

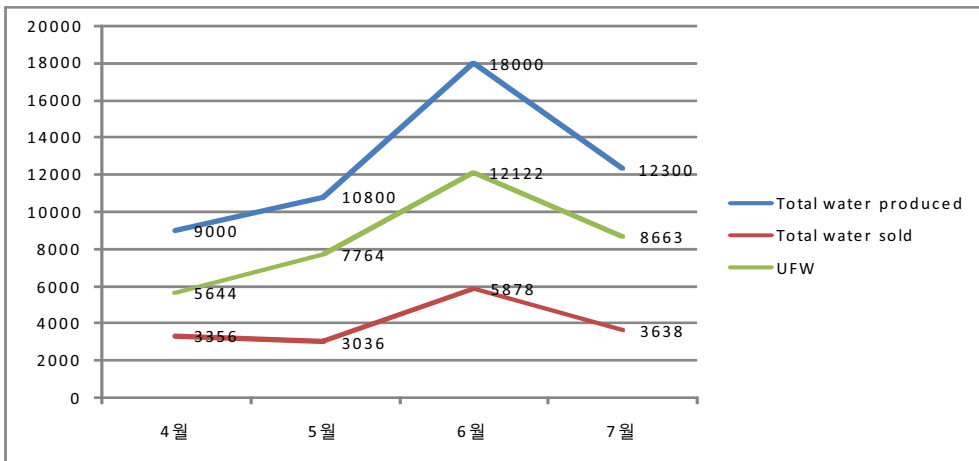


- An official of the LVSWSB reported that he expected the number of beneficiary households to reach 1,000 in the next 3 to 4 months and expressed a target of 10,000 household connections in the next 5 years.
- According to the survey result, water kiosks were said to be the main source for gathering water among village residents (58% among the survey respondents). That is, villagers rely on communal water supply facilities. If this is so, the actual number of beneficiary households is presumed to be higher than this result.
- The survey results also show that the Asembo water supply system has been contributing to improved access to drinking water of the beneficiaries: 95.4% of the respondents answered that the place from where they get water had changed since 2008, and 99.4% of them answered that their time and labor had been reduced.

b. Improvement of quality and quantity of drinking water

- The amount of water supplied through this project is on a constant rise, as seen in the figure below. However, the gap between total water produced and water sold is considerably large. The rate of leaking water or water that has been unaccounted for (Unaccounted for Water: UFA) is still over 30%.

<Figure 3-6> Changes in the amount of supplied water (unit: m3)



- According to the survey results, 97.1% of the beneficiary residents think that the amount of water supplied has increased since 2008 and 97.7% of them answered that the quality of water has also improved.
- In particular, since the water from Lake Victoria was polluted by green algae (the residents call it "Green Water") or salty groundwater was provided to the residents, the beneficiaries have been very satisfied with the water that is currently being supplied, because it is purified by the water treatment plant.

### c. Reduction of frequency of water outages

- According to the survey results, 65.5% of the respondents who were asked about whether they had experienced a water shortage within the last month answered yes. Additionally, 62.8% of them said the water outage continued for at least a few days, while the other 28.3% stated it lasted for several weeks. This shows that there are still problems with consistent water supply.
- The village residents pointed to damaged pipelines as a key reason for frequent water outage and the LVSWSB also reported that strong pressure and weak pipe couplings have caused frequent pipeline cracks and 3 to 4 reported cases of water leakage per day. Unstable electricity supply has also often caused system stoppage.

### d. Reduction of barriers to water access for vulnerable populations

- Water fees are one of the factors which impede access to safe water for the vulnerable. According to an interview, untreated water cost 7 KSh per 2 liters before the facilities were completed, but now treated water from water kiosks only costs 3 KSh per 2 liters. The water provided became much better and cheaper than before.
- The survey results also support this fact: 54.2% of total respondents in Asembo area answered that they were paying 500 KSh monthly for water and only 36.3% replied that water was too expensive.
- In the Asembo area, the poor have better access to water due to the low prices at the water kiosks, considering that those who buy water from water kiosks (58%) outnumber those who are provided water through the pipeline and pay the metered fee (36.8%).

#### e. KOICA's Contribution to Projects

- The Asembo treatment plant, made possible with KOICA's assistance, improved the quality of water, and the construction of the five water kiosks also contributed to the improved access to water by extending the regional water supply network.

#### 2) Suswa project

##### (1) Output

- According to the project completion report, there were three existing wells. One of them was in good condition, except for the absence of a pump; the other two wells had operating pumps, but the amount of attainable water was very low. The well that was in good condition was equipped with a new pump and the other two wells were repaired.
- The pumps set up by this project are now in operation and the cumulative amount of water attained is 13,507.5m<sup>3</sup>. The water pumped, however, is now being provided not to the Suswa area but to Kamere, Kwa-muhia villages near Lake Naivasha.
- Furthermore, the existing four water tanks, with a capacity for 50m<sup>3</sup> each and four drinking fountains for livestock were repaired. Two more drinking fountains were newly constructed.
- According to the local responsible institution, this project was completed in August 2008 and the constructed facilities had been working normally until April 2010, when the pipeline route in the valley was washed away by floods. The damaged pipeline has not been restored since then, so water supply to Suswa has been stopped for a long time.

## (2) Outcomes

- When the Suswa water supply system started working, satisfaction of the Suswa residents was considerably high. Had the water been continuously supplied through the facilities in a steady manner, this project might substantially have improved the access to water of the beneficiaries, because they have no other water resources except for collected rain water for drinking and household use.
- However, since the water supply was stopped in 2010, the degree of dissatisfaction among the beneficiary residents has been increasing and NAIVAWASS has asked the RVWSB to repair the broken facilities. The RVWSB have not responded to the request.
- In summary, the key obstructions to KOICA for providing access to water for the beneficiaries in the Suswa project were: lack of ownership by both the facility developer, RVWSB, and the operation agency, NAIVAWASS, and their inadequate management of the facilities.
- However, had Korea set up a post-disaster emergency restoration system after considering the risk of pipeline loss due to floods, particularly in the valley area, this situation could have been prevented. For future projects, risk management systems need to be prepared and inserted into the project plan.

## 3) Tana Basin project

### (1) Output

- The four wells and water pipes were completed as planned. They currently seem to be in normal operation, with no defects found.
- Since the electricity was supplied in September 2010, the amount of pumped

water had reached a total of 258,466.1m<sup>3</sup>, which was segmented into 91,871.2, 137,609.5, 20,253.2, and 8732.2m<sup>3</sup> by each pump station. Considering this, it can be said that the well sand pump station have been working normally. In other words, each well pumped 36m<sup>3</sup> of water per hour when the three wells were presumed to work eight hours per day(2,400hours in total) for ten months(about 300days) except the stand by. Considering that the pump can pull a maximum of 40~72m<sup>3</sup> water per hour(1.66~3 m<sup>3</sup> per minute), these wells operated at optimal capacity.

- The equipment for analyzing water quality, which was provided by KOICA, was functioning properly and the researchers in the laboratory for water quality analysis expressed satisfaction with the modern equipment. This laboratory is part of GAWASCO and is identified as the most equipped laboratory within the region. It has conducted water quality analysis of the Tana water and the processed water three to four times per day. The only un-utilized instrument was the spectrophotometer, the operation of which is too complex to be used by the researchers.

## (2) Outcomes

- The outcome evaluation measured the effect of the whole system, focusing on how much this project had achieved as a part of the Garissa water supply system. It also analyzed KOICA's contribution.

### a. Increase of the beneficiary households

- According to the statistics by GAWASCO, water supply to households has gradually been expanding, with the number of households provided with water increasing from 7,000 in 2008 to about 8,500 in 2011.
- According to the survey results, water intake became easier than before the project was implemented: 88.5% of the respondents in Garissa answered

that they have a new water source since 2008 and that the time and labor to get water had been reduced.

#### b. Increase of quantity and quality of drinking water

- According to the survey results, 99.2% of the beneficiary residents answered that water supply had increased compared with 2008, and the quality of water had improved.
- The beneficiaries expressed a high level of satisfaction with the improved quality of water (10~14 NTU) as relatively clean water from wells was mixed with the turbid Tana water, which showed high turbidity ranging between 160 and 210 NTU.
- In terms of water quality improvement, the equipment for water quality analysis, which was provided by KOICA, facilitated the analysis process.

#### c. Reduction of water outage frequency

- According to the survey results, smooth water supply has not yet been achieved and temporary delays often happen: 61.3% of the respondents who were asked about whether they had experienced water shortage within the last month answered yes. Of these, 39.9% said water outage continued at least a few days and another 39.9% stated it lasted for several weeks.
- The village residents pointed to damaged pipelines as a key reason for the frequent water outage, which was caused by unsafe burial of the pipeline. According to the GAWASCO report, water leakage in the area reaches 55%, exceeding the Kenyan average of 30%. However, other stakeholders point to the increase of the vulnerable population caused by the influx of refugees, and state that the main reason for water outage is intentional damage to the pipes.



#### d. Reduction of barriers to water access for the vulnerable

- Water fees are one of the main barriers that impede the vulnerable populations from accessing safe water. Water price is determined based on the amount of consumption, ranging from 53 KSh/m<sup>3</sup> to 208KSh/m<sup>3</sup>. In water kiosks, water is sold at the price of 2KSh per 2liters.
- In this area, the rate of those who buy water from water kiosks is extremely low – only 1.2% of respondents - compared to the rate of households who are provided with water through the pipeline (97.5%). Most of them said that the water fee was too high.
- 96.1% of survey respondents in the Garisa area answered that they were paying 500 Ksh per month for water and 93% said the water was too expensive. In particular, the beneficiaries said that water prices rose by about 140% from previous years (22 KSh/m<sup>3</sup> in 2008, 53KSh/m<sup>3</sup> in 2011) and they seemed to feel a lot of pressure from the costs of water.

#### e. Contribution of KOICA project

- This project improved the quality of water, but there was no contribution to the expansion of the water distribution network.

### 3.2.2. (Outcome 2) Smooth maintenance of system

#### Key evaluation questions and results

3.2.2-1 Output assessment: Has local capacity been strengthened through technical knowledge transfer?

3.2.2-2 Attainment of Outcome: Has the water supply system been maintained properly?

- The traditional training programs and capacity building models that rely on one individual expert's advice are considered inappropriate, short-term, and less effective in strengthening necessary capacities and enhancing the effectiveness of the project.
- Korea's status was considered positive through the spread of of Korea's advanced technology.

## 1) Output

- Technical knowledge transfer in this project was delivered through the expert dispatch and a trainee invitation program.

### (1) Expert dispatch

- The percentage of the budget dedicated to expert dispatch in each project is as follows: 24% in Asembo, 35% in Suswa , and 21% in Tana Basin. The details of the expert dispatch are shown in the table below.

<Table 3-3> Expert dispatch of each project in details

Asembo project	Suswa project	Tana Basin project
PM: 12 months	PM: 9 months	PM: 12.5 months
Civil engineering expert : 3 months	Design expert: 3 months	Civil engineering expert : 5 months
Construction expert : 2 months	Civil engineering expert : 0.4 month	Ground water expert : 4 months
		Machinery expert: 1.5 months

- The dispatched experts contributed to finding problems in the construction design and plans that were devised by the recipient country, and suggesting improvements to ensure there was no delay in implementation.
- However, the dispatched experts seemed to focus more on supervising construction than technical consulting. Most of the dispatched experts in these projects saw their main responsibility as ensuring that the construction process proceeded without delay or problem, rather than strengthening the capacities of the recipient country. Generally, the main role of dispatched experts is to figure out what kind of technical capacity is needed in the field, and then organizing a systemic On-the-Job-Training (OJT) for technical capacity building of the recipient country.

- In the case of the Suswa project, the main task didn't actually require a high degree of skill, but just the ability to change pipes. Since the WSB and the local construction company, Machiri Construction Company, have all had experience with similar work on many occasions, they stated from the beginning that technical knowledge transfer was not expected.
- Even in the case of the Tana Basin project, technical knowledge transfer was not seen as highly necessary, because the local construction company, Urban Tone Cooperation, had already implemented a large-scale well development project, which was assisted by Japanese funds and supervised by a Japanese engineer. In this context, for efficient project implementation, administrative coordination with the MWI was seen as more important than technical supervising by the PMO. Thus, the PMO opened its office under the MWI in the capital, Nairobi, not in the project area.
- However, in the case of the Asembo project, the role of the dispatched experts seemed much larger than in the other two projects. The Kenyan design of the water treatment plant was very poor, so that the dispatched experts needed to transfer concepts related to designing sludge discharging facilities, as well as overall information on water treatment plants and running water systems.

## (2) Trainee invitation

- These projects allowed three trainees from the Asembo project, three from the Suswa project, and seven from the Garisa project to come to Korea in order to participate in technical knowledge transfer. According to the training report, the courses were beneficial and most courses showed a high level of satisfaction - over 95%. When two of them were interviewed during the field research, they answered that the technical skills learned in Korea contributed to the development of their projects.

- However, the relevance of technical knowledge transfer can be perceived as fairly low because Kenya currently has more to gain from improvements in its O&M system, for more efficient tax collection or reduction of water leakage, than it does from advanced technology. Assistance for O&M improvement was not given at all during these projects.
- Technical capacity building cannot be implemented in a short time, but it can be achieved by continuous support under systemic and phased plans based on surveys about the technical capabilities in highest demand.
- Therefore, an isolated training program for specific individuals, without any thorough analysis of what capacity is most needed on the ground (whether it be technical, institutional or organizational capacity) at the present moment, cannot contribute to strengthening local technical capacity, even while it may advance Korea's status to a certain degree.
- Among the 13 participants, only one was female, which is an insufficient contribution to the equal participation of women.

### 3) Outcome

- In the cases of the Asembo and Tana Basin projects, which currently experience no operational problems, technical knowledge transfer by experts can be perceived as contributing to the success of the systems, even if the contribution was limited. On the other hand, the training program has had very little effect on the smooth operation of the system, because most of the trainees were not responsible for the system operation.
- In addition, 9 of the 13 trainees were not working in the project areas for a variety of reasons, such as retirement, appointment to another region, or sick leave.
- This issue was caused by the lack of a problem identification process and the use of the traditional training program, without a reasonable targeting rationale.

### 3.2.3. (Outcome 3-Tana Basin project) Improving regional financial soundness through reduction of water treatment costs

#### Key evaluation questions and results

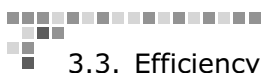
3.2.3-1. Has financial soundness been improved through the reduction of water treatment costs?

- Since the electricity cost increased due to the well pump machine as much as the water treatment cost decreased, reduction of the operation expenses was not achieved.
- On the other hand, alum usage in the Tana Basin water helped guarantee a certain level of water quality and decreased the amount of precipitate in the settling pond, so that efficiency of the operation was enhanced.

- The main objective of the Tana Basin project was to save on operation expenses of the water supply system by reducing treatment costs.
- When this project was first requested, it was planned to substitute turbid Tana water with groundwater, especially during the rainy seasons, by drilling wells and extending pipe lines to connect the wells with the water treatment plant, which is located 7km away. However, during the project implementing process, the underground pipeline was changed to connect to the existing basin because of excessive budget needs, energy, and maintenance costs. Therefore, the facility design was changed to mix the turbid Tana water with groundwater, instead of completely substituting the turbid water with groundwater.
- Field research revealed that the operation cost of the water supply system has not been reduced under the current system of mixing clean water and Tana water. The main reason is because, contrary to expectation, the cost of water treatment has not been reduced, and the electricity fee from the well has actually increased. According to GAWASCO staff, the daily demand for 15,000 m<sup>3</sup> of water can not be supplied exclusively by the wells, so it must be supplemented by pumping Tana water. With these two system in

operation, electricity consumption naturally increases.

- The main problem is that, under the present structure, the amount of alum input has not noticeably decreased compared with when only Tana water was taken in. Initially, water treatment costs were expected to decrease as electricity costs increased.
- According to a working level staff at GAWASCO, when only Tana water is used, 10 boxes of alum are needed. Even when the Tana water is mixed with clean groundwater, however, 9 boxes of alum are used to dilute the water. This is because under WHO regulation, the upper limit of alum input is set at 1.8 tons per day. Thus, when water gets more turbid during the rainy season, only 1.8 ton of alum and considerable amounts of water from the well are used to dilute the water. This means that the well that was constructed with KOICA assistance has been used to guarantee the quality of water with the limited amount of alum under circumstances when the high turbidity of the Tana water makes it untreatable.
- In other words, the initial objective of reducing the water treatment cost by decreasing the amount of alum put in was not achieved, because of the current system of diluting the Tana water with clean water from the well.
- However, due to the clearer pre-treated water from the dilution, the beneficiaries favorably evaluated that turbidity and the quality of the water improved. Furthermore, the decreased turbidity of the pre-treated water produced less alum deposits and ultimately lessened the expenses of getting rid of these deposits from the pond. Before this project was implemented, the water treatment plant had to be stopped at least once every other month to remove the deposits from the bottom of the pond. Now, cleaning of the deposits is carried out once every three or four months, which reduces the frequency of stoppage and is perceived to help enhance the efficiency of plant operation.



### 3.3. Efficiency

#### 3.3.1. Resource input and distribution

##### Key evaluation questions and results

3.3.1-1. Were all resources used as planned?

3.3.1-2. Was the distribution of each input element efficiently carried out?

- The working period of the projects was extended due to an inevitable political disturbance. However, after the construction was restarted, the project was completed without any trouble.
- The budget of these projects was executed according to the plan. However, in reality, the scale of the project was reduced in terms of the earmarked budget.
- On the other hand, the inefficient distribution of inputs, such as excessive spending of the budget on less demanded aspects, was exposed as a limitation of this project, due to resources being distributed based on schematic considerations rather than needs.

#### 1) Substantial resource input versus plan

- Plan versus implementation of each project by inputs is as shown in the table below.

<Table 3-4> Plan versus implementation by inputs

Inputs	Project	Plan	Implementation
Time (Period)	Asembo project	September 2007 - October 2008	September 2007 - February 2009
	Suswa project	September 2007- July 2008	September 2007- October 2008
	Tana Basin project	October 2008- November 2009	October 2008- November 2009
Budget	Asembo project	US\$ 1,530,000	US\$ 1,530,000
	Suswa project	US\$ 890,000	US\$ 890,000
	Tana Basin project	US\$ 2,080,000	US\$ 2,080,000
Labor	Asembo project	Expert dispatch for 20 months	Expert dispatch for 16 months
	Suswa project	Expert dispatch for 16 months	Expert dispatch for 12.4 months
	Tana Basin project	Expert dispatch for 24 months	Expert dispatch for 25.5 months

### (1) Time (Period)

- As seen above, the construction time frame of the Asembo and Suswa projects was delayed due to the political disturbance in the districts from the approaching December 2007 election, which caused a halt in construction. Although these projects restarted building in March 2008, land compensation issues and delayed tax exemption on construction materials made the construction period exceed the planned timeline by 3 to 4 months.

### (2) Budget and materials

- In the Asembo project, the overall executive budget remained unchanged, but parts of the water treatment plant, fences, the main gate and backwasher pipes had to be removed from the task scope because of unexpected expenses due to the extension of the construction period, loss of money in currency exchange during the financial crisis, and miscalculation, among other causes. The Suswa project also remained within its budget by scaling down the length of the pipe extension, and changing the construction methods and materials.
- In terms of supply of materials, all three project areas had the proper amount of material procured under the design and contracts. Most of the materials were imported goods that proved to be in good condition. Locally produced goods did not fail the quality tests either.

### (3) Labor

- No glitches have been recognized among the projects, although the dispatched experts' working periods in the Asembo and Suswa projects were cut short because political unrest caused the suspension of construction.



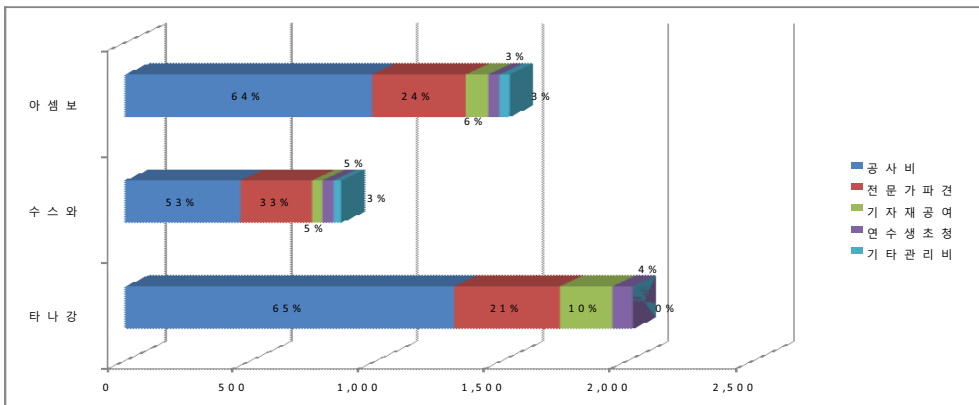
## 2) Efficiency of resource distribution

- When it comes to budget allocation by sub-categories, the cost of construction takes the biggest share, ranging from 53% to 65% of the project's budget. The second highest expense is the expert dispatch, which takes up between 21% and 33% of the total budget.

<Figure 3-7> Planned budget: detailed breakdown of the Asembo, Suswa and Tana Basin projects

(단위: 만불)

	Asembo	Suswa	Tana Basin
Construction cost	98.3	49	130.9
Expert dispatch	37.3	28.4	42.1
Equipment	8.9	4.1	20.9
Trainee invitation	4.5	4.5	8.1
Other administrative cost	4	3	6
Total	153	89	208



- As discussed in the relevance evaluation above, the efficiency of the resource distribution is believed to be weakened by the disproportionate allocation of funds to expert dispatch: 33% of the whole budget was appropriated for expert dispatch in Suswa, even though the project did

not have much technical knowledge transfer demands due to the simplicity of the repair and replacement process of the wells and pipeline.

- In the case of the Tana Basin project, the 21% of the budget spent on expert dispatch is not seen as an optimal distribution of resources, considering that the local construction company and its counterpart had already had experience with constructing a similar, large-scale well.
- This issue is assumed to be caused by the schematic distribution of resources rather than from a systemic distribution based on needs. The schematic distribution of resources can be pointed out as the most serious cause of inefficiency of the projects, considering that these projects were implemented within the limited budget by narrowing down their scope.

### 3.3.2. Efficiency of problem solving structure

#### Key evaluation questions and results

- 3.3.2-1. When problems occurred, did stakeholders consult one another to solve the problem promptly and efficiently?
- 3.3.2-2. Were there any structural factors that impeded the efficiency of this process?

- Although a prompt and close cooperative channel with the WSB was achieved, a limitation was that a consultative group including the various stakeholders was not formed.
- Instead of internal structural problems of the project implementation, project delays were caused by unexpected local affairs, such as political unrest, delay of tax exemption, and electricity shortage. These were all cited as the most harmful factors to project efficiency.

#### 1) Consultative group of stakeholders

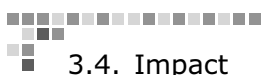
- The PMO (Project Management Office) can be clearly recognized as a close cooperation channel through which main stakeholders, such as the PMC, the counterpart WSB, and the construction company, could have daily/weekly meetings and regularly report to KOICA. The PMO was set

up within the WSB (for the Asembo and Suswa projects) and the MWI (for the Tana Basin project) for the dispatched experts to work during their assigned period.

- The one issue to point out is that the communication structure of this project was restricted to a bilateral channel between the PMC and the WSB, since no inclusive consultative group was formed to include not only the WSP, but various stakeholders in the broader scope.

## 2) Structural constraints impeding efficiency

- According to the MWI, these projects efficiently implemented their tasks with a speedy administrative procedure and prompt construction. There were no internal factors reducing the efficiency of the project.
- The external factors, local affairs of Kenya such as political disturbance, delay of tax exemption, electricity shortage, etc., were determined to be the most crippling for project efficiency.



### ■ 3.4. Impact

#### 3.3.1. Resource input and distribution

##### **3.4.1. Prevention of waterborne diseases**

- Although the beneficiaries stated that exposure to waterborne disease decreased due to the improvement of water quality, it is premature to precisely measure the impact on the prevention of waterborne disease.

##### **3.4.2. Economic impact from the reduced labor and hours of water collection**

- The reason that a larger economic impact was noticed more in Asembo than in Garissa was because there was a synergy effect with the local community development program,

which aimed at income generation. Furthermore, more community organizations were involved in managing the water kiosks in Asembo than in any other areas. This involvement made the impact more sustainable.

#### **3.4.3. Women's contribution to household income**

- As carrying water for domestic use has traditionally been the burden of women, reducing the time and effort required to get water contributed to economic impact.

#### **3.4.4. Frequency of absence from school**

- As the time and labor for water collection decreased, the frequency of children's absence from school seemed slightly reduced as well.

#### **3.4.5. Other impacts**

- By utilizing water resources, a more hospital environment for life was established.
- There was a slight reduction of conflicts in communities surrounding water sources

### **3.4.1. Prevention of waterborne diseases**

- Two of the projects - Asembo and Tana Basin - contributed to the prevention of waterborne diseases by improving the quality of water.
- For example, according to the survey results, to the question, 'Is there any family member who has had diarrhea?', which is the most representative symptom of waterborne disease, only 5.2% of all respondents in Asembo and 18.3% in Garissa answered yes.
- In particular, 17% and 42% of the respondents of Asembo and Garissa, respectively, recollected that they had diarrhea often or sometimes before 2008, whereas after the project implemented only 6.4% and 13.4% of respondents from the two areas answered that they had diarrhea often or sometimes. In conclusion, these two areas can be presumed to have seen a major improvement in reducing diarrhea.
- In a survey on other waterborne diseases, 91.3% respondents in Asembo and 79.9% in Garissa answered that they had not been sick from any other waterborne diseases.

- However, when hospital records of each region were consulted, a correlation between the project outcome and substantial reduction of waterborne disease was not clearly found. From January to May 2011, the total number of patients who had visited the hospital for diarrhea in Asembo decreased greatly as compared to the same period in 2010. On the other hand, the number of patients who visited hospital for dysentery, cholera, or typhoid actually increased in 2011.

<Table 3-5> Asembo Madian district hospital records of incoming patients for waterborne diseases

	Diarrhea	Dysentery	Cholera	Typhoid	Bilharzia
Over the age of 5					
2010 (Cumulative, Jan to May)	109	6	0	3	2
2011(Cumulative, Jan to May)	29	8	22	10	0
Under the age of 5					
2010 (Cumulative, Jan to May)	130	1	0	0	1
2011(Cumulative, Jan to May)	32	6	0	82	0

- Even in Garissa, the correlation with the waterborne disease outbreak seemed unclear. In 2011, the total number of incoming patients during the period of January to June, when waterborne diseases frequently occur, were more than in 2008, except for Jan 2008.

<Table 3-6> Garissa Provincial Hospital records of incoming patients for waterborne diseases

	Diarrhea	Dysentery	Cholera	Typhoid	Bilharzia
January					
2008	33	2	0	2	0
2011	0	1	0	9	0
June					
2008	24	8	0	15	0
2011	43	24	0	38	43

- It could be argued that the evaluation was carried out too soon to see strong correlations. When the evaluation study was conducted, treated water had been supplied for only four months in Asembo. In the Tana Basin project, groundwater was supplied exclusively during the rainy season.
- Other reasons are that alternative, unpurified water was being used to satisfy local demands, because neither area has stabilized its water supply due to frequent pipeline ruptures—furthermore, sometimes unsanitary domestic environments and life habits cause waterborne disease even when safe water is supplied.

#### 3.4.2. Economic impact from the reduced water intake hours and labors

- According to the survey results, 95.4% of the respondents in Asembo answered that their hours of water collection were reduced, and 92% of them replied that they were spending those hours generating more income. In Garissa, 98.8% of the respondents answered that they had saved time in water collection and 86% said they were utilizing the saved time for income generating activities.
- In response to a question about whether these income generating activities were linked to substantial income growth, 69.8% of respondents in Asembo answered that their income increased as compared to 2008, and 54.9% in Garisa said they had also experienced an increase in income.
- Among the respondents who answered that their income increased, more than 50% in both areas answered that the scaling-up of their business was the main factor contributing to this, while the second most common contributor was increased agricultural productivity.
- In response to the question of whether more profit can be generated if water supply increases, 95.2% of the respondents in Asembo and 74.1% in Garissa said yes. This reveals that the beneficiaries recognize that water

supply has a positive influence on income generation.

- The community residents' expectation that agricultural productivity would be enhanced by the supply of good quality water was confirmed: 69.1% of Asembo and 89.2% of Garissa respondents invoked agriculture as an expected measure that can generate profit with improved water resources.

<Table 3-7> Future profit generation possibility

		Region			
		GARISSA		ASSEMBO	
	Classification	Frequency	share(%)	Frequency	share(%)
Profit generation possibility	Yes	172	74.1	161	95.3
	No	60	25.9	8	4.7
	Total	232	100.0	169	100.0
Activities	Business	12	7.6	47	29.0
	Agriculture	140	89.2	112	69.1
	Livestock	2	1.3	2	1.2
	Aquaculture	2	1.3	-	-
	Reduce expenses	1	0.6	1	0.6
	Total	157	100.0	162	100.0

- Stable water supply is understood to contribute to the increase of income. In Asembo, a program for growing mango tree seedling for retail purposes was started by a community-based institution, 'the Great Lakes University'.
- The welfare of the community could continue to be improved in the future. According to an interview with a voluntary community organization, the Water Kiosks Management Committee, which manages water kiosk set up in Asembo, they have accumulated revenue of approximately KSh 5,000 (and cumulative KSh 25,000) from water sales and now have a plan to invest in a village community project with the collected money.

### 3.4.3. Women's contribution to household income

- In Kenya, women have taken on the traditional role of supplying water for domestic use. According to the Kenyan Demographic and Health Survey, women over the age of 15 who carry water comprised 58% of the population in rural areas and 21.5% in urban areas, while men over 15 comprised 9.1% in rural area and 9.8% in urban areas. This shows that, particularly in rural areas, mainly women carry water. Moreover, girls also help carry water and in rural areas, 3.9% of girls even below 15 help carry water.
- The survey results showed that when the household income increased due to improved access to water, the contribution to the income growth came largely from women.
- 84.9% of respondents in Asembo and 66.9% in Garissa answered that women execute income generating activities, mainly private business, and secondly, agricultural production. 37.1% of respondents in Asembo said that women contribute more than 50% of the household income, while only 23.2% said the same in Garissa. This shows that women's contribution to profit generating is larger and more active in Asembo than in Garissa.

### 3.4.4. Frequency of school children's absence

- The improved access to water resulted in the reduction of hours that children spent carrying water. The frequency of absence from school decreased in both regions as the hours spent carrying water decreased.

### 3.4.5. Other impacts

- According to the survey results, 97.7% of respondents in Asembo and 99.2% in Garissa answered that they found themselves in a relatively improved



environment since 2008 and all of them agreed that the smooth usage of water resources contributed to this change.

- Through the expansion of water supply systems, conflicts within the community have also been perceived as on the decline. When asked the question of whether there were any conflicts in the community surrounding water resources before, 12.8% of the respondents in Asembo answered yes. In contrast, only 6.4% said they have discords under the current situation. In Garissa, those who answered that they had conflicts in the community in the past reached 42%, but only 9.5% of respondents said that the conflicts continue into the present. Thus, community conflicts in Garissa surrounding water resources are understood to be drastically reduced.



### 3.5. Sustainability

#### Key evaluation questions and results

4.5.1. Was there any exit strategy?

4.5.2. Are the impact and effects of the project continuously expected?

- No exit strategy for KOICA and no measure for proper resource input by Kenya after completion of the facilities were prepared and there was no channel devised to monitor these follow up activities, these shows a limitation in managing this project smoothly and obtaining sustainability.
- The Asembo project look as if it will be operated appropriately under the management of LVSWSB, which is likely to continue in the future.
- The effects and impact of the Suswa project cannot be grasped. Although the facilities could be repaired, the intended performance does not seem to be possible in the long run.
- In the case of the Tana Basin project, no better impact could be achieved as long as the capability of the GAWASCO is not strengthened.

### 3.5.1. Exit Strategy

- When it comes to constructing facilities, in order to realize the intended effect of the project, it must be preceded with thorough analysis on how those facilities would be managed and maintained after the construction is completed. This means that an exit strategy, including risk analysis, risk management preparation, and policies, are necessary.
- However, KOICA focused on analyzing the risks of implementing the project, and not on post-construction management, so no plan was prepared on how to hand the project over to Kenya.
- Neither of the three projects, of which two started operating 1 to 2 years after completion (Tana Basin and Asembo projects) and one could not continue operation due to the destruction of the facility (Suswa project), had any post-construction management measures prepared. The main causes of the project operation delay are shown in the table below.

<Table 3-8> Causes of project operation delay

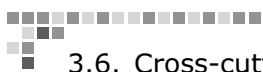
Asembo project	Delayed construction of water receiving and distributing facilities, which burdened Kenya
Suswa project	After the facility was washed away, there was not enough effort and capability of RVWSB and NAIVAWASS to restore them
Tana Basin project	Lack of stabilized electricity supply

- In addition, appropriate labor force and budget have not been put into managing the facilities, except on the Asembo project. This considerably hinders the efficient management of the projects and the proper repair of the facilities.
- In summary, this project can be assessed to be seriously limited in ensuring that the facilities continue running smoothly, and thus, cannot be called sustainable. As the project drew to a close, there was no consultative plan

regarding KOICA's future involvement, such as assisting follow-up projects for organizational and institutional capacity building. There was also no discussion on whether Kenya would make an effort to put in the resources to manage the facilities. Moreover, no exit strategy for KOICA was prepared and no channel to monitor them was obtained.

### 3.5.2. Impact Sustainability

- In the case of Asembo, the outcomes were already attained and the impact is expected to continue. The LVSWSB has strong ownership and has been directly operating and managing the project (instead of the WSB, whose capacity is insufficient), by dispatching an exclusive project management team.
- In Suswa, it is perceived impossible to achieve the intended objective of the project. An additional 42 million KSh is necessary to repair the deteriorated pipelines, and even if the pipeline is restored, it is likely to be washed away again during the rainy seasons, due to the pipeline route passing through the valley. Currently, Suswa area residents utilize a pump powered by geothermal heat as their primary water source, which was recently set up 7 km away from Suswa by a public enterprise, Kenya Electricity Generating Company (KenGen).
- For the Tana Basin project, although the GAWASCO has now used and managed the facilities, the shortage of human resources and of budgetary support from the NWSB, as well as the lack of a revenue-generating system to reinvest in the facility, make it difficult to know whether the management of the facility will be steadily continued.



### 3.6. Cross-cutting Issues

#### 4.6.1. Gender

- Although a gender mainstreaming strategy was not prepared, the project helped women's income generating activities and promoted community's participation on the development project, which is perceived as a positive impact of this project.

#### 4.6.2. Environment

- There was no environmental mainstreaming strategy and no environmental evaluation. Moreover, Kenya also did not follow its own domestic environmental regulations, which shows inadequate consideration of the environment in the project implementation.

#### 3.6.1. Gender

- The gender mainstreaming evaluation is to measure whether women's participation was guaranteed and gender relations were considered at all levels of planning, implementation and evaluation of the project. It was insufficient for KOICA to promote gender mainstreaming in the project process, because the project had been launched before the gender mainstreaming had been emphasized. Main Reasons are in the chart below.

<Table 3-9> Women's participation in each stage of project

Planning stage	Lack of survey and analysis about how gender affects the water supply project No gender-segregated data obtained on the beneficiaries No measure to recommend women's participation in trainee selection
Implementing stage	Lack of participation of female experts and technicians in the project implementing institutions
Mid-Post-evaluation stage	No channel obtained to reflect female beneficiaries' opinion

### 3.6.2. Environment

- OECD-DAC suggests the Environmental Impact Assessment (EIA) as a specific strategy and recommendation for environmental mainstreaming in order to achieve sustainable development assistance.
- The Environmental Impact Assessment (EIA) helps align the assistance project with the recipient country's environmentally-friendly development policies by surveying the basic environment of the targeted area and potential impacts on its environment, based on an 'Environmental Impact Assessment guideline' to aim at integrating the survey results to the project policies, planning, and implementation.
- For this project, the EIA was not carried out beforehand. At the time the project was launched, no concrete guidelines on an Environmental Impact Assessment were prepared or reflected to an official institution.
- On the other hand, various regulative systems in Kenya were already prepared to have environment-friendly development. In Kenya, the Environmental Management and Coordination Act (1999, No.8 namely EMCA) was politically enacted, and any project initiating party must receive an approval on the EIA from the National Environment Management Authority (NEMA) before planning and implementing. Furthermore, the 2002 Water Act, which controls the water resource development, demands pre-approval on the water resource related project from the Water Resources Management Authority (WRMA).
- In the Asembo project, the LVSWSB conducted the EIA in 2006 based on the EMCA 1999 and received approval through NEMA. However, in the Suswa project and Tana Basin project, the EIA was not carried out by the responsible WSB, nor was approval obtained from NEMA.
- When pre-approval is not obtained, an Environmental Audit (EA) report must be submitted within one year after completion. However, the facility

at the Tana Basin project has not been operated for the year after its completion and the Suswa project seems to have no plan to execute the EA yet, because the facility has not been restored.

- In conclusion, looking at the situation described above, it's clear that these projects had insufficient consideration of the environment during the project planning and implementation stages. Furthermore, due to the non-compliance with Kenyan regulations, the environmental mainstreaming was hardly achieved.



## **Conclusion and Recommendations**







# IV

## Conclusion and Recommendations



### 4.1. Lessons Learned

#### 4.1.1. Lessons by project

##### 1) Asembo project

· The Asembo project clearly shows a positive impact on the community and villagers. For this reason, the Asembo project is regarded as the most successful example amongst the cases evaluated here, and casts explicit and effective lessons.

- (Appropriate project objective and area targeting) The Asembo project contributed to building a water treatment plant in a rural area where water infrastructure was relatively poor and in high demand.
- (Women's status improvement and changes in community) The visible, sustainable, and positive outcomes of the Asembo project, although not all of them were not initially intended in the project objectives, include the increased spare time of women, raised income and domestic status of women, revitalization of community activities such as women groups and youth groups, the improved quality of water and the environment, and strengthening of community spirit. This shows that, if a water resource development project is successfully implemented, it can produce not only water supply and improvement of water quality, but also positive, comprehensive,

and sustainable impacts on the community.

- (Effects of comprehensive approach, suitable size, and technical knowledge transfer) This project expanded in scope from a small-scale water treatment plant, as Kenya had initially planned, to a comprehensive water treatment facility. In this process, management skill transfer, as well as technical consultation on the facility design, were conducted to help operate the facility smoothly.
- (Selecting and managing a competent local construction company) Although the construction was delayed due to political ferment, the selected competent construction company could finish constructing as planned so that the facilities are now operated for the purposes of the project.
- (Economic and social impacts) The improved quantity and quality of water that beneficiaries can utilize brought out several economic and social impacts, which increased the satisfaction of the vulnerable as well as community residents, and helped other income generating activities.
- (Strong ownership of local partner and community) One of the success factors in the Asembo project is a strong will of the project partner, LVSWSB, to carry forward this project. The LVSWSB has promoted smooth operation by allocating adequate labor forces and budget. After Korea decided to support the water treatment plant, the LVSWSB actively pushed ahead with the construction of sizable pipeline facilities, using all available resources. Furthermore, when construction was completed, it dispatched an exclusive operation team instead of the WSP, whose capacity was insufficient to handle the project.
- (Ownership of beneficiaries and active participation of villagers) Another success factor was strong ownership and participation of beneficiaries, which led to the organization of the water kiosk management committee that took on the responsibility of maintaining the water kiosk.

- (Visible project outcomes and positive life changes) Lastly, this project can be evaluated to positively affect beneficiaries' life in several ways. Even though this project was not intended to generate a synergy effect with other development projects, it did facilitate some community development activities, such as supplying the mango sapling field with clean water and also increasing revenue by running the water kiosks.

· In the process of future project scouting, targeting and implementation, it must be recognized that a very successful project like Asembo project can also have limitations and problems, as explained below.

- (Danger of political project targeting) This project faced the risk of being caught in a political web when regional politicians intervened into the project scouting and targeting process. Considering other donors' objectives and harmonized project process, this project may be seen as lacking legitimacy. Furthermore, other donors, like Korea, were not invited to the construction completion ceremony. In other words, visibility of this project was noticeably deteriorated, and the risk of being involved with local politicians has been clearly recognized.
- (Difficulties in coordinating among various donors and decreased efficiency) Due to budget constraints, only the water treatment plant was financially supported by Korea. The construction of water receiving and distribution facilities was handed over to Kenya, which received funding from Japan and Italy for this purpose. Accordingly, as the whole process of construction was delayed, system operation started two years later than expected. Furthermore, it was pointed out as a weakness that the effectiveness of the project was hampered by the discordance among the facility components. The capacity of the newly equipped pump that Kenya bought using other donor's funding exceeded the capacity of the running water pipelines. Since all parts of the

facility were built by different construction companies, the capacities of those facilities did not match each other. Therefore, the pump has not been used.

- (Lack of assistance for management and capacity building) The stabilization of water supply and the prevention of waterborne diseases have not been effectively achieved in this project. There was no capacity building assistance on the operation and management (O&M), which might be needed most at the field level. With only a water supply focus, no assistance for hygiene training and other infrastructure were provided, either.

## 2) Suswa project

· The Suswa project clearly shows that, without careful consideration of complex political, environmental, and economic conditions within the community, the project implementation might not produce the intended effects. Therefore, the targeting process of future development projects must consider the lessons learned from this project. The lessons drawn from this project after the evaluation study are explained below.

- (Defects in targeting of areas and problems of project design and preliminary research) Without full understanding of the complicated local communities' relations and stories, it was inevitable that a water supply project that exclusively targeted one area would cause many problems. The Naibaya area of the Suswa project is a hub for multinational corporations working in the floral industry, many of which originate from the Netherlands. This area has a high concentration of complexes built for growing flowers for export. There have been frequent conflicts between European floricultural entrepreneurs and local laborers working in poor conditions and with low incomes. Additionally, enormous agricultural and drinking water demands have been recognized for operating floricultural complexes. The huge cultural gap between this area and the society of the traditional nomadic tribe, the Masai, residing nearby, has produced an integration problem for the region

as well. Therefore, this project targeting only the village of the Masai tribe could cause many problems in this area.

- (Limitation of partial repair of old pipelines) The Suswa project was initially planned and implemented to restore water pipes of leaking sections, which was caused by bottlenecks. However, due to the frequent breakdown of the water receiving facility and the overall deterioration of pipelines, this partial repairing approach could not achieve the goal of providing the Suswa area with water.
- (Loss of facilities and lack of management) In this project, the management and operation of the facilities were assessed to be unsuccessful and inadequate. Since the duct lines were swept away, lost pipeline sections were left without any action for about one year because of lack of capacity and ownership of the project partner RWWSB, as well as the current facility managing group, NAIVAWASS.
- (Inefficiency of project scale and resource distribution) This project was initially planned as a simple construction, in which the dispatch of experts for technical knowledge transfer was not highly demanded and the capacity of local workers was considered sufficient to handle the project. Despite this fact, expert dispatch expenses consisted of 35% of the whole budget.
- (Absence of risk management) Finally, a post-disaster recovery system should have been designed because of the possibility of loss of the pipelines passing through the mountainous and valley areas when a flood hits.

### 3) Tana Basin project

· The Tana Basin project was evaluated not to achieve the initial goals of reducing water treatment costs and increasing cost effectiveness, but to considerably improve water quality. Furthermore, this project supplied water to Somalia refugees' densely populated region, which is situated in a very dry and poor area. The lessons learned from this project are below.

- (Area and beneficiaries targeting considered very positive) The Garissa area is a densely populated district of Somalia refugees and they are still immigrating into this area so the population is continuously increasing. This area was identified as a high-priority area, in which the water supply project was necessary due to the insufficient amount and bad quality of drinking water provided, not only by donor countries, but also by the department of water resources and the relevant authorities of the Kenyan government.
- (Securing minimum water quality from prompt construction) The Tana Basin project, despite a limited budget and construction period, could secure the minimum level of water quality from the prompt construction, by diluting the turbid Tana water that could not be sufficiently purified through chemical processing with the clean groundwater provided from the facilities constructed.
- (Lack of recipient country's consultation for a mid-long term master plan of well development) On the other hand, the utility of the well in this project was evaluated as low, because the reduction of water treatment costs, which was initially intended, was not achieved, and the well has been used as an alternative only during the rainy season. This was caused by the lack of sufficient consultation with the recipient authorities about the goal of the project: whether water from the Tana Basin would be substituted by the water from the new wells, or whether the Tana water would be diluted with the supplementary water from the wells to improve the quality. Although the initial project goal was the former, this project resulted in the latter, the improvement of water quality from the Tana Basin.
- (Insufficient understanding of various community parties and their participation) It was evaluated as a critical limitation of this project that appropriate and meaningful participation of key stakeholders was not guaranteed. According to the survey of local stakeholders and beneficiaries, each party had different ideas on the purpose of the wells. In addition, the GAWASCO, which manages and operates the wells, displayed dissatisfaction with the water pipeline design.

- (Necessity of reviewing the effect of expert dispatch and technical knowledge transfer) The significance of the expert dispatch needs to be reviewed. In the case of Tana Basin project, the project partner and local construction company already had sufficient capacity to handle the construction, so that the need for technical transfer from Korea was very low, the same as the Suswa project. Furthermore, the expert dispatch did not contribute to the O&M capacity building that is commonly demanded at the local level.

<Table 4-1> Success factors and constraints of projects

Area	Success factors	Constraints
Asembo	<ul style="list-style-type: none"> <li>■ Appropriate project objective and area targeting</li> <li>■ Women's status improvement and changes in community</li> <li>■ Effect of comprehensive approach, proper size, and technical knowledge transfer</li> <li>■ Selecting and managing a competent local construction company</li> <li>■ Economic and social impacts</li> <li>■ Strong ownership of local partner and community</li> <li>■ Ownership of beneficiaries and active participation of residents</li> <li>■ Visible project outcomes and positive life changes</li> </ul>	<ul style="list-style-type: none"> <li>■ Danger of political project targeting</li> <li>■ Difficulties in coordinating among various donors and decreased efficiency</li> <li>■ Lack of assistance for management and capacity building</li> </ul>
Suswa		<ul style="list-style-type: none"> <li>■ Defects in area targeting and problems of project design and preliminary research</li> <li>■ Limitation of partial repair of old pipelines</li> <li>■ Loss of facilities and lack of management</li> <li>■ Inefficiency of project scale and resource distribution</li> <li>■ Absence of risk management</li> </ul>
Tana Basin	<ul style="list-style-type: none"> <li>■ Area and beneficiary targeting considered positive</li> <li>■ Securing minimum level of quality of water from prompt construction</li> </ul>	<ul style="list-style-type: none"> <li>■ Lack of recipient country's consultation for a mid-long term master plan of well development</li> <li>■ Insufficient understanding of various community parties and their participation</li> <li>■ Necessity of reviewing the effect of expert dispatch and technical knowledge transfer</li> </ul>

#### 4.1.2. Lessons by stage

- Except the success factors and constraints mentioned above, common limitations of the projects evaluated in this study are below.

##### 1) Planning

##### (1) Project Planning stage

- (Reviewing area targeting and its validity) As evaluated in the relevance evaluation, areas and beneficiaries targeted by these projects were not determined based on certain reasonable criteria, so the fundamental rationale of area targeting was not clear.
- (Analyzing alignment with development plan and governance system) Because the project procedure of Korea concentrates on verifying the technical validity of the requested projects, it was difficult to comprehend whether the requested project was aligned with the Kenya national water sector development strategy or not. In order to solve this issue, the water sector governance must be analyzed, and the issues already raised need to be verified, too.
- (Project mapping by sector and aid harmonization) Furthermore, if possible, this project should be harmonized with other donor countries' projects through the mapping method, which reviews the programs other donor countries are conducting for the water resource development strategy of Kenya and the places where they are implementing them. The relative necessity of this project also needs to be reviewed by utilizing targeting criteria developed with other donor's assistance.



## (2) Project research stage

- (Needs assessment of community and beneficiaries) - The needs of project beneficiaries must be accurately reflected in the project design by the adjustment of project size and budget, and the major issues in the region must be determined by the review of the regional water resource development strategy and needs assessment of beneficiaries. However, in the pre-research stage of these projects, there was no review of the regional water resource development strategy and no needs assessment of beneficiaries, and the project size was revised based on the fixed budget.
- (Preliminary research and problem identification) If there was a problem identification process, which involves the analysis of a problem from various angles, conducted in the preliminary research, there would be much greater understanding about how to address the problem and what kind of action plan must be prepared.

## (3) Project formation stage

- (Lack of logical framework on performance model) The fact that the most critical issues and concerns in the project area were not comprehended in detail means that effective logical strategies to intervene and overcome those problems were not introduced. This led to lack of understanding of a performance-oriented development project, and furthermore, lack of logical framework for project performance.
- (Incomplete monitoring and evaluation system) Owing to no distinction between attribution and contribution, too broad of a project objective was accepted in the project plan. Moreover, the M&E system, which enables continuous measurement of the intended effects of the projects at each level was not established in this project.

- (Necessity of comprehensive approach) If the main objective was set as the prevention of waterborne diseases, project planning with a more integrated approach for the hygiene program (expansion of sanitary facilities and hygiene education), which addresses all the hygiene issues, might have been more effective in achieving the goals of the project.
- (Management skills and capacity strengthening) If a capacity strengthening program were developed with the understanding of the individual needs of each stakeholder or any organizational needs of the institutions, in relation to technical assistance or budget and staff support, it could have helped provide smooth operation and management of the facilities.
- (Mainstreaming gender and environment issues) The fact that the gender and environment mainstreaming strategy was not applied to the project plan was pointed out as a weakness of this project, because women's participation was not guaranteed and the environment was not considered enough. If there are gender and environment mainstreaming strategies within the recipient county, a project mechanism which reflects these strategies needs to be built into the project. In particular, with sufficient consideration of gender, the environment, and human rights during the pre-project research, the Development Impact Assessment (DIA) could maximize the expected effects, as well as minimize the negative impacts.

## 2) Implementation stage

- (Enhancing project management capability of PMC) While the PMC played a main role in project implementation, its capacity as a development company seemed insufficient. The understanding of development cooperation by the PMC, as assessed in the project evaluation, was low and only focused on its own construction.
- (Assessing the effects of expert dispatch and technical knowledge transfer)

Although the cost of expert dispatch for capacity building of the recipient country occupies 20 to 30 percent of the total budget, the responsibilities and roles of the experts largely concentrate on completing construction. The technical advice is also partially carried out under the objective of finishing the construction itself. Therefore, concrete responsibility and role of experts dispatched need to be improved to strengthen the comprehensive capacity of the recipient country.

- (Strengthening the training program for on-site project management capability) The training program of these projects promoted Korea's advanced technology rather than enhancing the effectiveness and the sustainability of the project. Therefore, locally demanded technology and know-how were not encouraged and the utility of the training was not put to good use, exposing its shortcomings.
- (Enhancing participatory approach and communication of stakeholders) In terms of communication, a consultation with the WSB, which was in charge of the construction locally, was smoothly carried out. However, one of the stakeholders, the WSP, which was a beneficiary as well as another project's subject, was not sufficiently understood and there was no guarantee of its meaningful participation. For this reason, the effectiveness of the project was assessed to be hampered and visibility not achieved.
- (Preparing risk management system) The PMC needs to seek ways not only to establish a risk management strategy at the construction stage, but also to understand beforehand the risk factors at the operation stage, recognizing that the completion of construction does not mean the end of its responsibility.
- (Exit strategy) Furthermore, a comprehensive exit strategy needs to be established in preparation for the completion of the project, so that the recipient country has proper consultation about its operation before it's handed over to them.

### 3) Operation stage

- (Institutional capacity building) The reason that many developing countries ask for assistance is not only because of insufficient development resources and infrastructure, but also because of the lack of capacity to systematically utilize and manage those assets. In reality, many advanced donor countries have been developing and implementing such projects to establish the institutional foundation for sustainable development, not only by supporting infrastructure, but also by strengthening institutional capacity.
- (Improved water sector governance system) In Kenya, SIDA, DANIDA, the Netherlands, and other donors have been carrying out some measures to reorganize the water sector governance system and to strengthen the institutional and organizational capacity of the MWI, suggesting water sector reform.
- (Institution building and management capacity assistance) Although Korea does not yet have a comprehensive and systematic capacity building program at the national level due to its limited budget and capability, institutional capacity building measures that understand the insufficient capacity of their partner organizations must be included in each project to support the smooth operation of the facilities.
- (Monitoring and evaluation-feedback system) In the case of these projects, no channel for monitoring the operation of the facilities after completion was officially prepared, so it was very difficult for Korea to check any delay or stop at those facilities. Therefore, any measure to monitor the operation of the facility after the handover needs to be managed. Moreover, it is necessary for both parties to continuously share the results of M&E and fruits of the project.



## 4.2. Recommendations

- In order for the lessons learned from this evaluation study to lead to constructive improvement in quality of assistance, the comprehensive project implementing system of KOICA must be improved with the consideration of, and solutions for, its structural constraints.
- Structural constraints of KOICA's project implementation system are shown in the table below.

<Table 4-2> Structural constraints of KOICA's project implementing system

Structural constraint factors	Key content
Limited human resources	<ul style="list-style-type: none"> <li>■ Due to the lack of field office staff and a professional manager who can conduct project scouting and planning while residing in the field, it is difficult to turn from the request-based project initiation to the demand based one.</li> </ul>
Limited financial resources	<ul style="list-style-type: none"> <li>■ Compared to other donor countries, the size of the development project funds is relatively small. Therefore, an integrated program is difficult to introduce.</li> </ul>
Limited project discovery and implementation period	<ul style="list-style-type: none"> <li>■ Most cases are short-term projects that must be completed within two years, so long-term and multi-year projects are difficult to establish.</li> <li>■ Insufficient research time to make a plan hinders fruitful project design.</li> </ul>
Limited sector professionalism	<ul style="list-style-type: none"> <li>■ Lack of comprehensive understanding by PMC about international development and local context disturbs effective grafting of domestic sector expertise with development project.</li> </ul>

- The evaluation team, considering these structural constraint factors of KOICA's project implementing system, suggests the following recommendations, ranging from promptly applicable short-term proposals to mid- to long-term proposals for system improvement.

#### 4.2.1. Short-term recommendations

- 1) Strengthening the targeting rationale of the project area and model
  - Current preliminary research by KOICA remains at the stage of confirming project necessity through consultation with institutions about the technical validity of the research, accompanied by experts. In order to strengthen the fundamental rationale of the project, preliminary research needs to be reinforced.
  - In order to figure out whether the requested project is in accordance with the development strategy of the water sector at the national and regional level, whether the targeted area comparatively needs more assistance than other areas, what kind of risk factors exist, and so on, a comprehensive research process must be conducted, including voluminous data collection, needs assessment of multi-layer stakeholders and baseline data collection.
  - In particular, a preliminary research framework- module, methodology- about what should be researched and how it should be carried out must be developed and organized in a manual, to be used for training researchers. Therefore, this evaluation now suggests a specialized study on the framework and development of such a manual.
  - Once the preliminary research is carried out properly, a project module based on the research results must be developed. The current uniformed module, consisting of facility building, equipment support, expert dispatch, and trainee program, is creating many problems of allocation, and wasting budgets on unnecessary things. Thus, diversifying and localizing the module in a flexible manner is imperative.
  - Furthermore, how each element in the project module - the period, budget and size of the project - corresponds to the local demands needs to be considered in order to enhance the effectiveness of the project.

## 2) Strengthening performance model and M&E system

- A systematic M&E system needs to be established before the project is implemented, first by classifying achievable successes by stage when the project period, budget and size are all set and all these resources are inserted into the project. Then, by developing a performance model, setting a set of measuring indicators, and devising a data collection method.
- The M&E system suggested above must be operated not only by the project performer, PMC, but also the project partner in the recipient country, and a channel to share the evaluation result needs to be secured.

## 3) Introducing an Exit Strategy

- The PMC, during the project implementation period, must establish an exit strategy by analyzing the institution which will be in charge of facility management. The exit strategy generally means the assessment of the capacity gap between the present capacity level of the facility management institution and the required level to manage the facilities in the future. The strategy must devise some measures to reduce this gap. Only with this exit strategy, follow-up assistance programs can be considered. Moreover, an official communication channel for the post completion of the project needs to be included.

## 4) Guaranteeing horizontal and vertical participation of various stakeholders

- The PMC needs to enhance the visibility of the project by holding official key stakeholder workshops and meetings during the project implementation period to guarantee continuous feedback from government institutions, beneficiaries, and other donors, and listening to their opinions.

#### 5) Respecting gender, environment mainstreaming strategies of recipient countries

- The PMC needs to first analyze the gender and environment mainstreaming strategies of Korea and the recipient country before the project is launched, and to incorporate this analysis into the project implementation. The implementation of the gender and environment mainstreaming plan must then be monitored.

#### 4.2.2. Mid- to long-term improvement

##### 1) Reviewing project identification procedure

- In the long term, project identification needs to be conducted not by the request-based approach, which is currently being used, but by a consultative approach, actively exploring development demands.

##### 2) Changing water project modality

- In particular, the water development program needs to be directed from micro-level infrastructure projects to the overall assistance of water resource management at the national level. As the current water problems in Kenya are caused by inefficient development and management of water resources, a long-term and macro project plan needs to be prepared to enhance integrated water resource management and water efficiency.

##### 3) Participating sector-specific working groups

- In order to plan a project with a long-term and macro-level perspective, comprehensive and extensive data collection on the relevant sector is



needed. Besides strengthening the preliminary research, this process can be achieved by securing a channel to collect the data.

- At present, there are groups of donor countries working in many developing countries, including Kenya, who share various assistance policies and programs amongst themselves. Therefore, it seems critical to utilize the groups as a channel to collect data.
- Although a donor country should participate in the regular sector-specific working group meetings to share information and accumulate data, it is now impossible for KOICA to attend these meetings because of the lack of field office staff and budget. For this reason, the evaluation team suggests expanding of human and financial size of the field offices of KOICA in the future and to hire local resident, sector-specific experts in the key assistance sector, who can take on the role of project scouting, operation, and coordination.

#### 4) Developing an integrated program

- Finally, an integrated program comprehensively supporting all the activities, including infrastructure building, necessary technology assistance, institutional capacity building, and enhancement of the beneficiaries' awareness, needs to be developed. Through this integrated approach, the sustainability, impact, and effectiveness of the project can be expected to rise.
- In order to adopt an integrated approach, various prerequisites are required, including: a deep-rooted understanding of local circumstances and knowledge accumulating in the community; changes in assistance from infrastructure-centered assistance to institutional and capacity building; program participation by various expert groups; phased assistance management strategy for project sustainability and exit strategy; participation in consultation with various stakeholders, such as beneficiaries, central and regional governments, and various agencies under the government structures.

<Table 4-3> Policy recommendation summary

Improvement task	Short term recommendation	Mid, long term recommendation
Planning stage	<ul style="list-style-type: none"> <li>■ Strengthening targeting rationale of project area and module               <ul style="list-style-type: none"> <li>- Developing and training pre-research framework</li> <li>- Diversification, localization and flexibility of project module based on pre-research</li> </ul> </li> <li>■ Strengthening performance mode and M&amp;E system               <ul style="list-style-type: none"> <li>- Pre-establishing of the M&amp;E system based on performance model</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>■ Reviewing project discovery system               <ul style="list-style-type: none"> <li>- Turning from request-based approach to consultative approach</li> </ul> </li> <li>■ Changing water project modality               <ul style="list-style-type: none"> <li>- From short term assistance of minor water supply infrastructure building to long term and comprehensive assistance of water resource management</li> </ul> </li> <li>■ Participating sectoral working group               <ul style="list-style-type: none"> <li>- Expansion of KOICA field office staff and budget</li> <li>- Hiring resident sectoral experts</li> </ul> </li> <li>■ Developing integrated program               <ul style="list-style-type: none"> <li>- Deep-rooted understanding of local circumstances and knowledge in the community</li> <li>- Changes in assistance style from infrastructure centered assistance to institutional and capacity building</li> <li>- Program participation of various expert groups</li> <li>- Phased assistance management strategy</li> <li>- Securing a consultative channel for the participation of various stakeholders</li> </ul> </li> </ul>
Implementing stage	<ul style="list-style-type: none"> <li>■ Guaranteeing meaningful participation of various stakeholders               <ul style="list-style-type: none"> <li>- Holding key stakeholder workshops and meetings</li> </ul> </li> <li>■ Aligning with gender, environment mainstreaming strategies of the recipient country</li> </ul>	

<Table 4-3> continued

Improvement task	Short term recommendation	Mid, long term recommendation
Implementing stage	<ul style="list-style-type: none"> <li>- Analyzing gender, environment mainstreaming strategies of recipient country</li> <li>- Monitoring the implementation of gender, environment mainstreaming plan</li> </ul>	
Operation and M&E stage	<ul style="list-style-type: none"> <li>■ Introducing Exit Strategy</li> <li>- Capacity Gap Assessment of recipient country for operation</li> <li>- Adopting post capacity building program based on exit strategy</li> <li>- Establishing a channel for sharing M&amp;E results after the completion of the project</li> </ul>	



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