Ex-Post Project Evaluation 2019
Package I-5 (Kenya)

July 2020

JAPAN INTERNATIONAL COOPERATION AGENCY

INTERNATIONAL DEVELOPMENT CENTER OF JAPAN INC.

EV
JR
20-12

本評価結果の位置づけ

本報告書は、より客観性のある立場で評価を実施するために、外部評価者に　委託した結果を取り纏めたものです。本報告書に示されているさまざまな見解・提言等は必ずしも国際協力機構の統一的な公式見解ではありません。

また、本報告書を国際協力機構のウェブサイトに掲載するにあたり、体裁面の微修正等を行うことがあります。

なお、外部評価者とJICAあるいは相手国政府側の事業実施主体等の見解が異なる部分に関しては、JICAあるいは相手国政府側の事業実施主体等のコメントとして評価結果の最後に記載することがあります。

Disclaimer

This report compiles the result of the ex-post evaluations. These are conducted by external evaluators to ensure objectivity, and the views and recommendations herein do not necessarily reflect the official views and opinions of JICA. JICA is not responsible for the accuracy of the English translation, and the Japanese version shall prevail in the event of any inconsistency with the English version.

Minor amendments may be made when the contents of this report is posted on JICA’s website.

Comments by JICA and/or the Counterpart Agencies may be added at the end of the evaluation report when the views held by them differ from those of the external evaluator.

Republic of Kenya

FY2019 Ex-Post Evaluation of Technical Cooperation Project

"Sustainable Smallholder Irrigation Development and Management in Semi-Arid Lands Project"

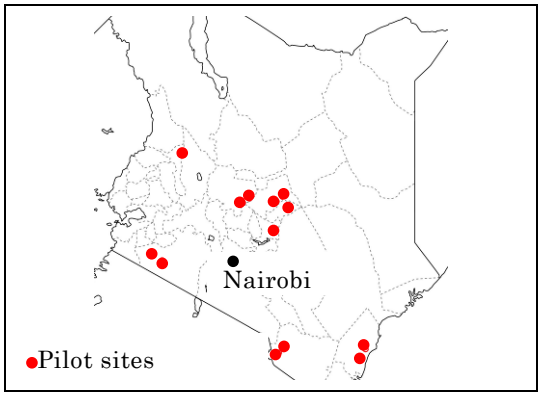
External Evaluator: Ayako Nomoto, International Development Center of Japan Inc.

0. Summary

The aim of the project was to investigate and summarize the application of a model for smallholder irrigation development which involves farmer participation to secure stable agricultural water supply in semi-arid lands and to strengthen the resilience to frequent droughts. The relevance of the project is high because the objective of the project was consistent with the development plan and development needs of Kenya both at the time of ex-ante evaluation and project completion, and it was also consistent with Japan's ODA policy to Kenya at the time of ex-ante evaluation. At the completion of the project, a draft guideline for the model was developed, and the capacity of Irrigation Water Users Associations (hereinafter called "IWUA") and farmers at the pilot sites was strengthened; however, the objective was partially achieved because some of the smallholder irrigation facilities have not been completed. Goals after the project completion, such as utilizing the proposed plan and confirmation of the effectiveness of the model were partially met. Therefore, the effectiveness/impact are fair. Efficiency is fair as both project costs and period exceeded the plan. Concerning the sustainability of the project effects, there are some challenges in the institutional/organizational, technical, and financial aspects, and therefore, the sustainability of the project effects is fair.

In light of the above, this project is evaluated to be partially satisfactory.

1. Project Description



Project Locations

An intake weir constructed by the project and irrigation water users association members

1.1 Background

In the Horn of Africa (Ethiopia, Kenya, Somalia, and others), which includes the northern part of Kenya, most of the region is dominated by arid and semi-arid lands with low rainfall by nature, resulting in chronic and cyclical outbreaks of droughts and associated food crises. In recent years, it had become a severe problem not only in the northern part of the country but also in other semi-arid lands, which had a significant impact on agricultural production, and the resilience of the entire semi-arid lands had become an issue. In particular, the low rainfall at the time of the ex-ante evaluation (2012) caused the worst and most severe drought in the past 60 years, and the development of measures to strengthen resilience to the recurrent droughts was an urgent issue.

The small and uncertain rainfall resulting from the drought had affected agricultural production and livestock production, which in turn had affected the stable supply of food. Irrigation development was expected to solve these problems and make a significant contribution to improving farmers' incomes and increasing agricultural employment opportunities.

In the past, Japan International Cooperation Agency (JICA) implemented a technical cooperation project called “Project for Sustainable Smallholder Irrigation Development and Management in Central and Southern Kenya” (hereinafter called “SIDEMAN” project) (2005-2010). It was a project in South Central Kenya, where natural conditions were more favorable, to promote smallholder irrigation development with farmer participation to secure stable agricultural water supply. Since the application and dissemination of the model were considered to be effective in addressing the problems in semi-arid lands, JICA needed to conduct an immediate study and compilation of methods to apply the model to semi-arid lands and put them into practice, and decided to carry out a research on how to apply these methods to semi-arid lands.

1.2 Project Outline

Overall Goal [1]		Expected utilization of the proposed plan Improved SIDEMAN (Sustainable Smallholder Irrigation Development and Management) model* is approved as a model for smallholder irrigation development and applied in Kenya (*The model means participatory smallholder irrigation development management practices implemented following the participatory irrigation project guideline, IWUA framework, and staff training master plan) Impact 1 (Expected goals through the proposed plan) Increase in the number of smallholder irrigation schemes in semi-arid lands using the proposed plan in this project. Impact 2 The effectiveness of the SIDEMAN model is verified (stable irrigation water supply, improved farming technology, increased crop production, increased yield, and crop diversification at the pilot sites).
Project purpose[2]		—
Output(s)	Output 1	SIDEMAN model is improved.
	Output 2	Pilot projects are implemented.
Total cost (Japanese Side)		1,132 million yen
Period of Cooperation		August 2012 – June 2016 (Extension period: August 2015 – June 2016)

[1] As this project is a development planning project, there are no Overall Goal and Project Purpose set as there are for ordinary technical cooperation projects. Also, it is not mandatory to set Project Purpose to be achieved during the project period, as is the case with regular technical cooperation projects. This is because producing the outputs of the master plan, feasibility study, and others is generally a goal to be achieved within the project period. Thus, no Project Purpose was set for this project. In the evaluation of a development planning project, "Expected utilization of the proposed plan" and "Expected goals through the proposed plan" are equivalent to the Overall Goal in regular technical cooperation projects. Therefore, this ex-post evaluation organizes the logic of the project effects as follows: (1) Outputs ⇒ Outcome: Status of the utilization of the proposed plan ⇒ Impact: Goals expected to be achieved through the proposed plan. Meanwhile, since this project implemented many pilot projects, it is required to understand the current status of the pilot projects and confirm the development effects as impacts of the project.

[2] As noted above, no Project Purpose was set for this project.

<table>
<tr><td>Target Area</td><td>Pilot sites: 13 sites in eight counties<table><tr><th>County</th><th>Pilot Site</th></tr><tr><td>Taita-Taveta</td><td>Kasokoni, Challa/Tuhire</td></tr><tr><td>Kilifi</td><td>Mdachi, Mangudho</td></tr><tr><td>Narok</td><td>Olopito, Shulakino</td></tr><tr><td>Laikipia</td><td>Gatitu/Muthaiga, Kiamariga/Raya</td></tr><tr><td>Elgeyo-Marakwet</td><td>Kaben</td></tr><tr><td>Embu</td><td>Murachake</td></tr><tr><td>Meru</td><td>Tumutumu, Kaumbura</td></tr><tr><td>Tharaka-Nithi</td><td>Muungano</td></tr></table></td></tr>
<tr><td>Implementing Agency[3]</td><td>Ministry of Water and Irrigation (Currently, Ministry of Water & Sanitation and Irrigation), Ministry of Agriculture</td></tr>
<tr><td>Other Relevant Agencies / Organizations</td><td>County governments where the pilot sites are located</td></tr>
<tr><td>Supporting Agency/Organization in Japan</td><td>Nippon Koei Co., Ltd.</td></tr>
<tr><td>Related Projects</td><td><Technical Cooperation>
- The Project for Sustainable Smallholder Irrigation Development and Management in Central and Southern Kenya (2005-2010)
- Smallholder Horticultural Empowerment Project (hereinafter called “SHEP”) (2006-2009)</td></tr>
</table>

[3] In September 2013, the Department of Irrigation and Drainage, which had jurisdiction over the irrigation, was transferred to the then Ministry of Agriculture, Livestock, and Fisheries and reverted to the Ministry of Water and Irrigation in April 2015. Subsequently, the Department of Irrigation and Drainage was reorganized into the Ministry of Agriculture, Livestock, Fisheries, and Irrigation after the completion of the project. However, it was again reorganized into the Ministry of Water & Sanitation and Irrigation in August 2019. Besides, the devolution system from January 2014 onwards led to the establishment of county governments as local administrative bodies, and the implementation structure was changed as follows. At the time of project planning: the national government (Ministry of Water and Irrigation (at that time) and Ministry of Agriculture), Provincial Director of Irrigation /Provincial Director of Agriculture and District Irrigation Officer/District Agriculture Officer). After county inauguration: the national government (Ministry of Agriculture, Livestock and Fisheries/Department of Water Irrigation), County (Director of County Irrigation/Director of Agriculture, Sub-County Irrigation Officer/Agricultural Officer)

2. Outline of the Evaluation Study

2.1 External Evaluator

Ayako Nomoto, International Development Center of Japan Inc.

2.2 Duration of Evaluation Study

This ex-post evaluation study was conducted with the following schedule.

Duration of the Study: July 2019 – August 2020

Duration of the Field Study: October 16, 2019 – November 8, 2019, February 5, 2020 – February 19, 2020

2.3 Constraints during the Evaluation Study

This project implemented pilot projects in eight counties in Kenya, of which the ex-post evaluation mission was not able to visit Elgeyo-Marakwet County for security reasons, and information could not be collected. Therefore, the evaluation judgment for the pilot projects was based on information from the seven counties.

3. Results of the Evaluation (Overall Rating: C[4])

3.1 Relevance (Rating: ③[5])

3.1.1 Consistency with the Development Plan of Kenya

The objective of the project was consistent with Kenya's development plan both at the time of ex-ante evaluation and at the completion of the project.

At the time of ex-ante evaluation, the Government of Kenya's national strategy, the *Kenya Vision 2030* (2008-2030) identified the agricultural sector as a pillar of economic growth. Also, "Development of irrigable area for cereals and livestock in arid and semi-arid lands" is one of the strategies for promoting the agricultural sector, intending to increase the irrigated area and increase productivity in irrigation schemes from the perspective of food security. The *Agriculture Sector Development Strategy* (hereinafter called "ASDS") (2010-2020), a strategy for the agricultural sector based on the *Vision 2030* states the importance of supporting small-scale farmers, improving market access, collaborating with the private sector, and strengthening extension services to promote crop production.

At the completion of the project, the *Vision 2020* remained in effect, and the *Second Medium-Term Plan* (2013-2017) of the *Vision 2030* aimed to increase the irrigated area by 404,800 hectares during the same period, especially in semi-arid lands, to ease Kenya's dependence on rain-fed agriculture. *ASDS* (2010-2020) mentioned above was still valid. The *National Water Master Plan 2030* also listed the development of smallholder

[4] A: Highly satisfactory, B: Satisfactory, C: Partially satisfactory, D: Unsatisfactory

[5] ③: High, ②: Fair, ①: Low

irrigation schemes as an essential strategy.

3.1.2 Consistency with the Development Needs of Kenya

The objective of the project was consistent with the needs for irrigation development in Kenya both at the time of ex-ante evaluation and the completion of the project.

At the time of the ex-ante evaluation, the irrigated area in the semi-arid lands of Kenya was only 1.7% of the arable area. Yet, irrigation schemes generated 18% of the agricultural output, implying the potential for improved agricultural production and productivity through irrigation. Agricultural production in the irrigation schemes had increased over the years, especially the production of horticultural crops, which amounted to 6% of the value of agricultural exports. Smallholder farmers accounted for 75% of the agricultural production value, 70% of production, and 25% of exports in Kenya, and therefore, support for smallholder farmers was essential to improve the productivity of the agricultural sector.

At the time of project completion, according to the *National Irrigation Policy* (2015), of the 1,342 thousand hectares of irrigable area, only 162 thousand hectares were irrigated and developed (2013). Of these, 43% were smallholder irrigation schemes. Besides, the lack of rainfall continued to affect the agricultural sector. The sector grew at a rate of 4.2% between 2013 and 2017; however, the growth rate in each year was weather-dependent. After improving from 5.4% in 2013 to 5.5% in 2015, the growth in gross value added in agriculture declined to 4.0% in 2016 and further fell to 1.6% in 2017 due to lack of rainfall. Prolonged rain shortages resulted in a decline in the production of principal food security crops - maize, rice, and wheat - in 2017. The output for 2013 and 2017, respectively, is shown in Table 1.

Table1: Production of key crops

	2013	2017
Maize (million bags)	40.7	35.4
Rice (ton)	125,256	81,200
Wheat (ton)	194,500	165,200

Source: Third Medium-Term Plan (2018-2022) of Vision 2030

In 2016, agriculture accounted for approximately 31% of Kenya's GDP and occupied a significant position[6]. The importance of smallholder farmers was high, as they accounted for about 73% of the value of agricultural production, and their need to improve productivity was high.

[6] Source: Kenya economic survey 2020

3.1.3 Consistency with Japan's ODA Policy

The objective of the project was consistent with Japan's ODA policy at the time of the ex-ante evaluation. The priority area of agricultural development in the *Country Assistance Policy for the Republic of Kenya* (April 2012) states that "it is necessary to ensure food security and increase the income of small-scale farmers by further promoting agriculture as a significant industry. To this end, it states that the Government of Japan will support the improvement of production technologies for rice and others, the development of irrigation facilities, and the development of market-needed agriculture such as horticultural crops.

Thus, this project was highly relevant to the Kenya's development plan and development needs, as well as Japan's ODA policy. Therefore, its relevance is high.

3.2 Effectiveness and Impact[7] (Rating:②)

3.2.1 Effectiveness

3.2.1.1 (Project Output)[8]

Outputs of this project were partially achieved. The expected outputs of this project are (1) "the SIDEMAN model is improved", and (2) "Pilot projects are implemented". Concerning (1), the draft guideline (2016 version) was prepared at the time of completion of the project. Thus, it can be said that this was achieved.

[7] Sub-rating for Effectiveness is to be put with consideration of Impact.
[8] Refer to footnotes 1 and 2.

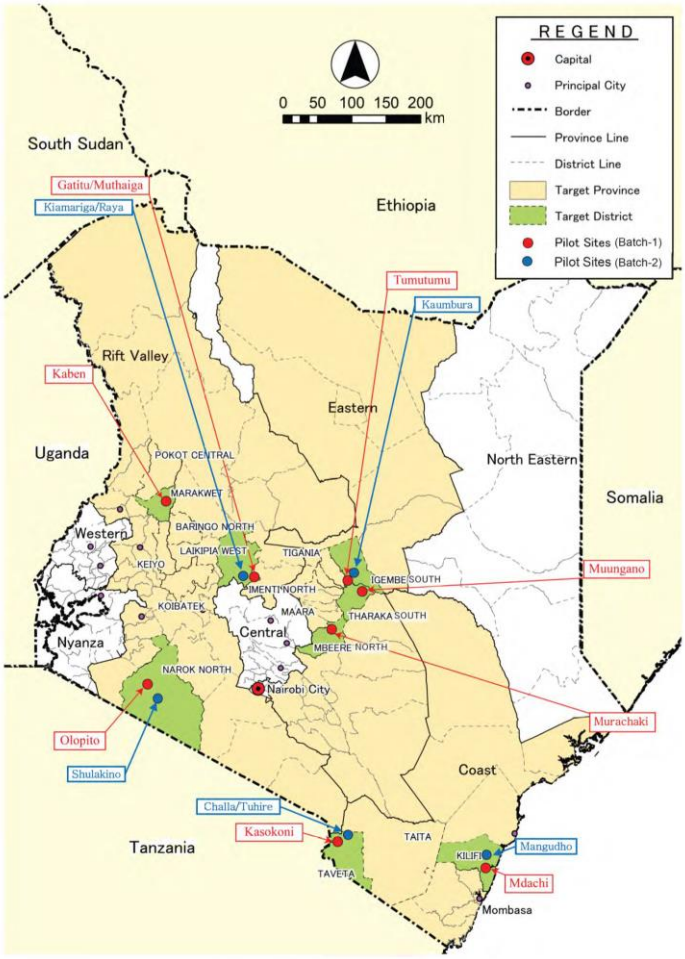


Figure 1: Pilot sites

Source: Documentation provided by JICA

Concerning (2), among the indicators[9], it was confirmed that "Capacity enhancement of Operation and Maintenance (hereinafter called "O&M") of irrigation facilities and on farming technology" (Indicator 2) and "Strengthening of the capacity of Ministry of Water and Irrigation staff for participatory irrigation development" (Indicator 3), were achieved upon completion of the project. However, concerning the "number of smallholder irrigation facilities constructed in the pilot projects" (indicator 1), eight of the 13 target sites had remaining construction works at the time of project completion. Among them, six sites had not yet completed the remaining works at the time of the ex-post evaluation and thus were not achieved. Therefore, it can be said that Output 2, as a whole, was partially achieved. As for the development of smallholder irrigation

[9] The indicators were set following the description in the Record of Discussion at the time of this ex-post evaluation.

facilities after the completion of the project, in two (Mdachi and Tumutum) of the eight sites with remaining works, the county governments (Kilifi County and Meru County respectively) partially carried out the remaining works. In Mangudho (Kilifi County), there were no remaining works under this project, but the County Government (Kilifi County) carried out the related actions. Similarly, in Muungano (Tharaka-Nithi County), the Ministry of Water & Sanitation and Irrigation carried out the related works (laying of pipelines) on the targeted irrigation system. Also, Kilifi County has budgeted for unfinished facilities. The Memorandum of Understanding (MOU) among (1) the Government of Kenya, JICA, the project team representative, (2) IWUA, and (3) the county government at each site did not specify the remaining works, and therefore, the responsibility for completion of the works is not always clear. Nonetheless, the Ministry of Water & Sanitation and Irrigation is exploring the possibility of implementing the remaining works at the time of the ex-post evaluation. Also, JICA Kenya office is considering the option of following up on some of the facilities.

Table 2: Status of achievement of outputs

<table>
<tr><th>Output</th><th>Indicator</th><th>Result</th></tr>
<tr><td>1.SIDEMAN model is improved.</td><td>—</td><td>Achieved
A draft guideline (2016 version) was developed upon completion of the project.</td></tr>
<tr><td>2.Pilot projects are implemented.</td><td>1.The number of smallholder irrigation facilities constructed in the pilot projects</td><td>Not achieved
Of the 13 sites in the pilot projects, eight sites had work remaining at the time of completion of the project. Of these, the remaining work on six sites had not been carried out at the time of the ex-post evaluation.
<table>
<tr><th>Site</th><th>Remaining work (As of April 2016)</th><th>Status of implementation (At the time of ex-post evaluation)</th></tr>
<tr><td>Kasokoni</td><td>(1) Excavation of drainage canal
(2) Rock excavation of drainage canal</td><td>Not implemented</td></tr>
<tr><td>Mdachi</td><td>(1) Construction of the secondary canal
(2) In-field system</td><td>Partially implemented</td></tr>
<tr><td>Olopito</td><td>(1) Rock excavation downstream of the main pipeline
(2) Sub-main Downstream
(3) In-field system</td><td>Not implemented</td></tr>
<tr><td>Gatitu/ Muthaiga</td><td>(1) Material and labor cost for construction of chambers and crossing</td><td>Not implemented</td></tr>
</table></td></tr>
</table>

			(downstream) (2) Feeder pipeline downstream (3) In-field system downstream	
		Kaben	—	—
		Murachake	—	—
		Tumutumu	(1) Main and Sub-main: Material and labor cost for construction of chambers and crossing (downstream) (2) Construction of Main and Sub-main pipelines downstream (3) Distribution and in-field system downstream	(1) Implemented (2) Implemented (3) Not implemented
		Muungano	—	—
		Challa/Tuhire	(1) Lining works for secondary canals (2) Construction of road crossing	Not implemented
		Mangudho	—	—
		Shulakino	—	—
		Kiamariga/Raya	(1) Construction of Distribution Pipelines in Kiamariga (2) Rehabilitation of intake weir (3) Rehabilitation of Raya pipeline system	Not implemented
		Kaumbura	(1) Lining works on the main canal	Not implemented
	2.Capacity enhancement of O&M of irrigation facilities and on farming technology	Achieved <u>Capacity enhancement of O&M of irrigation facilities</u> The training was provided to farmers at all 13 target pilot sites between March 2013 and December 2015. The contents were based on the training program implemented in the SIDEMAN project and were improved based on the opinions of the participants. The main contents are as follows. 1. Community revitalization and the formation and management of IWUAs (partially revised) 2. Leadership and conflict management (partially		

		revised) 3. Financial management and bookkeeping (partially revised) 4. Field-level water management and practical irrigated agriculture (fully revised, adding soil fundamentals and food processing) 5. Irrigation system management (fully revised) At the completion of the project, from the results of the training content evaluation questionnaire, comprehension test, and the IWUA's basic competency survey, participants were judged to have acquired the knowledge of IWUA operations needed to strengthen resilience. <u>Capacity enhancement of farming technology</u> The training was conducted between August 2013 and December 2014. It was judged that awareness of model farmer group members on the market-oriented farm management was raised. The contents of the project are as follows. 1. Part of the SHEP approach*, in particular, concerning improving market-oriented farm management capacity, training on baseline surveys, simple market surveys, production of crop calendars, and recording of farm income and expenditure was provided to model farmer group members in all 13 sites. (*SHEP approach is an approach for raising awareness of farmers towards market-oriented farming operations through strengthening capacity on awareness of costs and benefits of agricultural products, understanding market conditions, and improving horticultural technology.) 2. Low-input sustainable agriculture (LISA) techniques: introduction of Kenyan traditional vegetables, and introduction of push-pull technology (mainly for pilot farmers and farmer group members. LISA technology was introduced in four Batch 1 pilot sites for trial).
	3.Strengthening of the capacity of Ministry of Water and Irrigation staff for participatory irrigation development	Achieved The workshops and training were conducted between April 2013 and January 2016. Primarily, the targets were the Sub-County Irrigation Officer (hereinafter called "SCIO") and Sub-County Agriculture Officer (hereinafter called "SCAO") for the eight counties to which the pilot sites belonged. The content of capacity-building includes sensitization workshops, feasibility studies, and design training, Training of Trainers (TOT) in IWUA capacity building training, contract management training, training of SCAOs on farming techniques, and others.

Source: Documentation provided by JICA, interviews with the Ministry of Water & Sanitation and Irrigation and the county governments
Note: (1) Indicators for Outputs 2 have been set based on the description under the Record of Discussions.

Thus, the outputs can be said to be partially achieved, as the draft guideline was developed, and capacity-strengthening at the pilot sites was conducted; however,

smallholder irrigation facility development has not been completed.

3.2.2 Impact

3.2.2.1 Achievement of Overall Goal

As described in footnote 1, three types of Overall Goal, namely, “Expected utilization of the proposed plan” (Outcome), “Expected goals through the proposed plan” (Impact 1), and “Verification of the effectiveness of the SIDEMAN model at the pilot sites” (Impact 2) were set, considering that this evaluation was conducted as a development planning project-type technical cooperation and that irrigation development was carried out on a relatively large scale at many of the pilot sites.

Concerning the “Expected utilization of the proposed plan”, the “status of approval by the Government of Kenya” (Indicator 1) was partially achieved, as the guideline has not yet been formally approved. However, the experience and issues of the project were included in the revised guideline. At the time of the ex-post evaluation, the *Irrigation Regulation*s (2020) was being developed, and according to the Ministry of Water & Sanitation and Irrigation, revised guideline reflecting the experience of the project will be reflected in the document. As for the “status of utilization of the model” (Indicator 2), although it has not yet been formally approved and distributed, it has been utilized in some of the county governments interviewed (three counties), indicating that it has been partially achieved.

As for the “Expected goals through the proposed plan”, the proposed plan (revised SIDEMAN model) was not approved or distributed at the time of the ex-post evaluation, and therefore, the number of smallholder irrigation schemes and the number of newly developed irrigated area based on it cannot be verified.

The indicators to verify the effectiveness of the SIDEMAN model (stable irrigation water supply, improved farming technology, and increase in crop production and yield) at the pilot sites were set to be “increase in irrigated area and the number of beneficiary farmers (the number of IWUA members who use the irrigation water)”, “technologies introduced such as SHEP approach, LISA approach, and irrigation water-saving technology”, and “improvement in the production, the cultivated area, and the yield of main crops, and diversification of crops” [10].

Concerning “irrigated area and number of beneficiary farmers” (indicator 1), of the 12 sites for which information was obtained[11], six sites were not irrigated, and for the other six sites that were irrigated, the simple average of the actual irrigated area relative to the

[10] No indicators were set at the time of the ex-ante evaluation. In the ex-post evaluation, indicators were set based on the final report at the completion of the project.

[11] Except for Elgeyo-Marakwet County, where it was not possible to conduct a site survey due to security reasons.

plan was 51%, which can be said to be partially achieved. In the six irrigated farming sites, the smallholder irrigation facilities developed under the project are in operation and continue to be used. Besides, each IWUA continues to function as an association (e.g., electing committee members, holding general meetings, collecting water fees and recording accounts and others), cleaning and repairing irrigation facilities, and taking advantage of the learning from the project's capacity building concerning operation and maintenance. The reason why the target has not been met is mainly due to the incomplete development of irrigation facilities; however, other site-specific conditions are listed below.

Table 3: Reason for the failure to meet target irrigated area and the number of beneficiary farmers at each site

Pilot site	Reason
Mdachi (Kilifi County)	Farmers irrigated land after the development of the intake weir and main canal. However, at the time of the ex-post evaluation, they only used rain-fed agriculture because of crop damage from the September 2019 floods, high salinity, and poor design of the secondary and tertiary canals (not covered by the project), making water distribution inefficient. The county government has considered repairing the intake weir as a flood control measure and has secured a budget (not yet implemented).
Olopito (Narok County)	There has never been any irrigated agriculture with the irrigation facilities of the project, as no remaining work has been done since the end of the project period. IWUA has approached donors, including the county government, but there are no plans for improvements.
Gatitu/Muthaiga (Laikipia County)	There has been no irrigated agriculture since the completion of the project as no water rights have been granted by the Water Resource Management Authority (hereinafter called “WRMA”). Besides, there is a problem that residents downstream destroyed the water intake weir constructed by the project due to water disputes. The county government is negotiating with WRMA on the restoration of the destroyed weir.
Kiamariga/Raya (Laikipia County)	
Murachaki (Embu County)	After the completion of the project, the canal was partially improved (not subject to the project); however, the users were limited to 27 farmers along the main canal, and they did use water for non-irrigation purpose. IWUA is considering the improvement of the canal with the support by donors and by union members' reserves.

Tumutumu (Meru County)	The remaining works have been carried out by the county government, yet the irrigation area has not reached the plan because the branch lines have not been completed.
Mangudho (Kilifi County)	Pipeline and reservoir were damaged, and irrigation facilities are not in use. The county government has applied for a budget in the 2019/20 budget.
Shulakino (Narok County)	Irrigation facilities have not been used due to the December 2018 floods that damaged some of the water intake weir and pipelines and changed the river channel. Possible rehabilitation is being discussed with World Bank.

Source: Interviews with the county governments, IWUAs, and farmers

Concerning the use of "technologies introduced" (Indicator 2), according to interviews with farmers[12], they continue to prepare a cropping calendar and conduct market surveys.

Concerning the "production, the cultivated area, the yield of major crops and diversification of crops" (Indicator 3), data was not available because the county governments and IWUAs did not collect and accumulate data on smallholder irrigation[13]; however, pilot sites with functioning irrigation facilities (six out of 11 sites visited) showed significant improvements, according to interviews with farmers. According to the farmers, (1) water is distributed stably and efficiently, (2) cultivated area and production have increased because they are able to cultivate crops throughout the year, and (3) diversification of crops has been achieved.

Table 4: Achievement of Overall Goal

Overall Goal	Indicator	Actual
Expected utilization of the proposed plan Improved SIDEMAN model is approved as a model for smallholder irrigation development	1.Status of approval of the model by the Government of Kenya	Partially achieved. - The guideline developed under a mini-project (Implemented by JICA from 2000 to 2003, with the aim of promoting sustainable smallholder irrigation schemes. The project was formulated in response to various issues arising from the Study on Irrigation and Horticulture Development around the Foothills of Mt. Kenya conducted in 1997-98) in 2003 was approved in August 2003 and distributed and used nationally. - The 2003 Guideline was subsequently revised in 2010, 2016, and 2018; however, they have not been approved or distributed and are not being utilized because they are subject to public participation process for approval and distribution as

[12] Group interviews were conducted at each site with 105 members in total (including men and women) of IWUAs at 11 locations. In each IWUA, members belonging to various irrigation blocks, ranging from farmers whose farmland is close to irrigation facilities to those at the end of the canals, participated in group interviews.

[13] According to the Ministry of Water & Sanitation and Irrigation, the number of smallholder irrigation schemes in the country is around 3,000; however, the exact figure is not known. The irrigation and drainage database of the Ministry of Water & Sanitation and Irrigation does not capture information on smallholder irrigation schemes, and there is no reliable data on IWUAs or production under the smallholder irrigation schemes.

<table>
<tr><td rowspan="2">and applied in Kenya.</td><td></td><td>required by the Constitution of Kenya. In revising this guideline, the experiences and issues of the project have been incorporated.</td></tr>
<tr><td>2.Status of the utilization of the model by the Government of Kenya</td><td>Partially achieved
- The 2003 Guideline has been distributed throughout the country and is being well utilized. In particular, the development partners refer to the guideline when implementing their projects.
- Besides, the guideline has significantly influenced policy, as reflected in the National Irrigation Policy 2017 and the subsequent Irrigation Act of 2019, including funding methods, stakeholder participation, private sector involvement, and participatory development.
- Since devolution in 2010, many counties may not be aware of the existence of the guidelines.
- At the county government level in the pilot sites, the model used in this project has been applied in smallholder irrigation schemes when transferring technology to farmers (Meru County, Tharaka-Nithi County, and Kilifi County).</td></tr>
<tr><td><u>Impact 1</u>
(Expected goals through the proposed plan)
Increase in the number of smallholder irrigation schemes in semi-arid lands using the proposed plan in this project.</td><td>1.The number of smallholder irrigation schemes utilizing the proposed plan in this project.</td><td>Not verified
- Verification is not possible because the model developed in this project has not been formally approved.
- At the county level, where the pilot sites are located, interviews indicate that Kilifi County has used the experience of the project in 10 new irrigation schemes since the implementation of the project.</td></tr>
<tr><td>2.Irrigated area using the proposed plan in this project.</td><td>Not verified
- Ibid.
- According to Kilifi County, it is estimated to be between 1,000 and 3,000 acres.</td></tr>
<tr><td><u>Impact 2</u>
The effectiveness of the SIDEMAN model is verified (stable irrigation water supply, improved farming technology, increased crop production, increased yield, and crop diversification at the pilot sites).</td><td>1.Irrigated area and the number of beneficiary farmers (the number of Irrigation Water Users Associations (IWUA) members who use the irrigation water)</td><td>Partially achieved
Irrigated area and number of beneficiary farmers
<table>
<tr><th rowspan="2">Site</th><th colspan="2">Number of beneficiary farmers (IWUA members) (household)</th><th colspan="3">Irrigated Area (ha)</th></tr>
<tr><th>Plan at the time of ex-ante evaluation</th><th>Actual at the time of ex-post evaluation</th><th>Plan at the time of ex-ante evaluation</th><th>Actual at the time of ex-post evaluation</th><th>Ratio against the plan (%)</th></tr>
<tr><td>Kasokoni</td><td>44</td><td>47</td><td>33</td><td>25</td><td>75%</td></tr>
<tr><td>Mdachi</td><td>62</td><td>0</td><td>30</td><td>0</td><td>0%</td></tr>
<tr><td>Olopito</td><td>82</td><td>0</td><td>77</td><td>0</td><td>0%</td></tr>
<tr><td>Gatitu/ Muthaiga</td><td>159</td><td>0</td><td>57</td><td>0</td><td>0%</td></tr>
<tr><td>Kaben</td><td>530</td><td>N/A</td><td>360</td><td>N/A</td><td>-</td></tr>
<tr><td>Murachake</td><td>430</td><td>0</td><td>172</td><td>0</td><td>0%</td></tr>
<tr><td>Tumutumu</td><td>450</td><td>450</td><td>90</td><td>27</td><td>30%</td></tr>
<tr><td>Muungano</td><td>418</td><td>418</td><td>167</td><td>100</td><td>60%</td></tr>
<tr><td>Challa/ Tuhire</td><td>700</td><td>200</td><td>300</td><td>203</td><td>68%</td></tr>
</table></td></tr>
</table>

		Mangudho	40	0	16	0	0%
		Shulakino	172	57	40	20	50%
		Kiamariga /Raya	140	0	60	0	0%
		Kaumbura	500	200	200	49	25%
		Average of the ratio of actual irrigated area relative to plan					26%
		Average excluding sites with 0%					51%
		Note : Number of beneficiary farmers is the number of IWUA members who use the water for irrigation. The number of IUWA members is 30 households in Mdachi, 176 in Murachake, 630 in Challa/Tuhire, 7 in Manghdho, 200 in Shulakino, and 400 in Kaumbra. The figures above are the irrigation users among them.					
	2.Technologies introduced, such as the SHEP approach, the LISA approach, irrigation water-saving technology and others.	Partially achieved According to the interviews with farmers, they continue to develop a cropping calendar and conduct market research.					
	3.Cultivated area, production, the yield of main crops and diversification of crops	Partially achieved According to the interviews with the farmers, there has been an increase in the cultivated area and production, and diversification of crops (before the project, maize and cassava were the main products of rain-fed agriculture; however, after the project, okra, tomatoes, spinach, and kale have been grown).					

Source: Documentation provided by JICA, interviews with the county governments, IWUAs and farmers

Therefore, it can be said that the “Utilization of the proposed plan”, “Expected goals through utilization”, and “Verification of the effectiveness of the SIDEMAN model at the pilot sites” have all been partially achieved.

Harvesting sweet potatoes

Canal developed by the project

Interviewing an IWUA members

3.2.2.2 Other Positive and Negative Impacts

(1) Impacts on the Natural Environment

Environmental Impact Assessment (hereinafter called “EIA”) at each pilot site was approved in July 2013, March 2014, and April-May 2015, although the timing varies by site. Following the EIA, the Environmental Management Monitoring Plan (hereinafter called “EMMP”) at each site was created. The main negative environmental impacts listed in the EMMPs common to each site were (1) ecological degradation and soil erosion of rivers and river banks during the construction period, and (2) soil erosion, retained water and salt pollution, pesticide contamination, sanitation, wildlife, and disputes over water use during the operation and management period. During the construction, as for the ecological degradation of the river and riverbank, measures such as slope protection by vegetative stabilization and designating storage for excavated materials for re-use of excavated material were planned. Concerning soil erosion, backfilling of excavated areas and revegetating of backfilled area were planned. Monitoring was conducted after distributing and explaining monitoring questionnaires, water quality analysis checklists and others, as monitoring tools to contractors and IWUAs. Generally, the contractors complied with what was stated in the EMMP. In terms of negative impacts during the operation, guidance has been given on the prevention of soil erosion and proper treatment of pesticides, and no negative impact on the natural environment has occurred according to SCIOs and IWUAs,

(2) Resettlement and land acquisition

In Muungano (Tharaka-Nithi County), IWUA purchased land for the construction of an intake weir. There were also IWUAs that acquired the property for site offices by purchase or donation. Other than that, no land acquisition or resettlement has occurred.

(3) Other impacts

The interviews with farmers in the pilot sites showed that the project had a significant impact on the six sites where irrigation schemes were operating. In all six locations, positive impacts were observed, including (1) increased agricultural revenue, farm income and savings from year-round production and production of high value-added crops; (2) improved food security and nutrition (especially for children); (3) improved quality of life (change from mud-walled houses to permanent houses and purchase of vehicles); (4) access to education (ability to pay school fees and send children to school or receive a better education in private schools); and (5) expansion of farmland and increased investment in agriculture. However, there were some sites where there was a sense of inequity among the water users because the water did not reach the end. In the five places with no irrigated agriculture, participants expressed disappointment that the expected results were not achieved and concern that the future of facility development was uncertain.

The draft guideline for the revised SIDEMAN model was developed upon completion of the project, and the capacity of IWUAs and farmers at the pilot sites was strengthened; however, smallholder irrigation scheme development was not yet completed at some sites. Goals to be achieved after the completion, such as the utilization of the proposed plan and verification of the effectiveness of the model at the pilot sites have been partially achieved. In light of the above, some effects of the project have been observed, and therefore, effectiveness and impact are fair.

3.3 Efficiency (Rating:②)

3.3.1 Inputs

Table 5 shows the inputs by the project.

Table 5: Inputs

Inputs	Plan	Actual
(1) Experts	Eight persons	12 persons
(2) Trainees received	-	-
(3) Equipment	N/A	Construction materials, construction equipment and machines, equipment for training, vehicles, surveying equipment, GPS, and others.
(4) Construction cost	350 million yen	N/A
Japanese Side Total Project Cost	950 million yen	1,132 million yen
Kenyan Side Total Project Cost	1．Allocation of staff 2．Office space and furniture 3．Counterpart fund	1．Allocation of staff: 5 persons 2．Office space 3．Counterpart fund: nil

Source: Documentation provided by JICA, interviews with the Ministry of Water & Sanitation and Irrigation

* MM stands for man month.

3.3.1.1 Elements of Inputs

The number of experts increased; however, experts in their areas of expertise were sent out as planned.

Initially, the Ministry of Water & Sanitation and Irrigation officials (then District Irrigation Officers, hereinafter called “DIO”) were supposed to supervise the construction of the smallholder irrigation schemes in this project. However, the construction period changed due to the poor procurement of local consultants for the design, and the introduction of devolution system of government that occurred during the project period led to the opinion of the county irrigation departments (which supervise the SCIOs) that it was not possible to supervise the construction smoothly with the limited staff in the counties. For this reason, the Japanese side hired construction supervisory staff and assisted the SCIOs together with the Ministry of Water & Sanitation and Irrigation.

3.3.1.2 Project Cost

Project cost was 1,132 million yen (119% of the planned 950 million yen), which exceeded the plan. This is because, in the construction of smallholder irrigation schemes at the pilot sites, there was a significant difference in scope between the preliminary study

at the time of project formation and the detailed design during the project implementation.

3.3.1.3 Project Period

The actual project period was 47 months, compared to the planned 37 months (127% of the planned period), which exceeded the plan. The project period was longer than planned due to the lengthy procurement process for the construction of smallholder irrigation schemes, the delay in construction due to the change in scope as noted above, and the need for county government involvement in the project due to the impact of devolution.

Thus, both the project cost and project period exceeded the plan. The inputs were mostly as planned. Therefore, efficiency is fair.

3.4 Sustainability (Rating:②)

3.4.1 Policy and Political Commitment for the Sustainability of Project Effects

The sustainability of the effects of the project in terms of the policy and political commitment after the completion of the cooperation is assured.

The *Vision 2030* is still in valid at the time of the ex-post evaluation, and the *Third Medium-Term Plan (2018-2022)* of the *Vision 2030* aims to develop irrigation for food and nutrition security and to increase the area irrigated by large and small irrigation schemes to 207,200 hectares within the target period. The *National Irrigation Policy* (2017) also aims to increase the irrigated area by 40,000 hectares annually by promoting irrigation development for food security, job creation, and poverty reduction. Besides, President Kenyatta has identified the *Big 4 Agenda* as his priority economic policies in 2017, with food and nutrition security being one of them and irrigation being of high importance.

The visited county governments have listed irrigation development in its policy documents shown in Table 6.

Table 6: Policy documents for irrigation development at the county level

County	Policy document
Taita-Taveta	*County Integrated Development Plan*, (hereinafter called "CIDP") (2018-2020)
Narok	*Annual Development Plan* (2020/21)
Meru	Irrigation policy is being formulated
Tharaka-Nithi	*Water Resource Policy* (2019), *Annual Development Plan* (2019/20)
Laikipia	Current CIDP
Embu	Policy and strategy for irrigation development are being formulated
Kilifi	There is no policy document specifying irrigation development at the time of the ex-post evaluation

Source: county governments

From the above, it can be said that the policy and political commitment necessary to sustain the project effects is mostly ensured.

3.4.2 Institutional / Organizational Aspect for the Sustainability of Project Effects

As for the organizational setting for utilization and dissemination of the revised SIDEMAN model, the *Irrigation Act* (2019) stipulates that the Ministry of Water & Sanitation and Irrigation is responsible for irrigation infrastructure development in the national government, while the development and maintenance of smallholder irrigation schemes will be undertaken by the county governments[14].

In the Ministry of Water & Sanitation and Irrigation, irrigation schemes are handled by the four departments listed in the table below, and their responsibilities are clear.

Table 7: Organizational setting of the Ministry of Water & Sanitation and Irrigation

Department	Responsibilities
Department of Irrigation and Drainage	Infrastructure development
Department of Irrigation Water Management	Capacity enhancement of IWUAs, efficient use of water
Department of Land Reclamation	Regeneration of devastated land
Department of Department of Water Storage	Construction of irrigation water storage

Source: The Ministry of Water & Sanitation and Irrigation

The number of staff in the above four departments is 30. The national government has frozen hiring and has not made up for the loss of personnel due to retirements and

[14] Irrigation schemes of 40 hectares or less are carried out by the county governments, while schemes of 100-500 hectares are carried out by the counties and the National Irrigation Authority (hereinafter called "NIA"). Schemes of 500 hectares or more will be implemented by NIA.

transfers to the private sector.

The *Irrigation Act* (2019) stipulates that the county governments are responsible for developing smallholder irrigation schemes. The Act envisages the county governments to establish an Irrigation Development Units to (1) develop and implement irrigation strategies, (2) identify community-based smallholder irrigation scheme development projects, and (3) strengthen the capacity of IWUAs.

At the time of the ex-post evaluation, irrigation development units in the county governments we visited (seven counties) were not clear. Generally, one SCIO was assigned to each sub-county under the County Director in charge of irrigation; however, the number of staff was not sufficient for irrigation development in any of the counties. It is too burdensome for one person to be in charge of the entire sub-county, and there is no replacement for retirees. For example, Taita-Taveta County is planning to hire two new people.

Thus, there are some issues with the institutional aspect, such as a lack of personnel.

3.4.3 Technical Aspect for the Sustainability of Project Effects

The Ministry of Water & Sanitation and Irrigation continues to have officials involved from the previous SIDEMAN project and has the necessary skills to implement and promote the guidelines.

In the visited counties, the staff members who were targeted for capacity building at the time of the project implementation are still working. Although they have basic knowledge and skills, many of them are nearing retirement age and cannot be replenished or transfer their skills. Hence, both counties and the national government believe that training is necessary. At the time of the ex-post evaluation, the national government was providing training through the Food and Agriculture Organization of the United Nations (FAO).

Thus, there are some issues in the mechanisms for technology transfer and technology update.

3.4.4 Financial Aspect for the Sustainability of Project Effects

The table below shows the budgetary performance of the Department of Irrigation and Drainage (then the Ministry of Agriculture, Livestock, Fisheries and Irrigation) for FY 2018/19.

Table 8: FY2018/19 Budget for Department of Irrigation & Drainage

(Unit: million Ksh)

Recurrent Budget		Development Budget		Total	
Actual	Plan	Actual	Plan	Actual	Plan
1,252	1,659	6,197	6,835	7,449	8,495

Source: 2019 Budget Review & Outlook Paper

The actual budget of the Department of Irrigation & Drainage in FY 2018/19 was 7.4 billion shillings; however, 30 billion shillings were needed for the implementation of the *Big 4 Agenda* mentioned above (3.4.1). The budget of the irrigation sector for FY 2019/20 is expected to be 7.9 billion shillings; however, similarly, the required budget for FY 2019/20 for the implementation of the *Big 4 Agenda* is 31 billion shillings, which has not been adequately allocated.

According to the Ministry of Water & Sanitation and Irrigation, a portion of the budget, especially that of the Department of Irrigation Water Management, is earmarked for capacity development and will also be used to disseminate the guidelines.

According to the county governments visited for this ex-post evaluation, none of them have secured adequate budgets for irrigation activities.

The remaining works at the project pilot sites were under consideration at the time of the ex-post evaluation by Meru County (two sites) and Laikipia County (two sites) for application to the FY 2020/21 budget. Taita-Taveta County (two sites) negotiated with JICA's Kenya office for support for the remaining works. Besides, Kilifi County has included the cost of addressing inoperable facilities in its budgets for 2018/19 (approved and not yet implemented) and 2019/20.

Despite the efforts to address the remaining works, both the national and county governments are experiencing some challenges in the budget for irrigation development.

3.4.5 Status of Operation and Maintenance

Among the irrigation facilities developed in the project, the facilities are generally operated and maintained properly at the six sites that are functioning under the project. However, in Shulakino (Narok County), part of the water intake weir and pipelines were damaged due to flooding, as described in Table 3.

In light of the above, some problems have been observed in terms of the institutional/organizational, technical, and financial aspects. Therefore, sustainability of the project effects is fair.

4. Conclusion, Lessons Learned and Recommendations

4.1 Conclusion

The aim of the project was to investigate and summarize the application of a model for smallholder irrigation development which involves farmer participation to secure stable agricultural water supply in semi-arid lands and to strengthen the resilience to frequent droughts. The relevance of the project is high because the objective of the project was consistent with the development plan and development needs of Kenya both at the time of ex-ante evaluation and project completion, and it is also consistent with Japan's ODA policy to Kenya at the time of ex-ante evaluation. At the completion of the project, a draft guideline for the model was developed, and the capacity of IWUA and farmers at the pilot sites was strengthened; however, the objective was partially achieved because some of the smallholder irrigation facilities have not been completed. Goals after the project completion, such as utilizing the proposed plan and confirmation of the effectiveness of the model were partially met. Therefore, the effectiveness/impact are fair. Efficiency is fair as both project costs and period exceeded the plan. Concerning the sustainability of the project effects, there are some challenges in the institutional/organizational, technical, and financial aspects, and therefore, the sustainability of the project effects is fair.

In light of the above, this project is evaluated to be partially satisfactory.

4.2 Recommendations

4.2.1 Recommendations to the Implementing Agency

The Ministry of Water & Sanitation and Irrigation and the county governments are recommended to explore the possibility of implementing the remaining works of the pilot sites under NIA, as well as development partners and other funds for the implementation. If it is not possible to carry out the remaining works, it is recommended to provide a clear explanation to IWUAs. Also, at two sites in Laikipia County, water rights were not obtained from the WRMA, and water intake weirs were destroyed due to disputes over water. The Ministry of Water & Sanitation and Irrigation and Laikipia County are urged to negotiate with WRMA on the water rights and repair of the water intake weirs.

4.2.2 Recommendations to JICA

The JICA Kenya Office has been in discussions with the Ministry of Water & Sanitation and Irrigation on the future of the facilities at the pilot sites. JICA is recommended to identify the sites that can be quickly followed up by JICA for the implementation of remaining works or restoration works. In that case, JICA needs to involve not only the national government but also the county governments, who will be

responsible for supervising the implementation from the beginning.

4.3 Lessons Learned

In case infrastructure development is part of a project

1. In many pilot sites, irrigation facility development works were incomplete at the time of project completion. Many of the remaining works were also not implemented at the time of the ex-post evaluation. Therefore, some envisioned impacts have not been produced. There was a significant difference in scope between the preliminary study at the time of project formation and the detailed design during the implementation of the project, which led to an increase in project costs and construction delays, which in turn, prevented the pilot projects from being completed during implementation. If infrastructure development is included in a project, the determination of the project scope and appropriate feasibility study should be done at the time of project formation as much as possible, to avoid incomplete construction works.
2. Compared to the previous SIDEMAN project, the scale of this project is much larger. Therefore, local consultants were used at the design stage. Besides, the Ministry of Water & Sanitation and Irrigation (through DIOs) was to supervise the construction. However, in the end, the Japanese side allocated staff who supervises the construction by the request of the county governments with which DIOs were newly affiliated during the devolution, who thought such arrangement was desirable for the smooth implementation. The delay in the project implementation also affected the decision.

   On the other hand, MOU for construction works, signed among (1) the Government of Kenya, JICA, the representative of the project implementation team, (2) the water users' association, and (3) the county governments did not clearly mention the responsibility for the remaining works after the project completion; however, the national government was to provide financial and other arrangements for the remaining works. If it was envisaged that the national government carries out the remaining works after the completion of the project, there was a need for greater involvement of the national government in the design and construction supervision phase to ensure the continuity of the remaining works and its responsibility. In that case, it is necessary to decide the feasible scale of the project (the number of sites), taking into account the implementation capacity of the counterpart country and duration of the project.

   Also, aspects of strengthening the organizational structure and skills of the county governments should have been more emphasized during the devolution.

Republic of Kenya, Republic of Uganda, United Republic of Tanzania, Republic of Rwanda, Republic of Burundi

FY 2019 Ex-Post Evaluation of Technical Cooperation Project

"Project on Capacity Building for the Customs Administrations of the Eastern African Region (Phase 2)"

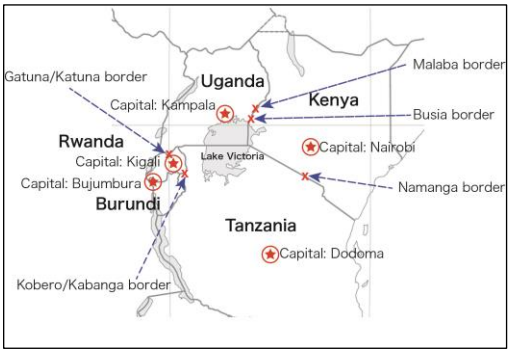
External Evaluator: Takako Haraguchi, International Development Center of Japan Inc.

0. Summary

This project was the second phase of a technical cooperation project to improve the capacity of customs clearance procedures primarily through the assistance on the introduction and operation of one-stop border posts (hereafter, "OSBPs") at land borders in five countries in the Eastern African region. Based on the experience in the preceding phase on the construction of the OSBP operation model and technology transfer, the project implemented efforts to strengthen customs activities and develop personnel. The relevance of the project was high because its interests in facilitating trade and developing the capacity of the personnel to achieve trade facilitation were consistent with the development plans and development needs in the region and these countries and with Japan's aid policy. Even though the project mostly accomplished the training of customs officers and customs clearing and forwarding agents (hereafter, "CCFAs"), the operation of OSBPs did not become fully functional due to external conditions (delay in facility construction) and other factors. Thus, the project purpose—the strengthening of customs clearance procedures at the target borders—was only partially achieved. However, regarding the overall goal (further expansion of smooth and efficient customs clearance through proper operation of OSBPs)—even though it encompassed the effects of subsequent phases, which attempted to continue and expand the efforts of this project—this study confirmed the project's impact, including a shorter customs clearance time and the institutionalization of the outputs of personnel development in the East African Community (EAC). Therefore, the effectiveness and impact were high. The project period was as planned. However, this study was unable to compare the actual project cost against the planned project cost due to the lack of comparable figures. The efficiency is thus rated as fair. While the effect of this project has mostly been established in the EAC's framework for trade facilitation, the institutional/organizational and financial aspects of the project experienced some problems and had components that were difficult to examine. The sustainability is thus rated as fair.

In light of the above, this project is evaluated to be satisfactory.

1. Project Description



Project Locations

Namanga OSBP: Customs windows of Kenya and Tanzania sit next to each other

1.1 Background

The Eastern African region was attempting to drive sustainable economic growth by facilitating trade. As one of the strategies, it promoted the introduction of one-stop customs clearance (a measure to facilitate logistics through faster and more efficient customs clearance procedures by switching the export/import procedures from the traditional two-stop processes—one for the exit side and another one for the entry side—to a one-stop process) at land borders. The Japan International Cooperation Agency (JICA) implemented the "Project for Capacity Building for the Customs Administrations of the Eastern African Region" (hereafter, "Phase 1") between 2007 and 2009 targeting Kenya, Tanzania, and Uganda to build the capacity of the customs (revenue authorities) of these countries to operate their OSBPs. Phase 1 implemented various seminars and a series of pilot projects, including the development of the OSBP operational model toward the establishment and introduction of the OSBP concept in Namanga (a Kenya‐Tanzania border) and Malaba (a Kenya-Uganda border), the development of information and communication technology (ICT) equipment, and Joint Border Surveillance (hereafter, "JBS"). Phase 1 achieved outcomes including the acquisition of basic customs work and a greater acceptance of OSBPs.

At the same time, lessons and recommendations were identified through Phase 1, including: 1. In order for Eastern African countries to cooperate in the introduction and operation of OSBPs at border customs, it is necessary to continuously build the capacity of their customs in areas such as techniques and knowledge in risk management and customs classification/valuation. 2. It is necessary to expand the pilot projects on the development of ICT equipment and JBS to other border posts. 3. In order to increase the speed and efficiency of customs clearance procedures, it is necessary to build the capacity not only of the customs but also CCFAs at the same time. In addition, the revenue authorities of the target countries pointed out the need to strengthen the ability to crack down smuggling that was taking place on Lake Victoria to avoid land borders. In response, the idea of introducing Joint Water Surveillance (hereafter, "JWS") in addition to JBS at land borders was considered. Moreover, Rwanda and Burundi, in addition to the three target

countries of Phase 1, joined the EAC Customs Union in 2007, creating greater needs for region-wide efforts.

1.2 Project Outline

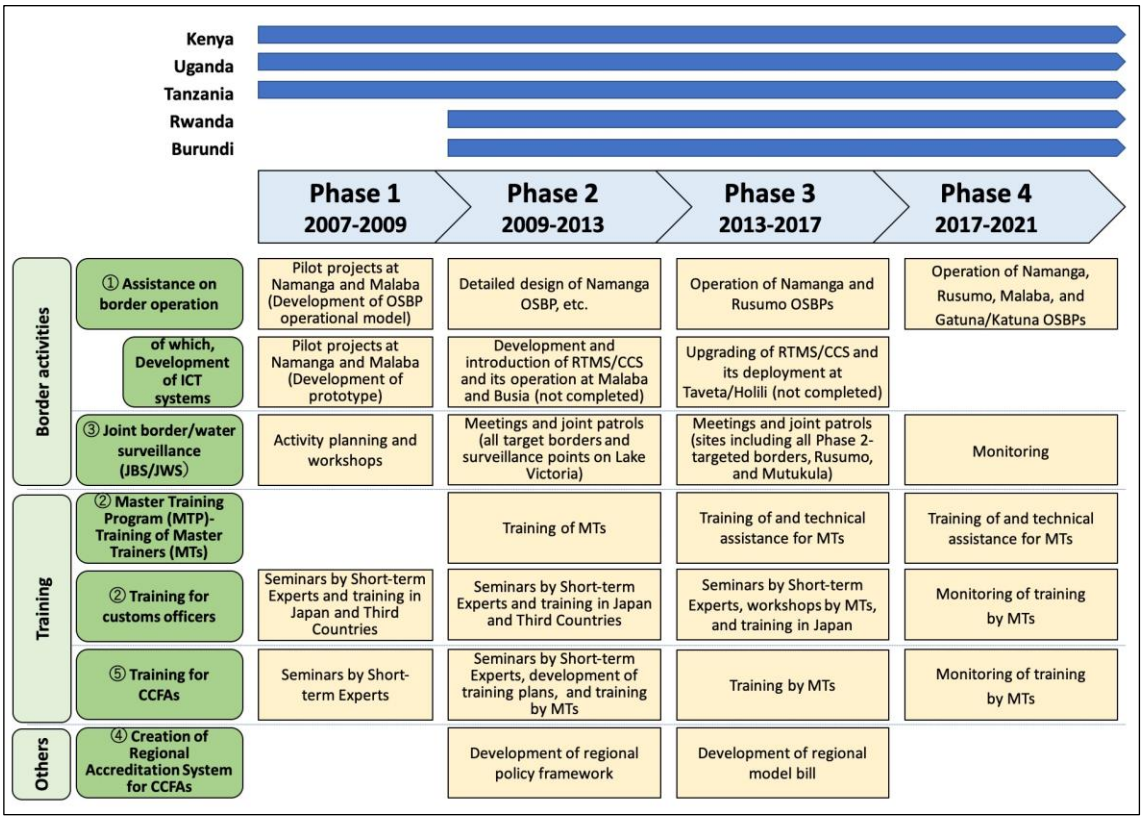
Overall Goal		Smooth and efficient Customs clearance is carried out with support of proper operation of OSBP.
Project Purpose		Smooth and efficient Customs clearance at borders is strengthened under OSBP Concept with constructive relationship between Customs Administrations and Customs Clearing and Forwarding agents.
Outputs	Output 1	Capacity of Customs administration is enhanced.
	Output 2	Compliance level and capacity of Customs Clearing and Forwarding agents are enhanced through the strengthened function of Customs Clearing and Forwarding Agents Associations.
Total Cost (Japanese Side)		846 million yen
Project Period		September 2009‐September 2013
Target Areas		Kenya, Uganda, Tanzania, Rwanda, and Burundi (In particular, Nairobi, Dar es Salaam, Kampala, Kigali, Bujumbura, and the border areas at Namanga (Kenya/Tanzania), Malaba (Kenya/Uganda), Busia (Kenya/Uganda), Gatuna/Katuna (Rwanda/Uganda), Kobero/Kabanga (Burundi/Tanzania), and Lake Victoria (Kenya, Tanzania, Uganda))
Implementing Agency		• Kenya Revenue Authority (hereafter, "KRA") • Uganda Revenue Authority (hereafter, "URA") • Tanzania Revenue Authority (hereafter, "TRA") • Rwanda Revenue Authority (hereafter, "RRA") • Office Burundais des Recettes (hereafter, "OBR")
Other Relevant Agencies/ Organizations		Cooperation on project implementation: East Africa Business Council (EABC), each country's Customs Clearing and Forwarding Agent Association (hereafter, "CCFAA"), World Customs Organization (WCO)
Supporting Agency/Organization in Japan		Customs and Tariff Bureau of the Ministry of Finance
Related Projects		<Technical Cooperation> • Kenya, Tanzania, Uganda, "Project on Capacity Building for the Customs Administrations of the Eastern African Region" (2007‐2009) (Phase 1)

	• Kenya, Tanzania, Uganda, Rwanda, Burundi, "Project on Capacity Development for International Trade Facilitation in the Eastern African Region" (2013‐2017) (hereafter, "Phase 3") • Kenya, Tanzania, Uganda, Rwanda, Burundi, "Project on Capacity Development for Trade Facilitation and Border Control in East Africa" (2017‐2021) (hereafter, "Phase 4") <ODA Loan> • Tanzania, "Arusha-Namanga-Athi River Road Development Project" (March 2007) (construction of Namanga OSBP) <Grant Aid> • Kenya, Tanzania, Uganda, Rwanda, Burundi, "Project for Enhancing Trade Facilitation and Border Control Capacity" (November 2019) (jointly with the United Nations Office for Project Services (UNOPS), providing equipment for JBS/JWS) • Tanzania and Rwanda, "Project for Construction of Rusumo International Bridge and One Stop Border Post Facilities" (March/August 2011 in Tanzania; March/September 2011 in Rwanda) (construction of Rusumo OSBP) <Others> • Various projects by Trademark East Africa (TMEA), the United States Agency for International Development (USAID), the World Bank (WB), and the African Development Bank (AfDB), including OSBP facility construction, the improvement of trade policy through the EAC, and customs officer training by the WCO (jointly with this project and its subsequent phases)

The outputs of this project were the capacity development of customs administration (in particular, revenue authority personnel) (Output 1) and the capacity development of CCFAs (Output 2). Project components for these outputs consisted of the following (Items 1‐4 correspond to Output 1 and Item 5 corresponds to Output 2): 1. Assistance on OSBP operation (detailed design for the Namanga OSBP, developing ICT systems such as the Real Time Monitoring System/Cargo Control System (hereafter, "RTMS/CCS") and the accompanying transfer of OSBP operation technologies at each border, etc.); 2. Master Trainers Program (hereafter, "MTP")/customs officer training; 3. JBS/JWS; 4. Creation of the Regional Accreditation System for CCFAs; and 5. Training for CCFAs. The project purpose was set as the strengthening of customs clearance procedures at borders as a result of achieving these components. It was expected that the continuous and expansive implementation of these components would help

achieve the overall goal—smooth and efficient customs clearance is carried out with support of proper operation of OSBPs—after the project completion.[1]

After the completion of this project (Phase 2), the two subsequent phases mentioned in the table above have been implemented. Phase 4 was underway at the time of ex-post evaluation. Key components of each phase are shown in Figure 1.



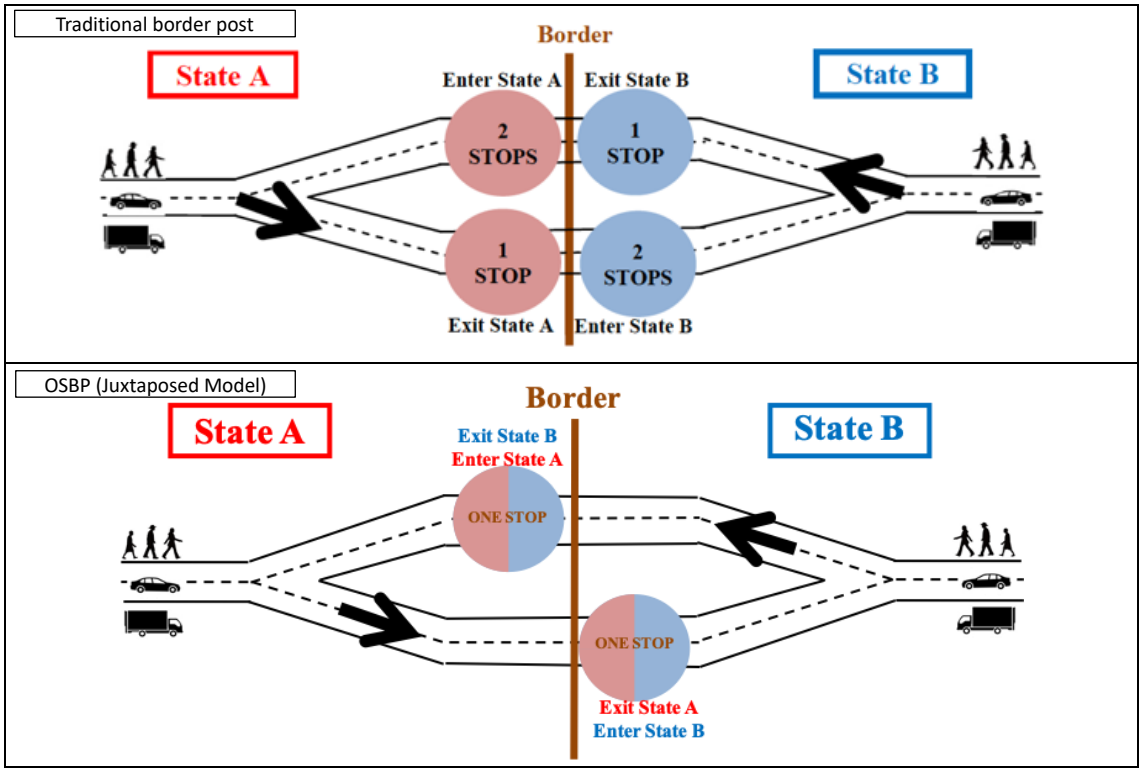
Source: Created based on documentation provided by JICA
Note: Circled numbers correspond to the classification of components in this report (components were arranged based on the foci of this project).

Figure 1. Description of key components in different phases

The figure below shows the differences in the customs clearance procedures between before and after the introduction of OSBPs. Among the three types of OSBPs defined by the EAC, the figure shows the Juxtaposed Model, whose basic configuration is a single post per country. The administration of the post is provided by the country of entry, but both countries operate in the common control zone. This model has been adopted by all of the target borders of this project.

[1] This ex-post evaluation was conducted based on the logical framework, which was revised during the project period. The "Project Purpose" and "Overall Goal" discussed in this framework sound similar to each other, but, according to the indicators, the former envisions direct effects of the project while the latter envisions long-term effects, such as the expansion to other areas and regular use in training. The summary in this section used this understanding.

(Other models include the “Straddling Model,” which builds a single post on the border, and the “Single Country Model,” which creates a single post in one of the countries.)



Source: NEPAD Agency, One-Stop Border Post Sourcebook, 2nd edition (2016)

Figure 2. Diagrams of the border post and customs clearance procedures before (top) and after (bottom) OSBP

1.3 Outline of the Terminal Evaluation

1.3.1 Achievement Status of Project Purpose at the Terminal Evaluation

Indicators related to training, such as MTP, were achieved, but some indicators for Output 1, including the deployment of the RTMS/CCS (an ICT system) at the target borders, were not fully achieved by the end of the project period. Therefore, the evaluation rated the achievement status of the project purpose as fair.

1.3.2 Achievement Status of Overall Goal at the Terminal Evaluation (Including other impacts)

Although the attainability of some of the indicators for the overall goal, such as a shorter customs clearance time after OSBPs become operational, was hard to judge at the time of terminal evaluation, the evaluation assessed that the training for Master Trainers (hereafter, “MTs”) and the development of the RTMS/CCS would likely be utilized in the future as the

outcomes of these components became assets not only of individual countries but also of the customs administration shared by the EAC.[2]

1.3.3 Recommendations from the Terminal Evaluation

The following recommendations were made. All of them have been addressed in the subsequent phases.

- To continue to work towards full operation of the RTMS/CCS at the Namanga OSBP. To examine the implementation structure and necessary inputs by anticipating the deployment of the RTMS/CCS in Malaba and Busia.
- To coordinate with relevant agencies and create operation manuals in a timely manner in order to operate OSBPs, while monitoring the progress of the Namanga OSBP construction.
- To examine the continuous utilization of the MTP.
- To promote the implementation of JWS based on the action plans formulated by relevant countries to boost JWS activities.
- To continue to maintain and strengthen the cooperation with the WCO to effectively utilize and develop the capacity of MTs.

2. Outline of the Evaluation Study

2.1 External Evaluator

Takako Haraguchi, International Development Center of Japan Inc.[3]

2.2 Duration of Evaluation Study

This ex-post evaluation study was conducted with the following schedule.
Duration of the Study: July 2019–August 2020
Duration of the Field Study: October 12–November 26, 2019; February 8–February 28, 2020[4]

2.3 Constraints during the Evaluation Study

Among the target countries/borders, the field study could not be carried out in Burundi and the Kobero/Kabanga OSBP due to an advice given from a safety management perspective.

[2] JICA. (2014). A report on the terminal evaluation for the Project on Capacity Building for the Customs Administrations of the Eastern African Region (Phase 2) and the detailed design study for the Project on Capacity Development for International Trade Facilitation in the Eastern African Region. p. x.
[3] Participated as reinforcement from i2i Communication, Ltd.
[4] This period includes the field study period for the ex-post evaluation of the Mombasa Port Development Project. The evaluation for the latter and the present evaluation were carried out at the same time.

Information was collected mainly through email communication from the OBR, the counterpart agency in Burundi. Information concerning this border was also provided by the project team of the ongoing Phase 4.

All of the components of this project continued to be addressed in the subsequent phases. This makes it difficult to identify the effects observed at the time of ex-post evaluation that were attributable only to this project (Phase 2).

3. Results of the Evaluation (Overall Rating: B[5])

3.1 Relevance (Rating: ③[6])

3.1.1 Consistency with the Development Plans of the Eastern African Region and the Individual Target Countries (Kenya, Uganda, Tanzania, Rwanda, and Burundi)

The consistency between this project and the development plan of the target region/countries at the time of both ex-ante evaluation and project completion was high.

Regarding the development policy of the Eastern African region, the EAC Customs Union was formed in 2005 between Kenya, Tanzania, and Uganda under the *EAC Common Market Treaty*. Rwanda and Burundi joined the EAC and the Union in 2007, accelerating the standardization and streamlining of national customs policies in the region. From the perspective of promoting efforts of the Customs Union, it was necessary for customs to promote the coordination of the activities of different customs within the region, fair customs valuation, trade facilitation, and the improvement in border processing. Thus, the introduction of OSBPs became broadly recognized as an effective means to facilitate trade. In addition, the *4th EAC Development Strategy* (2011‐2016) set forth to strengthen customs administration, trade facilitation, and enhancement of revenue management. Furthermore, the *East African Community One Stop Border Posts Act* was passed by the Legislative Assembly in 2013 (and enacted in 2016; additionally, the *EAC OSBP Regulation* was enacted in 2017 based on the *Act*), specifying the nature of the OSBPs in the region.

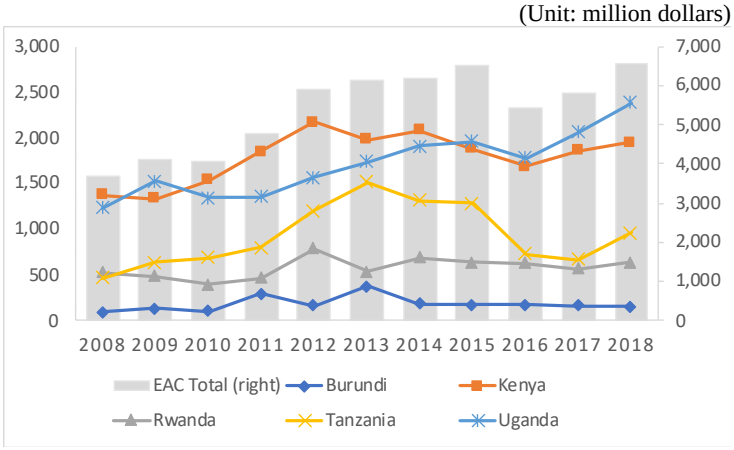
Regarding the development policy of individual countries, their respective policy documents including long- and medium-term national development plans, customs modernization programs, and revenue authority's programs at the time of ex-ante evaluation and project completion promoted measures such as the improvement of customs administration and the facilitation of trade in order to achieve economic growth primarily through greater revenues and trade. They often identified ICT and OSBPs as tools for achieving these policy goals.

[5] A: Highly satisfactory, B: Satisfactory, C: Partially satisfactory, D: Unsatisfactory
[6] ③: High, ②: Fair, ①: Low

3.1.2 Consistency with the Development Needs of the Eastern African Region and the Individual Target Countries (Kenya, Uganda, Tanzania, Rwanda, and Burundi)

The consistency between this project and the development needs (i.e., trade facilitation and the capacity development of the personnel involved in trade) was consistently high from the time of ex-ante evaluation to project completion. In addition to the circumstances explained in "1.1 Background," the value of intraregional trade—although it was not uniform between countries or between cities—has mostly increased in a long term as shown in Figure 3, suggesting that the need for trade facilitation continuously existed in the region.

(Unit: million dollars)



Source: Created from the *East African Community Facts and Figures - 2019*

Figure 3. Value of trade within the EAC region among the five target countries (import + export)

3.1.3 Consistency with Japan's ODA Policy

The consistency with Japan's ODA policy at the time of ex-ante evaluation was high. First, regarding the Eastern African region, the Japanese government expressed commitment to assisting Africa's OSBPs at the Fourth Tokyo International Conference on African Development (TICAD IV) in May 2008 and at the G8 Finance Ministers Meeting in June of the same year. In addition, regarding aid policy for individual countries, infrastructure development or the assistance on the promotion of trade is mentioned in the *Country Assistance Program for the Republic of Kenya* (2000), *Country Assistance Program* (Tanzania) (2000), the economic cooperation policy dialogue with Uganda in October 2006 (2006), the policy dialogue (2004) and the mid-term meeting for the policy dialogue (2009) with Rwanda, and the economic cooperation policy dialogue (2006) and the second economic cooperation policy dialogue (2008) with Burundi.

In light of above, this project was highly relevant to the development plan and development needs of, as well as Japan's ODA policy for, the Eastern African region and individual target countries. Therefore, its relevance is high.

3.2 Effectiveness and Impact (Rating: ③)[7]

3.2.1 Effectiveness

3.2.1.1 Achievement of Project Purpose

Like the assessment made in the terminal evaluation mentioned above, this study assessed that the project purpose, "Smooth and efficient Customs clearance at borders is strengthened under OSBP Concept with constructive relationship between Customs Administrations and CCFAs," was achieved at a limited level (thus, the extent of achievement was fair). The indicators for the project purpose had been set up to measure the degree to which the direct outcome of each of the project components: 1. Assistance with OSBP operation; 2. MTP/customs officer training; 3. JBS/JWS; 4. Creation of the Regional Accreditation System for CCFAs; and 5. Training for CCFAs. Of these, Indicators 2 and 5, which are related to training, were mostly achieved.[8] MTs were trained according to the plan, paving the way for implementing satisfactory training. In addition, Indicator 4 regarding the Regional Accreditation System for CCFAs also was mostly achieved since the policy framework draft for the introduction of this system was prepared. However, Indicator 1 regarding the assistance with OSBP operation was not achieved because the delay in one of the external conditions—the construction of OSBPs (to be carried out through a Japanese ODA loan or AfDB)—prevented the RTMS/CCS from becoming fully operational. Furthermore, concerning Indicator 3, while the JBS/JWS activities themselves were implemented to a certain extent, the study was not able to objectively verify whether the local community came to recognize the activities' deterrent effects against smuggling.

[7] Sub-rating for Effectiveness is to be put with consideration of Impacts.
[8] Although significant effects were observed as described in Table 1, these are rated as "mostly achieved" because, strictly speaking, the data required for these indicators could not be obtained.

Table 1. Achievement of Project Purpose

Project Purpose	Indicator	Actual
Project Purpose: Smooth and efficient Customs clearance at borders is strengthened under OSBP Concept with constructive relationship between Customs Administrations and CCFAs.	1. Clearance time of cargoes from the time of declaration to issue release order at Namanga, Malaba and Busia is reduced by proper operation of RTMS/CCS.	Not achieved • The detailed design of the Namanga OSBP was completed as planned. However, the construction of OSBP facilities (ODA loan, AfDB) was not completed in any site in the EAC region, including Namanga, before the project completion due to the delay in land acquisition. • For this reason, the development and roll out of the RTMS/CCS, which was being implemented under the premise that it would be run at OSBP facilities, was modified in a way that it could be rolled out and operated without facilities. • The customs portion of the RTMS/CCS in Namanga only became operational in February 2013. Its operation did not reach the level, "being used properly." • Other border posts did not start to use the RTMS/CCS because it was decided to deploy it by monitoring the operation status in Namanga. • Therefore, these border posts did not achieve reduced time through the use of the RTMS/CCS.
	2. Trainees' satisfaction/ understanding ratings on trainings by Working Group members of MTP exceed 80% as practical to apply for their daily business.	Mostly achieved • A total of 53 WG members consisting of the revenue authority employees of the five countries completed the MTP in "Customs Valuation," "HS[9] Classification," or "Intelligence Analysis" and were awarded the MT certificate from their country's respective revenue authority and the certificate of participation for the training of trainers (TOT) by the EAC. Of these, four members who were trained in "Customs Valuation" and two members who were trained in "HS Classification" pass the WCO Accredited Experts examination. • WG members appointed by national revenue authorities, prepared the *MTP Handbook* based on the international standards in customs while incorporating the characteristics of the region. • Training for customs officers, instructed by WG members (MTs), was provided between August and October 2012. The total number of participants was 80. The evaluation panel made up of experts and training supervisors from Japan, target countries, and the EAC gave evaluation scores between 83% and 93% to the instructors, determining that these trainers acquired knowledge and skills that allowed them to offer a certain level of satisfaction to the trainees. In the survey conducted by WG after the training, the participants reported that the training courses were organized well, informative, and interactive. However, due to lack of information, it could not be verified whether the percentage of the participants who assessed the program this way or whether the level of their satisfaction was 80% or higher.
	3. Joint Border/Water Surveillance are taken as effective deterrent measure against smuggling and anti-social activities by the local communities at Namanga, Malaba, Busia, Gatuna/Katuna, Kobero/Kabanga and Lake Victoria.	Unable to verify • Meetings on JBS/JWS between partner countries at each site took place, and joint operation plans and reporting guidelines were formulated and agreed. • The implementation of the JBS/JWS activities and reporting were carried out according to these plans and guidelines. However, regarding JWS, bilateral activities that were originally envisioned were undertaken infrequently. Reasons included the difficulty in operating boats (due to the proliferation of common water hyacinth on Lake Victoria and the lack of money for fuel) and the lack of legal backing for bilateral activities. • Regarding the change in the awareness in the local community, the terminal evaluation determined that it could not be objectively verified because no baseline values or records that could be used in comparisons were available. • It was also difficult to retrospectively measure the change in awareness at the time of ex-post evaluation.

[9] "HS" stands for Harmonized Commodity Description and Coding System. *The Convention on the Harmonized Commodity Description and Coding System (HS Convention)* administered by the WCO defines the HS Codes (statistical codes for import/export commodities).

Project Purpose	Indicator	Actual
	4. Policy framework on the Regional Accreditation System for CCFAs is developed.	Mostly achieved • The final draft of the policy framework was completed in June 2013 by a task force consisting of the revenue authorities in the five countries, the EAC, the EABC, the Federation of East African Freight Forwarders Associations (hereafter, "FEAFFA"), and FEAFFA member companies, and was announced at sensitization workshops. • Although we might say that the policy framework was indeed "developed" because the draft was prepared, it was never turned into an official policy document (see "3.2.2.1 Achievement of Overall Goal").
	5. Trainees' satisfactory/ understanding ratings on trainings by Working Group members of MTP to Customs Clearing agents exceed 80% as practical to apply for their daily business.	Achieved • Training in the "Customs Valuation," "HS Classification," "Compliance," and "Procedures" areas instructed by WG members was administered in each country starting in September 2012. A total of 480 CCFAs received the training. In addition to the training, several seminars were held, in which 388 CCFAA officials and 428 CCFAs participated. • In the evaluation results by the participants, more than 90% of them reported that they were satisfied or very satisfied with the content and organization of the training, and 70‐90% reported that the knowledge gained in the training was applicable to customs operation.

Source: JICA. (2014). A report on the terminal evaluation for the Project on Capacity Building for the Customs Administrations of the Eastern African Region (Phase 2) and the detailed design study for the Project on Capacity Development for International Trade Facilitation in the Eastern African Region., documentation provided by JICA

Thus, the project purpose was achieved in the areas of the MTP/training and the introduction of the Regional Accreditation System for CCFAs. However, the utilization of the RTMS/CCS was limited, and this study was not able to verify the change in awareness through JBS/JWS in the local community. Therefore, the project achieved its project purpose at a limited level.

3.2.2 Impact

3.2.2.1 Achievement of Overall Goal

The overall goal was "Smooth and efficient Customs clearance is carried out with support of proper operation of OSBP." After the project completion, the construction of OSBP facilities at all target borders except for Gatuna/Katuna[10] was completed under multiple projects by JICA and other donors, and these facilities became operational. Thus, the project mostly achieved Indicator 1—reducing the clearance time of cargoes from the time of declaration to issue of release order to under 4 hours at the Namanga, Malaba, and Busia OSBPs. The MTs trained in this project were utilized in the regular training for the customs officers of respective revenue authorities and the regular training for CCFAs. Thus, the project mostly achieved Indicator 3, which measured whether MTs were involved in annual training programs of the revenue authority. The project mostly achieved Indicator 4, "the concept of JBS/JWS spreads within the region," since the institutionalization of JBS

[10] The construction of the OSBP facility at the Gatuna/Katuna border (by the World Bank, but the Rwanda side was later switched to the funding from the Government of Rwanda) was delayed due to factors such as soft soil, but the Rwanda side (Gatuna OSBP) was completed in February 2020 and agencies moved in. The construction of the Uganda side (Katuna OSBP) is still underway.

within the region and the penetration of the JWS concept were confirmed. Here, "mostly" is used in the assessment because, as will be shown below in the box, "Status of the components of this project at the time of ex-post evaluation," the actual activities that took place were mostly information exchanges and meetings and included few joint patrol activities with neighboring countries due to several limiting factors. The approval of the policy framework draft for the Regional Accreditation System for CCFAs (Indicator 5) was not achieved in the way the indicator was set up. The focus of the efforts shifted from the policy framework to the legal framework. Thus, the impact was more significant than what was expected in this project.

In contrast, from the perspective envisioned in this project that the target OSBPs of this project would become the model, the diffusion of the OSBP operational model in the region (Indicator 2) was achieved only partially because OSBPs had not been developed using a specific OSBP as a model.

Table 2. Achievement of Overall Goal

Overall Goal	**Indicator** Target Year: 2019[Note1]	**Actual**
Overall Goal: Smooth and efficient Customs clearance is carried out with support of proper operation of OSBP.	1. Clearance time of cargoes from the time of declaration to issue of release order reduce to within 4 hours on average.[Note2]	Mostly achieved • As shown in the table below, many studies were conducted. Even though direct comparisons are difficult because the conditions of these studies were not uniform and the customs clearance time significantly varied depending on factors such as the type of cargo, all target borders had measured values that achieved the target—four hours. By also considering the results of the interviews (all of the interviewees from revenue authorities, CCFAs, and the CCFAA reported that customs clearance procedures became more efficient), it is reasonable to say that the customs clearance time has been decreasing overall. • At the Namanga OSBP, the detailed design of the facilities contributed to the reduction of time through the adoption of one-stop customs clearance. The OSBP operation at all target borders became more efficient thanks to the transfer of OSBP operation technologies, the assistance on organizing meetings, and monitoring that took place under this project and the subsequent phases. This contributed to a shorter time. In the subsequent phases, the assistance on the preparation and dissemination of the *EAC OSBP Procedures Manual* also contributed to the achievement of this indicator. Regarding factors outside this project that were likely to have contributed to the greater efficiency of customs, various reports and interviewees pointed to the introduction of Single Customs Territory (SCT),[11] the promotion of electronic declaration, and the improvement in the operation of the parking space. • Factors preventing a shorter customs clearance time included the shortage of cargo scanners, the time taken for the inspection by other authorities, long stays at the OSBP caused by CCFAs, the extra hours counted for the overnight stay outside the gate when the customs clearance agent arrived just before the closing time at 8 p.m. (as in the case of the Namanga OSBP, which is not operated 24 hours for cargo).

[11] SCT is an initiative based on the EAC Customs Union to streamline intraregional customs clearance procedures. Formerly, an intraregional cargo with different countries of origin/destination had to be processed for transit in the same country before being processed for import in the importing country. SCT streamlined customs clearance procedures by allowing the Member States of the Customs Union to complete only the import procedure for the importing country without completing the transit procedure.

<table>
<tr><th>Overall Goal</th><th>Indicator
Target Year: 2019[Note1]</th><th>Actual</th></tr>
<tr><td></td><td></td><td>
Average customs clearance time at target border facilities[a]
(Unit: hour)
<table>
<tr><th colspan="2">OSBP (1st year in operation)</th><th>Before OSBP</th><th>After OSBP (2019)</th></tr>
<tr><td rowspan="2">Namanga (2017)</td><td>Tanzania to Kenya</td><td>a) 51 (2009)
b) 6 (2014)**</td><td>c) 4
b), d) 8**[b]</td></tr>
<tr><td>Kenya to Tanzania</td><td>b) 12 (2014)**</td><td>b) 3**
d) 8**</td></tr>
<tr><td rowspan="2">Malaba (2016)</td><td>Uganda to Kenya</td><td>e) 10 (2015)</td><td>c) 4</td></tr>
<tr><td>Kenya to Uganda</td><td>No comparable data available</td><td>No comparable data available</td></tr>
<tr><td rowspan="2">Busia (2017)</td><td>Uganda to Kenya</td><td>e) 6 (2015)</td><td>c) 4</td></tr>
<tr><td>Kenya to Uganda</td><td>e) 12 (2015)*</td><td>f) 3*</td></tr>
</table>
Source: (a) TRA, Tanzania Time Release Study, 2009 (Tanzanian side only). (b) JICA, Endline Time Measurement Survey at Namanga Border Crossing, 2019 (median). (c) Survey responses from KRA. (d) Interview with KRA representatives at Namanga OSBP. (e) URA, Uganda Time Release Study, 2015 (Ugandan side only). (f) Interview with URA representatives at Busia OSBP. (g) Survey responses from URA.
Note: [a] Values are rounded up if the original data had values smaller than one hour. The clearance time is defined in three ways. No asterisk: Declaration–Release. *: Arriving the gate–Leaving the gate. **: Arriving at the border area–Leaving the gate.
[b] This value was measured in February 2019 before a cargo scanner was installed in May of the same year. It is expected that the customs clearance time dropped below this value after the installation.
</td></tr>
<tr><td>2. OSBP Operational Model at Namanga, Malaba and Busia spread to other areas in the region as a key model.</td><td>
Partially achieved
• Each OSBP was operated according to the framework that was standardized across the EAC (EAC OSBP Act and the EAC OSBP Procedures Manual, which was created with the assistance of Phase 3). As of November 2019, the number of OSBPs in the region was 12, against 19 as planned.
• Due to reasons including the delay in the completion of these OSBP facilities, the standardized framework above does not necessarily employ these OSBPs as the model.
• However, the operational status of the Namanga OSBP and that of the Rusumo OSBP, which was added as a target border in Phase 3, were included as cases in the OSBP Sourcebook 2nd Edition (created under the assistance of Phase 3).
</td></tr>
<tr><td>3. Certified Master Trainers are consistently involved in the annual training program of respective Revenue Authorities and EAC.</td><td>
Mostly achieved
• MTs were also trained in Phase 3 in the three target areas of this project.
• In all countries, MTs served as instructors for the training for customs officers and CCFAs by the revenue authority every year (the standard EAC training for customs officers, training and degree programs specific to each revenue authority, the standard EAC training for CCFAs, etc.). However, not all MTs were part of this. According to different revenue authorities, retired MTs and MTs who had been promoted/transferred were also used as needed (see the box, “Status of the components of this project at the time of ex-post evaluation” below for the implementation status of training).

Number of MTs (total for three areas: Customs Valuation, HS Classification, and Intelligence Analysis)
<table>
<tr><th></th><th>Number of MTs at project completion (2013)</th><th>Number of MTs at the time of ex-post evaluation (Enrolled as of Nov 2019)</th><th>Number of MTs served as training instructors (Oct 2017‐Sept 2018)[a]</th></tr>
<tr><td>Kenya</td><td>12</td><td>16[b]</td><td>4</td></tr>
<tr><td>Uganda</td><td>9</td><td>18</td><td>10</td></tr>
<tr><td>Tanzania</td><td>11</td><td>16</td><td>7</td></tr>
</table>
</td></tr>
</table>

<table>
<tr><th>Overall Goal</th><th>Indicator
Target Year: 2019[Note1]</th><th>Actual</th></tr>
<tr><td></td><td></td><td>
<table>
<tr><td>Rwanda</td><td>12</td><td>21</td><td>7</td></tr>
<tr><td>Burundi</td><td>9</td><td>16</td><td>5</td></tr>
<tr><td>Total</td><td>53</td><td>87</td><td>33</td></tr>
</table>
Source: Documentation provided by JICA
Note: [a] Although the data for the number of 2019 could not be obtained, it was verified through the interview that MTs in different areas continue to be utilized as instructors in the annual training programs at the revenue authority.
[b] Excluding one MT who was loaned to the WCO.</td></tr>
<tr><td></td><td>4. Concept of Joint Border/Water Surveillance spread to 10 sites in the region.</td><td>Mostly achieved
• JBS is explicitly mentioned in the EAC OSBP Procedures Manual as an OSBP function, and this concept has been communicated across the EAC. The concept of JWS also became prevalent among the water surveillance division of the three coastal countries.
• The following seven borders that were not part of the target borders of this project were reported by respective revenue authorities as engaging in JBS activities (joint patrolling, meetings, or information exchange): Moyale (Kenya/Ethiopia), Mirama Hills/Kagitumba (Uganda/Rwanda), Mtukula (Uganda/Tanzania), Elegu (Uganda/South Sudan), Tunduma/Nakonde (Tanzania/Zambia), Kasumulu/Songwe (Tanzania/Malawi), and Rusumo (Tanzania/Rwanda). However, information exchange appeared to be taking place informally at other borders. The only JWS activity that was undertaken was information exchange.</td></tr>
<tr><td></td><td>5. Policy Framework on the Regional Accreditation System for CCFAs is authorized in EAC.</td><td>Partially achieved (but its impact materialized in practice)
• The policy framework created in this project itself failed to get approved by the EAC before the efforts shifted to the development of the legal framework. The EAC Sectoral Council expressed the need for a legal framework, and this eliminated the need for approving the policy framework. As a result, the policy framework was fleshed out and formulated in Phase 3 as the Model Customs Agents and Freight Forwarders Management Bill. The EAC Secretariat acknowledged the bill and proposed to the member countries to work on the bill. The FEAFFA and the CCFAA of each country are working on domestication.</td></tr>
</table>

Source: Documentation provided by JICA; interviews with and documentation provided by the revenue authority of each country; interviews with the EAC Secretariat

Note: (1) The target year was defined as "within two years after the completion of the OSBP facilities at Namanga, Malaba, and Busia." The year of completion was recorded as 2015 or 2016. However, due to the delay of ancillary facilities, such as roads, and the construction delay in one side of the border, the border post became operational as a one-stop border in 2016 in Malaba and 2017 in Namanga and Busia. For this reason, this table mainly reports the status of achievement as of 2019, two years after 2017. (2) Although the indicator does not specify the target border(s), the Namanga, Malaba, and Busia OSBPs were designated in the definition for the target year as mentioned above. Thus, they are assumed as the target borders.

Each component of this project except for some components was continuing and contributed to the overall goal. In particular, the MTP became the base of customs personnel training in the Eastern African region. The MTP was likely contributing to the improvement in the efficiency and impacts of customs clearance procedures by developing the capacity of customs officers and CCFAs. In the development of OSBPs in East Africa, which receives assistance from many donors, this project and its subsequent phases were the only projects that consistently assisted the training of both customs officers and CCFAs. As such, these projects worked in synergy with the hardware aspect, such as the construction of facilities and the introduction of ICT by JICA and other donors. The EAC, which takes the initiative in the development of OSBPs in the region, and other donors,

such as the TMEA and the World Bank, expressed that "JICA excels in the soft side and personnel development" and gave high marks to the training and other efforts provided in this project and its subsequent phases. In addition, JBS was established as an OSBP function and was being practiced.

However, as indicated by the problems or non-use of the RTMS/CCS and the limited implementation of JWS at Lake Victoria, the continuation and the contribution to the overall goal were limited in some of the components. In addition, some CCFAs pointed out that operation of the Namanga OSBP, for which this project provided the detailed design, had room for improvement.

Status of the components of this project at the time of ex-post evaluation

(1) OSBP operation and RTMS/CCS

At the Namanga OSBP, the construction of the facilities was completed in accordance with the detailed design formulated in this project. The OSBP was in operation. It was confirmed during the site visit for the ex-post evaluation that the operational condition was in good standing. However, the CCFAs that used this OSBP reported the following. 1. They were subjected to a number of different inspections, which sometimes take a long time. Despite the recommendation to perform inspections jointly with the customs, inspections were sometimes performed individually. 2. There were periodic power outages in the surrounding area. This forced them to go to the town where Internet connections and office equipment were available. The OSBP facility had backup power, but no Internet connections or workspace were available for CCFAs. Regarding the first issue, border agencies regularly held meetings to coordinate their efforts, but the goal of the OSBP—to expedite customs clearance—might not have been thoroughly communicated to non-customs agencies housed at the border post, such as the standards organization. The EAC Secretariat and other donor agencies suggested the same point. Regarding the second issue, the design for the facility assumed that CCFAs would establish their own office near the OSBP. Although this design was compatible with the concept of OSBP, considering the existence of external factors such as power outages, this might have affected the efficiency of customs clearance.

The RTMS/CCS is a software program developed under this project based on the concept formulated in Phase 1 to provide a function for sharing cargo declaration information between border agencies and coordinating joint inspections (RTMS) and a function for controlling the movement of vehicles at the OSBP (CCS). By considering the network connection status and possible overlap with new initiatives undertaken by revenue authorities (those related to SCT and single window), however, the system's functionality was restricted in the subsequent Phase 3 to the exchange of information concerning temporary vehicle travel permits provided in CCS. The deployment of the system was also limited to certain borders between Kenya, Uganda, and Tanzania. At the time of ex-post evaluation, this system was established in Kenya as a KRA system and was used at the country's all border customs. However, it was reported that the system had not been maintained since 2018 when the contract with the Kenyan consultant that developed the system expired. In addition, in Uganda and Tanzania, even though the RTMS/CCS was integrated with the respective customs clearance management system of URA and TRA, the system did not appear to be adequately utilized at the time of site visit for this ex-post evaluation.[12] The site visit confirmed that even though the servers and network equipment for the RTMS/CCS provided by this project had reached the end of their service lives at the respective revenue authorities, KRA and TRA continued to use the system as a backup system and other purposes.

It should be noted that this project provided SMS Gateway (an application to send short messages) along with the RTMS/CCS to KRA, URA, and TRA as a tool to improve the efficiency of customs clearance. KRA was still using it for password authentication and other purposes at the time of ex-post evaluation (no information is available for URA and TRA).

(2) MTP and Training (customs officers/CCFAs)

The EAC approved the curriculum and teaching material (the *MTP Handbook* and case studies) developed in this project as the standard curriculum/teaching material, which were used in all five countries. The EAC institutionalized common training for customs officers and CCFAs (Indicator 3 in the table above) and provided it

[12] In Uganda and Tanzania, each side at a given border used domestic vehicle traffic management software but used the RTMS/CCS to exchange data. When the Malaba and Busia OSBPs were visited for this study, both Ugandan and Kenyan sides were unable to retrieve vehicle information that was supposed to be registered. In addition, both Tanzanian and Kenyan sides at the Namanga OSBP were also manually entering information about the vehicles arriving from the other country.

through respective revenue authorities. However, of the 53 MTs who had been trained in this project, quite a few MTs were not involved in training tasks due to retirement and promotion/transfer. There was no information indicating the age was considered when selecting MT candidates (i.e., consideration of the impact of retirement).[13]

The subsequent phases implemented the development of new MTs and the monitoring of training activities. The participants' scores on the comprehension test improved after the training.

The Station Manager of the border posts this study visited and the personnel (several individuals) who said that they had taken the training reported that the content of the training was used substantially in their duties. However, they also expressed that more frequent training and training at the border post rather than at the headquarters should be provided because of frequent transfers. In addition, the CCFAs interviewed at the Namanga OSBP (three on the Tanzanian side and two on the Kenyan side) reported that more training was necessary. Some interviewees expressed that they would like to see training on how to deal with changes in regulations.

(3) JBS/JWS

JBS/JWS continued to be supported and monitored in the subsequent phases. However, the focus shifted from joint patrolling to consultation and information sharing due to the challenges against joint activities (as will be mentioned later). As a result, there was an increasing tendency for each country to conduct physical surveillance activities on its own.

Regarding JBS, among the target borders of this project, the Namanga, Malaba, and Busia OSBPs were holding meetings between relevant agencies from both countries at least quarterly, but the Gatuna/Katuna border posts and the Kobero/Kabanga OSBP did not. According to the explanations by the respective revenue authority, meetings were put on hold at Gatuna/Katuna because of the suspension of the passing of cargo trucks at the border; at Kobero/Kabanga, the legal basis, such as a bilateral agreement, was not adequately developed. Joint patrolling was carried out several times every six months at Namanga, Malaba, and Busia. However, it was suspended at Gatuna/Katuna, and it was not carried out at Kobero/Kabanga. With this stated, it was reported that all borders engage in bilateral information exchanges as necessary. The patrol vehicles provided by this project were used in joint and individual patrolling.

In the JWS on Lake Victoria, bilateral information exchanges take place as needed, but joint patrolling was rarely carried out. The water surveillance teams on the field from Kenya, Uganda, and Tanzania commonly reported that the patrol boats provided by this project were not suitable for long-distance or multi-day patrolling because they were small and their cabin space was not very comfortable considering the substantial size of the target area, and they could be damaged (cracks in the hull) easily because the waves were high and because they needed to land by beaching the boat in places where no piers were available. All six patrol boats provided were once used daily in individual patrolling activities in respective countries. However, one boat in Kenya (used in waters with relatively calm waves) was the only boat that was operating properly at the time of ex-post evaluation. There was one boat in Tanzania that was being repaired for cracks. Other boats were being rarely or never used after sustaining damage. High repair cost was cited as the reason. Considering that their necessity was high, the procurement of larger patrol boats and other equipment was being planned in the Grant Aid project, Project for Enhancing Trade Facilitation and Border Control Capacity (jointly with UNOPS) (2019) at the time of ex-post evaluation.

Regarding the impact of JBS/JWS in deterring smuggling, the respective revenue authorities, OSBP personnel and water surveillance team members who were interviewed, a local government in a border area (Namanga on the Tanzanian side), and a community at Lake Victoria (a Kenyan fishermen group) all reported that they saw its impact. For example, the revenue authority personnel at the Malaba, Busia, and Namanga OSBPs pointed out that "smugglers started to think that they would not be able to escape even if they cross the border because information is shared between two countries." However, there were no data that directly supported this observation. In addition, they reported that because smugglers monitor OSBPs' activities and use routes and methods that would prevent them from being located, joint patrolling (which is performed based on individual tips submitted) in most cases did not directly result in the detection of smuggling.

Furthermore, OSBPs and revenue authorities reported that the synergy created with the sensitization activities for border communities (e.g., informing people about cases in which duties would not be imposed when passing a border post), which were implemented along with JBS, increased their knowledge and attention to compliance, reducing the number of people crossing porous borders.

[13] At the time of terminal evaluation of this project, the retirement of MTs was identified as a risk factor against the achievement of project effect.

Border community residents passing through Busia OSBP

Ugandan MTs

Kenyan patrol boat

Therefore, the project has mostly achieved the overall goal.

3.2.2.2 Other Positive and Negative Impacts

Following positive and negative impacts were observed. These impacts include the effects not only of this project but also of the subsequent phases of this technical cooperation project and other projects by JICA and other donors. No negative impacts on the natural environment were reported, and no resettlement and land acquisition took place.

(1) Negative impacts of OSBPs on local economic activities

It was pointed out at the Namanga and Malaba OSBPs that the OSBP reduced the border wait time, reducing local commercial activities. For example, the completion of the Namanga OSBP put some restrictions on the activities of women's groups that used to sell crafts to tourists on the Kenyan side.[14] They were now allowed to sell products inside the OSBP facility only when tourists' buses arrive. But they were no longer able to do their business freely, and they were no longer allowed to sell on the Tanzanian side. In addition, both TRA and URA reported that the sales at hotels and restaurants near the Namanga and Malaba borders somewhat declined (but no data were provided).

(2) Positive impacts of OSBPs

The logistics at the target borders was growing.[15] In addition to the greater efficiency of customs clearance through the operation of OSBPs discussed above, it appeared that the greater efficiency of customs clearing helped to respond to the expansion of logistics. Furthermore, OSBP personnel and local people commented that the security in the border

[14] The *EAC OSBP Procedures Manual* states that activities related only to border clearance should take place in the OSBP facility.

[15] For example, JICA's *Endline Time Measurement Survey at Namanga Border Crossing* (2019) reports that the number of trucks passing through the Namanga OSBP was 131 trucks/day in 2016 (before OSBP service) and 168 trucks/day in 2018 (after OSBP service). The World Bank's *Border Crossing Monitoring along the Northern Corridor* (2013) and TMEA's *Baseline Time and Traffic Survey at Malaba Border Posts* (2016) also report that the number of trucks passing through the Malaba OSBP, which is reported to be the busiest OSBP in the region, was 1,100 trucks/day in 2013 (before OSBP service) and 1,286 trucks/day in 2016 (after OSBP service). Trucks passing in both directions are combined in each of these numbers. See also Figure 3 above for the upward trend of the intraregional trade volume.

area improved.[16] In addition, it was also pointed out by multiple revenue authorities that the joint operation at OSBPs and JBS improved bilateral communication.

(3) Positive impacts of MTP

Some of the MTs trained in this project stated that they had learned not only technical knowledge in specialized fields but also effective pedagogy and facilitation techniques, which they utilized not only in training tasks but also in the administrative duties they engaged in after receiving their promotions.[17]

In addition, this project impacted other regions in Africa. For example, some of the MTs trained in this project were dispatched to Southern and Western African countries under the assistance of JICA and the WCO to supervise customs officers.

This project mostly achieved the project purpose—strengthening of customs clearance procedures at borders—in terms of the training of customs officers and CCFAs. However, the assistance on the operation of OSBPs was only partially achieved due to external conditions, such as the delay in the construction of facilities. Regarding the overall goal, the project achieved its project effects mostly as planned, such as the reduction in customs clearance time, the utilization of MTs across the Eastern African region, the spread of the concept of JBS/JWS (although some of them are part of the effects of subsequent phases). Furthermore, by also considering the impact elicited by the role this project came to play as the base of customs personnel training in the region, the effectiveness and impact of the project are high.

[16] Some of the comments included: “The facilities have been modernized within the OSBP premise (common control zone), and now good security is in place.”; “It can be used safely by people and cargoes.”; “Some people used to cross the border at locations where roads were not developed because they were afraid of passing the customs, but they now cross at the OSBP, which is safe.”

[17] Among three interviewees at KRA and two interviewees at URA, this was stated by one KRA interviewee and one URA interviewee.

3.3 Efficiency (Rating: ②)

3.3.1 Inputs

Table 3. Inputs

Inputs	Plan	Actual
(1) Experts	4 Long-Term (chief advisor/customs administration, CCFAs tasks, local capacity building, training planning/coordination of tasks) Short-Term	5 Long-Term (Chief Advisor/Customs Administration, Regional Cooperation, Coordination /Human Resource Development) 51 Short-Term (Customs Clearing Agents, MTP, Development of Policy Framework for the Accreditation System, Namanga Detailed Design, etc.) 10 WCO experts
(2) Trainees received	Training in Japan	22 persons in Japan 71 persons in Viet Nam and Malaysia 17 persons dispatched to WCO-approved expert workshops in Nigeria and other places 8 persons dispatched to the server administration training in South Africa
(3) Equipment	ICT equipment, patrol boats, vehicles, etc.	ICT equipment (computers, servers, software, etc.), JBS/JWS equipment (vehicles, night vision cameras, radios, patrol boats, etc.)
(4) Overseas activity cost	Expenses for holding seminars, travel expenses for experts, expenses for video recording at OSBPs, etc.	304 million yen (cost of hiring local consultants, expenses for conducting training, travel expenses for instructors, etc.)
Japanese Side Total Project Cost	409 million yen	806 million yen
Target Countries' Total Project Cost	Unknown (personnel costs for counterparts, travel expenses, etc.)	Unknown (personnel costs for counterparts, expenses for conducting MTP training (to provide venues, lunches, etc.), expenses for JBS/JWS enforcement activities, provision of venues for meetings to support the formulation of the policy framework for the creation of the Regional Accreditation System for CCFAs, arranging vehicles for experts and WG members in the country of destination, supplemental stipends and travel allowance for the customs officers from the five countries related to their travel expenses to participate in the MTP and training (the difference between the standard set by each country and the amount paid by JICA), expenses for the security audit on RTMS/CCS, etc.)

Source: Compiled from documentation provided by JICA
Note: The number of people is the cumulative total. The numeric information under "Plan" includes only that of Kenya, Uganda, and Tanzania, i.e., it does not include that of Rwanda and Burundi, which were added to the target countries after the conduct of ex-ante evaluation.

3.3.1.1 Elements of Inputs

The type, amount, quality, and timing of the inputs helped achieve a broad range of activities and outcomes that were suitable for the existing conditions of the EAC and the five countries. Thus, the inputs as a whole were appropriate for both the Japanese side and the target countries' side. Regarding the dispatch of experts, in particular, the target countries gave high marks at the time of terminal evaluation to the knowledge of the experts, approaches, teaching skills, the capacity for coordination, sustained efforts to move forward in the project, etc. Since trade facilitation was a major development challenge in

the EAC and each target country, various efforts other than this project were directed to this issue. Trade facilitation also required flexible inputs that were consistent with changes in the circumstance, such as external conditions (Example: the change made to the RTMS/CCS design in response to the delay in OSBP construction and the roll-out status of the customs administration system in each country). Existing records suggested that the project team had put an adequate amount of effort to achieve outputs and project purpose. The responses to the interviews at the time of ex-post evaluation confirmed that respective revenue authorities placed a great amount of trust in the experts including the long-term experts who have continuously been dispatched across this project and the ongoing Phase 4.

However, the terminal evaluation pointed out that the inputs concerning the development and operation of the ICT system (RTMS/CCS) (mainly, one local consultant for the development and the provision of equipment) might have been inadequate in order to achieve and sustain mid- and long-term effects. This assessment is likely to be reasonable to a degree considering that, as discussed above, only some of the RTMS/CCS's functions that were developed in this project were utilized at the time of ex-post evaluation. Alternatively, if the RTMS/CCS was a component that required large-scale development and technology transfer through more inputs, it could have been considered to remove it from the scope of this project to turn it into a separate project.

In addition, the low utilization of the patrol boats for JWS was already pointed out at the time of terminal evaluation. As discussed above, although these boats (many of which were damaged) were used by respective countries in their individual patrolling after the project completion, the size of the boats might not have adequately been compatible with the purpose—joint patrols with neighboring countries on Lake Victoria.

3.3.1.2 Project Cost

This study was unable to compare the actual project cost against the planned project cost. The planned amount of the Japanese side assistance (listed on the ex-ante evaluation sheet) that could be obtained was 409 million yen, and the actual amount was 806 million yen. However, the planned amount represented only Kenya, Uganda, and Tanzania and did not include the figures for Rwanda and Burundi, which were added to the target countries after the ex-ante evaluation sheet had been prepared.

3.3.1.3 Project Period

The project period was as planned. The planned and actual project periods were both four years between September 2009 and September 2013.

Thus, the project period was as planned in this project, but the planned and actual project costs could not be compared due to the lack of comparable figures. Therefore, efficiency of the project is fair.

3.4 Sustainability (Rating: ②)

3.4.1 Policy and Political Commitment for the Sustainability of Project Effects

At the time of ex-post evaluation, following policies were in place to support the effects of this project, such as faster and more efficient customs clearance procedures at borders, personnel development for the latter purpose, JBS/JWS, etc. First, regarding the policies in the Eastern African region, the facilitation of trade, the improvement in customs administration, and the nature of OSBPs in light of these goals have been established in the *EAC Vision 2050* (2016), the *EAC OSBP Act* (2016), the *EAC OSBP Regulation* (2017), and the *EAC OSBP Procedures Manual* (2018). In addition, the *WCO East and Southern Africa (ESA) Region Strategic Plan* (2018‐2021) sees the MTP in this project and its subsequent phases as an important output. Training that utilizes MTs (Phase 3/4 activities) is being implemented as a joint project between JICA and the WCO.

Second, the target countries of this project were seeking to facilitate trade and improve customs procedures through the medium- and long-term development plans at the time of ex-post evaluation, a customs modernization program, revenue authority programs, etc. Although the degree to which different efforts were addressed in the national development plans/customs policy in different countries was not uniform,[18] this study confirmed through interviews with respective revenue authorities as well as in individual program documents that all target countries were in concert in their policy to comply with the EAC's OSBP framework (the law, regulation, and manual mentioned above).

By judging from the fact that trade facilitation was emphasized among the development challenges in the Eastern African region and that the operation of OSBPs, personnel development, and JBS implemented in this project were incorporated into the intraregional policy, it was unlikely for the sustainability to suffer to a significant degree after the completion of the subsequent phases.

Thus, policy/political engagement necessary for the sustainability of the effects were in place.

[18] For example, among the medium-term national development programs at the time of ex-post evaluation, Uganda's *Second National Development Plan* (2015‐2019) and Tanzania's *Tanzania Development Vision 2025* (2016‐2020) directly mentioned the development of OSBPs, and Kenya's *Third Medium Term Plan* (2018‐2022) set forth customs administration reforms such as the development of ICT systems. In the case of the *Corporate Plan* of different revenue authorities, KRA's plan (2018‐2020) and RRA's plan (2018‐2022) directly mentioned the development of OSBPs, and URA's plan (2020‐2024) and TRA's plan (2017‐2021) also mentioned the strengthening of border post procedures. Regarding OBR, the most recent *Corporate Plan* that this study was able to obtain (2013‐2017) specified how it intended to develop OSBPs, but this study was not able to obtain newer *Corporate Plans*.

3.4.2 Institutional/Organizational Aspects for the Sustainability of Project Effects

Each activity that received assistance in this project was still being carried out, under the EAC framework, by respective revenue authorities (the implementing agency of this project), the Directorate General of Immigration and Emigration (hereafter, "DGIE") that controls Rwanda's border facilities, or the FEAFFA and the CCFAA of each country (organizations for CCFAs).

- OSBP Operation: In Kenya, Uganda, Tanzania, and Burundi, the revenue authority (the customs and border control department), which was the implementing agency, acted as the lead agency at OSBPs. In Rwanda, the implementing agency of this project was the revenue authority as in other countries, but the lead agency at border facilities was the DGIE (the Border Control and Management Department), which operated OSBPs by working with the revenue authority and other agencies. At each OSBP, the lead agency served as the Station Manager and coordinates other agencies housed in the border post. The lead agencies and other agencies at the borders visited for this study reported that roles were assigned to different agencies according to provisions in the *EAC OSBP Procedures Manual*.
- Training: The training for customs officers was conducted by the training agency within respective revenue authorities. The training for CCFAs was conducted by the training agency within respective revenue authorities in collaboration with the FEAFFA and each country's CCFAA. Training agencies from different countries held meetings annually under the initiative of the EAC and discuss common training programs.
- JBS/JWS: The enforcement division of the lead agency at each border post implemented JBS/JWS by coordinating with other agencies.
- Promotion of the Regional Accreditation System for CCFAs: The FEAFFA and each country's CCFAA implemented it by working with respective revenue authorities.

Although only fragmentary data could be obtained about the staff size for each division, this study confirmed that a supervisor and staff had been assigned to each activity at the headquarters. Multiple individuals commented that border posts

Table 4. Staff size: KRA

	Actual 2017/2018	**Target 2020/2021**
Customs & Border Control Department (operating OSBPs)	1,739	5,708
Investigations & Enforcement Department (JBS/JWS)	185	200
Training institution	115	244
KRA total	6,906	14,555

Source: *KRA 7th Corporate Plan* (2017)

were forced to set up long shifts due to the shortage of customs officers.[19]

Considering that the main outputs of this project (such as the operation of OSBPs, personnel development, JBS, etc. listed under "3.4.1 Policy and Political Commitment for the Sustainability of Project Effects") were incorporated into the systems in the region and the target countries, it was unlikely for the sustainability to suffer to a significant degree after the completion of the subsequent phases of this project. However, the monitoring and logging concerning these outputs were handled by the project team in the subsequent phases. In particular, at KRA, in which the project office was set up, this study frequently observed instances in which necessary information was referred to JICA experts who had been continuously dispatched since Phase 2. This system is not necessarily problematic at the time of ex-post evaluation since monitoring is part of the activities in the subsequent phases. However, it would be necessary in the future to create a structure that permits the implementation agency, where employees are transferred frequently, to continue to accumulate such knowledge and information on its own after JICA's assistance is completed.

Thus, the institutional/organizational aspects of the project were established, but they also face challenges.

3.4.3 Technical Aspects for the Sustainability of Project Effects

Given that the subsequent phase of this project is ongoing, it appears that no major issues are currently present. However, a substantial amount of assistance from the subsequent phases and other donors has poured into the training component. It is not clear whether expenditures will be made on the training expenses that have been paid so far by donors, and whether human resources with necessary techniques (like MTs) can be continuously developed and utilized after the completion of these cooperation projects (after 2022).

Thus, the techniques have been established at the implementing agencies, but there is some concern about their future after the completion of external assistance.

3.4.4 Financial Aspects for the Sustainability of Project Effects

This study was able to obtain only fragmentary data, which made it difficult to perform a detailed analysis. Still, the budget was increasing over the years. The qualitative data obtained from respective revenue authorities indicate that each revenue authority attempted to generate the required budget. Despite the reported issues, such as the shortage of operational budgets for facility maintenance and the fuel expenses for traveling, OSBPs continued to operate

[19] Example 1: At the Namanga OSBP, there were 33 TRA employees (Tanzania side) and 35 KRA employees (Kenya side), and the customs duties for cargo were conducted in one shift at the time of ex-post evaluation (The operation hours of this OSBP were 24 hours for people but, for cargo, 12 hours on the Kenyan side and 10 hours on the Tanzanian side). Example 2: URA commented that it ideally wanted to use three shifts because the customs clearance for cargo at the Busia OSBP was a 24-hour operation, but it used two shifts due to the shortage of employees. Example 3: The water surveillance team at Kenya's Mbita Customs (Lake Victoria), which is a single team with five members, stands by 24 hours. KRA commented that it ideally wanted to have three shifts.

without interruption. Training activities also continued by receiving funding from donors (but, as mentioned above, the ability to continue training activities after donor funding is over is unknown).

Among the maintenance expenses for the equipment in this project, those for the RTMS/CCS servers seemed to have been spent as part of the maintenance expenses for other ICT equipment of respective revenue authorities. The expenditure on the operation and maintenance of the vehicles and other equipment for JBS was covered by the operating expenses for OSBPs. Some of the patrol boats for JWS were no longer used after sustaining damage due to high repair costs, as described above. However, in Kenya, for example, KRA also used the budget of regional offices to operate and maintain the boats. Tanzania also found the budget for one boat that had been damaged and began the repair at the time of ex-post evaluation.

Table 5. Budget allocation: KRA

(Unit: thousand Kenyan shilling)

	FY 2017/2018	FY 2018/2019	FY 2019/2020
Operational budget for Namanga OSBP	8,910	9,841	10,093

Source: Survey responses from KRA

Table 6. Budget allocation: URA

(Unit: million Ugandan shilling)

	FY 2017/2018	FY 2018/2019	FY 2019/2020
Budget for Customs and Excise Department, URA	8,910	9,841	10,093

Source: Survey responses from URA

Table 7. Planned and allocated budget: RRA

(Unit: million Rwandan franc, %)

	Planned			Allocated (% of planned amount)		
	FY 2016/2017	FY 2017/2018	FY 2018/2019	FY 2016/2017	FY 2017/2018	FY 2018/2019
Total for RRA	34,778	37,999	50,224	100%	94%	97%
Items: Customs and Excise Department (including operation of OSBPs)	1,384	519	290	94%	95%	98%
Training Department	510	663	762	98%	97%	99%
Revenue Investigations and Enforcement Department (including JBS/JWS)	168	122	102	95%	96%	85%

Source: Survey responses from RRA

Note: RRA reported that this budget was adequate for the continuation of activities.

To ensure the sustainable facilitation of trade in the region after the termination of donor assistance in the future, the EAC has started to formulate the *EAC Sustainability Strategy*, which focuses on the Northern Corridor (borders along the route include Malaba, Busia, Gatuna/Katuna, etc.) and the Central Corridor (borders along the route include Rusumo, Kobero/Kabanga, etc.), which are primary shipping routes in East Africa. The EAC is specifically examining ways to secure budget for the continuation of activities related to trade

facilitation, the maintenance of the construction standards for OSBP facilities, and the maintenance of completed infrastructure.

Thus, although the financial aspect of the implementing agencies seemed to be mostly sound, there were some aspects that could not be adequately examined due to the fragmentary nature of data.

Some minor problems have been observed in terms of the institutional/organizational and financial aspects. Therefore, sustainability of the project effects is fair.

4. Conclusion, Lessons Learned and Recommendations

4.1 Conclusion

This project was the second phase of a technical cooperation project to improve the capacity of customs clearance procedures primarily through the introduction and operation of OSBPs at land borders in five countries in the Eastern African region. Based on the experience in the preceding phase on the construction of the OSBP operation model and technology transfer, the project implemented efforts to strengthen customs activities and develop personnel. The relevance of the project was high because its interests in facilitating trade and developing the capacity of the personnel to achieve trade facilitation were consistent with the development plans and development needs in the region and these countries and with Japan's aid policy. Even though the project mostly accomplished the training of customs officers and CCFAs, the operation of OSBPs did not become fully functional due to external conditions (delay in facility construction) and other factors. Thus, the project purpose—the strengthening of customs clearance procedures at the target borders—was only partially achieved. However, regarding the overall goal (further expansion of smooth and efficient customs clearance through proper operation of OSBPs)—even though it encompassed the effects of subsequent phases, which attempted to continue and expand the efforts of this project—this study confirmed the project's impact, including a shorter customs clearance time and the institutionalization of the outputs of personnel development in the EAC. Therefore, the effectiveness and impact were high. The project period was as planned. However, this study was unable to compare the actual project cost against the planned project cost due to the lack of comparable figures. The efficiency is thus rated as fair. While the effect of this project has mostly been established in the EAC's framework for trade facilitation, the institutional/organizational and financial aspects of the project experienced some problems and had components that were difficult to examine. The sustainability is thus rated as fair.

In light of the above, this project is evaluated to be satisfactory.

4.2 Recommendations

4.2.1 Recommendations to the Implementing Agency

(1) The EAC and respective revenue authorities are recommended to carefully examine the sustainability strategy being created at the EAC and roll out, while assistance is still available, measures that can help them prepare for the future when external assistance may not be available. Topics that are currently examined include the securing of budget for the continuation of activities, the maintenance of the construction standards for OSBP facilities, and the maintenance of completed infrastructure. In addition to these, they are also recommended to examine 1) the continuation of field-oriented training, 2) the collection of past experience and information (training outcomes, JBS/JWS implementation reports, etc.) and storage of these sources in a usable manner, and 3) a staff appointment approach that takes into consideration their specialization and career development, so that they can better handle the current situation characterized by frequent transfers of staff members.

(2) Respective revenue authorities and the DGIE of Rwanda are recommended to make additional efforts to communicate the concept of efficient customs clearance (i.e., reviewing the steps at the OSBP to reduce them to the minimum necessary and ensuring joint cargo inspections) to the customs offices and other agencies (other than the DGIE) at OSBPs to further speed up the procedures.[20]

(3) KRA and URA are recommended to verify and resolve as soon as possible the issue preventing the retrieval of information from the RTMS/CCS about the vehicles traveling from and to the neighboring country at the Malaba and Busia OSBPs.

(4) KRA and TRA are recommended to consider the possibility of creating a space in Namanga OSBP where CCFAs can use the Internet and office equipment so that OSBP facilities can be utilized to avoid delays in customs clearance during the periodic power outages in the area.

4.2.2 Recommendations to JICA

None.

4.3 Lessons Learned

(1) Consideration of the social aspect of OSBPs

It was reported that the conversion of borders to OSBPs reduced the border wait time for people and trucks, negatively affecting the local business. When designing a new OSBP, it would be effective in boosting the impact by estimating how the surrounding community and economic

[20] The assistance on OSBP operation in the subsequent projects placed a greater emphasis on the engagement with relevant authorities beyond customs.

activities might change and design measures as necessary (e.g., encouraging the creation of a commercial center nearby).

(2) Implementation of sensitization activities in border communities

In JBS/JWS, information exchanges took place but joint patrolling was infrequent. As a result, the effect of JBS/JWS in discouraging smuggling was not maximized in a manner expected in this project. However, sensitization activities in the local community helped people in border communities learn that they would not be taxed, or taxed minimally if any, if the goods they bring in through the OSBP do not exceed a certain amount. As a result, fewer people now crossed porous borders in a risky manner, suggesting that the sensitization efforts were effective in preventing smuggling. Regarding the assistance on the operation of OSBPs, it would be effective for two neighboring countries to collaborate on the sensitization of the local community to communicate correct information about customs to border communities.

(3) Procurement of equipment suitable for the purpose of joint water surveillance on Lake Victoria

The patrol boats provided for JWS were damaged due to high waves and landing in areas with no piers. As a result, many boats were not being used at the time of ex-post evaluation. In addition, water surveillance teams on the field explained that the size of the boats provided made it difficult to conduct joint patrolling with a neighboring country (due to the substantial size of the target water and the uncomfortable cabin space). A water surveillance team that was deployed to a relatively calm water and operated using boats that were in a relatively good condition was also conducting single-day patrolling for the same reason. It was explained that small high-speed boats were selected because they needed to be maneuverable. However, this input would be able to trigger greater outputs if we design an equipment procurement plan in which the type and quantity of boats to procure are aligned to the purpose and circumstance of surveillance activities (for example, joint surveillance involving long-distance travel vs. unilateral surveillance in small waters).

(4) Careful examination on how to incorporate ICT development components

Some of the functions of the RTMS/CCS, developed in this project and upgraded in Phase 3, were scaled down to in relation to the development of customs clearance management systems in countries outside this project. There also were compatibility issues. As a result, the RTMS/CCS was not used adequately in the target countries except for Kenya. This project was a technical cooperation project with a number of components. Understandably, the project was not able to develop a large-scale ICT system that might apply modifications across the existing customs clearance management system. When planning the development of an ICT system in a technical cooperation project, it is necessary to carefully examine whether expected outputs can be achieved by incorporating it as a project component from the perspectives of the amount of input and the duration/man-hours of development.

(5) Good practices for multiphased wide-area projects

Among the wide-area efforts supported by many other donor agencies to convert borders in East Africa to OSBPs, JICA's four-phase technical cooperation project on the trade facilitation in East Africa has received high marks from the EAC and other donors, such as TMEA, particularly in personnel development and soft sides. Below, factors behind this assessment are examined to the extent feasible in this study.

This project (Phase 2) was a full-scale implementation of various activities that had been piloted in Phase 1. It attempted to spread these activities across the region. The project thus broadly deployed a wide variety of components. Regarding the conversion of the borders in the region to OSBPs, many donor assistance projects had already been implemented by the time Phase 2 was commenced. In this context, the project garnered the confidence of counterparts and achieved significant impact through 1) detailed coordinating activities in all target countries that were characterized by field-orientation and a certain level of adaptability to respond to needs and 2) sustained efforts over a long time on assistance that focused on personnel development, which is one of JICA's strong areas. Although many project effects were achieved after Phase 3, Phase 2 addressed and learned from a variety of components. It is likely that this contributed to the improvement of the project design by clearly identifying challenges and external conditions that needed to be focused or monitored in subsequent phases and by organizing the details of project activities. Specifically, even though some effects—such as the idea of using the target OSBPs as the model for the region and the functions the RTMS/CCS originally had—did not materialize because they were not passed on to the subsequent phases, Phase 2, as a JICA assistant project, had comparative advantage within the framework of trade facilitation in the EAC and was able to explore approaches that would help achieve project effects. In this regard, the project managed to fulfill a role in long-term assistance. Furthermore, these phases as a whole have worked closely with the EAC and WCO (e.g., the personnel development for the EAC Secretariat). It is likely that this has led to the institutionalization of the outputs of this project across the region and facilitated cooperation with the assistance provided by other donors.

Attachment: Summary of the achievement status of the indicators for the overall goal, project purpose, and outputs

Goal/Purpose/Output	Indicator	Status[a]
Overall Goal Smooth and efficient Customs clearance is carried out with support of proper operation of OSBP.	1. Clearance time of cargoes from the time of declaration to issue of release order reduce to within 4 hours on average.	Mostly achieved
	2. OSBP Operational Model at Namanga, Malaba and Busia spread to other areas in the region as a key model.	Partially achieved
	3. Certified Master Trainers are consistently involved in the annual training program of respective Revenue Authorities and EAC.	Mostly achieved
	4. Concept of Joint Border/Water Surveillance spread to 10 sites in the region.	Mostly achieved
	5. Policy Framework on the Regional Accreditation System for CCFAs is authorized in EAC.	Partially achieved (no practical issues)
Project Purpose Smooth and efficient Customs clearance at borders is strengthened under OSBP Concept with constructive relationship between Customs Administrations and CCFAs.	1. Clearance time of cargoes from the time of declaration to issue release order at Namanga, Malaba and Busia is reduced by proper operation of RTMS/CCS.	Not achieved
	2. Trainees' satisfaction/understanding ratings on trainings by Working Group members of MTP exceed 80% as practical to apply for their daily business.	Mostly achieved
	3. Joint Border/Water Surveillance are taken as effective deterrent measure against smuggling and anti-social activities by the local communities at Namanga, Malaba, Busia, Gatuna/Katuna, Kobero/Kabanga and Lake Victoria.	Unable to verify
	4. Policy framework on the Regional Accreditation System for CCFAs is developed.	Mostly achieved
	5. Trainees' satisfactory/understanding ratings on trainings by Working Group members of MTP to Customs Clearing agents exceed 80% as practical to apply for their daily business.	Achieved
Output 1 Capacity of Customs administration is enhanced.	1. Detailed Design of Namanga OSBP Facility is completed.	Achieved
	2. All the cargo clearance processes by Customs and other stakeholders at Namanga, Malaba and Busia go through RTMS/CCS.	Partially achieved
	3. All Working Group members of MTP are certified as Master Trainers by Revenue Authorities.	Achieved
	4. MTP Handbooks of Customs Valuation, HS Classification and Intelligence Analysis which are produced by WG members are recognized as regional and national training materials by Revenue Authorities, EAC and WCO.	Mostly achieved
	5. SEO, BCC and WCC meetings for JBS/JWS are organized regularly by partner Customs administrations at Namanga, Malaba, Busia, Gatuna/Katuna, Kobero/Kabanga and Lake Victoria.	Mostly achieved
	6. The results of JBS/JWS activities which are carried out jointly by partner Customs administrations at Namanga, Malaba, Busia, Gatuna/ Katuna, Kobero/Kabanga and Lake Victoria are regularly reported.	Mostly achieved
	7. Meetings between Customs administrations and Customs Clearing & Forwarding Agents.	Partially achieved
	8. A draft of Policy Framework on the Regional Accreditation System for CCFAs is developed.	Achieved
Output 2 Compliance level and capacity of CCFAs are enhanced through the strengthened function of CCFAs Associations.	1. Training plan which meets the expectation of Customs Clearing agents for improving their capacities is jointly developed by Customs administrations and CCFAs Associations.	Achieved

Source: JICA. (2014). A report on the terminal evaluation for the Project on Capacity Building for the Customs Administrations of the Eastern African Region (Phase 2) and the detailed design study for the Project on Capacity Development for International Trade Facilitation in the Eastern African Region., documentation provided by JICA, documentation provided by and interviews with the implementing agencies.
Note: [a] At the time of ex-post evaluation (2019) for Overall Goal; at project completion (2013) for Project Purpose and Outputs.

Republic of Kenya

FY2019 Ex-Post Evaluation of Japanese Grant Aid Project

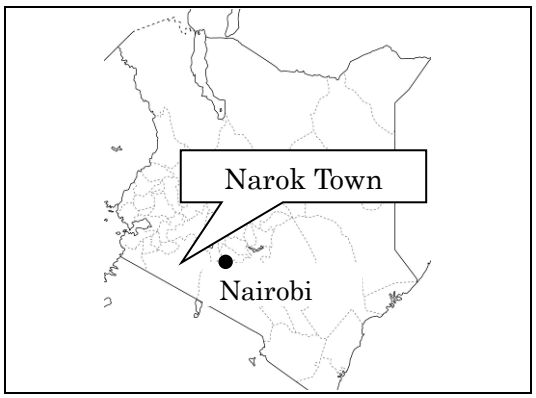
"The Project for Augmentation of Water Supply System in Narok"

External Evaluator: Ayako Nomoto, International Development Center of Japan Inc.

0. Summary

This project aimed to provide safe and sustainable potable water in 14 districts in the central Narok Town by constructing and rehabilitating water supply facilities, thereby contributing to an improvement in the living environment of residents. The relevance of the project is high because the objective of the project is consistent with the development plan and development needs of Kenya both at the time of planning and the time of the ex-post evaluation, and it is also consistent with Japan's ODA policy to Kenya at the time of planning. The project produced outputs that were mostly in line with the plan. The efficiency is fair because the project cost was within the plan, while the project period exceeded the plan. The project has produced the effects such as increases in the served population and in the water supply amount; however, they did not reach the targets. The main reasons for this are delays in laying of house connection pipes and limited operating hours of the facilities due to unstable power supply and time required for desilting. Meanwhile, positive impacts such as more convenient access to water, reduction of water-borne diseases, and reduction of workload for fetching water have been observed. Therefore, the effectiveness and impacts are fair. The sustainability of the project effects is high, as no major problems have been observed in the institutional/organizational, technical, financial aspects and current status of the operation and maintenance system. In light of the above, this project is evaluated to be satisfactory.

1. Project Description



Project Location

Newly constructed North Water Treatment Plant

1.1 Background

According to Kenya's white paper, *KENYA YEARBOOK 2010*, the amount of water resources available per capita was 650 m^3 annually. It was less than 1,000 m^3, which was set as the water scarcity line by the UNDP. Furthermore, with population growth, it was predicted that per capita water resources would decline to 235 m^3 in 2025. Under these circumstances, there was a need for measures, including reduction of the non-revenue water (hereinafter referred to as "NRW") ratio to promote the development of available water resources and the effective use of them. According to the *Kenya Vision 2030 (2008-2030)*, Kenya's national development planning document, 80% of infectious diseases in Kenya had been caused by unclean water, making safe water supply an urgent issue to prevent further spread of infectious diseases.

Narok Town, which is the target site of this project, is a transit point for tourists because of its location at the centre of traffic in the direction of Nairobi, Nakuru, Masai Mara, Kisii, and Kisumu, and has a thriving service industry including restaurants, shops, and hotels. It is also the halfway point from Nairobi to the Masai Mara National Reserve, where tourism-related jobs are the primary industry. Against this backdrop, Narok Town is expected to develop industry and tourism, and is positioned as one of the 15 priority towns for water supply facilities in the *Vision 2030*. At the same time, the demand for water increased rapidly due to the increase in the number of tourists to watch wildlife, the expansion of Maasai Mara University, and the rush to build residential houses in conjunction with the construction of tourist roads. Thus, Narok Town suffered from the limited capacity of the small-scale water treatment plant built in 1940s and 1950s. With the increase in water demand, the shortage of water treatment facility capacity was expected to increase further, and there was an urgent need to develop water treatment facilities.

1.2 Project Outline

The objective of this project is to provide safe and sustainable potable water in 14 districts in central Narok Town by constructing and rehabilitating water facilities, thereby contributing to the improvement of the living environment[1].

Grant Limit / Actual Grant Amount	1,470 million yen (Detailed Design: 88 million yen, Implementation: 1,382 million yen) / 1,410 million yen (Detailed Design: 88 million yen, Implementation:1,322 million yen)

[1] At the time of planning, the objective of the project was "contributing to the implementation of the *Vision 2030*, Kenya's national development plan which aims to improve rural water supply rate" as the impact of the project. However, this objective was considered to be duplicative of the effectiveness of the project. Therefore, the impact was newly set as "contributing to the improvement of the living environment" (indicators of reduction of the risk of waterborne diseases and reduction of workload of fetching water were set out which were originally set as the qualitative effects.).

Exchange of Notes Date /Grant Agreement Date	Detailed Design: February 2013, Implementation：July 2013/ Detailed Design: February 2013, Implementation：July 2013
Executing Agency(ies)	Ministry of Environment, Water and Natural Resources (Currently, Ministry of Water &Sanitation and Irrigation), Rift Valley Water Services Board (Currently, Central Rift Valley Water Works Development Agency; hereinafter referred to as CRVWWDA)
Project Completion	April 2016
Target Area	Narok Town
Main Contractor(s)	Konoike Construction Co., Ltd.
Main Consultant(s)	NJS Consultants, Co., Ltd.
Preparatory Survey	January 2012-December 2012
Related Projects	<Technical Cooperation> "The Project for Management of Non-Revenue Water in Kenya" (2010-2014) "The Project for Strengthening Capacity in Non-Revenue Water Reduction" (2016-2021) <Others> Towns Sustainable Water Supply and Sanitation Program (African Development Bank)

2. Outline of the Evaluation Study

2.1 External Evaluator

Ayako Nomoto, International Development Center of Japan Inc.

2.2 Duration of Evaluation Study

This ex-post evaluation study was conducted with the following schedule.

Duration of the Study: July 2019 – August 2020

Duration of the Field Study: October 1, 2019 – October 15, 2019, February 20, 2020 – February 29, 2020

3. Results of the Evaluation (Overall Rating: B[2])

3.1 Relevance (Rating: ③[3])

3.1.1 Consistency with the Development Plan of Kenya

The objective of the project has been consistent with the development plan both at the time of planning and at the time of the ex-post evaluation.

At the time of planning, Kenya's national development plan, the *Kenya Vision 2030 (2008-2030)*, identified water and sanitation as one of its development challenges, with the goal of increasing the water supply rate in rural areas from 40 percent to 59 percent. Besides, the *National Water Policy* was announced in 1999, and to implement this policy, administrative reforms in the water sector were pushed forward based on the *Water Act*, which came into force in 2002. Furthermore, in the *National Water Resources Management Strategy (2007-2009)*, the primary objective was equitable access to water resources and sustainable and efficient water use, intending to eradicate poverty through the supply of drinking water and water for production.

At the time of the ex-post evaluation, the *Kenya Vision 2030* has remained valid, and the *Third Medium-Term Plan (2018-2022)* of *Vision 2030* continues to call for an increase in the population of water supply in regional urban centres. The *Water Act* of 2016, which came into force on April 21, 2017, calls for the realization of safe water supply in sufficient quantities. Also, the *National Water Master Plan 2030* (formulated in March 2014) projects that the urban population will increase from 13 million in 2010 to 46 million in 2030, with the aim of providing water to 100 percent of the population.

3.1.2 Consistency with the Development Needs of Kenya

There is a high degree of consistency between the objectives of the project and the needs for water supply at both the time of planning and ex-post evaluation.

At the time of the project planning, Narok Town, the target site of the project, was positioned as one of the 15 priority towns for water supply services in the *Vision 2030* because of its expected industrial and tourism development. On the other hand, according to the *Kenya County Fact Sheets*, a government document, Narok Town had a low access rate to safe water (33%). The existing small-scale water treatment plant could not provide sufficient water, and water supply hours were limited and indefinite, and water supply was limited to some areas of the

[2] A: Highly satisfactory, B: Satisfactory, C: Partially satisfactory, D: Unsatisfactory

[3] ③: High, ②: Fair, ①: Low

town. Therefore, the water was provided by water trucks in many areas. This situation of insufficient supply capacity to meet water demand was expected to expand further in the future as water demand increased.

At the time of the ex-post evaluation, the water supply rate in Narok County, a local administration that includes Narok Town, the site of the project, was only 45%[4], so the need for safe water has remained high. Also, the population of Narok Town is projected to increase significantly to 54,701, according to the latest projection[5], compared to Narok's population of 42,505 at the time of planning (2012). Besides, at the time of the project planning, the area of water supply in Narok Town was 11.27 km^2, which was provided by the operating and maintenance agency named Narok Water and Sewage Services Company Limited (hereinafter referred to as "NARWASSCO"). However, at the time of the ex-post evaluation, the area has expanded to about 25 km^2, so the need for water supply has remained high.

3.1.3 Consistency with Japan's ODA Policy

The project was consistent with the ODA policy of Japan. Water supply and water resource management were included in the priority area of "environmental conservation" in the *Country Assistance Policy to the Republic of Kenya (2012)* at the time of this project planning. The 5th Tokyo International Conference on African Development (TICAD V) (2013) also included the improvement of access to safe water and sanitation.

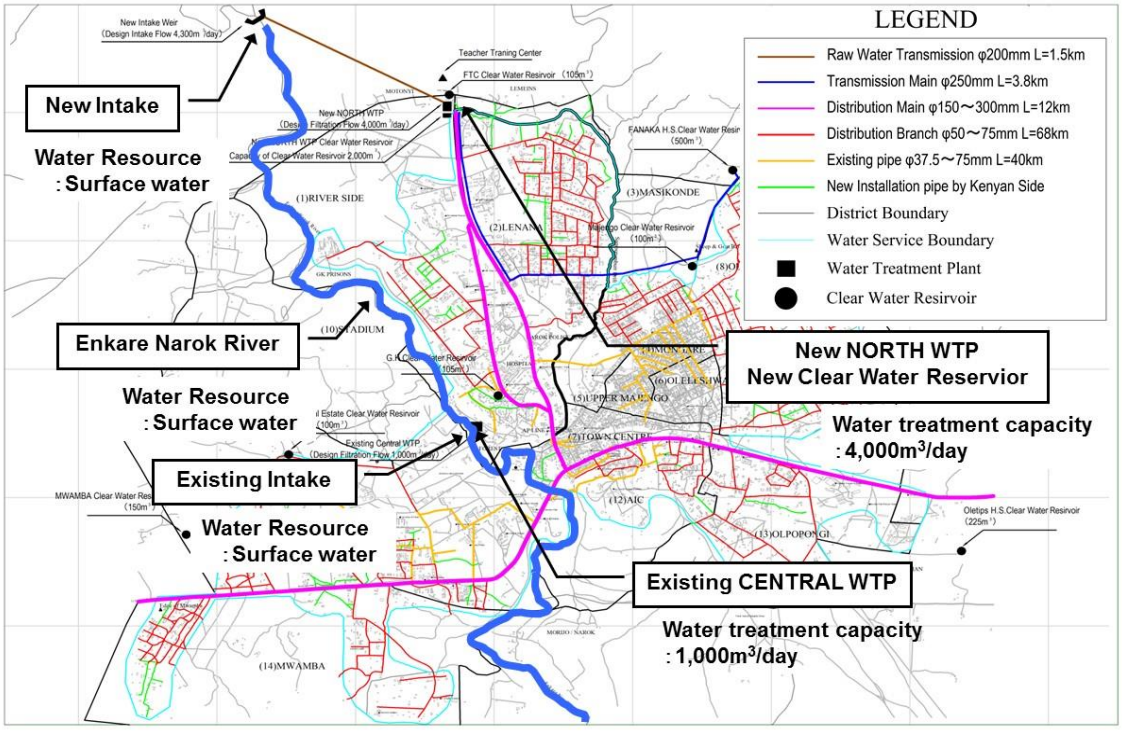
In light of the above, this project has been highly relevant to the country's development plan and development needs, as well as Japan's ODA policy. Therefore, its relevance is high.

3.2 Efficiency (Rating:②)

3.2.1 Project Outputs

The main outputs of this project are as follows: (1) Construction of new intake facilities, laying of a raw water transmission pipe, construction of a new water treatment plant (the North Water Treatment Plant; hereinafter referred to as "NWTP"), partial rehabilitation of an existing water treatment plant (the Central Water Treatment Plant; hereinafter referred to as "CWTP"), laying of a clear water transmission pipe, renovation of reservoirs, construction of distribution pipes, and other facility improvements; (2) Procurement of equipment such as chemical injection equipment, water quality analysis equipment, house connection pipes, and water meters; and (3) Capacity building program (soft component) on operation and maintenance of water supply facilities, capacity of overall water utility management, and supervising capacity for pipe installation.

[4] Source: *Performance Report of Kenya's Water Services Sector 2017/18*, Water Services Regulatory Board
[5] Source: *Narok County Integrated Development Plan 2018-2020*



Source: Documentation provided by JICA

Figure1: Outline of the facilities under the project

Table 1 shows the plans and actual results of the main outputs (Japanese side). The outputs were produced mostly as planned with some changes. The changes from the plan included: (1) the addition of water supply pipes at the intake facilities (to supply clear water to the intake facilities), the addition of a drainage pit, and the addition of a sand pump for the grid chamber, (2) the extension and diameter changes based on the review of the distribution branch pipeline plan, and (3) the addition of monitoring equipment for maintenance. Besides, as the Ministry of Lands, Housing and Urban Development widened the box culvert where the main water distribution pipe was to be laid, it was necessary to construct a water pipe bridge, which was not in the original plan.

The soft component of "improvement of operation and maintenance of water supply facilities," "upgrading of supervising capacity pipe installation," and "strengthening of capacity of overall water utility management" were generally implemented as planned.

Table 1 Planned and actual outputs (Japanese side)

Facility	Planned Scope	Actual
Construction of water intake facilities	Weir, Grit chamber and Pump pit, Pump room ($1.5m^3$/×102 m×45 kW×4 Pumps (2 of them are spare)), Control panel, Flow meter	Addition of water supply pipes, a drainage pit and a sand pump for the grid chamber
Laying of raw water transmission pipe	φ200mm of 1.5km (DI pipe)	As planned
Rehabilitation of existing water treatment plant (CWTP)	Planned capacity: $1,000m^3$/day (Replacement of filter sand, Chemical house, existing reservoir)	As planned
Construction of new water treatment plant (NWTP)	Planned capacity: $4,000m^3$/day (Receiving well, Flocculation tank, Sedimentation tank, Rapid filter, Rapid mixing tank, Elevated backwash water tank, Clear water reservoir, Sludge drying bed, Drainage pond, Chemical house and chemical room, Operation building, Electrical house, Yard pipe, In-plan landscaping, Guard house, Mechanical facilities, Generator, Electrical facilities, Power receiving facility, Chlorine injector)	As planned
Laying of clear water transmission pipe	φ250 mm, 3.8 km, DI pipe	As planned
Laying of distribution pipe	Distribution main pipeline: φ150mm-300mm, 12km, DI pipe Distribution branch pipeline: φ50mm-75mm, 68km, uPVC/GI pipe	The distance was changed (from 68km to 58km) based on a review of the distribution branch pipeline plan at the time of the detailed design, and the diameter was reviewed. Addition of a water pipe bridge.
Renovation of reservoirs	Improvement of water proofing of existing 7 water reservoirs	As planned
Equipment	Planned Scope	Actual
Water supply pipe materials	- Water supply pipe material of 16km (φ13mm) - Water meters of 1,600pcs - Repair valve, 2 units - Rodding instrument for ferrule with saddle, 2 units - Examine equipment of water meter, 1 unit	As planned
Water quality measurement equipment	pH meter, Turbid meter, Residual chlorine analyser, Electric balance scale, Testing bench, Autoclave, Incubator, Spectrophotometer, Jar tester, Refrigerator, Ultrapure water production system, Hot plate stirrer, Water bath, Automatic oven, Device to be cool for chemicals, Filtration equipment for clarifying, Portable type Ultrasonic flow meter, Colony counter, Reagent for Spectrophotofluoro meter, Instrument for water quality analysis (beaker, pipette, syringe etc.)	As planned
Operation and	5 computers and 4 printers,	Addition of a monitoring

Maintenance equipment	4 Uninterruptible Power Supply (UPS)	device (LCD display)
Capacity building (soft component)	Planned number of participants	Actual
Improvement of operation and maintenance of water supply facilities	15	10
Improvement of the capacity to supervise the construction of water distribution pipe installation	10	10
Strengthening of capacity of overall water utility management	10	10

Source: Documentation provided by JICA and NARWASSCO, Interviews with NARWASSCO

Pumps at the newly constructed intake facilities

Newly constructed NWTP
(front: rapid filter, back: sludge drying bed)

Table 2 shows the status of the Kenyan construction work at the time of the ex-post evaluation, that was not completed when the project was completed. Although there are some delays, the work is generally progressing as planned.

Table 2 Outputs by the Kenyan side

Item	Plan	At the time of ex-post evaluation
Laying of distribution pipe, φ50mm, 20km (Procurement and laying)	3 years after the completion of construction work by the Japanese side	Completed in November 2018
Laying of house connection pipe, φ13mm, 16km (Utilizing the materials procured by the project)	1 year after the completion of construction work by the Japanese side	- Under implementation (Expected to be completed in FY2020-June 2021) - Remaining work: 1.3km
Laying of house connection pipe, φ13mm, 16km (Procurement and laying)	4km per year for 2 to 5 years after the completion of construction work by the Japanese side	Under implementation (Expected to be completed in FY2020)
Installation of water meter of 1,600 pieces (Utilizing the materials procured by the project)	1 year after the completion of construction work by the Japanese side	Completed (as of May 2017)
Procurement and installation of water meter	Installing 500 pieces per year for 2 to 5 years after the completion of construction work by the Japanese side	Under implementation (Expected to be completed in FY2020)
Installation of a gate and fence (New intake facilities)	At the time of the completion of construction work by the Japanese side	Completed in November 2018
Installation of a gate and fence (NWTP)	At the time of the completion of construction work by the Japanese side	Completed in November 2018

Source: Documentation provided by JICA, Responses to questionnaire from and interviews with NARWASSCO

Note: NARWASSCO's fiscal year is from July to June.

3.2.2 Project Inputs

3.2.2.1 Project Cost

Table 3 shows the planned and actual project cost. The exact amount of Kenyan side was not available due in part to the fact that outputs by the Kenyan side were not yet complete at the time of the ex-post evaluation as noted in "3.2.1 Project Outputs." Based on a comparison of planned and actual project cost for the Japanese side only, the project cost was as planned.

Table 3 Project cost

	Plan	Actual
Japanese side	1,410 million yen (Detailed Design: 88 million yen, Implementation: 1,322million yen)	1,410 million yen (Detailed Design: 88 million yen, Implementation:1,322million yen)
Kenyan side	60 million yen	N/A

Source: Documentation provided by JICA

3.2.2.2 Project Period

The actual project figure for the Kenyan side was not obtained as the outputs by the Kenya side were still under implementation at the time of the ex-post evaluation, as explained in Table 2. Therefore, only the plan and the actual project results for the Japanese side are compared. While the planned project period was 35 months from the signing of the Grant Agreement, the actual period was 39 months from February 2013 (signing of the Grant Agreement) to April 2016 (completion), which is 111% of the planned period. The project period exceeded the plan mainly due to the following reasons. Firstly, the deadline of the contractor was extended by one month because the scheduled tender was set back by one month due to the Kenyan government, and the contract date was extended accordingly. Secondly, as described in "3.2.1 Project Outputs," the construction of the water pipe bridge, which was not included in the original plan, was required, and the contract had to be extended due to the design changes and the installation of the water pipe bridge.

Thus, although the project cost was as planned, the project period exceeded the plan. Therefore, efficiency of the project is fair.

3.3 Effectiveness and Impacts[6] (Rating:②)

3.3.1 Effectiveness

3.3.1.1 Quantitative Effects (Operation and Effect Indicators)

The project aimed to provide a stable supply of safe drinking water to the residents of the target area (14 districts in the centre of Narok Town). The increase of the served population, and the water supply amount were set as the operational and effect indicators. In this ex-post evaluation, the number of house connections was added as an alternative indicator since it was not possible to obtain accurate figures for the served population. Also, NRW rate was added as a supplemental indicator.

[6] Sub-rating for Effectiveness is to be put with consideration of Impacts.

Table 4 Quantitative effects (Operation and Effect Indicators)

	Baseline	Target	Actual				
	2012	2020	2015/16	2016/17	2017/18	2018/19	2019/20
		4 Years after Completion	Completion Year	1 Year after Completion	2 Years after Completion	3 Years after Completion	4 Years after Completion
Indicator 1: Served population	18,000	49,980	N/A	N/A	N/A	N/A	N/A
Indicator 2: Water supply amount (m^3/day)	2,000	5,000	1,194	2,562	2,304	3,028	2,625
(Existing CWTP) (m^3/day)	2,000	1,000	N/A	160	67	296	244
(New NWTP) (m^3/day)	—	4,000	N/A	2,402	2,237	2,732	2,381
(Alternative indicator) Indicator 3: Number of house connection (household)	2,437	N/A	3,004	4,016	4,420	4,746	5,427
(Supplemental Indicator) Indicator4: NRW (%)	57.6	25	N/A	N/A	34.7	20.6	18.4

Source: Documentation provided by JICA and NARWASSCO

Note: (1) The target value for the served population (indicator 1) is the estimated population of the project site reflecting the population growth in the target area. (2) Concerning actual figures, NARWASSCO's fiscal year runs from July to June. (3) The breakdown of the number of house connections (indicator 3) as of 2018/19 is 91% for general households, 6.8% for commercial facilities, and others (e.g., public facilities). In addition to this, it is expected that there will be about 1,100 public faucet users. (4) Actual figures for 2019/20 are as of December 2019 for water supply amount (Indicator 2) and NRW (Indicator 4), and September 2019 for the number of house connections (Indicator 3). (5) The amount of water supply (indicator 3) is the amount produced at the water treatment plants. (6) The baseline value for NRW (indicator 4) is for 2013.

(1) Served population and number of house connections

Concerning the served population, the population of Narok Town, which was receiving water supply at the time of planning, was 18,000. As noted in "3.1.2 Consistency with Development Needs," the estimated population of Narok Town as of 2018 was 54,701, though NARWASSCO does not have an exact figure regarding the actual served population.

Looking at the number of house connections to NARWASSCO's water system in Narok Town as an alternative indicator, the number of house connections in 2019/20 was 5,427 compared to 2,437 in 2012 before the project was implemented. 2019/2020 figure is an increase of 223%

from before the project was implemented, and the number of house connections has increased substantially. Although accurate data on the served population was not available, as noted above, entire population of Narok Town is expected to be covered soon after the completion of the on-going house connection project. At the time of ex-post evaluation, as a part of a sewerage project (supported by the African Development Bank; hereinafter referred to as "AfDB," implemented by CRVWWDA, and operated and maintained by NARWASSCO), 2,500 house connection was underway and expected to be completed by 2021.

(2) Water supply amount

The actual water supply amount was 2,625 m^3/day in 2019/20, which is about 53% of the target (2020) water supply of 5,000 m^3/day. Of these, the water supply at NWTP, which was newly constructed under the project, was 2,381 m^3/day, 60% of the planned water supply (4,000 m^3/day), and the water supply at the existing CWTP (the project replaced sand filtration and renovated some facilities such as a chemical house) was 244 m^3/day, 24% of the planned water supply (1,000 m^3/day).

The main reason why the water supply has not reached the target is the limited daily operating hours of the water treatment plants: approximately 16 hours at the new NWTP, and 10 hours at the existing CWTP. Of these, there are two to three hours a day when the water intake facilities and treatment plants cannot operate due to power outages. Further, the production at the existing water intake facilities and treatment plant is decreasing due to aging pumps, and there is a period when production is not possible[7] because the electricity supply has been stopped due to the late payment of electricity bills (borne by the County Government).

As for the power outages, NARWASSCO is working on getting the Kenya Power and Lighting Company (hereinafter referred to as "KPLC") to make a dedicated power distribution to NARWASCO. The Ministry of Water & Sanitation and Irrigation has also asked the Ministry of Energy to provide a stable power supply, including the construction of a substation. About the suspension of the facilities for desilting as described above, NARWASSCO believes that in the future, it will be necessary to change the water intake position at the existing intake facilities and to introduce an efficient desilting system at the new intake facilities.

While the demand for water from unserved areas is high due to the expansion of Narok Town and the significant increase in population, the water supply amount has not been as planned. As noted above, at the time of the ex-post evaluation, 2,500 households in the unconnected areas were expected be connected to the water supply facilities in the future. To meet the water demand from this development, CRVWWDA, the project's executing agency, and NARWASSCO have decided to increase production by (1) rehabilitating the existing intake facilities and (2) rehabilitating and refurbishing the spring.

[7] For example, water was not produced for two months in 2018/2019.

(3) Non-revenue water ratio

NRW ratio has improved significantly from 57.6% before the project was implemented (2012) to 18.4% in 2019/20. In addition to the high-quality distribution pipes procured in this project, the materials procured by NARWASSCO based on the technical guidance of soft component were also of high quality, and the physical water leakage was almost eliminated. On the other hand, issues such as (1) inaccurate water meter readings, (2) delays in water billing or unclaimed bills, and (3) water theft were identified. As countermeasures, NARWASSCO is considering the introduction of an automatic meter reading and billing system, introducing a fine system, and strengthening the NRW response team. Among them, NARWASSCO plans to purchase software for an automated meter reading and billing system and to enhance its capacity to handle NRW with the support of CRVWWDA.

3.3.1.2 Qualitative Effects (Other Effects)

The qualitative effects of the project were assumed to be “stable water supply by way of 24-hour water supply” and “improvement of water quality through the construction of a new water treatment plant, renovation of the existing water treatment plant, and improvement of operation and maintenance capacity,”

The 24-hour water supply has not been realized due to the unreliable power supply and the suspension of the facilities due to desilting operations as described in "3.3.1.1 Quantitative Effects." Also, the water supply is limited because of the increased demand for water following the population growth. In some areas, especially in newer residential areas, the water supply is only two days a week. Even in the city centre, water supplies are sometimes cut off at night, and there are occasional water restrictions in the dry season. However, many of the users interviewed[8] did not have any significant disruptions to their water use because they had storage tanks. According to them, before the project, the water supply was once a week, and sometimes the water was not available for a month when using a public faucet. After the project, people have been satisfied with the regular water supply and the improved accessibility of water.

According to NARWASSCO, the operation and maintenance agency, the water quality has met the standards of the WHO drinking water quality guideline and Kenyan national water quality standards. Interviews with users also revealed significant improvements in colour, taste, and smell, and they were satisfied with the water quality. Many users drink directly from the tap.

Besides, users were highly satisfied with the water volume and water pressure. In particular, before the project, not only households but also commercial facilities and the university were

[8] In the ex-post evaluation, interviews were conducted with six large users (three hotels in different water supply districts, a university, a primary school, and a shopping mall), three public faucets in lower-income areas (operators and users), and ten households in five different water supply districts.

unable to obtain sufficient water supply; however, the situation has significantly improved since the project was implemented.

The effects of the soft component to "improve the capacity to operate and maintain facilities," "improve the capacity of overall water utility management," and "improve the capacity to supervise the construction of water distribution pipe installation" were expected. Many of the participants in the soft component of the technical department have continued to work there, and the technology transferred by the soft component has been used for operation and maintenance activities of water intake facilities and water treatment plants as well as construction supervision of the installation of water distribution pipes. On the other hand, the number of people at the management level has changed since the implementation of the project, so the continued effectiveness of the soft component could not be confirmed.

3.3.2 Impacts

3.3.2.1 Intended Impacts

It was expected that the project would reduce the risk of water-borne diseases by supplying safe and clean drinking water and that it would provide house connection to each household, thereby reducing the heavy burden of fetching water on women and children[9].

For water-borne diseases, no precise health data was available to show improvement. Still, according to interviews with the users, many of them believed that diarrhoea and typhoid decreased. They were more common before the project due to poor water quality and the use of unclean water such as rivers. Besides, hygiene awareness and hygienic environment have significantly improved, including handwashing and keeping toilets and homes clean.

Before the implementation of the project, there was no access to the water supply system in areas where house connection pipes were not installed, and water was not supplied regularly, so the water was supplied by water trucks. The workload required for fetching water, such as searching for a water truck all day long, was a burden. However, after the project was implemented, users said that they no longer needed to search for water because they could receive water stably from each house connection and from the public faucets, which reduced their burden. In particular, the burden of women, who had been the primary bearers of water-fetching labour, has been dramatically reduced, and they are now able to take better care of their families and children. Furthermore, some users said they were able to spend that time on their cash-generating businesses.

The other positive impact is the reduction in water purchase costs. Before the project, there was an additional cost of purchasing water from expensive water trucks because the water was not supplied regularly. However, after the project, this cost has been saved, which has had a

[9] At the time of planning, they were categorized as qualitative effects, but this ex-post evaluation reclassifies them as impacts as they are more indirect effects.

significant impact on both large users of commercial facilities (hotels and shopping malls) and households. In terms of specific water use cost changes, Table 5 below shows the user perceptions.

Table 5 User perceptions on the cost of water use

User	Before the project	After the project
Shopping mall (Number of customers per day: 3,000-3,500)	Ksh240,000/month (Amount of water consumed: 20,000ℓ/month)	Ksh178,000/month (Amount of water consumed: 50,000ℓ/month)
Primary school (Number of students and teachers: 500)	Ksh100,000/month	Ksh70,000/month
Hotel (Number of guests per day: 100-200)	Ksh70,000-80,000/month	Ksh30,000/month
Households	Ksh5,000/month	Ksh1,000-1,500/month

3.3.2.2 Other Positive and Negative Impacts

(1) Impacts on the Natural Environment

According to the agencies involved, there has been no negative impact on the natural environment. Sludge and wastewater from the water treatment plant have been sun-dried in the water treatment plant and then transported to the premises of the facility for proper treatment. According to NARWASSCO, the water quality of wastewater has been checked once a month, which has been within the standard value of the National Environment and Management Authority.

(2) Resettlement and Land Acquisition

As the facilities under the project have been constructed on public land under the jurisdiction of Narok Town, no land acquisition or involuntary resettlement has occurred.

Thus, this project has achieved its objectives to some extent. Therefore, effectiveness and impacts of the project are fair.

Users at a public faucet House connection (in a garden of private residence)

3.4 Sustainability (Rating: ③)

3.4.1 Institutional / Organizational Aspect of Operation and Maintenance

NARWASSCO operates and maintains the facilities developed under this project.

NARWASSCO was established in 2008 after receiving approval for water operations from the Rift Valley Water Services Board (currently CRVWWDA) at the time of the project planning, to operate water supply service in Narok Town.

At the time of the project planning and implementation, the executing agency, CRVWWDA, was one of the eight regional bureaus supervising the waterworks projects across the country, and has owned the facilities that were constructed under the project. The actual water supply service was to be provided by NARWASSCO under a service agreement. Besides, CRVWWDA has owned NARWASSCO's assets and receivables. With an amendment to the *Water Act 2016* following the devolution, water services were also transferred to the counties. At the time of the ex-post evaluation, NARWASSCO is owned by the Narok County Government. The assets, including the project facilities owned by CRVWWDA, will be transferred to NARWASSCO in the future. A committee consisting of national and county levels was appointed by public notice in July 2019 to review the transfer process. CRVWWDA will continue to be the executing agency for the development of water related infrastructure in Narok Town. At the time of the ex-post evaluation, no formal agreement for water service was in place between the County Government and NARWASSCO. Therefore, the division of responsibilities between the County Government and NARWASSCO may be somewhat unclear.

NARWASSCO had challenges in the decision-making process, including a year without a board, the highest decision-making body. Nonetheless, with the appointment of board members, including the County Government in August 2019 and the first board meeting in the year in November, it is expected to get back on track.

Table 6 shows the number of staff at the time of the ex-post evaluation. The number of technical staff is generally sufficient for operation and maintenance of the water intake facilities and treatment plants. Currently, there are two NRW personnel and one Geographic Information System (GIS) personnel, but NARWASSCO believes that these numbers should be doubled. Also, NARWASSCO thinks it is necessary to assign an electrical and mechanical expert to deal with electricity-related issues (see "3.4.2 Technical Aspect of Operation and Maintenance" below), and the management is considering assigning this kind of expert.

Table 6 Number of staff of NARWASSCO

	2012 Number of staff	2020 Number of planned staff	2019 Number of staff (Actual)

Management staff	3	4	4
Sales staff (including accounting assistance/IT, meter reader, billing, customer relation/reception, disconnecting assistance, driver)	8	17	13
Technical staff	12	22	19
(Breakdown of technical staff)			
Intake/water treatment plant operators	7	14	10
Person in charge of water supply/distribution (Including 1 member in charge of GIS and 2 members in charge of NRW (leakage prevention)/Reconnection)	5	8	9
Accounting staff	-	-	3
Personnel staff	-	-	7
Total	23	43	46

Source: Documentation provided by JICA, documentation provided by NARWASSCO and interviews with NARWASSCO

Note: The number of staff in the 2020 plan is the appropriate number proposed by the JICA survey at the time of the project planning.

Based on the above, it can be said that the organizational structure of operation and maintenance mostly appropriate, though it is considered necessary to assign electrical and mechanical experts and increase the number of technical personnel for more stable operation and maintenance activities.

3.4.2 Technical Aspect of Operation and Maintenance

Operation and maintenance of the water intake facilities and water treatment plants are generally carried out appropriately, utilizing the manuals provided under the soft component. However, due to the lack of electrical and mechanical experts, it may not be possible to immediately identify and address the cause of problems in the electrical system. At the time of the ex-post evaluation, the technicians of the County Government were responding to the problem, if any; however, as the number of County Government technicians was also small, the response took some time.

For newly hired staff, skills are transferred within the company mainly through on-the-job training. NARWASSCO also conducts exposure visits to other water service companies when necessary. NARWASSCO plans to apply training in the next year's budget and is also considering developing a regular training system. Under the sewage plant development project being implemented with the support of AfDB, technical enhancements in operation and maintenance, including NRW measures and overall company management will be implemented for two years from June 2020. Also, CRVWWDA is willing to continue to provide necessary technical assistance as requested by NARWASSCO.

Therefore, it can be said that the technical aspect is mostly appropriate as the technical staff has the necessary technical skills for operation and maintenance, and the transfer of skill is also taking place.

3.4.3 Financial Aspect of Operation and Maintenance

Table 7 shows NARWASSCO's revenues and expenses for the past three years.

Sales/Turnover has increased due to the increase in the number of house connections and production volume. At the same time, production costs such as chemical and electricity costs and labour (administrative) costs have also increased. The County Government has provided subsidy (for electricity) to cover the necessary operating expenses for the time being. With the start of sewerage operation in the future, the operation and maintenance costs of the water supply and sewerage operations are expected to increase further, and it is necessary to increase revenues, including water tariff revision, for more sound operation.

Since the incorporation of NARWASSCO, there have been no revisions to water tariff. However, as discussed in "3.4.1 Institutional/Organizational Aspect of Operation and Maintenance," following a board meeting in November 2019, NARWASSCO started the application process for the tariff revision to the Water Services Regulatory Board (hereinafter referred to as "WASREB"). Water tariff will be revised as early as the 2020/2021 fiscal year, and NARWASSCO aims to recover costs from sales/turnover through tariff revision.

Users, including households, commercial facilities, and government agencies, have incurred significant amounts of water bills in arrears amounting to 62 million Kenyan shillings as of September 2019. Those of national and county governmental agencies (hospitals, prisons, etc.) are long term and challenging to collect, but NARWASSCO continues to request reminders and on-time payment.

Table 7 Financial condition of NARWASSCO

(Unit: thousand Kenyan Shillings)

Item	2016/17	2017/18	2018/19
Sales/Turnover	72,048	77,766	99,910
Grants	10,012	4,490	20,109
In-kind contributions	-	-	6,264
Other income	-	-	49
Total revenue	**82,060**	**82,256**	**126,332**
Water production cost	39,072	36,342	49,631
Administration cost	43,968	49,520	70,614
Depreciation of property, plant and equipment	0	379	2,303

Amortisation of intangible assets	26	26	27
Total operating expenses	**83,066**	**86,268**	**122,576**
Operating profit/loss	**-1,005**	**-4,012**	**3,756**

Source: Documentation provided by NARWASSCO

Note: The last digit is adjusted after rounding to the nearest thousand shillings.

Thus, although the water tariff revision is still in process and there is a need for appropriate debt collection, the financial aspect of operation and maintenance is generally adequate, given the expected increase in sales/turnover of water from future water tariff revision.

3.4.4 Status of Operation and Maintenance

The water intake facilities, raw water transmission pipe, NWTP, clear water transmission pipes, and water distribution pipes developed in this project are in good condition. Two uninterruptible power supplies ("UPS") were broken due to erratic power supply but were replaced. At the water intake facilities, four pumps are used in two shifts, but one of them had been broken at the time of the ex-post evaluation. However, NARWASSCO is going to procure spare parts soon, and repairs are being scheduled.

The equipment (water quality analysis equipment, water meter examination equipment, flow meter, water pipes and accessories, water meters, computers, and printers) procured under the project is also in good condition and is being utilized.

Thus, the facilities and equipment developed and procured in this project are generally in good condition.

In light of the above, no major problems have been observed in the institutional/ organizational, technical, financial aspects and current status of the operation and maintenance system. Therefore, sustainability of the project effects is high.

4. Conclusion, Lessons Learned and Recommendations

4.1 Conclusion

This project aimed to provide safe and sustainable potable water in 14 districts in the central Narok Town by constructing and rehabilitating water supply facilities, thereby contributing to an improvement in the living environment of residents. The relevance of the project is high because the objective of the project is consistent with the development plan and development needs of Kenya both at the time of planning and the time of the ex-post evaluation, and it is also consistent with Japan's ODA policy to Kenya at the time of planning. The project produced outputs that were mostly in line with the plan. The efficiency is fair because the project cost was

within the plan, while the project period exceeded the plan. The project has produced the effects such as increases in the served population and in the water supply amount; however, they did not reach the targets. The main reasons for this are delays in laying of house connection pipes and limited operating hours of the facilities due to unstable power supply and time required for desilting. Meanwhile, positive impacts such as more convenient access to water, reduction of water-borne diseases, and reduction of workload for fetching water have been observed. Therefore, the effectiveness and impacts are fair. The sustainability of the project effects is high, as no major problems have been observed in the institutional/organizational, technical, financial aspects and current status of the operation and maintenance system.

In light of the above, this project is evaluated to be satisfactory.

4.2 Recommendations

4.2.1 Recommendations to the Executing Agency

(1) At the time of the ex-post evaluation, the facilities constructed under the project were not fully utilized due to unstable power supply and suspension of facilities due to desilting operations, etc. Hence, water production amount has not reached the target. NARWASSCO is recommended to continue discussing and requesting the stable power supply with KPLC for stable water production.

(2) NARWASSCO is recommended to develop a systematic and regular training system for technology updates. Support will be obtained from CRVWWDA for the development of a training system. There should also be additional engineers in charge of NRW and an electrical and mechanical specialist.

(3) With the revision of water tariff, NARWASSCO will aim to operate with the cost recovery from water sales in the future. Still, for the time being, NARWASSCO needs subsidy from the County Government for the electricity bill. However, because the electricity bill was not paid on time, at the time of ex-post evaluation, the electricity supply was suspended to time to time, and CWTP was unable to produce for some time, causing problems with water supply operation. Therefore, the County Government is recommended to pay the electricity bill on time in the foreseeable future.

Also, given the arrears of water bills from the county and central government agencies, NARWASSCO and the County Government are recommended to facilitate timely payment from these agencies. Also, NARWASSCO and the County Government may consider entering into a formal water service provision agreement. The agreement will clarify the responsibilities of each party, which leads to smoother operation.

(4) Also, it is recommended that NARWASSCO put in place an effective management and collection system for water charges, given the large number of water bills that are not paid on time. The County Government and CRVWWDA are recommended to provide support to

enhance such management capacity.

4.2.2 Recommendations to JICA

None

4.3 Lessons Learned

Target for technology transfer when the institutional set up for the operation and maintenance system of a water utility is in transition

Although the soft component of the project included the improvement of management capacity, the target was limited to NARWASSCO, the operating and maintenance agency. However, with NARWASSCO was then newly established and the change of ownership of NARWASSCO from CRVWWDA to the County Government due to decentralization was scheduled, the County Government could have been included in the technology transfer. NARWASSCO needs to strengthen further its water service management, including setting appropriate water tariff, collecting water charges and collecting debts, and planning long-term investments to meet future water demand and cover the increased maintenance costs. Still, NARWASSCO needs the technical and financial support of the County Government to do so. Also, although the County Government pays subsidy (electricity bill) to NARWASSCO, a decrease in water production partly due to delays in payment to the power company and delays in payment of water bills by the county government agencies have a significant impact on the operation and maintenance of NARWASSCO. Therefore, it is vital to raise awareness and transfer technology related to the management of such supervisory body to increase ownership.

Republic of Kenya

FY 2019 Ex-Post Evaluation of Japanese ODA Loan Project

"Mombasa Port Development Project"

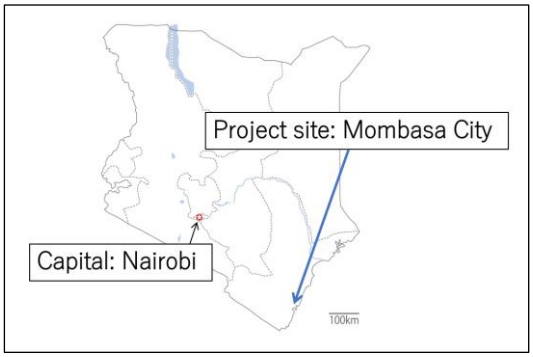
External Evaluator: Takako Haraguchi, International Development Center of Japan Inc.

0. Summary

This project attempted to respond to an increased demand for cargo handling and improve the efficiency of port operation at Mombasa Port, one of the largest international trade ports in East Africa, by constructing a container terminal and installing cargo-handling equipment, thereby contributing to the promotion of trade and social and economic development not only in Kenya but also across East Africa including the neighboring countries. The relevance of the project is high because these objectives are consistent with the development plans and development needs in Kenya and the East African region and with Japan's aid policy. The container terminal was expanded as a result of implementing the project, achieving all targets in the operation and effect indicators, such as container throughput and waiting time. The throughput of the export/import cargo to and from Kenya, that of the transit cargo to neighboring countries, and that of transshipment cargo have increased at Mombasa Port, suggesting that the project has contributed to the economic development in Kenya and its neighboring countries. Therefore, the effectiveness and impact are high. The project outputs were mostly generated as planned, but the project period exceeded the plan. Therefore, the efficiency is fair. The sustainability of the project effects is high because the institutional/organizational, technical, and financial aspects and the status of the operation and maintenance of the project are mostly in good standing.

In light of the above, this project is evaluated to be highly satisfactory.

1. Project Description



Project Location

Newly constructed Container Terminal 2

1.1 Background

Mombasa Port was the only international trade port in Kenya (at the time of the ex-ante evaluation of this project) and one of the largest ports in East Africa. It was not only serving as

the import/export hub for Kenya but also providing port functionality to its inland neighbors, such as Uganda. The container throughput at the port doubled in six years, from approx. 240,000 TEU[1] in 2000 to approx. 480,000 TEU in 2006, and the demand for 2015 was expected to be as high as approx. 960,000 TEU. However, the port was facing several challenges. The port's capacity to handle container cargo was limited to approx. 450,000 TEU per year. The port also needed to accommodate the increasing size of container ships, improve access to the port, and improve the efficiency of port operation. The Kenya Ports Authority (hereafter, the "KPA"), which is responsible for operating and managing ports in Kenya, had attempted to respond to the rapidly increasing container cargo at Mombasa Port by converting customs to IT-based operation and introducing additional cargo-handling equipment. However, no measures were in place to fundamentally address a future increase in demand. In order to strengthen the international competitiveness of the East African region as well as Kenya to realize economic development, it was urgently needed to develop a new container terminal, boost the container throughput, and make port operation more efficient.

1.2 Project Outline

The objective of this project is to respond to an increased demand for cargo handling and improve the efficiency of port operation at Mombasa Port in Kenya by constructing a container terminal and installing cargo-handling equipment at this port, thereby contributing to the promotion of trade and social and economic development not only in Kenya but also across East Africa including the neighboring countries.

Loan Approved Amount/Disbursed Amount	26,711 million yen/26,328 million yen
Exchange of Notes Date/ Loan Agreement Signing Date	November 2007/November 2007
Terms and Conditions	Interest Rate: 0.20% (0.01% for consultants) Repayment Period: 40 years (Grace Period: 10 years) Conditions for Procurement: Tied (Special Terms for Economic Partnership (STEP))
Borrower/Executing Agency	Kenya Ports Authority (guaranteed by the Government of the Republic of Kenya)/Kenya Ports Authority

[1] TEU: 20-foot container equivalent unit.

Project Completion	February 2017
Target Area	Mombasa City
Main Contractors (Over 1 billion yen)	• Equipment supply/installation: Toyota Tsusho Corporation (Japan) • Civil works: Toyo Construction Co., Ltd. (Japan)
Main Consultants (Over 100 million yen)	• Construction supervision: Japan Port Consultants, Ltd. (Japan)/ BAC Engineering & Architecture Ltd. (Kenya)/Gachagua Kahoro & Associates (Kenya) (JV) • Selection of a terminal operator: Nippon Koei Co., Ltd. (Japan)/ The Overseas Coastal Area Development Institute of Japan (Japan)/Oriental Consultants Co., Ltd. (Japan)/M.A. Consulting Group (Kenya) (JV)
Related Studies (Feasibility Studies, etc.)	• "The Feasibility Study on the Project for Mombasa Port International Container Terminal Modernization" (Japan External Trade Organization (JETRO), 2000, Feasibility Study (F/S)) • "Master Plan Study of the Port of Mombasa including Development of the Free Zone" (KPA, 2004) • "Study on Mombasa Port Container Terminal Modernization" (Engineering and Consulting Firms Association, Japan (ECFA), 2005, F/S update) • "Special Assistance for Project Formulation (SAPROF) for the Expansion of the Mombasa Port Container Terminal in the Republic of Kenya" (Japan International Cooperation Agency (JICA) (former Japan Bank for International Cooperation) (JBIC), 2006) • "Project Plan Review Report" (KPA, 2009) (A SAPROF review as part of the consulting services of this project)
Related Projects	Technical Cooperation • "Project for Technical Assistance to Kenya Ports Authority on Dongo Kundu Port, Mombasa Master Plan" (2014‐2015) • "Project on Master Plan for Development of Dongo Kundu, Mombasa Special Economic Zone" (2014‐2015) • "Project for Formulation of Master Plan on Logistics in Northern Economic Corridor" (2015‐2016) ODA Loan • "Mombasa Port Development Project (Phase 2)" (January 2015)

	• "Mombasa Port Area Road Development Project" (June 2012) • "Mombasa Port Area Road Development Project (II)" (July 2017) Others • Assistance by TradeMark East Africa (TMEA) on institutional strengthening of KPA/streamlining of cargo handling (2011 through the time of ex-post evaluation) • Assistance by the Export-Import Bank of the Republic of China on the construction of the Mombasa-Nairobi Standard Gauge Railway (hereafter, "SGR") (2014–2017)

This project was designated as the first phase of the three-phase container terminal development plan (to construct new Container Terminal 2 to the west of existing Container Terminal 1) formulated in the SAPROF (2006). At the time of ex-post evaluation, a Japanese ODA Loan, Mombasa Port Development Project (Phase 2) (hereafter, "Phase 2 Project"), is being implemented as the development plan's second phase.

2. Outline of the Evaluation Study

2.1 External Evaluator

Takako Haraguchi, International Development Center of Japan Inc.[2]

2.2 Duration of Evaluation Study

This ex-post evaluation study was conducted with the following schedule.

Duration of the Study: July 2019–August 2020

Duration of the Field Study: October 12, 2019–November 26, 2019; February 8, 2020–February 28, 2020[3]

3. Results of the Evaluation (Overall Rating: A[4])

3.1 Relevance (Rating: ③[5])

3.1.1 Consistency with the Development Plan of Kenya

For reasons cited below, the consistency between this project and the development plan of Kenya at the time of both appraisal and ex-post evaluation has been high.

[2] Participated as reinforcement from i2i Communication, Ltd.

[3] This period includes the field study period for the ex-post evaluation of the Project for Capacity Building for the Customs Administrations of the Eastern African Region (Phase 2). The evaluation for the latter and the present evaluation were carried out at the same time.

[4] A: Highly satisfactory, B: Satisfactory, C: Partially satisfactory, D: Unsatisfactory

[5] ③: High, ②: Fair, ①: Low

Kenya's mid-term national development policies, the *Economic Recovery Strategy for Wealth and Employment Creation* (2003‐2007) and the *Third Medium Term Plan* (2018‐2022), and the country's long-term strategy, *Vision 2030* (2008‐2030), commonly seek to achieve economic development through infrastructure development. Of these, the *Third Medium Term Plan* and *Vision 2030* set forth the development of Mombasa Port as one of the flagship projects.

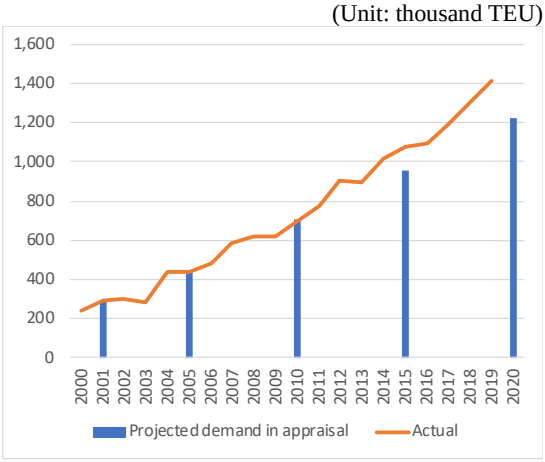
Within the regional policy for Africa, the development of Mombasa Port was set forth as a priority project in the New Partnership for Africa's Development (NEPAD) at the time of appraisal. In addition, the African Union's (AU) *Agenda 2063* (2013–2063) sets forth to accelerate regional integration through infrastructure development and growth through port development. The development of the container terminal in Mombasa Port also constitutes part of the development of the Northern Corridor (originating in Mombasa Port and connecting between Kenya, Uganda, Rwanda, Burundi, and the Democratic Republic of the Congo), a component in the *Programme for Infrastructure Development in Africa* (2013–2022).

3.1.2 Consistency with the Development Needs of Kenya

For conditions specified in "1.1 Background" and below, the consistency between this project and the development needs (the demand for container cargo handling at Mombasa Port) has remained high between the time of appraisal and the time of ex-post evaluation.

As shown in Figure 1, the container throughput at Mombasa Port has increased, surpassing the projected demand at the time of appraisal. As shown in Table 1, the cargo volume handled at Mombasa Port that is transported over the land to neighboring countries has fluctuated due most likely to the diversification of logistical routes. However, the demand within the region remains high, as indicated by the growth of domestic freight and transit cargo to and from countries such as Uganda and the Democratic Republic of the Congo via the Northern Corridor, which originates in Mombasa Port.

(Unit: thousand TEU)



Source: Compiled based on documentation provided by JICA and documentation provided by KPA.

Figure 1. Container throughput at Mombasa Port

Table 1. Cargo for Kenya and its neighbors handled at Mombasa Port (combined exports and imports)

(Unit: thousand ton)

	2006	2014	2018
Kenya	10,183	16,944	19,996
Uganda	2,822	5,522	7,889
DR Congo	226	408	471
Tanzania	270	188	248
Rwanda	253	236	221
South Sudan	-	761	734
Burundi	67	79	22
Others	459	737	1,341
Total cargo throughput at Mombasa Port	14,281	24,875	30,923

Source: Documentation provided by JICA, documentation provided by KPA
Note: Numbers may not add up to totals due to rounding.

3.1.3 Consistency with Japan's ODA Policy

For reasons cited below, the consistency with Japan's ODA policy at the time of appraisal was high. First, JICA (former JBIC) through the *Medium-Term Strategy for Overseas Economic Cooperation Operations* (2005) established "infrastructure development toward sustainable growth" as a priority area in Kenya and focused on assisting the promotion of economic growth through the development of economic and social infrastructure, including the development of the transportation sector. For the Sub-Saharan Africa region, the "development of economic and social infrastructure benefiting broader regions across national borders" was mentioned as one of the priority areas. In addition, economic infrastructure—including the infrastructure development for the promotion of trade and industry—occupied one of the five priority areas in the *Country Assistance Program for the Republic of Kenya* (2000) by the Ministry of Foreign Affairs.

In light of the above, this project has been highly relevant to the country's development plan and development needs, as well as Japan's ODA policy. Therefore, its relevance is high.

3.2 Efficiency (Rating: ②)

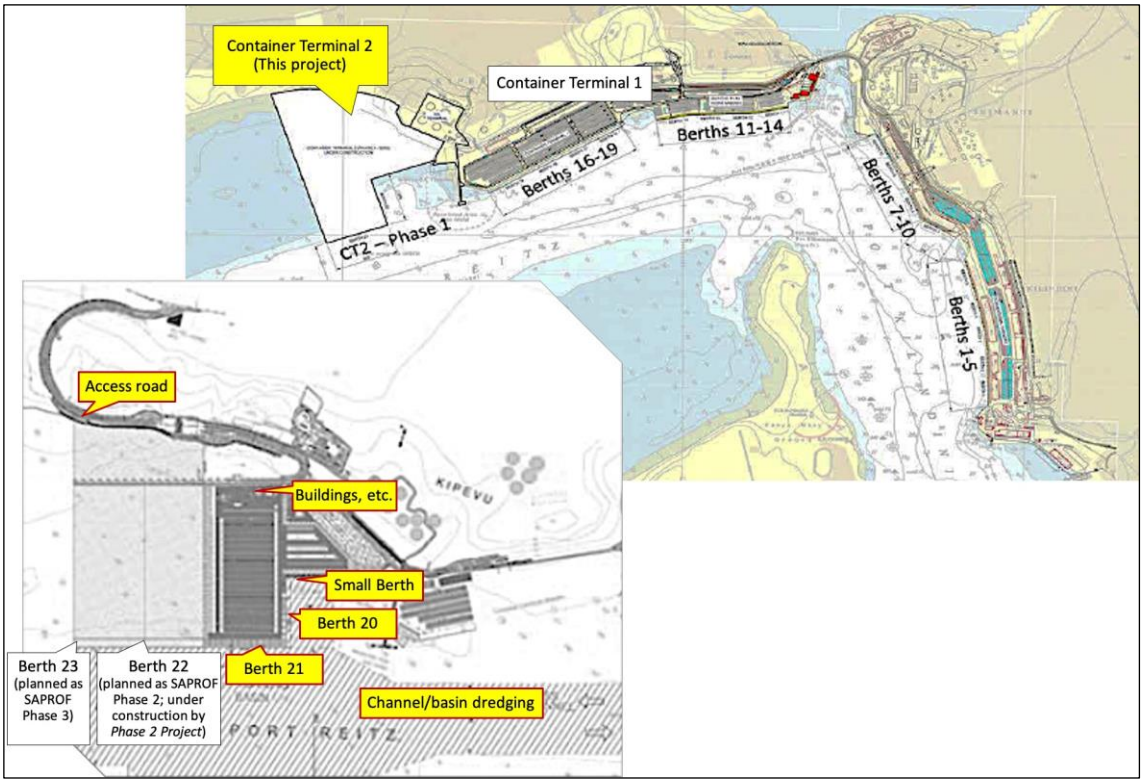
3.2.1 Project Outputs

The outputs of this project consisted of (1) construction of a new container terminal, (2) procurement of cargo-handling equipment, (3) construction of a port access road, (4) dredging for channels and basins, and (5) consulting services. As explained below, they were mostly completed as planned with some changes.

Table 2. Planned and actual outputs

Project Outputs	Plan at the Time of Appraisal	Actual	Key Changes
(1) Construction of container terminal	• Wharf: 15 m deep x 350 m long • Wharf: 11 m deep x 190 m long • Wharf: 4.5 m deep x 80 m long • Related facilities (container yard, roads, railway, buildings, utilities, etc.)	• Wharf: 15 m deep x 350 m long (Berth 21) • Wharf: 11 m deep x 210 m long (Berth 20) • Wharf: 4.5 m deep x 283 m long (Small Berth) • Related facilities (container yard, roads, buildings, utilities, etc.)	• Some changes in wharf length (due to changes in channel layout) • Cancellation of the railway siding (due to the implementation of a new, separate project (SGR construction))
(2) Procurement of cargo-handling equipment	• Gantry crane (ship-to-shore gantry crane (SSG)) 50 t x 2 units • Transfer crane (rubber-tired gantry crane (RTG)) 40.6 t x 6 units	• SSG 65 t x 2 units • RTG 45 t x 4 units	• Max. lifting load increased for SSGs (to handle increased container weight) • Max. lifting load increased for RTGs (same reason as above), reduced number of units (to stay within budget)
(3) Construction of port access road	• 1.6 km long (approx.) x 33 m wide (3 lanes per direction)	• 2.1 km long (approx.) x 33 m wide (3 lanes per direction)	-
(4) Dredging for channels and basins	• Dredge volume: approx. 3 million m^3 (outside the scope of the ODA Loan)	• Dredge volume: approx. 7 million m^3 (outside the scope of the ODA Loan)	• Dredge volume increased (addition of maintenance dredging of existing channels/basins)
(5) Consulting services	• Consultants for construction supervision: detailed designs, tendering assistance, construction supervision, etc. • Consultants for operator selection: assistance for terminal operator selection	• Consultants for construction supervision: services as planned • Consultants for operator selection: contract terminated after the service was partially performed (preparation of tender documents, tendering assistance)	• Consultant contract for operator selection canceled after the service was partially performed (due to the suspension of the plan to privatize container terminal operation)

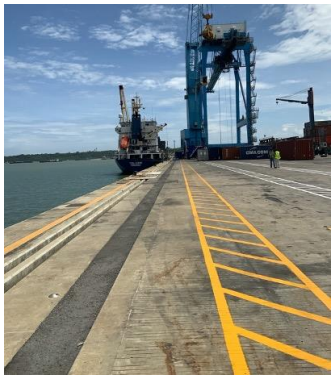
Source: Documentation provided by JICA, documentation provided by/interviews with KPA, interviews with the consultants for construction supervision



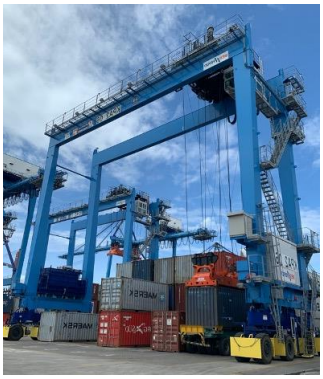
Source: Compiled based on documentation provided by KPA and documentation provided by the consultants for construction supervision.
Note: Yellow markers indicate the target components of this project.

Figure 2. Project layout

Berth 21 and SSGs built/procured in the project



Berth 20 built in the project



Container yard and RTGs constructed/procured in the project

Some of the notable changes in the outputs included in Table 2 above are as follows. All of these changes are considered reasonable as they represented responses to the circumstances that developed after the launching of the project.

- (1) Cancellation of the railway siding in container terminal construction: Due to the new plan assisted by China to construct an SGR between Nairobi and Mombasa (1,435 mm

gauge) including the siding to Mombasa Port, the construction of the siding, which was planned in this project, from the existing Nairobi-Mombasa Metre-Gauge Railway (hereafter, "MGR") (1,000 mm gauge) to Container Terminal 2, was canceled. It is to be noted that the functionality provided by the completed SGR installations sufficiently met what was planned in this project for the MGR siding construction. Because this project and the SGR project were implemented in a coordinated manner, the SGR installations were constructed without causing any major issues to the outputs of this project such as the roads.

- (2) Greater capacity but fewer crane units in the procurement of cargo-handling equipment: In order to accommodate the increased container weight, the maximum lifting load of SSGs was increased from 50 t to 65 t. For RTGs, it was increased from 40.6 t to 45 t. In addition, the number of RTGs was reduced from six units to four units to keep the expenses within the budget when switching the units to these higher-grade models. The efficient operation of the container yard constructed in this project ideally required the installation of 16 or more RTGs. Although it was planned that a private terminal operator would procure the missing units, the privatization of terminal operating rights was suspended (see the next paragraph). For this reason, KPA procured additional units in the ODA Loan, Phase 2 Project, purchased additional units using its own funds, and moved some units from Container Terminal 1. As a result, 18 RTGs are installed at the time of ex-post evaluation.

- (5) Termination of consultant contract for operator selection in consulting services after the service was partially performed: It was planned to select and outsource the operation to a private operator after the completion of Container Terminal 2. This plan was suspended for the time being, and like Container Terminal 1, the new terminal has been operated by KPA. According to KPA's explanation and newspaper reports, the suspension was caused by the opposition to privatization by the dockworkers union, lawsuits that have been filed concerning the tendering for the terminal operator, and political decisions in light of these developments. The current *KPA Strategic Plan* (2018‐2022) continues to mention a policy that sets Mombasa Port as a "landlord port" (port infrastructure owned by public authorities, but operation and maintenance outsourced to the private sector). KPA intends to privatize the operation in the future.

3.2.2 Project Inputs

3.2.2.1 Project Cost

The planned amount at the time of appraisal for the total project cost was 34,800 million yen (of which, the total ODA Loan was 26,711 million yen, with 8,824 million yen in foreign currency and 17,887 million yen in local currency). The actual cost was 31,735 million yen (of which, the total ODA Loan was 26,328 million yen, with 15,770 million

yen in foreign currency and 10,558 million yen in local currency), which was within the plan (91% against the plan). The planned amount at the time of appraisal for the canceled outputs (the railway siding construction and the consulting services on operator selection) was 656 million yen in total. Since this amount was smaller than the difference between the planned amount at the time of appraisal and the actual amount of the total project cost (3,065 million yen), the reduction in the total project cost was in line with the reduction in the outputs.

3.2.2.2 Project Period

According to the plan at the time of appraisal, the period between the signing of the loan agreement for this project and the project completion (as defined as the end of consulting services and the defect liability period) was 97 months between November 2007 and November 2015. In the actual project, the loan agreement was signed during the month specified in the plan, but the project did not complete until February 2017, exceeding the plan (116% against the plan). The reason for the extra time was the delay in the commencement of the access road construction due to the delay in the land acquisition procedure. Nevertheless, the construction itself was completed within the planned duration. Also, the container terminal component was mostly completed on the original schedule.

3.2.3 Results of Calculations for Internal Rates of Return (Reference Only)

At the time of appraisal, the financial internal rate of return (FIRR) and the economic internal rate of return (EIRR) of this project were 7.5% and 12.1%, respectively.[6] At the time of ex-post evaluation, when the actual project cost and the actual container throughput are used, theoretical recalculations[7] performed on the same calculation conditions used at the time of appraisal resulted in 6.6% for FIRR and 8.2% for EIRR. For both FIRR and EIRR, recalculations resulted in smaller numbers because of the increase in the cost (the civil works cost and the equipment purchase cost within the project cost exceeded[8] the plan at the time of appraisal; as a result, there was an increase in the operation and maintenance cost, which was calculated as 1% of the civil works cost and 4% of the equipment purchase cost) and the

[6] The expenses added to FIRR were project expenses and operation/maintenance expenses. The benefits included the income from port usage fees. The expenses added to EIRR were project expenses (excluding tax) and operation/maintenance expenses. The benefits were defined as the reduction in maritime transport costs due to the use of larger ships, reduction in transport costs due to the reduction in the berthing time, and reduction in related costs due to the reduction in the container dwell time. In both cases, the project life is 30 years after the start of the project. Note that the ex-ante evaluation sheet specified the project life as "30 years after the start of construction" and calculated FIRR as 8.5% and EIRR as 12.2%, but this study recalculated these rates of return based on "30 years after the start of the project" in accordance with JICA's IRR recalculation guideline for ex-post evaluations.

[7] Generally, actual values of the benefits were calculated by multiplying the unit price per container (of cargo-handling fees, berth fees, maritime transport fees, etc.) used at the time of appraisal by the actual container throughput; thus, they should be considered simplified/theoretical values aligned to the assumptions at the time of appraisal rather than reflecting the actual income of KPA.

[8] "3.2.2.1 Project Cost" reports that the total project cost was within the plan, but this was because price escalation and contingencies were appropriated to cover the increases in the civil work cost and equipment purchase cost.

decrease in the benefits (the facilities did not become operational on time due to the project delay; in addition, as will be discussed later, the container throughput at the project's facilities grew at a rate slower than anticipated at the time of appraisal).

In light of the above, although the project cost was within the plan, the project period exceeded the plan. Therefore, the efficiency of this project is fair.

3.3 Effectiveness and Impacts[9] (Rating: ③)

3.3.1 Effectiveness

As a result of the expansion of container terminals, all operation and effect indicators, such as the cargo volume and waiting time at Mombasa Port, achieved respective targets. The operating status of Container Terminal 2 constructed in this project was also mostly satisfactory. Therefore, this study considers that the objective of the project (direct outcome), "responding to an increased demand for cargo handling and improving the efficiency of port operation," has been achieved.

3.3.1.1 Quantitative Effects (Operation and Effect Indicators)

(1) Responding to an increased demand for cargo handling and improving the efficiency of port operation

As shown in Table 3, all four operation and effect indicators established at the time of appraisal exceeded and achieved their respective targets by 2019[10] (target year). The container throughput (Operation Indicator 1) has consistently increased, exceeding approx. 1.40 million TEU in 2019. In addition to the increases in total tonnage of the vessels arriving in the port (Operation Indicator 2) and the annual containerization rate (Operation Indicator 3), the container throughput at Mombasa Port has increased both in terms of the absolute volume and its proportion within the total cargo, indicating that the expansion of the container terminals and cargo-handling equipment have successfully responded to an increasing cargo demand. The operation of the port appears to have become more efficient considering that the containership average waiting time (Effect Indicator 1), which was roughly 1.5 days/ship until 2015, has dramatically decreased since the facilities under this project became operational in 2016.

[9] Sub-rating for Effectiveness is to be put with consideration of Impacts.
[10] The target year at the time of appraisal was 2017, two years after the project completion (expected in 2015), but the actual completion was in 2017. For the purpose of the ex-post evaluation study, the target year is adjusted to 2019.

Table 3. Operation and Effect Indicators

Indicator[a]	Baseline	Target	Actual			
	2006	2017	2016	2017	2018	2019
		2 Years After Completion	1st Year of Operation	Completion Year	1 Year After Completion	2 Years After Completion
<Operation Indicators>						
Operation Indicator 1: Container throughput (thousand TEU)	480	990	1,091	1,190	1,304	1,416
Operation Indicator 2: Total tonnage of vessels (thousand GRT)[b]	9,000	15,430	14,209	17,996	17,779	17,996
Operation Indicator 3: Annual containerization rate (%)[c]	62.0	73.0	80.2	79.0	82.9	82.2
<Effect Indicators>						
Effect Indicator 1: Containership average waiting time (day/ship)	1.49	1.00	0.26	0.71	0.50	0.48

Source: Documentation provided by JICA, documentation provided by KPA
Note: [a] The four operation and effect indicators established at the time of appraisal were classified by the ex-post evaluator into three operation indicators and one effect indicator based on each indicator's nature.
[b] GRT (Gross Registered Tonnage): Gross registered tonnage of a vessel.
[c] "Containerization rate" refers to the ratio of container cargo within cargo throughput.

These figures include actual data from existing Container Terminal 1[11] where KPA has expanded berths, reassigned berths, and upgraded cargo-handling equipment alongside this project, not just the data from Container Terminal 2 (Berths 20 and 21) constructed under this project. However, considering that this project reduced the congestion and improved the efficiency of cargo handling at the existing terminal, the actual values appear to be correct representations of the operation and effect of this project (see also "3.3.1.2 Qualitative Effects (Other Effects)").

The container handling capacity at Mombasa Port in 2019 was approx. 1.65 million TEU in total (1.10 million TEU at Container Terminal 1 and 550,000 TEU at Container Terminal 2[12]). The completion of the Phase 2 Project (Berth 22) under construction is being awaited because the throughput is expected to reach the capacity within a few years if it continues to increase at the current rate.

(2) Operation of Container Terminal 2

Field visits during the ex-post evaluation study confirmed that all of the facilities and equipment at Container Terminal 2 developed under this project are operational. As shown in Table 4, the container throughput surpassed 500,000 TEU. Berth 21, as the only 15-meter-deep container berth at Mombasa Port, accommodates large container ships that are nearly 300 m long. The number of moves of containers per hour, which shows the

[11] Container Terminal 1 has Berths 16‐19. In addition to these, part of Berths 5 and 11‐14 of the berths for bulk cargo is used for container cargo at the time of ex-post evaluation. The throughput at these berths is counted as part of Container Terminal 1's container throughput.
[12] The capacity of Container Terminal 2 at the time of its design was 450,000 TEU, but it has increased because the installation of one additional SSG at Berth 21 by KPA improved its cargo handling productivity.

productivity of cargo handling, has also increased. Several challenges were observed, however. The growth of the container throughput was initially slow after the facilities became operational. In addition, berth occupancy was too high at Berth 21 (i.e., congested) and too low at Berth 20. Moreover, the number of moves of containers per hour was not optimal at either berth.[13] Specifically:

- Slow initial increase in container throughput: Container Terminal 2 became operational immediately after the completion of the construction in February 2016. However, it did not become fully operational until 2018 because the installation of the cargo-handling equipment outside the scope of this project was delayed. The delay was caused by the longer time it took for the installation because, as mentioned above, the original plan to have a private operator install part of the cargo-handling equipment was suspended and switched to the procurement by KPA (the procurement process at government authorities is said to take 12 to 18 months).

- The low occupancy and the low number of moves of containers per hour at Berth 20: SSGs are not installed at this berth. The plan at the time of appraisal concerning SSGs specified to install the two SSGs procured in this project at Berth 21 but install only the rails for SSGs at Berth 20. These were implemented as planned. Even though it was written in the plan to have a terminal operator install SSG units at Berth 20, this was not undertaken due to the suspension of the privatization plan. As an alternative plan, KPA installed two mobile harbor cranes at this berth and assigned feeder ships (small container ships that provide secondary transports to and from major ports), which does not require the cargo-handling efficiency of SSGs, to these cranes. KPA installed one additional SSG at Berth 21 in January 2019 to further improve its cargo-handling efficiency as Container Terminal 2's main berth. The number of moves of containers per hour has indeed increased (but it had the issue described in the next paragraph). According to KPA, it intends to purchase SSGs for Berth 20. However, no actual plan is in place as of February 2020.

- Failure to achieve the target number of moves of containers per hour at Berth 21: According to the gross moves (the quotient when dividing the number of moves of containers per hour per vessel by the total number of hours between the start and finish of loading/unloading) shown in Table 4, the actual number of moves in 2019 (46 containers) did not reach KPA's target, 19 moves per hour per crane (or 57 moves per hour for three SSGs). With this being noted, the net moves (the quotient when dividing the number of moves of containers per vessel by the number of hours in which the crane was actually in operation among the total number of hours above) were 24 containers per hour in 2017, 43 containers per hour in 2018, and 54

[13] This project constructed the "Small Berth" in addition to Berths 20 and 21. It is used to transport construction materials for the Phase 2 Project and other purposes at the time of ex-post evaluation, and KPA explained that it would be used for tugboats after the project completion.

containers per hour in 2019. These values exceeded the target for 2018 (38 moves per hour for two SSGs) and were close to the 2019 target (57 moves per hour for three SSGs). Thus, this implies that the gross value failed to achieve the target because there were times when the SSGs were not operating. Factors cited by KPA include the halting of the operation for inclement weather and terminal congestion. In addition, the shipping lines interviewed in this study mentioned that crane operators were sometimes late to their cargo-handling shifts and that there were hours unattended by crane operators. These factors, in conjunction with the congestion at the berth, appeared to have affected the productivity.

Table 4. Status of Operation at Container Terminal 2

	2016	2017	2018	2019
Container throughput (TEU) (Annual capacity = 552,000 TEU)	144,368	280,828	406,545	514,755
Number of arriving vessels	81	174	198	168 (through Sept.)
Average length of arriving vessels (m)	(median) 210 (max) 299	(median) 220 (max) 295	(median) 221 (max) 304	NA
Berth occupancy rate (%) (KPA target = 75%)	(Berth 20) 8 (Berth 21) 68	(Berth 20) 18 (Berth 21) 86	(Berth 20) 53 (Berth 21) 90	(Berth 20) 60 (Berth 21) 90
Number of moves of containers per hour (containers/hour) (KPA target (Berth 21): 38 through 2018 and 57 for 2019) [a]	(Berths 20/21 average) 21	(Berth 20) 7 (Berth 21) 23	(Berth 20) 9 (Berth 21) 34	(Berth 20) 7 (Berth 21) 46

Source: Data provided by KPA

Note: [a] KPA's targets for the number of moves of containers per hour are the products of multiplying 19 moves per hour per SSG by the number of installed SSGs (0 unit at Berth 20; at Berth 21, two units through 2018 and three units in 2019). The actual values were the gross values (the quotient when dividing the number of moves by the number of hours per vessel between the start and finish of loading/unloading).

3.3.1.2 Qualitative Effects (Other Effects)

The qualitative effects of this project anticipated at the time of appraisal included "ripple effects of the increased cargo throughput at Mombasa Port on the economic development in Kenya and neighboring countries," "the improvement in port services," and "an increase in the added value of port-related facilities." Based on interviews with KPA and beneficiaries, all of these effects appeared to have materialized. The first qualitative effect (ripple effects on economic development) will be discussed under "3.3.2.1 Intended Impacts," as it can be classified as an indirect outcome.

(1) Improvement in port services

The five shipping lines interviewed as part of the qualitative study in this ex-post evaluation and the Kenya International Freight & Warehousing Association[14] representing freight businesses reported that the congestion at Mombasa Port was clearly alleviated and the cargo-handling efficiency improved after this project.

However, shipping lines also pointed out that the terminal operation by KPA had certain issues. Examples include: (a) Since berths are generally assigned based on shipping lines (Berth 21 is almost exclusively used by the largest company, MAERSK), not based on the number of containers carried on the ship, shipping lines with a large number of containers that are assigned to a berth with low cargo-handling efficiency found this practice unfair; (b) Even though the operation is 24/7, there have been hours when cargo handlers (including crane operators) are absent; and (c) Containers are often stacked in incorrect areas (adding extra steps to look for and restack containers that were stacked in areas different from the specified areas). Some of the shipping lines that use Container Terminal 1 reported that "the cargo-handling efficiency at Container Terminal 1 has gone down because high-performing cargo handlers have been reassigned to Container Terminal 2." These shipping lines reported that even though KPA held daily and weekly meetings with them and other related companies, there still were problems that had not been unaddressed for many years. It appears that the issues concerning cargo handlers and cargo-handling equipment were impacted by the fact that a private terminal operator was not selected.

(2) An increase in the added value of port-related facilities

According to KPA, the congestion in and around the port has been alleviated and container transportation became smoother because the access road under this project and the development of the Dongo Kundu Bypass (completed in 2018 in the Japanese ODA Loan project, Mombasa Port Area Road Development Project) to which the access road would be connected were completed at the same timing.

Customer services, including the KPA office and other related authorities (such as the Kenya Revenue Authority (hereafter, "KRA") in charge of the customs administration), were established in Container Terminal 2's administration building constructed under this project. KPA also set up a joint monitoring center (by KPA, KRA, and Kenya Railways Corporation (operator of SGR)) in this building to provide real-time monitoring of containers' movement at Mombasa Port and the Inland Container Depot Nairobi. These

[14] Shipping lines for the qualitative study were selected among the companies that operated scheduled container services at Mombasa Port. By following KPA's recommendations, companies representing large and small/medium companies were selected. The berths used by these companies cover all container berths at the existing terminal and the terminal constructed in this project. It is estimated that these companies accounted for 77% of the container throughput at Mombasa Port as of November 2019 when their average weekly container throughput (including the one for the joint services they provide with other companies) is added together. For these reasons, their opinions expressed in interviews are presumed to be reasonably representative of all companies. Due to time constraints, a business association was interviewed instead of freight companies. Although the interview provided information about the overall trend, insights into the circumstances of individual companies could not be collected.

offices and capabilities have contributed to the integration and greater efficiency of container handling operation.

3.3.2 Impacts

3.3.2.1 Intended Impacts

This study considers that the intended impact of this project, "the contribution of the increased cargo throughput at Mombasa Port to the economic development in Kenya and neighboring countries," has been materialized.

The export/import cargo to and from Kenya, the transit cargo to and from neighboring countries, and transshipment cargo have increased at Mombasa Port, suggesting that the project contributed to the economic development in Kenya and its neighboring countries. Table 5 indicates that among the full containers handled, containers for import (including transit cargo to neighboring countries) and transshipment have increased. Even though the export increased only marginally, the facilities developed under this project also contribute to the export. For example, container cargo accounted for approx. 80% of the total export cargo in 2018 (approx. 575,000 TEU) (KPA statistics).

Table 5. Breakdown of cargo throughput at Mombasa Port

(Unit: thousand TEU)

		2013	2014	2015	2016	2017	2018	2019 (through Sept.)
Import	Full	441	482	514	528	554	591	440
	Empty	8	7	6	8	7	10	8
	Total	449	489	520	536	561	602	448
Export	Full	130	131	122	129	134	149	111
	Empty	299	332	392	378	407	425	342
	Total	428	462	513	507	541	575	453
Transship-ment	Full	12	53	37	43	61	86	115
	Empty	4	8	5	5	20	36	38
	Total	16	61	43	48	81	122	153
Restowage	Full	0	0	0	0	5	6	5
	Empty	0	0	0	0	1	0	0
	Total	0	0	0	0	6	6	6
Total	Full	583	666	673	699	755	832	671
	Empty	311	346	403	392	435	472	389
	Total	894	1,012	1,076	1,091	1,190	1,304	1,060

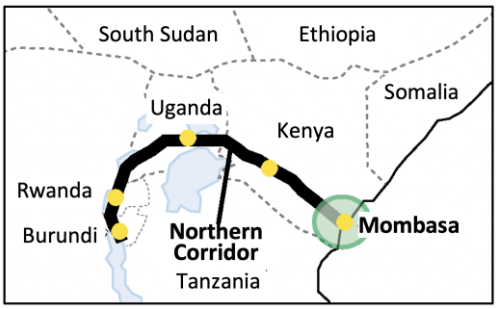
Source: Documentation provided by KPA
Note: "Full" refers to full containers (containers with cargo). "Empty" refers to empty containers (containers without cargo).

Factors outside this project that facilitated the improvements mentioned above included (i) the expansion of the Inland Container Depot Nairobi by KPA (the cargo-handling capacity at the Inland Container Depot Nairobi increased from 180,000 TEU to 450,000 TEU in 2018), (ii) rail container transport to Nairobi via SGR (since 2018) (SGR transports about a third of the container cargo at Mombasa Port), (iii) various programs by the East African Community (EAC) to promote trade, and (iv) the development and construction of

Mombasa Port, surrounding roads, and the Northern Corridor, and the improvement of efficiency of customs through the One Stop Border Post (hereafter, "OSBP") by JICA and other donors (including TMEA) (see "Related Projects" under "1.2 Project Outline"). Thus, the development of the Northern Corridor made the truck transport of containers to Uganda and other destinations beyond Uganda smoother, and the improved efficiency in the customs operation reduced the customs clearance time, contributing to more effective logistics in the East African region. These development efforts seem to have generated synergy as each of them is designated as an important component in the *Northern Corridor Master Plan* (2016), designed under the support of JICA, as one of the outcomes based on the pledges in the Fifth Tokyo International Conference on African Development (TICAD V) (2013). The Ministry of Transport, Infrastructure, Housing, Urban Development and Public Works (KPA's supervisory authority) commented that "the simultaneous development of these improvements contributed to the higher efficiency of logistics in the East African region."

Container depot in Nairobi linked directly to Mombasa Port via railway (SGR)

One of the border facilities assisted by a JICA technical cooperation project: Busia OSBP at the Kenya-Uganda border along the Northern Corridor



Source: Documentation provided by JICA

Figure 3. Northern Corridor

3.3.2.2 Other Positive and Negative Impacts

(1) Impacts on the Natural Environment

No negative impacts on the natural environments were observed. According to the documentation provided by KPA and consultants, the environmental mitigation measures (a measure against the pollution from ship's discharge water, mangrove planting, the

processing of dredged soil, etc.) formulated in the Environmental Impact Assessment (approved by the National Environmental Management Authority of Kenya (hereafter, "NEMA") in May 2007) have been implemented. Environmental monitoring has been conducted by KPA, measuring the ambient water quality and the health of the corals in the offshore dumping areas of dredged sediment, air pollution, water quality, and noise. These measurements were regularly reported to NEMA and published on the KPA website. Measured values were within standard values. At the time of ex-post evaluation, environmental monitoring is handled in the ongoing Phase 2 Project.

Among the issues raised during the project implementation was the claim by a fisherman group that the sand harvesting impacted fishing. However, when KPA, NEMA, the consultants for construction supervision, and fishermen formed a committee and conducted a study involving water quality monitoring, site examinations, the collection of the trend data in the last 10 years, the results suggested no evidence of negative impacts on the environment. If anything, the results showed that the catch has increased. As a result, an agreement was signed between KPA the fisherman group to preclude compensation (see also the next section, "(2) Resettlement and Land Acquisition" for the compensation for fishermen).

Table 6. Excerpts from the environmental monitoring results for Container Terminal 2 (September 2019)

Category	Parameter	Standard value [a]	Measured value
Ambient water quality in offshore dumping areas of dredged sediment	Total suspended solids (TSS)	5.6mg/l	5.2mg/l
Health of corals in the above-mentioned areas	Proportion of the corals assessed as "healthy" [b]	-	81%
Noise	Noise (daytime)	65.0dBA	64.0dBA
Air quality	Sulfur dioxide (SO_2)	200.0 μ g/m^3	28.0 μ g/m^3
	Nitrogen dioxide (NO_2)	80.0 μ g/m^3	14.9 μ g/m^3
	Particulate matter (PM10)	200.0 μ g/m^3	21.9 μ g/m^3

Source: Documentation provided by KPA

Note: [a] The standard value for the ambient water quality in offshore dumping areas of dredged sediment is the measured value before the start of Phase 2 construction. The noise and air quality thresholds are set by the 2009 and 2012 regulations under the *Kenya Environmental Management and Coordination Act* (EMCA), respectively.

[b] The health of corals is assessed visually as either "healthy," "settled sediment," "mucus shaths" (mucus release indicating stress), "bleaching," or "mortality."

(2) Resettlement and Land Acquisition

Resettlement and compensation associated with land acquisition were implemented in accordance with the resettlement plan (its draft was submitted to NEMA before the start of this project, and the plan was finalized during the project). The number of affected households/organizations (landowners, tenants (individuals and organizations), unofficial residents) was 27; of these, 17 households/organizations were eligible for resettlement. Even though the compensation program was delayed due to the extra time needed for its processing, the relocation was completed after paying compensations to all eligible parties

according to the resettlement plan and in accordance with Kenyan laws. Per the plan at the time of appraisal, the implementation of this plan was monitored by this project.[15]

In addition, compensations were provided to fishermen whose livelihood was deemed to have been affected by this project. The number of eligible individuals was 491. Of these, 449 individuals received compensation in the form of motorboats and fishing equipment. According to KPA, the reasons some of the fishermen were not eligible included the failure to submit required documents, inability to contact them, and the failure to appear to receive the goods.

(3) HIV/AIDS prevention program

As per the plan at the time of appraisal, an HIV/AIDS prevention program to strengthen social development was implemented according to the plan by the consultants for construction supervision (Table 7). There was a concern over a "possible rise in HIV infection," but it did not increase after all.

Table 7. Results of HIV/AIDS prevention program

Program	Implemented by	Description/Results
HIV prevention program for construction workers	KPA, Toyo Construction	439 HIV tests (of these, positive = 5), 7,800 individuals participated in the voluntary HIV counseling and testing (VCT) service (of these, positive = 0), distribution of 8,928 condoms.
Comprehensive HIV/AIDS prevention program for nearby residents	Dzarino CBTO (a Kenyan NGO)	2,235 instances of VCT via door-to-door visits, training of 98 peer educators, establishment of 11 condom distribution kiosks.

Source: Documentation provided by KPA

In light of the above, this project has achieved its objectives. Therefore, the effectiveness and impacts of the project are high.

3.4 Sustainability (Rating: ③)

3.4.1 Institutional/Organizational Aspect of Operation and Maintenance

The port facilities and equipment developed under this project are owned and operated/maintained by KPA, the project's executing agency. KPA was founded when the authorities of its predecessor, the East African Harbours Corporation, was transferred to it in 1978. KPA became a national authority under the Ministry of Transport, Infrastructure, Housing, Urban Development and Public Works. It merged with the nationally run Kenya Cargo Handling Corporation in 1986 to create a state corporation in charge of Kenya's entire port development and operation.

The organizational structure of KPA has changed little since the time of appraisal. Under its board of directors and managing director, KPA has about 6,800 employees (as of the end

[15] The environmental and social considerations in this project were addressed by adopting the *Japan Bank for International Cooperation Guidelines for Confirmation of Environmental and Social Considerations* (2002).

of 2018). As mentioned above, unlike the expectation at the time of appraisal, the operation of Container Terminal 2 has not been privatized and is carried out by the KPA's Container Terminal Operations Department as it does for Container Terminal 1. As of November 2019, the department had 1,788 employees. Not only did the department fall short of its approved number of staff positions, 2,212, but it was also based on the organizational structure in 2012 (when Container Terminal 1's Berth 19 and Container Terminal 2 did not exist). As a result, there is especially a shortage of skilled workers, such as gantry operators. KPA has made efforts to increase workers, and it had 296 gantry operators as of November 2019, exceeding the approved number of staff positions of 220. However, the number of workers is insufficient for the full operation of all of the 69 existing gantry cranes (13 SSGs, 50 RTGs, and six Rail Mounted Gantries (RMGs) because each gantry crane requires six workers (two per shift, with each worker working for four hours) in three shifts per day (eight hours per shift). In addition, KPA acknowledged that it would need more thorough supervision to address the aforementioned issue concerning the hours when cargo handlers are absent.

The operation and maintenance of cargo-handling equipment are carried out by KPA's Container Terminal Engineering Department. The personnel included 25 employees in charge of SSGs and 32 employees in charge of RTGs. The department stated that these numbers were sufficient.

Thus, although there are some issues concerning the number of cargo handlers and supervision, the institutional/organizational aspect of operation and maintenance has generally been developed adequately.

3.4.2 Technical Aspect of Operation and Maintenance

In terms of the operation of SSGs and RTGs, KPA has hired employees who received professional training at institutions such as the Bandari Maritime Academy (the national vocational training institution) and are certified for gantry operation. Operators receive training at the time of equipment purchase and on-the-job training (OJT), and their skills are regularly checked.

Regarding the maintenance and management of SSGs and RTGs, KPA has hired mechanics who have mechanical engineering degrees (diploma or above). Mechanics receive training at the time of equipment purchase and OJT, and their skills are regularly checeked. KPA stated that repairs are usually carried out by the mechanics of KPA's container terminal engineering division, but it outsources repairs to suppliers as needed.

Since the roads and buildings constructed under this project except for the wastewater treatment system were ordinary facilities, their operation and maintenance did not experience any technical issues. This project adopted a biodigester system (wastewater receives final processing by microorganisms and is used as reclaimed water after filtration through filters) for the wastewater treatment system by following the notice from NEMA. However, KPA reported that its electrical and pump systems developed problems that KPA could not repair.

According to the consultants for construction supervision, this is an advanced system that requires technologies, such as the constant monitoring of water quality in the system. There was a branch office of this system's (European) specialized company in Mombasa. However, KPA maintained and managed the system on its own without signing a maintenance contract with this company. KPA reported that the system stopped working properly. For this reason, at the time of ex-post evaluation, KPA processes wastewater by installing conventional wastewater tanks.

Thus, although some issues were present, the technical aspect of operation and maintenance generally did not experience major issues for the purpose of continuing the handling of container cargo.

3.4.3 Financial Aspect of Operation and Maintenance

KPA does not receive subsidies from the Government of Kenya, and more than 60% of its income comes from the maritime and land service fees paid by shipping lines and consignees. In terms of balance, KPA has always been in the black, with no issues with its equity ratio. According to KPA, necessary amounts have been spent on the operation and maintenance of Container Terminal 2.

Table 8. Financial indicators of KPA

(Unit: %, million KES)

	2016	2017	2018
Equity ratio	51%	51%	61%
Ordinary income	10,628	10,346	13,886

Source: KPA Annual Report & Financial Statements 2016/2017, 2017/2018, 2018/2019
Note: The average exchange rate in 2016-2018 was 1 KES = 1.08 yen

Table 9. Balance of KPA Container Terminal 2

(Unit: million KES)

	2016	2017	2018
Income	2,000	6,500	8,500
Operation/maintenance Expenditure	700	2,050	2,100

Source: Documentation provided by KPA
Note: The same exchange rate as in Table 8.

Thus, the financial aspect of operation and maintenance did not experience any significant problem.

3.4.4 Status of Operation and Maintenance

Through interviews with KPA, the examination of records, and site visits, this study confirmed that the plan and the implementation of the operation and maintenance of the facilities/equipment developed under this project are in good standing. Regarding cargo-handling equipment, KPA uses an operation management system by SAP to create, implement, and manage a maintenance/management plan for each machine (routine inspection, regular

maintenance, overhauls, etc.). The machines procured in this project are generally in good condition,[16] and KPA has been able to procure and restock spare parts without major issues.

The facilities constructed in this project are also generally in good condition, but there were signs outside the administration building indicating that wastewater had seeped out. KPA explained that KPA installed wastewater tanks in place of the wastewater treatment system mentioned above, but one of them had a breakage due to the consolidation subsidence of the landfill. According to the consultants for construction supervision, the current level of consolidation subsidence is within expectations.

Thus, although some issues were present, the status of operation and maintenance is generally in good standing for the purpose of container cargo handling.

In light of the above, no major problems have been observed in the institutional/organizational, technical, financial aspects and the current status of the operation and maintenance system. Therefore, the sustainability of the project effects is high. The few issues that were observed can be reasonably dismissed because they would not obstruct the continuation of the project effect—the handling of container cargo.

4. Conclusion, Lessons Learned and Recommendations

4.1 Conclusion

This project attempted to respond to an increased demand for cargo handling and improve the efficiency of port operation at Mombasa Port, one of the largest international trade ports in East Africa, by constructing a container terminal and installing cargo-handling equipment, thereby contributing to the promotion of trade and social and economic development not only in Kenya but also across East Africa including the neighboring countries. The relevance of the project is high because these objectives are consistent with the development plans and development needs in Kenya and the East African region and with Japan's aid policy. The container terminal was expanded as a result of implementing the project, achieving all targets in the operation and effect indicators, such as container throughput and waiting time. The throughput of the export/import cargo to and from Kenya, that of the transit cargo to neighboring countries, and that of transshipment cargo have increased at Mombasa Port, suggesting that the project has contributed to the economic development in Kenya and its neighboring countries. Therefore, the effectiveness and impact are high. The project outputs were mostly generated as planned, but the project period exceeded the plan. Therefore, the efficiency is fair. The sustainability of the project effects is high because the institutional/organizational, technical, and financial aspects and the status of the operation and maintenance of the project are mostly in good standing.

In light of the above, this project is evaluated to be highly satisfactory.

[16] One of the SSGs had an electrical system issue in 2018, but it was repaired (parts replacement). At the time of site visit in November 2019, one of the RTGs had a generator issue and was being repaired.

4.2 Recommendations

4.2.1 Recommendations to the Executing Agency

Of the following recommendations, (1) through (3) are in response to the fact that the privatization of the container terminal operating rights as originally envisioned failed to take place.

(1) KPA is recommended to expedite its plan to install SSGs in Berth 20 to improve the cargo-handling efficiency and berth occupancy so that it can alleviate the excessive congestion at Berth 21 and achieve the project effect more extensively across container terminals at Mombasa Port.

(2) KPA is recommended to review the berth assignment soon and improve the current situation in which ships with a large number of containers are assigned to berths with low cargo-handling efficiency.

(3) KPA is recommended to hire additional skilled cargo handlers and carry out more thorough supervision of cargo handlers to improve administrative aspects promptly, such as correct shift changes and fewer incidents of incorrect container placement.

(4) KPA is recommended to thoroughly carry out the repair and operation/maintenance of the wastewater tank and reexamine the possibility of hiring a specialized company in Mombasa for the repair and operation/maintenance of the wastewater treatment system installed under this project to improve the sanitary environment at Container Terminal 2.

4.2.2 Recommendations to JICA

None.

4.3 Lessons Learned

(1) Risk analysis and actions concerning the plan to privatize container terminal operation

The plan for the privatization of the operating rights was suspended, yet the design that was premised on privatization was not revised. As a result, the operation of the facilities developed under this project was affected. Issues included staff shortage and an insufficient number of cargo-handling equipment in some berths (however, indicators' targets have been achieved thanks to the actions taken by the executing agency after the project and the existence of high demand for container handling). The status of privatization was specified in the documentation in the appraisal as one of the "Measures to be Adopted/Points Which Require Special Attention" (things to consider concerning the project implementation/supervision), but the intention was to implement the consulting service for selecting an operator in the project by aligning its timing with the progress of privatization. That is, it assumed that privatization would take place by the time of project completion. This study could not verify that the project analyzed the possible

presence of risk factors that might interfere with its implementation or had a plan concerning necessary actions in case the privatization fails. In projects in which the privatization of facility operation is assumed, efforts should be made at the time of appraisal to anticipate the factors that might hinder the privatization (such as the opposition from the labor union in the case of this project) and lay out specific actions to take should the privatization stall (such as, in the case of this project, the need for adding extra staff and equipment if KPA becomes in charge of the terminal operation). JICA can also encourage these responses during the project implementation. These efforts would allow highly efficient operation as soon as facilities become operational even if the privatization stalls.

(2) Analysis and actions concerning the impacts on existing container terminal

The construction of Container Terminal 2 in this project mitigated the congestion in the existing Container Terminal 1 and improved the handling of container cargo throughout Mombasa Port. At the same time, shipping lines that have been assigned to berths with low cargo-handling efficiency found this practice unfair. In projects in which new container terminals are constructed, it is necessary, at the time of appraisal and during the implementation, to analyze how the utilization of existing terminals might change and discuss with the executing agency to consider practices that can maximize the efficiency (berth assignment based on the volume of container handling and the expansion of the facilities at existing terminals).

Comparison of the Original and Actual Scope of the Project

Item	Plan	Actual
1. Project Outputs (1) Construction of container terminal	Wharf: 15 m deep x 350 m long, 11 m deep x 190 m long	Wharf: 15 m deep x 350 m long, 11 m deep x 210 m long
(2) Procurement of cargo-handling equipment	Gantry Crane (SSG) 50 t x 2 units; Transfer Crane (RTG) 40.6 t x 6 units	SSG 65 t x 2 units; RTG 45 t x 4 units
(3) Construction of port access road	33 m wide x 1.6 km long	33 m wide x 2.1 km long
(4) Dredging for channels and basins	Dredge volume: approx. 3 million m^3	Dredge volume: approx. 7 million m^3
(5) Consulting services	Detailed designs, tendering assistance, construction supervision: 303 man-months (foreign consultants) / 581 man-months (local consultants)	Detailed designs, tendering assistance, construction supervision: 316.35 man-months (foreign consultants) / 584.63 man-months (local consultants)
	Assistance for terminal operator selection: 132 man-months (foreign consultants) / 127 man-months (local consultants)	Assistance for terminal operator selection: contract terminated after the service was partially performed
2. Project Period	November 2007–November 2015 (97 months)	November 2007–February 2017 (112 months)
3. Project Cost		
Amount Paid in Foreign Currency	8,824 million yen	15,849 million yen
Amount Paid in Local Currency	25,976 million yen (15,280 Kenyan shilling)	15,886 million yen (13,238 Kenyan shilling)
Total	34,800 million yen	31,735 million yen
ODA Loan Portion	26,711 million yen	26,328 million yen
Exchange Rate	1 Kenyan shilling = 1.7 yen (as of May 2007)	1 Kenyan shilling = 1.2 yen (2007–2016 average)
4. Final Disbursement	October 2017	