

## Ex-Ante Evaluation (for Japanese ODA Loan)

**1. Name of the Project**

Country: The Republic of Mozambique

Project: Mandimba – Lichinga Road Upgrading Project

Loan Agreement: November 29, 2013

Loan Amount: 6,773 million yen

Borrower: The Government of the Republic of Mozambique

**2. Background and Necessity of the Project****(1) Current State and Issues on Development of the Road Sector in Mozambique**

Mozambique has lagged behind in terms of road development due to the long lasting civil war. The total length of roads is 37,000km, of which only approximately 17% have been paved in 2012, and many of the unpaved roads are impassable in the rainy season. In particular, the Nacala Corridor, which connects the east and west of the country, is still fairly underdeveloped compared to National Highway No.1 running between the north and south of the country, the Maputo Corridor, and the Beira Corridor. The poor state of this trunk road has caused problems such as delays in the transportation of agricultural products grown in the nation, and the improvement of the road has become a key issue in order to promote the development and integration of the region. The problem is especially serious in Niassa Province, where the pavement rate of the arterial roads (approx. 14% as of 2012) is lower than the national average (20% as of 2012). Although this province in northwestern Mozambique, on the borders with Malawi and Tanzania, has a high potential for agricultural, forestry, mining, and tourism development, it also faces problems that hinder its development, such as delays in the transportation of agricultural products and a rise in transportation costs. Thus, it has become urgent to develop road networks to activate the regional economy and reduce poverty. In areas along the Nacala Corridor, the production of agricultural products, including export-oriented products such as soybeans and maize, is projected to rise in the future, and private enterprises, including Japanese companies, have developed an interest in these high potential areas. This Project is expected to ensure the efficient delivery of goods to and from ports, which is essential to attracting investment in agriculture and other development from Japanese and other corporations.

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

The Government of Mozambique has identified “boost production and productivity in agriculture and fisheries” as the the first development objective in the Poverty Reduction Action Plan (PARP) 2011-2014. To this end, the government gives high priority to improving transportation infrastructure that can facilitate market access. Moreover, the Road Sector Strategy 2007-2011, which sets out policies on the development of the road

sector, places a focus on the development of corridors and gives high priority to the corridor to be developed through this Project. Since this project aims to develop a road to connect the highly prospective Nacala Corridor stretching to Malawi and Zambia and the Montepuez Corridor running in northern Mozambique, it is expected to facilitate economic and social development not only in Mozambique but also other countries along the Nacala Corridor.

### (3) Japan and JICA's Policy and Operations in the Road Sector/Southern Africa

The Government of Japan has identified “regional economic revitalization including corridor development” as one of the priority areas in its Country Assistance Policy. This Project is to be implemented under the Nacala Corridor Development and Rehabilitation Program, which aims to support agricultural promotion and social infrastructure development, including transportation, in the Nacala Corridor region (one of the most important corridors). Thus, this Project is consistent with the assistance policies of the Government of Japan. This Project is also in line with the support area of “region-wide transportation infrastructure development” suggested by the Government of Japan in the Yokohama Action Plan at the Fourth Tokyo International Conference on African Development (TICAD IV). Japan has supported the construction of infrastructure through loan aid, such as the Montepuez - Lichinga Road Project (Loan Agreement signed in 2007 for 3,282 million yen) and the Nampula - Cuamba Road Upgrading Project (Loan Agreement signed in 2010 for 5,978 million yen), and grant aid, such as the Project for Reconstruction of Bridges on Main Roads Phase 2 (Exchange of Notes signed in 2000 for 1,850 million yen). Japan has also helped Mozambique to enhance its road maintenance capacity through technical cooperation, such as the Project for the Capacity Development of Road Maintenance (Record of Discussion signed in 2011). Moreover, Japan implemented the Project for Nacala Corridor Economic Development Strategies (Record of Discussion signed in 2011). This development study-type technical cooperation aims to formulate a master plan and development strategy for the Nacala Economic Corridor.

With fertile land, abundant water, and optimal climate conditions, the Nacala Corridor region has tremendous potential for agricultural development. Therefore, the Government of Mozambique places an emphasis on agricultural promotion in the area, especially in Nampula and Niassa Provinces. Japan is also engaged in the Japan-Brazil-Mozambique Triangular Cooperation Program for Agricultural Development of the African Tropical Savannah (ProSAVANA) in the Nacala Corridor region in 2009. Thus, combined comprehensive support has been provided or is planned for agricultural development in the region.

### (4) Other Donors' Activity

In co-financing with JICA, the African Development Bank (AfDB) has been engaged in the Montepuez - Lichinga Road Project for the Montepuez Corridor and the Nampula - Cuamba Road Upgrading Project for the Nacala Corridor.

### (5) Necessity of the Project

This Project can contribute to improving logistics and promoting economic development in Mozambique and other countries along the Nacala Corridor. The Project is also in line with the assistance policies of the Government of Japan and JICA. Therefore, it is highly necessary and relevant for JICA to support this Project.

### 3. Project Description

#### (1) Project Objective

The objective of the Project is to enhance the logistics efficiency by upgrading the National Road connecting the two cities in Niassa Province, Mandimba and Lichinga, on the Nacala Corridor in northern Mozambique, thereby contributing to the revitalization of the regional economy and the increase of the income of residents in the areas along the Nacala Corridor.

#### (2) Project Site/Target Area: Niassa Province

#### (3) Project Components

Pavement of road and improvement of bridge connecting Mandimba and Lichinga (2 lanes, approx. 150km) in co-financing with AfDB.

##### 1) Pavement of road and improvement of bridge connecting Mandimba and Lichinga (approx. 150km) (international bidding)

(a) Lichinga – Massangulo (approx. 89km) (including improvement of 2 bridges) (financed by Yen Loan)

(b) Massangulo – Mandimba (approx. 61km) (including improvement of 5 bridges) (financed by AfDB loan)

##### 2) Consulting services (detailed design review, bidding assistance, construction supervision, etc.) (short-listing method)

#### (4) Loan Amount/Estimated Project Cost

Sections for Yen loan project (amount requested: not specified, Project cost: 7,649 million yen, loan amount (proposed): 6,773 million yen) (Note: Amount of AfDB loan project: 41.43 million USD)

#### (5) Project Implementation Schedule (cooperation period)

November 2013 to January 2020 (75 months in total). Project completion is defined as when the facility operation is commenced (January 2019)

#### (6) Project Implementation Structure

1) Borrower: The Government of the Republic of Mozambique

2) Executing Agency/Implementation Structure: Administração Nacional de Estradas (ANE)

3) Operation and Maintenance System: ANE

#### (7) Environmental and Social Consideration/Poverty Reduction/Social Development

##### 1) Environmental and Social Consideration

① Category: A

- ② Reason for Categorization: This project is classified as Category A because it has characteristics that are likely to exert the Road Sector and impact under the “JICA Guidelines for Environmental and Social Considerations” (published in April 2010).
- ③ Environmental Permit: The Environmental Impact Assessment (EIA) report was approved by the Ministry of Coordination of Environment Affairs in March 2012.
- ④ Anti-Pollution Measures: The construction site will be sprinkled with water to minimize dust emission during the construction period. After the Mandimba-Lichinga Road is reopened to traffic, measures will be taken to reduce noise pollution, such as erecting noise blocking walls. The road is designed to meet Japan’s air and noise pollution standards. These measures were explained to local residents by the implementing organization at a local stakeholders meeting when a question was asked about how to reduce air pollution.
- ⑤ Natural Environment: Since the Project is not located in sensitive areas such as national parks, its adverse impact on the natural environment is assumed to be limited. There were no questions about impacts on the natural environment at local stakeholders meetings.
- ⑥ Social Environment: This Project and other related projects for the road will require the land acquisition of 85 hectares and the involuntary relocation of 2,639 residents (983 residents from the area targeted by this Project). These procedures will be made in accordance with Mozambique’s laws and regulations and the Resettlement Action Program (RAP). When a question was asked about the compensation for and timing of land acquisition at a stakeholder meeting, the implementing organization explained its policies (e.g., its intention to make payments prior to the relocation, and the price of land to be acquired).
- ⑦ Other / Monitoring: The implementing organization will monitor the quality of air, the level of noise, the relocation of residents, and other necessary matters.

2) Promotion of Poverty Reduction: This Project can increase the income and improve the nutrition of local residents by promoting the distribution and sales of agricultural products. Moreover, transportation improvements can enhance access to health care and education. Thus, this Project can contribute to poverty alleviation.

3) Promotion of Social Development (e.g. Gender Perspective, Measure for Infectious Diseases Including HIV/AIDS, Participatory Development, Consideration for the Handicapped, etc.): The contractor will be contractually required to hire all unskilled workers from the local communities and ensure that at least 30% of the workers shall be women. Moreover, measures will be taken to prevent HIV/AIDS and other infectious diseases. In order to enhance the awareness of the contractor and other people concerned, anti-HIV/AIDS campaigns will be promoted in cooperation with existing NGOs and in accordance with the existing HIV/AIDS prevention guidelines. Furthermore, a Project committee will be organized to discuss environmental and social

issues and related complaints with local beneficiaries on a regular basis. Meanwhile, the costs for traffic accident prevention shall be included in the budget in order to curb the increase of traffic accidents due to the increase of traffic volume.

(8) Collaboration with Other Schemes/Donors:

This Project is to be implemented in co-financing (parallel type) with the AfDB. Moreover, through the Project for the Capacity Development of Road Maintenance, a technical cooperation project launched in 2011, JICA is assisting the ANE in enhancing its maintenance capacity.

**4. Targeted Outcomes**

(1) Quantitative effect

(1) Operation and Effect Indicator

Indicator	Baseline (2012)	Target (2020) [2 years after project completion]
Annual average daily traffic (vehicles/day)	212	819
Vehicle operation cost (USD/km)	0.4	0.26
Vehicle operation time (hours)	3.98	1.84

2) Internal Rate of Return:

Based on the conditions indicated below, the economic internal rate of return (EIRR) of the Project is 17.47%. The financial internal rate of return (FIRR) is not calculated as no direct return is expected in this Project.

【EIRR】

Cost: Project cost (tax excluded) , operation and maintenance costs

Benefit: vehicle operation cost saving, time saving

Project Life: 20 years

(2) Qualitative effect

Revitalizing trades, improving access to social services (e.g., education and health care), raising the income of local residents, promoting economic development in inland areas, and closing the regional gap

**5. External Factors and Risk Control**

(1) The political stability and public safety will be maintained in Mozambique and neighboring countries.

(2) There will be no major natural disasters or events that can delay the construction.

**6. Lessons Learned from Findings of Similar Projects Undertaken in the Past**

(1) Findings of Similar Projects

Measures to prevent surface deterioration by overloaded traffic, such as early repair of pavement surfaces and setting up of weight inspection stations, are highly valued in the ex-post evaluation of similar projects including the Rural Highway Rehabilitation and Improvement Project in Peru. The evaluation results of other similar projects also suggest that appropriate attention should be paid to maintenance.

(2) Lessons Learned to the Project

JICA is assisting the ANE in enhancing its maintenance capacity by providing technical assistance to develop maintenance manuals and repair quality standards. These manuals are to be used to properly maintain the road to be rehabilitated through this Project.

7. Plan for Future Evaluation
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(1) Indicators for Future Evaluation

- 1) Annual average daily traffic (vehicles/day)
- 2) Vehicle operation cost (USD/km)
- 3) Vehicle operation time (hours)
- 4) Economic internal rate of return (EIRR) (%)

(2) Timing of Next Evaluation

2 years after project completion