Kingdom of Morocco

FY 2016 Ex-Post Evaluation of Japanese ODA Loan Project

"Mediterranean Road Construction Project" "Mediterranean Road Construction Project (II)"

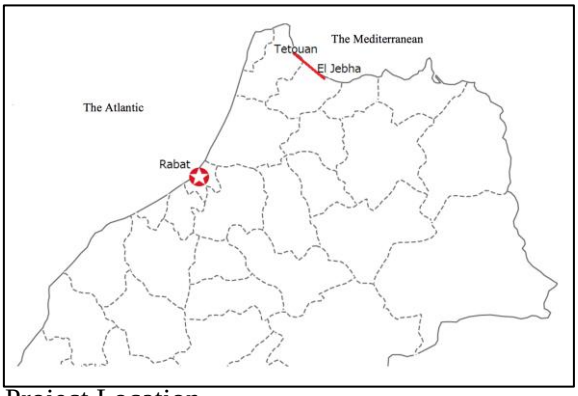
External Evaluator: Takeshi Daimon, Waseda University

0. Summary

The objective of this project was to improve accessibility to economic/social infrastructure for local residents by developing a new road and widening/strengthening the 120 km stretch of existing road between Tetouan and El Jabha within "the Mediterranean Road Construction Plan" (550 km), thereby contributing to redressing of regional disparities. The implementation of the project has been highly relevant to Morocco's development policy and development needs as well as Japan's ODA policy. Therefore, its relevance is high. The outputs were made mostly as planned, but the project cost and project period exceeded the plan substantially, and the efficiency is low. The project effects (effectiveness) estimated at the time of appraisal achieved the target by increasing traffic volume. The impacts estimated at the time of appraisal mostly achieved the target, which was supported by objective evidence, including a reduction of the poverty rate. While some suits over the amount of compensation for land acquisition were filed at the administrative court, resident relocation did not cause major problems because Morocco's administrative procedure was followed. On the other hand, after the road development, quite a few residents had safety concerns such as traffic accidents, and the number of accidents is increasing. Therefore, this project has largely achieved the onset of effect as planned, and the effectiveness and impact are high. As above, a sufficient level was secured in terms of the institutional, technical, and financial aspects of the operation and maintenance as estimated at the time of appraisal. Including the mobilization of the maintenance team when a problem occurred, the operation and maintenance was conducted properly. Therefore, sustainability of the project effects is high.

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

1. Project Description



Project Location

Image representing the Project

1.1 Background

Economic activities through Morocco's transport sector played a major role in the economic and social activity of the country, at the time of appraisal on "Mediterranean Road Construction Project" (hereafter referred to as "Project (I)" or (I)), accounting for approximately 6% of the GDP, while giving rise to 10% of employment in urban areas and 15% of the national budget. With regard to land transportation in particular, 90% of intercity passenger transport and 75% of freight were conveyed by road. The market for land transport was restricted until 2003 when the Transportation Act became effective, but it went through liberalization measures at the time of appraisal on "Mediterranean Road Construction Project (II)" (hereafter referred to as "Project (II)" or (II)). This liberalization was expected to accelerate land transport between urban and rural areas, and to broaden the transport sector of the country.

The Moroccan government has implemented rural development programs such as rural road improvement projects, rural electrification projects, and rural water supply projects since the mid-1990s. The Moroccan government has attached great importance to the assistance of infrastructure development in the northern area where development was lagging and economically isolated. The above-mentioned projects were implemented with support from international organizations and donors such as Japan.

The "Northern Area National Development Program" was developed in 1999, and Tanger port development, infrastructure development in the neighboring area, special economic zone establishment, and the "Mediterranean Road Construction Plan (1999)" including Projects (I) and (II) were prepared. The overall plan was to construct and improve the 550 km stretch of road between Tanger and Saidia. This plan had the national importance of the northern area development. Moreover, this plan had an international aspect of reinforcing the links between Maghreb region and Europe because products are exported from Maghreb, including from Algeria, Tunisia, and Libya, to Europe across the Straits of Gibraltar. This plan was positioned to create a synergy effect for rural industrial roads and tourism promotion in the area, and Project (I) was requested as part of the above-mentioned "Mediterranean Road Construction Plan," and afterward, Project (II) was requested to complete the plan.

Figure 1. Map for the Project
Note: This project targeted the section between the stars (⭐Tetouan – ⭐El Jabha)

1.2 Project Outline

The objective of this project was to improve the access of local residents to economic/social infrastructure by developing a new road and widening/strengthening the 120 km stretch of road between Tetouan and El Jabha within "the Mediterranean Road Contraction Plan" (550 km)[1], thereby contributing to redressing regional disparities.

Loan Approved Amount/ Disbursed Amount	(I) 12,764 million yen / 12,587 million yen (II) 8,455 million yen / 7,738 million yen	
Exchange of Notes Date/ Loan Agreement Signing Date	(I) June 2001 / September 2001 (II) March 2010 / March 2010	
Terms and Conditions	Interest Rate Repayment (Grace Period Conditions for Procurement	(I) 2.2% (II) 1.4% (I) 30 years (II) 25 years (I) 10 years (II) 7 years) (I) General Untied *Special Environmental Interest Rate (Consultants, Bilateral Tied) (II) General Untied (Same for consultants part)
Borrower/Executing Agency	Government of the Kingdom of Morocco / Ministry of Equipment, Transportation, Logistics and Water, Road Department (Ministère de l'Equipement, du Transport, de la Logistique et de l'Eau, Direction des Routes)	
Project Completion	June, 2012	
Main Contractor (s)	Tetouan - El Jebha Section (Lot 1): Bruessa Construccion S.A./ Sintram El Jebha- Oued Laou Section (Lot 2): The Arab Contractors Osman Ahmed Osman & Co./ El Haji Abdellah / Société Seprob S.A / Société D'entreprise Houar/ La Route du Nord	
Main Consultant (s)	Nippon Koei (Japan)	
Related Studies (Feasibility Studies, etc.)	Feasibility Study (F/S) (October 1999)	
Related Projects	ODA Loan Projects "Road Improvement Project (March 1995)" "Rural Road Improvement Project I (March 2008)" "Rural Road Improvement Project II (July 2011)" Technical Cooperation Projects "Training Institution of Equipment and Road Maintenance (Institut de Formation aux Engins et a l'Entretien Routier Skhirat) (IFEER) Program (1992 – 1997)" Group Training in the Third Country for "Capacity Enhancement for Road Maintenance Skills (1999 – 2003)" Group Training Course in the Third Country for "Road Maintenance and Construction Skills in IFEER, Phase2 (2005 – 2010)" Group Training Course in the Third Country for "Road Maintenance and Construction Management, Phase3 (2009 – 2012)" ODA Grant Projects "The Project for the improvement of equipment of IFEER in Morocco" (February 2005)	

2. Outline of the Evaluation Study

2.1 External Evaluator

[1] Widening/improving of the existing 300 km road, and developing the new 250 km national road (Approximately 550 km in total). The total length was changed to 510 km at the time of (II) provision.

Takeshi Daimon, Waseda University

2.2 Duration of Evaluation Study

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

Duration of the Study：December 2016 – December 2017

Duration of the Field Study：March 20 – April 1, 2017, July 3 – July 8, 2017

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

3.1 Relevance (Rating: ③[3])

3.1.1 Consistency with the Development Plan of Morocco

The Moroccan government developed the "Northern Area Development Program" in 1999. This program was positioned as a core program to achieve the objectives in the "Economic and Social Development Plan (2000 – 2004) which was formulated afterward." Within this context, the "Mediterranean Road Construction Plan" was positioned as the most important project to promote economic development in the northern area where development was lagging. This project aimed to finance a portion of the "Mediterranean Road Construction Plan," and the project has been relevant to Morocco's development plan.

At the time of the ex-post evaluation, the "Northern Area Development Strategy 2013 – 2018" (Plateforme Stratégique)[4], positioned as the succeeding program to the above-mentioned "Northern Area Development Program," pointed out that northern area development remained important. The strategy pointed out the consistent importance of infrastructure development, including road development, and the importance of developing transport infrastructure to alleviate the northern area's isolation from other economic blocks. Mediterranean roads have been a core part of the northern area development since the "Northern Area Development Program," the predecessor of the above-mentioned plan, was formulated.[5] Therefore, the project has been highly relevant to Morocco's development plan.

3.1.2 Consistency with the Development Needs of Morocco

At the time of appraisal, more than 80% of Morocco's major roads (highways, national roads and regional roads) were paved. However, there was a conspicuous disparity between urban and rural areas, with the rate of paving for provincial roads at 45.9% (2005). The implementation of this project was expected to improve accessibility to economic/social infrastructure for local residents by completing the construction of all the road sections on the

[2] A: Highly satisfactory, B: Satisfactory, C: Partially satisfactory, D: Unsatisfactory
[3] ③: High, ②: Fair, ①: Low
[4] (Website of the Agency for the Promotion and Development of the North) (Accessed on February 17, 2017)
[5] http://www.equipement.gov.ma/routier/Pages/Tous-les-Projets.aspx?IdNews=16 (Website of the DRCR) (Accessed on February 17, 2017)

coast of the Mediterranean Sea, thereby contributing to redress of regional disparities. This project addressed the need to develop the northern area where infrastructure development has been left behind due to the isolation of the mountainous area, and the need to redress the economic and social disparity in the areas with high poverty rates. Coordination with other donors such as the EC was also planned.

Compared to the western areas which are economic hubs including Rabat, Casablanca, and Marrakech, at the time of the ex-post evaluation, the northeastern areas, which face the Mediterranean, were still economically lagging. On the other hand, infrastructure development in the coastal area of the Mediterranean Sea was an important task facing the country[6] because the area is of strategic importance for trade with the EU and for globalization. In order to promote a special economic zone, accessibility to Tanger port, which is a hub for trading with the EU, development of transport facilities in the area was essential for Mediterranean trade, and development needs were still high. Therefore, it was recognized that traffic access for inhabitants of roadside communities had to be improved by developing the roads in the area, and there were constant needs to improve the living conditions of local residents and alleviate regional disparities.

The other donors have already started their aid projects, and the sections Japan supported were the section left behind in terms of development. Without completion of these sections, the whole project (of the Mediterranean roads) could not be completed. There were no particular problems when Japan selected its target sections and coordinated with other donors. Moreover, at the time of appraisal of Project (I), a number of the Mediterranean road sections, except for the sections targeted by the yen loan project, were open to traffic due to aid from other donors. The sections of the project were requested for the yen loan. While there were not any choices left in section selection, the sections assigned could complete all the Mediterranean roads. This possible connection of the "missing links" matched Morocco's development needs in the northern area. Therefore, the project was relevant to Morocco's development needs.

3.1.3 Consistency with Japan's ODA Policy

At the time of the appraisal on Project (I), this aid project was relevant to the priority areas of "The Medium-Term Strategy for Overseas Economic Cooperation Operations" (April 2000) stating rural development for the reduction of disparities between urban and rural areas, development of agriculture and marine industry, and improvement of infrastructure for sustainable economic growth, enhancement of the international competitiveness, and private investment promotion. These items were Japan's aid priorities for Morocco consistent with the agreement over six "priority areas" (on July 1999).[7] Over the agreement, this project was

[6] Interview with the Agency for the Promotion and Development of the North (On March 2017)
[7] At the comprehensive economic cooperation policy consultation in July 1999, there was an agreement with

relevant to “improvement of infrastructure” and “rural development for the reduction of disparities between urban and rural areas.”

Moreover, this project was consistent with “A Foundation for Sustained Growth” and “Poverty Reduction” stated in JICA’s “New Medium-Term Strategy for Overseas Economic Cooperation Operations” (April 2005), and with “Reducing regional disparities” in Morocco, at the time of the appraisal on Project (II). Among the priority assistance areas of the Japanese government,[8] this project has been relevant to “the Reduction of Economic/Social Disparities” and “Enhancement of Economic Competitiveness and Sustainable Economic Growth” at the time of appraisal on the Project (II).

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

３.２ Efficiency (Rating: ①)

３.２.１ Project Outputs

At the time of appraisal, the project outputs were planned as follows.

① Public engineering works

(a) Improvement of national roads and development of new roads: Tetouan-Oued Lau section (46 km) and Oued Lau-Jebha section (74 km) width 12 m: two-lane road (3.5m×2＝7.0m, asphaltic pavement), road shoulders (2.5m×2＝5.0m), among which development of new roads (20 km), improvement of the existing roads (100 km).

(b) Bridge: About 62 locations (The concrete number was to be examined in the detailed design.)

(c) Slope protection

(d) Structural objects (Drainage, transverse drainage pipe, etc.)

② Consulting service

(a) Detailed design review

(b) Supervision on construction (Site supervisor, inspection, progress management, writing reports, etc.)

(c) Environmental consideration (Management and monitoring)

At the time of the ex-post evaluation, the implementation was confirmed as shown below.

① Public engineering works

(a) Improvement of national roads and Development of new roads: All the sections (in 120 km, Tetouan-Oued Lau section (46 km) (Lot 1) Oued Lau-Jebha section (74 km) (Lot 2)) Opening

---

the Moroccan government on the following priority areas: ①development of agriculture and marine industry; ②water resource development; ③improvement of infrastructure; ④rural development for the reduction of geographical disparities and for poverty reduction; ⑤environment; and ⑥social development.

[8] Based on description in “ODA Databook by Country 2010: Morocco”

(June 2012) width 12 m: two-lane road (3.5m×2＝7.0m, asphaltic pavement); road shoulders (2.5m×2＝5.0m). However, after additional financing, land formation was simplified, and drainage performance was strengthened.
(b) Bridge: As a result of the detailed design (hereafter referred to as D/D), it decreased from the estimation (about 62 locations) at the time of appraisal in 2000 to 15 locations (6 sites in Lot 1, and 9 sites in Lot 2). However, after the project optimization study, it became 13 locations (3 sites in Lot 1 and 10 sites in Lot 2) in the end.
(c) Slope protection: After additional financing, cement revetment was reduced, and slope was lessened.
(d) Structural objects (Drainage, transverse drainage pipe, etc.): Culverts were used in place of bridges for the purpose of simplification
② Consulting service
(a) Detailed design review
(b) Supervision on construction (Site supervisor, inspection, progress management, writing reports, etc.)
(c) Environmental consideration (Management and monitoring)
(d) Implementation of a project optimization study

Output results at the (detour) sections where the new road (20 km) was constructed were examined during the field study. The completion following the plan was confirmed.
The other changes in the scope were also based on the readjustment at the time of the D/D and only a minimum change was made in the end.

Moreover, in the project optimization study that was added as a consulting service, the project scope was reviewed and the project cost was optimized (saved). This was not a study that the executing agency added afterward, but one that was planned from the beginning. Therefore, there have been no reports published for this particular study.

As explained above, there have been no major changes in the scope and the outputs were made mostly as planned in the original loan (Project (I)).

３.２.２ Project Inputs

３.２.２.１ Project Cost

At the time of appraisal, the total project cost was 17,019 million yen (amount paid in foreign currency was 9,337 million yen, and amount paid in local currency was 7,682 million yen[9]). The yen loan amount was 12,764 million yen (amount paid in foreign currency was 9,337 million yen, and amount paid in local currency was 3,427 million yen[10]). It was financed

[9] Approximately 761 million Moroccan dirham (MAD). As of December 2000, exchange rate: 1MAD=10.09 yen.
[10] Approximately 340 million MAD.

based on the criteria of the loan ratio (87%) and the Moroccan Government shared the cost of 4,255 million yen.

Table 1. Total Project Cost, Comparison Table on Planned and Actual Values

	Plan	Actual
Amount Paid in Foreign Currency	9,337 million yen	1,138 million yen
Amount Paid in Local Currency	7,682 million yen	26,647 million yen
Total	17,019 million yen	27,785 million yen
ODA Loan Portion	12,764 million yen	20,325 million yen (Note)
Cost Shared by Moroccan Government	4,255 million yen	7,460 million yen

Note: Total Loan Amount Disbursed: 12,587 million yen in Project (I) and 7,738 million yen in Project (II)

As a result of the optimization study in 2006, because prices of materials and equipment had escalated and exchange rates had risen since 2011, the cost of construction work was 23,628 million yen, which was higher by 11,137 million yen than the estimation of 12,491 million yen at the time of the appraisal on Project (I). While the estimated cost of the project was 17,019 million yen at the time of appraisal, it increased by 19,536 million yen because of the cost increase in consulting service (571 million yen), reserve fund (1,090 million yen), price escalation (1,262 million yen), interest during construction (1,090 million yen), cost of acquiring land (273 million yen), administration cost (278 million yen), tax (3,830 million yen), and commitment charge (5 million yen). As a result, at the time of the appraisal on Project (II), the project cost was estimated to be 36,555 million yen (amount paid in foreign currency: 1,838 million yen, and amount paid in local currency: 34,717 million yen).[11] For the additional financing , in 21,219 million yen (loan ratio: 58%) for construction cost and consulting service, the project cost was provided at a maximum of 8,455 million yen except for 12,764 million yen (amount of the loan for the Project (I)).

The increase in the total project cost was mostly caused by fluctuations in exchange rates. Other major causes for the total project cost increase were the following factors: soil at the target sections was more fragile than expected; the cost for land formation, drainage, water distribution, and strengthening ground, including slope, significantly increased; and the cost of public engineering works escalated.

When examined at the time of the ex-post evaluation, the cost of acquiring land roughly tripled.[12] However, the total project cost was 27,785 million yen (amount paid in foreign currency was 1,138 million yen, and amount paid in local currency was 26,647 million yen[13]). This was 163% of the total project cost planned at the time of appraisal on Project (I).

[11] Approximately 2,822 million MAD. As of January 2010, exchange rate: 1MAD=12.30 yen.
[12] The estimated cost of acquiring land was 71 million yen at the time of appraisal on (I), and 344 million yen at the time of appraisal on (II). However, the cost of acquiring land was 1,024 million yen at the time of the ex-post evaluation.
[13] Approximately 2,278 million MAD. IMF Average exchange rate between 2001 and 2012: 1MAD=11.70 yen.

The area to process water drainage was initially planned to be 25,000 ㎥ but the area was expanded to be 270,000 ㎥, which caused an increase in construction cost. On the other hand, the number of bridges decreased from 62 in the initial plan to 13, and the project cost was within the plan of Project (II).

However, if the total project cost at the time of appraisal on (I) is used as the base, the project cost was significantly higher than planned.

３．２．２．２ Project Period

At the time of appraisal, the project period was estimated to be from the signing of the loan agreement in September 2001 up to October 2005 (4 years and two months) (50 months). Completion of public engineering works (except for the maintenance period) was planned to be the project completion.

When examined at the time of the ex-post evaluation, the construction was completed in June 2012 (10 years and 10 months) (130 months). The project period was 260% longer than initially planned.

The executing agency spent longer than expected selecting consultants because of the approval process within the Moroccan government. Moreover, the construction was thought to be delayed because the additional financing required the construction cost to be estimated again, and there was also a project optimization study. Japanese-descended consultants were selected but had frequent communication problems with the executing agency due to the lack of experience of the yen loan project. The situation worsened when a project manager took extended sick leave during the project and there was a need for a replacement. There was also the same problem between contractors for Project (I) and the executing agency.[14]

In light of the above, the project period was significantly longer than planned.

３．２．３ Results of Calculations for Internal Rates of Return (References only)

Due to the nature of the project not drawing financial revenues, such as toll receipts, the financial internal rate of return (FIRR) has not been calculated at the time of the appraisal. On the other hand, at the time of the appraisal, the economic internal rate of return (EIRR) of the sections targeted by this project was 4.98% based on the following premises.

EIRR: 4.98% (4.70% at the time of appraisal on (I))[15]
Cost: Project cost, operation and maintenance expense (without tax)
Benefit: Shortening of travel cost and time for car users

[14] Based on the interview with the executing agency.
[15] The EIRR of the entire Mediterranean Road Construction Plan was about 14% (documents for the appraisal on (I), p.14). When examined during the field study, in most of the cases on Moroccan national road, the discount rate used for the road sector is over 10% in adopting a project plan. If the rate is under 5%, the discount rate can be considered substantially low. This section was a difficult section with a risk of landslide, which increased the cost. According to the interview with the executing agency, this project was adopted because the EIRR of the entire Mediterranean Road Construction Plan was 14%.

Project Life: 20 years

For reference, when re-computed with the same premises at the time of the ex-post evaluation, the EIRR was 7.6%. The EIRR increased from the time of appraisal largely because the annual average traffic (actual values) was higher than planned, and also the operation and maintenance expense (actual values) was about half of the estimation at the time of appraisal. Because the executing agency did not calculate shortened travel cost and time, the estimation at the time of appraisal was used as the base and others including the price growth rate after the appraisal were removed in re-computation.

The outputs were made mostly as planned, but the project cost and project period exceeded the plan substantially (163% and 260% respectively, compared with the plan of (I)). Therefore, efficiency of the project is low.

３.３ Effectiveness[16] (Rating: ③)

３.３.１ Quantitative Effects (Operation and Effect Indicators)

At the time of appraisal, for the section targeted by the project, the target value for annual average daily traffic (total in the section) was 7,800 vehicles/day (2015) in Tetouan Oued-Lau section (Figure 1), but 9,638 vehicles/day was achieved; the target was achieved. The executing agency did not collect the indicators on the shortened travel cost and time that were estimated at the time of appraisal. Therefore, before-after analysis cannot be conducted. Nonetheless, the opening of the road led to the average shortened travel time of 66.2 minutes[17] in the Tetouan Oued-Jebha section.

Table 2. Annual Average Daily Traffic (vehicles/day): **Tetouan Oued-Lau** Section

Baseline Value (2007)	Target Value (2015)	Actual Values (2013)	(2014)	(2015)
4,739	7,800	8,819	9,273	9,638

Note: The target value was set at the time of appraisal on (II). The value was the one targeted four years after the project completion.

３.３.２ Qualitative Effects (Other Effects)

At the time of appraisal, the outcome was expected to be “improvement on the accessibility to the economic/social infrastructure of the local residents,” and the impact was expected to be “redress of regional disparities.” This project was expected to contribute to (Impact) redress of regional disparities between urban and rural areas by (Outcome) improving the level of the transportation infrastructure service. At the time of the ex-post evaluation, a certain qualitative

[16] Rating is based on the evaluation of the project effectiveness as well as its impact.
[17] The average based on the values in the beneficiary survey (Valid response number: 110 households). This is the average travel time that local residents spend to commute.

effect was confirmed.[18] For the transportation infrastructure service, after the road was opened, the traffic, including regular bus services and taxies, has increased. Also, social services, including the use of ambulances, have improved.

As explained above, the target value of the traffic indicator was achieved, and the qualitative effect was confirmed. Therefore, effectiveness of the project is high.

3.4 Impacts

3.4.1 Intended Impacts

3.4.1.1 Quantitative Effects

Target values for the quantitative impacts were not set at the time of appraisal, and they were not confirmed at the time of the ex-post evaluation.

3.4.1.2 Qualitative Effects

At the time of appraisal, ① "improvement on the accessibility to the economic/social infrastructure of the local residents," ② "redress of regional disparities," and ③ "poverty reduction by economic revitalization in the roadside communities" were expected to be qualitative effects. Because there was no quantitative data available on these impacts to have a before-after analysis, these impacts were evaluated by a beneficiary survey.[19] Summary of the results are shown as follows.

① Survey on improvement on the accessibility of economic/social infrastructure for local residents

For commuting time, comparing before and after the project, the average time was shortened by 66.2 minutes, and the average commute time to school was shortened by 88.3 minutes, based on the survey responses. The rate of school enrollment and visiting health facilities rate cannot be calculated, but the time to visit health facilities and the commute time to school were shortened by 157.7 minutes and 88.3 minutes respectively. The related questions asked if the road increased the frequency of visiting maternal and child health facilities and whether they benefited from it. Approximately 76% of the respondents answered that it was beneficial. These results suggest that this project improved the accessibility to economic/social infrastructure.

---

[18] Based on the evaluation of the beneficiary survey interviewers and the interviews with the executing agency.

[19] The sample size was 110, which was statistically significant. (statistical population: inhabitants within 2 km of the roadside of the project (the total length of 120 km) in Tetouan province and Chafchaouen province (The number of total households were unclear)). Questionnaires were designed to have items on effectiveness and the impact of the project from the perspective of the beneficiaries. It aimed to collect data supplementing indicators in effectiveness and impact. The target areas were decided by avoiding a selection bias on a certain area, and selecting multiple areas with distinct characteristics (It was planned that 6 places were going to be selected every 20 km between the starting point and the end). Households of beneficiaries were sampled, conducting judgment sampling in each area (Visit based on population registry was not possible. The interview was conducted with the households that were willing to help the study. Technically, it was not random sampling, which caused a restriction. There were a number of households who could neither respond to nor help the study.)

Table 3. The Average Time Shortened to Travel (Unit: Minute)

Purpose	Time	Number of Respondent	Purpose	Time	Number of Respondent
Commute to Work	66.2	89 persons	Commute to School	88.3	3 persons
Shopping	105.0	4 persons	Visit Health Facility	157.5	3 persons
Business	80.0	6 persons	Visit Family	105.0	17 persons

Source: Beneficiary Survey
Note: Multiple answers allowed

Table 4. Benefits, Maternal and Child Health Facilities

Very Significant	Significant	Somewhat	No	Unclear
58	26	19	6	1

Source: Beneficiary Survey

② Survey on redress of regional disparities

Moreover, when asked if the road made a contribution in preventing the regional economy from isolation (i.e., whether they recognized the increased contact with other areas because of the road development), approximately 76% of the respondents answered that it made a contribution. Approximately 76% of the inhabitants of roadside communities also answered that it made a contribution, to the question on improvement on the living conditions in the area (because of the increased contact with other areas through the road development).

Table 5. Awareness Survey on the Improvement of the Regional Isolation

Very Significant	Significant	Somewhat	No	Unclear
57	27	14	12	0

Source: Beneficiary Survey

Table 6. Awareness Survey on the Improvement of the Living Conditions in the Area

Very Significant	Significant	Somewhat	No	Unclear
25	27	25	30	3

Source: Beneficiary Survey

When the poverty rate was compared by region before and after the opening of the road, it was 7.8% in the Tamger-Tetouan-Al Hoceima provinces near where the roads in the sections targeted by the project are located, in 2007 before the opening of the road. In 2014, when two years had passed since the opening, the rate was 2.2%, which is among the lowest in Morocco.

Table 7. Poverty Rate Transition by Province

	2001	2007	2014
Draa-Tafilalet	40.3%	n/a	14.6%
Marrakesh-Safi	20.2%	11.2%	5.4%
Oriental	18.2%	10.1%	5.3%
Sous-Massa	16.7%	12.7%	5.1%
Fes-Meknes	16.6%	9.5%	5.2%
Rabat-Sale-Kenitra	15.5%	5.1%	3.8%
Beni Mellal-Khenifra	14.4%	n/a	9.3%
Tanger-Tetouan-Al Hoceima*	11.5%	7.8%	2.2%
Settat-Casablanca	6.9%	3.2%	2.0%

Three Southern Provinces in total (El Dakha-Ouet Ed Dahab, Laayoun-Saguia Al Hamra, Guelmin-Oued Noun)**	6.0%	n/a	3.3%

Source: Poverty Profile (2007) and Family Income and Expenditure Survey (2014), conducted by the Moroccan Government.
Note: *Region in the section targeted by the project
***The Under-populated areas (desert areas) were aggregated in three Southern Provinces.

③ Economic revitalization in the roadside communities (its poverty reduction)

The beneficiary survey asked about economic revitalization in the roadside communities. From the subjective perspective of inhabitants in the areas, approximately 73% of the local residents answered that the road development made a contribution to tourism. On the other hand, about 16% and 32 % of the residents answered that it contributed to the development of the agriculture and the fishery industries, respectively. The results show that the contribution to economic revitalization varied depending on the sector.

Table 8. Do you think that the road helped tourism in the area to be developed?

Very Significant	Significant	Somewhat	No	Unclear
51	29	13	17	0

Source: Beneficiary Survey

Table 9. Do you think that the road helped the agriculture industry in the area to be developed?

Very Significant	Significant	Somewhat	No	Unclear
8	10	11	70	11

Source: Beneficiary Survey

Table 10. Do you think that the road helped the fishery industry in the area to be developed?

Very Significant	Yes Significant	Somewhat	No	Unclear
17	18	30	31	13

Source: Beneficiary Survey

3.4.2 Other Positive and Negative Impacts

3.4.2.1 Impacts on the Natural Environment

At the time of appraisal, it was confirmed that an Environmental Impact Assessment was prepared in April 2000. When examined at the time of the ex-post evaluation, the Assessment was approved before the commencement of the construction work (in September 2001). Moreover, based on the Assessment, management of noise, drainage, dust, and garbage was exercised during the construction work, following the initial plan. The executing agency and consultants also conducted regular inspections. During the construction work and after the loan provision, environmental monitoring was conducted as planned.

Moreover, at the time of appraisal, because most of the areas where the road was located were in the national forest in a mountainous region, there were no areas on which the project would have had an adverse impact, such as an overcrowded roadside. The impact of air pollution, noise, and vibration was assumed to be minimal. The project area was not in or near areas that were sensitive to impact such as

national parks, and so an undesirable impact on the natural environment was assumed to be minimal. These estimations can be examined in the beneficiary survey.

Approximately 82% of the total respondents claimed that there was environmental deterioration during the construction work. For the environmental deterioration types, the respondents who chose dust and/or noise belonged to the largest group. On the other hand, approximately 56% and 72% of the respondents answered that the road development and pavement reduced noise and dust, respectively. From the subjective perspective of the respondents, environmental deterioration caused by the construction was temporary, and eventually the road improved living conditions.

Table 11. Awareness on Environmental Deterioration during the Road Construction

Yes	No	Unclear
88	13	9

Source: Beneficiary Survey

Table 12. Environmental Deterioration Types (Multiple answers allowed)

Dust	Noise	Closed to Traffic	Others	Unclear
84	65	72	5	1

Source: Beneficiary Survey
Note: Many of the respondents chose Closed to Traffic for the inconveniences of living. However, this type is not included in environmental deterioration in the analysis because technically it is not environmental disruption during the construction.

Table 13. Awareness on Reduced Traffic Noise by the Road Development

Very Significant	Significant	Somewhat	No	Unclear
31	31	19	26	3

Source: Beneficiary Survey

Table 14. Awareness on Reduced Dust by the Road Development

Very Significant	Significant	Somewhat	No	Unclear
45	34	13	18	0

Source: Beneficiary Survey

３．４．２．２ Land Acquisition and Resident Relocation

At the time of appraisal, the project was assumed to require a land acquisition of 1,776,707 ㎡, and the relocation of 305 households. The table below shows the confirmation at the time of the ex-post evaluation.

Table 15. The Status of the Land Acquisition

	Tetouan-Oued Lau	Oued Lau-El Jebha	Total
Acquired Land (㎡)	624,270	1,484,843	2,109,113
Number of Households	443	1,584	2,027
Amount of Compensation (Million MAD)	46	41.5 (*)	87.5 (*)
Japanese Yen (Million Yen)	About 538	About 486	About 1,024

Source: Documents provided by the executing agency
Note: * The amount of compensation in this area is a provisional value because matters in dispute are included.
Exchange Rate: 1MAD=About 11.7 Yen (IMF Average exchange rate between 2001 and 2012) for Calculation.

When a resident is not satisfied with the amount of compensation, he or she can take the case to the administrative court. Three households filed a suit in Tetouan-Oued Lau section and received a damage award. The value above includes the amount of damage awards. On the other hand, in Oued Lau-El Jebha section, there are some sections with matters in dispute, and the amount of compensation cannot be determined until the trial ends.

The excess in terms of the number of households and the amount of compensation against the estimation at the time of appraisal had the context that the direct impact of the "Arab Spring" in Morocco was low compared with neighboring countries but there was the impact of the "Arab Spring" which started around 2011 and the residents' awareness of their rights were thought to become higher than the ones at the time of appraisal. They neither complained nor took action (including sit-in protest). However, the situation where those who were not satisfied with the payment went to the administrative court against the state government increased.[20] 74 out of all the households targeted by the beneficiary survey (67% of the total respondents) answered that they received compensation after the land and houses were acquired. Procedure on the acquisition was taken following the Moroccan administrative procedure act and administrative litigation act, and major issues on the procedure have not been reported.

３．４．２．３ Unintended Positive/Negative Impact

For the question of whether there were other positive/negative impacts, according to the beneficiary survey, approximately 41% of the respondents answered that the road development increased the number of cars driving at excessive speed and increased the risk of traffic accidents. Approximately 27% of the respondents answered that the risk of floods and falling rocks increased due to the lack of works including reinforcement work. Although it was fewer than half of the total respondents, approximately 30% of the respondents recognized these negative impacts.

Especially, car accidents have been increasing nationwide every year. The number of car accident reached 78,864 incidents (including 3,565 fatal accidents) in 2015. The strengthening of traffic rules (stationing traffic officers and strengthening radar surveillance) had been decreasing the number of fatal accident until 2014 but the number increased in 2015. Road signs were not thoroughly set up in many places. Even where the signs were set, they were not followed in many cases. As well as the strengthening of traffic rules, increased driver awareness of traffic safety is necessary.

Table 16. Awareness on the Risk of Excessive Speed

Very Significant	Significant	Somewhat	No	Unclear
13	32	38	27	0

Source: Beneficiary Survey

Table 17. Awareness on the Risk of Floods and Falling Rocks

[20] Based on the results of the interview with the executing agency

Very Significant	Significant	Somewhat	No	Unclear
13	17	21	58	1

Source: Beneficiary Survey

Table 18. Transition on the Number of Traffic Accident

	2011	2012	2013	2014	2015
Number of Traffic Accident	67,082	67,151	67,926	68,645	78,864
Number of Fatal Accident	4,222	4,167	3,832	3,381	3,565
Number of Serious Injury Accident	12,482	12,251	11,641	9,365	9,957

Source: Documents provided by the executing agency

As described above, the project effects (effectiveness) estimated at the time of appraisal achieved the target by increasing the traffic volume. The beneficiary survey suggested that the impact mostly achieved the estimation at the time of appraisal, which was supported by the objective data including the reduction of the poverty rate. While some suits over the amount of compensation for land acquisition were filed at the administrative court, the resident relocation did not cause major problems because Morocco's administrative procedure was followed. On the other hand, because of the road development, many residents have safety concerns such as traffic accidents, and the number of accidents is increasing. On the whole, this project has largely achieved its objectives. Therefore, effectiveness and impact of the project are high.

３.５ Sustainability (Rating: ③)

３.５.１ Institutional Aspects of Operation and Maintenance

At the time of appraisal, the Provincial Departments of Equipment, Transportation and Logistics (la Direction Provinciale de l'Equipement, du Transport et de la Logistique; hereafter referred to as "DPETL") in Tetouan province and Chafchaouen province of two departments of road of Ministry of Equipment, Transportation, Logistics and Water (Direction des Routes, Ministère de l'Equipement, du Transport, de la Logistique et de l'Eau, hereafter referred to as "DR") were assumed to be in charge of the operation and maintenance of the project, managing the target sections. They were expected to be the executing agency for the operation and maintenance of the project. The total number of staff at the DR was 3,849 (as of April 2009). Moreover, the daily work (such as cleaning of road surface and drainage, road safety management, and snow-removal in winter) was conducted by the DPETL to which regional offices leased equipment, and the regular work (inspection and repair) was being discussed to be conducted by the private sector selected through contract bidding.

At the time of the ex-post evaluation, it was confirmed that the institutional aspects of operation and maintenance remained as planned and expected at the time of appraisal. The total number of staff at the ministry was 6,569[21] (as of January 2016) (The staff at the ministry

[21] Website of Ministry of Equipment, Transportation, Logistics and Water (Ministère de l'Equipement, du Transport, de la Logistique et de l'Eau)
http://www.equipement.gov.ma/Formation/Chiffres-cles/Pages/Chiffre-Cle-RH.aspx (Accessed on August 17,

proper accounted for 32%, and the other staff, including the staff at DPETL in rural areas, accounted for 68%). The number of high-ranking officials was 1,369, the number of staff at the middle management level was 2,888, and the staff at the field offices was 2,312. The staff size was larger than the one at the time of appraisal. Therefore, the staff size was sufficient. The director at the DPTEL was expected to make decisions on the road operation and maintenance.[22] Therefore, it was clear where the responsibility lay. Decentralization has developed since 2011, and the authority on the institutional aspects of operation and maintenance was expected to be transferred to regional governments. However, the institutional aspect remained the same at the time of the ex-post evaluation. While the current staff size was sufficient, the executing agency believed that decentralization could reduce the current staff size at the central government for management. Excess or deficiency on the equipment at the DPETL has not been reported.

As described above, the institutional aspects reached the sufficient level, but the excess or deficiency must be tracked considering decentralization in the future.

３．５．２ Technical Aspects of Operation and Maintenance

At the time of appraisal, there were the office of infrastructure (in charge of roads) and the office of facilities at the DPETL in charge of the areas targeted by this loan project in the above-mentioned two provinces. Civil engineers, technicians, and clerks were assigned to each department. In order to train the technical personnel, Japan established "Training Institution of Equipments and Road Maintenance" (l'Institut de Formation aux Engins et à l'Entretien Routier; hereafter referred to as IFEER)[23] by Japan's grand projects and technical cooperation projects[24], and approximately 250 persons were expected to participate in the training session each year. The IFEER is in charge of the education of engineers and technicians at the DR, at the same time accepting third-country training mainly from African countries. The IFEER has achieved the record of training the accumulated total of 11,842 people between 1993, which is the year of foundation, and 2012. The annual average was 1,184 people. The training covered skills on road maintenance and repair (attended by 48% of the accumulated total trainees),

---

2017)

[22] The work type standard, separating daily work from regular work, is below. Regular work is the work of repairing roads every few years. Daily work is all the work, excluding regular work, for maintenance and repair based on a contract.

[23] See the following website for the contents of the training: http://www.equipement.gov.ma/routier/Infrastructures-Routieres/IFEER/Pages/Missions.aspx (Accessed on August 16, 2017)

[24] ODA Grant Projects "The Project for the improvement of equipment of IFEER in Morocco" (E/N signed on February, 2005, 0.328 billion yen). Technical Cooperation Projects (Former Project-Type Technical Cooperation) "Training Institution of Equipment and Road Maintenance (Institut de Formation aux Engins et a l'Entretien Routier Skhirat; IFEER) Program (1992 – 1997)", Group Training Course in the Third Country for "Capacity Enhancement for Road Maintenance Skills (1999 – 2003)", Group Training Course in the Third Country for "Road Maintenance and Construction Skills in IFEER, Phase2 (2005 – 2010)", Group Training Course in the Third Country for "Road Maintenance and Construction Management, Phase3 (2009 – 2011)".

skills on heavy machinery operation (30%), training for technicians (14%), and business administration (8%).

At the time of the ex-post evaluation, based on the visit to the project sites and the interview with the executing agency, at each DPETL, 3 to 10 engineers (university graduates; national qualification), 7 to 19 technicians, and 21 to 66 clerks were assigned. The manual, including operation procedure for heavy machinery, was developed and used.

At the sections of the project, regular monitoring was conducted almost daily. Based on the need of maintenance, priorities are set on a scale of A to D. Using this scale, repair is prioritized for the one in greatest need. This is possible because their technical skills are high enough.

In light of the above, technical aspects of operation and maintenance reached the sufficient level.

３.５.３ Financial Aspects of Operation and Maintenance

At the time of appraisal, the DPETL had a budget financed by the general account budget and the Special Road Fund. The budget amount for the road operation and maintenance in 2008 was 1,136 million MAD (approximately 13.9 billion yen), including 2 million MAD (approximately 2.5 billion yen) from the general account budget and 9.36 million MAD (approximately 11.5 billion yen) from the Special Road Fund. The Special Road Fund was a Moroccan special-purpose budget financed by taxes such as gasoline tax, car registration tax, and car weight tax, established in 1989.

At the time of appraisal for the budget of the executing agency in 1999, approximately 8.47 million MAD (approximately 8.5 billion yen) was financed by the general account budget and 12.70 million MAD (approximately 12.8 billion yen) was financed by the Special Road Fund. The cost for the operation and maintenance of the project was planned to be financed by the above-mentioned budget, and no major problems have been observed in the financial aspects of the operation and maintenance system.

At the time of the ex-post evaluation, it was confirmed that the budget for operation and maintenance of the regional and provincial roads was financed by the Special Road Fund and the general account budget of the DPETL as planned at the time of appraisal. Table 19 shows the Special Road Fund and the general account budget (except for labor cost) for the past four years. The Special Road Fund budget which accounted for 80% of the operation and maintenance cost has been increasing, and the budget was higher than the one estimated at the time of appraisal. The budget for operation and maintenance of the project was sufficient.

Table 19. The Special Road Fund and the General Account Budget (for Operation and Maintenance) (Unit: million MAD)

	2014	2015	2016	2017

FSR	2,200	2,200	2,500	2,700
General Account	155	223	237	508

Source: Website of Moroccan Ministry of Economy and Finance
Note: Financial year and calendar year are the same. The general account budget is the disbursement for the operation and maintenance except for labor cost. The FSR includes expenses such as contribution to the CFR, except for the operation and maintenance cost, but a detailed breakdown of expenses is not published.

For the maintenance cost of the Mediterranean road for the DPETL, the budget was disbursed as shown below. The disbursement in 2016 was high because 14,382 (thousand MAD) was allocated for landslide prevention. As needed budget, for example landslide prevention, could be allocated from the Special Road Fund as well as the general account budget. Therefore, the budget prepared was sufficient.

In light of the above, no major problems have been observed in financial aspects, and it can be said that future budgets are secured.

Table 20. Actual Values of the disbursement for the maintenance cost (Unit: Thousand MAD)

2014	2015	2016
286	3,622	25,096

Source: The DR

3.5.4 Current Status of Operation and Maintenance

At the time of appraisal, there was a past record of yen loan project, "Road Improvement Project (Approved in 1995, completed in 2003)," at DPETL, and there were no major problems observed. Therefore, operation and maintenance of the project was expected to be managed properly.

When examined at the time of the ex-post evaluation, the maintenance team could be swiftly mobilized to come to the site when maintenance and repair was needed. Regular monitoring was conducted on the sections of the project almost daily. Based on the need of maintenance, priorities were set on a scale of A to D. Using this scale, repair was prioritized and conducted for the one in greatest need. Record and reports on the frequency were not sent to the central authority. When a problem occurred, however, the maintenance team at DR regional office was mobilized to conduct maintenance each time. Therefore, major problems were not observed.

In light of the above, it can be said that no major problems have been observed in the current status of operation and maintenance.

As described above, the sufficient level was secured in terms of the institutional, technical, and financial aspects of the operation and maintenance as estimated at the time of appraisal. Including the mobilization of the maintenance team when a problem occurred, the operation and maintenance of the project was conducted properly. Therefore, sustainability of the project is high.

４．Conclusion, Lessons Learned and Recommendations

４.１ Conclusion

The objective of this project was to improve accessibility to economic/social infrastructure for local residents by developing a new road and widening/strengthening the 120 km stretch of existing road between Tetouan and El Jabha within “the Mediterranean Road Construction Plan” (550 km), thereby contributing to redressing regional disparities. The implementation of the project has been highly relevant to Morocco’s development policy and development needs as well as Japan’s ODA policy. Therefore, its relevance is high. The outputs were made mostly as planned, but the project cost and project period exceeded the plan substantially, and the efficiency is low. The project effects (effectiveness) estimated at the time of appraisal achieved the target by increasing traffic volume. The impacts estimated at the time of appraisal mostly achieved the target, which was supported by objective evidence, including a reduction of the poverty rate. While some suits over the amount of compensation for land acquisition were filed at the administrative court, resident relocation did not cause major problems because Morocco’s administrative procedure was followed. On the other hand, after the road development, quite a few residents had safety concerns such as traffic accidents, and the number of accidents is increasing. Therefore, this project has largely achieved the onset of effect as planned, and the effectiveness and impact are high. As above, a sufficient level was secured in terms of the institutional, technical, and financial aspects of the operation and maintenance as estimated at the time of appraisal. Including the mobilization of the maintenance team when a problem occurred, the operation and maintenance was conducted properly. Therefore, sustainability of the project effects is high.

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

４.２ Recommendations

４.２.１ Recommendations to the Executing Agency

Road signs are not thoroughly set up, and excessive speed and the lack of traffic rules/ethics are increasing the number of traffic accidents. For accident-prevention measures, it is recommended that the DR promptly prepare an action plan on enforcement of traffic rules/ethics (enlightenment activities). The DR should cooperate with the national police agency and the military police and with schools in rural areas and communes, in some cases. Those measures should be included in major policies in the program and budgeting is required.

４.２.２ Recommendations to JICA

N/A

４.３ Lessons Learned

① Conducting a Detailed Preliminary Study

With the excess of the total project cost, procedures including re-estimation on the construction cost had to be taken, which became a cause of extending the project period. Considering this situation, from now on, by scrutinizing the plan of the other party with a preparatory study before the appraisal, a more realistic estimation had to be made, including escalation of materials and equipment cost, and fluctuations in exchange. A lesson that a detailed study for rigid scrutiny had to be conducted was learned.

Comparison of the Original and Actual Scope of the Project

Item	Plan	Actual
①Project Outputs	① Public engineering works (a) Improvement of national roads and Development of new roads: Tetouan-Oued Lau section (46 km) and Oued Lau-Jebha section (74 km) Width 12 m: two-lane road (3.5m×2＝7.0m, asphaltic pavement), Road shoulders (2.5m×2＝5.0m). Development of new roads (20 km), Improvement of the existing roads (100 km) (b) Bridge: About 62 Places (c) Slope protection (d) Structural Objects (Drainage, Transverse drainage pipe, etc.) ② Consulting service: Detailed design review, etc.	① Public engineering works (a) Improvement of national roads and Development of new roads: As planned. (b) Bridge: 13 Places (c) Slope protection: Cement revetment was reduced, and slope was lessened. (d) Structural Objects: Simplified by using culvert for bridge ② Consulting service: As planned
②Project Period	September 2001 – October 2005 (50 months)	September 2001 – June 2012 (130 months)
③Project Cost Amount Paid in Foreign Currency Amount Paid in Local Currency Total ODA Loan Portion Exchange Rate (Reference) Amount Paid in Foreign Currency Amount Paid in Local Currency Total ODA Loan Portion Exchange Rate	9,337 million yen 7,682 million yen (761 million MAD) 17,019 million yen 12,764 million yen 1MAD = 10.09 yen (As of December 2000) (Reference) Updated portion for Phase II (additional financing) 1,838 million yen 34,717 million yen 36,555 million yen 8,455 million yen 1 MAD=12.3 yen	1,138 million yen 26,647 million yen (2,278 million MAD) 27,785 million yen 20,325 million yen* 1MAD = 11.70 yen (IMF Average exchange rate between 2001 and 2012)
④Final Disbursement	November 2015	

Note: Total of 12,587 million yen in Project (I) and 7,738 million yen in Project (II)

<End>