

Ex-Ante Evaluation (for Japanese ODA Loan)

1. Name of the Project

Country: Republic of Kenya
Project: Mombasa Port Area Road Development Project (II)
Loan Agreement: July 4, 2017
Loan Amount: 12.466 billion yen
Borrower: The Government of the Republic of Kenya

2. Background and Necessity of the Project

(1) Current State and Issues of the Road Sector in Kenya

Mombasa Port is the largest international trade port in East Africa. The volume of cargo going through the port has risen sharply in recent years, since it acts as a logistical hub not only for the Republic of Kenya (hereinafter referred to as “Kenya”), but also as the distribution and transport route for the countries of the East African Community (East African Northern Corridor). However, the lack of port facilities and transport infrastructure around the port hinders smooth logistics and distribution, and consequently, hinders economic growth for Kenya and the inland countries of East Africa. In Mombasa County, a new container terminal was completed in February 2016 as part of the “Mombasa Port Development Project,” a Japanese ODA loan project approved in November 2007. Additionally, there is a plan to develop a Special Economic Zone in Dongo Kundu, located in the southern part of Mombasa (hereinafter referred to as “Dongo Kundu SEZ”). It is therefore expected that the traffic volume will further increase, and so facilitating logistics by developing a road network around the port is an urgent issue that needs to be tackled.

(2) Development Policies for the Road Sector in Kenya and the Priority of the Project

The Government of Kenya has positioned infrastructure development as a high-priority issue in the national development policy “Vision 2030” which aims at transforming Kenya into a middle-income country by 2030. Additionally, in the development plan for the road sector called the “Road Sector Investment Program 2010-2014,” development of a road network around Mombasa Port is identified as one of the priority projects.

Against this background mentioned above, the signing of the Japanese ODA loan agreement was concluded for the “Mombasa Port Area Road Development Project” (hereinafter referred to as “the Project”), in June 2012, which consists of three packages for the development of roads (construction work started for only Package 1), and bridges (included in Package 2). Additional funding has become necessary because of the yen’s depreciation which resulted from drastic fluctuations in the exchange rate after the previous appraisal, and changes in the design (construction of roads with two lanes each way in Packages 2 and 3) in response to the increasing traffic demand in the target area of the Project due to the rapid concretization of the Dongo Kundu SEZ development plan. Since it was difficult to cover these additional costs from the Kenyan government’s budget, the government made a request to the Japanese government for an additional loan (hereinafter referred to as “the Loan”) in February 2015. Additional input of funds through the Loan is critical for the smooth implementation of the Project and the realization of its expected development impact.

(3) Japan and JICA’s Policy and Operations in the Road Sector

In the Sixth Tokyo International Conference on African Development (hereinafter referred to as “TICAD VI”) held in August 2016, Japan expressed its willingness to

cooperate for infrastructure development through the investment of approximately USD 10 billion to promote private trade and boost growth in African countries. In addition, the heads of both countries, Japan and Kenya, agreed to promote the development of Mombasa which is located at the entrance of the East African Northern Corridor and serves as a distribution hub for East Africa. They also recognized the need for the sustainable and cooperative development of Dongo Kundu SEZ, and signed a memorandum of understanding to facilitate the implementation of the Dongo Kundu SEZ development plan on August 28, 2016.

Japan's Development Cooperation Policy for Kenya (April 2012) sets forth "Economic Infrastructure Development" as a priority area. The Project is positioned under the "Program on Improvement of Regional Transport Infrastructure" under "Transport Infrastructure Development," which is a development issue laid out within the area of Economic Infrastructure Development. Furthermore, the JICA Country Analysis Paper for Kenya (April 2012) states that "JICA aims to support the development of Mombasa Port and the international corridor originating at the port (omitted), in order to promote the revitalization of trade in Kenya and the entire region of East Africa." Therefore, the Project is in line with these international commitments, as well as the assistance policies and analysis of the Government of Japan and JICA.

(4) Other Donors' Activity

The World Bank (hereinafter referred to as "WB") conducted the Northern Corridor Transport Improvement Project from 2004 to 2016. It also conducted the Transport Sector Support Project, which included a F/S (completed in March 2011) pertaining to the road network in the entire Mombasa area, including sections targeted for the Project. Additionally, the WB implemented a detailed design study for constructing a bypass road, in northern Mombasa, which is designed to connect to roads targeted for the Project (completed in March 2017). It is expected that connecting the bypass and the roads developed in the Project will generate a synergistic effect. Furthermore, the African Development Bank is jointly financing the East Africa Trade and Transport Facilitation Project being implemented by the WB. In November 2015, the African Development Bank completed a detailed design study for widening the roads in some sections linking Mombasa, to which roads targeted for the Project are connected, to Tanzania.

(5) Necessity of the Project

The Project is in line with the assistance policies and analysis of the Government of Japan and JICA, as well as the development policies of the Government of Kenya. By promoting the development of the road network around Mombasa Port, the Project is expected to contribute to building a resilient infrastructure and to economic growth and development and to achieving Goal 8 and Goal 9 of the Sustainable Development Goals (SDGs). Therefore, the necessity of JICA's support of the Project is high.

3. Project Description

(1) Project Objectives

The objective of the Project is to facilitate logistics around the Mombasa Port area, a logistical hub for East Africa, by construction of the roads to connect the new container terminal to the East African Northern Corridor, and the Mombasa Southern Bypass to the southern part of the city where the Dongo Kundu SEZ will be developed, thereby contributing to the economic and social development in Kenya and its neighboring East African countries.

(2) Project Site/Target Area Mombasa

- (3) Project Components
- 1) Construction of roads (approx. 26 km-long, two lanes each way; includes two bridges and one viaduct; pedestrian walkway, pedestrian bridge, central reservation), ancillary facilities (central and edge crash barrier, road signs, street lights, etc.) (International Competitive Bidding)
 - 2) Consulting services (detailed design, tender assistance, construction supervision, facilitation of implementation of environmental and social considerations, training on road operations and maintenance) (Short-list)
- (4) Estimated Project Cost (Loan Amount)
- 61.574 billion yen (Loan Amount: 40.157 billion yen)
- Out of the total estimated cost of 61.574 billion yen, the Japanese ODA loan amount is 40.157 billion yen. From this loan amount, 27.691 billion yen, which is the amount of the initial loan, is subtracted. The remaining 12.466 billion yen is the most to be provided as demanded funds of the Project.
- (5) Schedule
- From June 2012 to December 2023 (a total of 139 months). Project completion is defined as the commencement of service (December 2021). There is now a significant delay in the construction period, which was scheduled to be completed in August 2018 in the previous appraisal. The reasons for the delay are that the procurement of contractors was unable to be started until there was the prospect of procuring funds for Packages 2 and 3, and that the construction period was prolonged compared to the initial projections because of changes in the design. The tender procedure will be immediately implemented and the construction work will then proceed as scheduled.
- (6) Project Implementation Structure
- 1) Borrower: The Government of the Republic of Kenya
 - 2) Executing Agency: Kenya National Highways Authority (KeNHA)
 - 3) Operation and Maintenance System: KeNHA is responsible for operation and maintenance.
- (7) Environmental and Social Consideration/Poverty Reduction/Social Development
- 1) Environmental and Social Consideration
 - ① Category: A
 - ② Reason for Categorization: The Project falls into the road sector, has sensitive characteristics, and is located in a sensitive area as specified in the Japan Bank for International Cooperation Guidelines for Confirmation of Environmental and Social Considerations (hereinafter referred to as “JBIC Guidelines”), formulated in April 2002.
 - ③ Environmental Permit: The Project’s Environmental Impact Assessment (hereinafter referred to as “EIA”) report was approved by the National Environment Management Authority (hereinafter referred to as “NEMA”) in November 2011. Since there was a change in the design including the construction of roads with two lanes each way in Packages 2 and 3, a supplemental EIA report was created and approved by NEMA in November 2013. The supplemental EIA report was revised in May 2015 based on the results of the detailed design. Approval of the revised report by NEMA is not mandatory under the domestic laws of Kenya.
 - ④ Anti-Pollution Measures: To deal with air pollution (dust), noise and vibration during the construction work, Kenyan laws and regulations will be observed and mitigation measures will be taken such as preventing dust by sprinkling water, limiting the speed of construction vehicles, use of low-noise type vehicles and limiting night work, etc. Soil erosion and water pollution during construction work will be mitigated using such

measures as slope seeding, full installation of drainage outlets and the installation of oil-water separators. As for waste treatment, surplus soil is reused for construction and tree planting, etc., and general and bulky waste and oil, etc. are treated by the appropriate methods in accordance with the domestic laws of Kenya. After the commencement of service, the impact of noise and vibration will be minimized by taking measures such as installing green buffer zones by planting trees and other responses.

- ⑤ Natural Environment: The Project site includes mangrove forest and tidelands. Approximately 15 ha of the mangrove forest is scheduled to be cut down to implement the Project, but approximately 64 ha of compensatory tree planting will be carried out according to the Mangrove Restoration Plan prepared under the guidance of the Kenya Forest Service. Since working methods that minimize the impact on the ecosystem are to be applied, no significant adverse impact on the natural environment is expected. There is a sacred forest for the local residents near the Project site, but any adverse impact will be minimized by such measures as road alignment to avoid the forest and pollution control, etc.
 - ⑥ Social Environment: The Project will require the acquisition of approximately 246 ha of land and the involuntary resettlement of 790 residents. Resettlement and compensation procedures will be conducted by the Executing Agency following a Resettlement Action Plan prepared in accordance with Kenyan laws and JBIC Guidelines. In discussions with residents regarding the Project, it has been confirmed that there is no particular opposition to the implementation of the Project.
 - ⑦ Other / Monitoring: Contractors and the Executing Agency will conduct monitoring on air quality, water quality, noise/vibration and ecosystems, etc. during the Project implementation. Once the facilities are in service, the Executing Agency will conduct monitoring on noise/vibration and ecosystems, etc. The Executing Agency will also monitor the progress of land acquisition, resettlement and livelihood restoration after the resettlement.
- 2) Promotion of Poverty Reduction: None
 - 3) Promotion of Social Development:
 - ① Gender category: Gender mainstreaming needs survey and analysis project
 - ② Reason for Categorization: It has been confirmed that in Package 1 of the Project, 1) women are being employed for cooking and cleaning, 2) women account for one-third of the total workers involved in the slope protection work, etc., and the women's pay is equal to that of men, and 3) sanitary facilities are being provided for women at the construction sites. It is planned that the same considerations will be paid to women in Packages 2 and 3.
- (8) Collaboration with Other Donors: None
 - (9) Other Important Issues: Regarding some of the steel materials used to construct the bridge in Package 2, Japanese products (steel pipe pile with rib) are used in the design.

4. Targeted Outcomes

(1) Quantitative Effects

1) Performance Indicators (Operation and Effect Indicators)

In addition to the indicators of the previous appraisal, two new indicators, the passenger volume and the freight volume, have been set out. In light of the changes in the design (construction of roads with two lanes each way in Packages 2 and 3), the target values have been revised, and the year for which the target values are set has been changed from 2020, which was set in the previous appraisal, to 2025 because of the change in the construction period.

| Indicator | | Baseline (Actual Value in 2011) | Target (2020) [Expected value 2 years after project completion] (Set in the previous appraisal) | Target (2025) (Note 1) [Expected value 4 years after project completion] (Newly set in the Project (II)) |
|--|--------------------------------------|---------------------------------------|--|--|
| Annual average daily traffic (PCU/day) (Note 2) | Miritini – Mwache | - | 22,000 | 38,700 |
| | Mwache – a new container terminal | - | 28,200 | 27,300 |
| | Mwache – Dongo Kundu | - | 9,400 | 18,000 |
| | Dongo Kundu – Kibundani | - | 9,400 | 8,100 |
| Average travel time (during peak hours, minutes) (Note 3) | Miritini – Kibundani | 70.5 | 17.0 | 14.7 |
| | Likoni – Miritini | 64.1 | 24.6 | 23.5 |
| Average traffic congestion degree (V/C ratio) (Note 4) | Port Reitz Road | 0.83 | 0.62 | 0.57 |
| | Changamwe Roundabout – Miritini | 1.11 | 0.35 | 0.49 |
| Passenger volume (persons/day) (Note 5) | Miritini – Mwache | - | - | 60,000 |
| | Mwache – a new container terminal | - | - | 39,000 |
| | Mwache – Dongo Kundu | - | - | 34,000 |
| | Dongo Kundu – Kibundani | - | - | 22,000 |
| Freight volume (tons/day) (Note 6) | Miritini – Mwache | - | - | 48,000 |
| | Mwache – a new container terminal | - | - | 35,000 |
| | Mwache – Dongo Kundu | - | - | 21,000 |
| | Dongo Kundu – Kibundani | - | - | 7,000 |

(Note 1) Since KeNHA conducts periodical traffic volume survey every five years, new target values for after the project completion have been set for 2025, the year in which the survey is supposed to be conducted.

(Note 2) Passenger Car Unit (PCU)/day. The target values for 2020 and those for 2025 are estimates of 24-hour traffic volume based on a traffic demand forecasting model. When actually examining the target values, traffic volume surveys are supposed to be conducted for 24 hours for the targeted four sections.

(Note 3) As for the peak hours, the actual values in 2011 and the target values for 2025 are estimated from the traffic demand forecasting model. Specific periods of time are unknown. (However, the traffic volume survey indicates that around 7 a.m. and around 5 p.m. are the peak hours.) When actually examining the target values, in-vehicle travel times in the targeted two sections are measured multiple times at peak hours which are estimated from the results of the traffic volume survey at the time, and an evaluation value (average value) is calculated from the data obtained.

(Note 4) Ratio of traffic volume to possible traffic capacity (Volume to Capacity (V/C) ratio)

(Note 5) The target values for 2025 were calculated by multiplying the 24-hour traffic volume estimated based on the traffic demand forecasting model and the average number of persons per vehicle.

(Note 6) The target values for 2025 were calculated by multiplying the 24-hour traffic volume estimated based on the traffic demand forecasting model and the average volume of cargo.

2) Internal Rate of Return

Based on the conditions indicated below, the Economic Internal Rate of Return (EIRR) of the Project has been calculated as 14.11%. Since the roads developed in the Project are not toll roads, the Financial Internal Rate of Return (FIRR) is not calculated as there is no financial income produced by the Project alone.

[EIRR]

Cost: Construction cost (excluding tax), operation and maintenance cost

Benefit: Reduction of travel time, reduction in vehicle operating costs

Project Life: 30 years

(2) Qualitative Effects

- 1) Improvement of the investment and living environments in Kenya through improvement of the logistic environment by developing the infrastructure in the area surrounding Mombasa Port
- 2) Development of Dongo Kundu SEZ and the promotion of tourist area development
- 3) Economic and social development of the entire East Africa region including Kenya and its neighboring countries

5. External Factors and Risk Control

The Dongo Kundu SEZ development plan will progress as scheduled.

6. Lessons Learned from Past Projects

(1) Lessons Learned from Similar Past Projects

In the ex-post evaluation of the Japanese ODA loan "Rural Highway Rehabilitation and Improvement Project" in the Republic of Peru (approved in 1996), it is reported that sufficient consideration was paid to operation and maintenance. As for damage to paved roads due to overloaded vehicles, appropriate measures have been taken such as repairs to the paved surfaces and the installation of vehicle weigh stations. Also, in similar road development projects, it has been pointed out that it is desirable to pay due consideration to operation and maintenance.

(2) Application of Lessons Learned to the Project

It has been confirmed that appropriate consideration is given to operation and maintenance in this Project through measures such as the installation of static weighbridge on sections where overloaded vehicle traffic is heavy in Package 1, and the control of overloaded vehicles using mobile weighbridges on sections in Packages 2 and 3.

7. Plan for Future Evaluation

(1) Indicators to be Used: Annual average daily traffic (PCU/day), Average travel time (during peak hours, minutes), Average traffic congestion degree (V/C ratio), Passenger volume (persons/day), Freight volume (tons/day)

(2) Timing: Four years after project completion (Ex-post evaluation)