Tunisia

Ex-Post Evaluation of Japanese ODA Loan Project

El Jem - Sfax Motorway Construction Project

External Evaluator: Yasuhiro Kawabata, Sanshu Engineering Consultant

0. Summary

The objective of the project was to contribute to promotion of the economic development in both northern and southern regions in Tunisia through establishing efficient production and logistics system, and saving time costs by constructing a motorway between El Jem and Sfax in the southern Tunis. The project has been highly relevant to the development plans and needs of Tunisia as well as Japan's ODA policies, and therefore its relevance is high. Regarding saving of travel time, which is the project's objective, this project has somewhat achieved its objectives and has also contributed to promotion of the economic development in both northern and southern regions in Tunisia. Therefore, its effectiveness is fair. Although the project cost was lower than planned, the project period was longer than planned. Therefore, efficiency of the project is fair. Since no major problems have been observed in the operation and maintenance system (organizational setup, technical capacity and financial status), sustainability of the project is considered high.

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

1. Project Description

Project Location

El Jem – Sfax Section

1.1 Background

At the appraisal time (2002), according to the Free Trade Agreement with European Union (effective in 1995), the gradual elimination of tariffs (complete elimination by 2008) was planned, and activation of trade and logistics was expected. Thus, development of the transport infrastructure was considered to be a key issue to be addressed. Particularly, with respect to the

highway/road sector, development of the motorway network was considered essential in order to efficiently move/transport freight and passengers and strengthen the industry competiveness. Thus, according to the motorway development plan established in September 1998, construction had progressed on the following three arterial motorways radiating from the capital city, Tunis: i) 260 km section toward the south; ii) 140 km section to the west, and iii) 50 km section to the north.

Regarding the highway development and improvement in Tunisia, Arab Fund for Economic and Social Development (AFESD), European Investment Bank (EIB), African Development Bank (ADB), The World Bank, and other financial institutions have been financing. As far as the motorways are concerned, AFESD has financed Autoroute No. 1 (Tunis - Msaken route), No. 3 (Tunis - Mejez El Beb route) and No. 4 (Tunis - Bizerte route), and EIB was to finance the Msaken - Sfax section, which is located to the north of the subject project.

At the appraisal stage, the National Route No.1 connecting between Tunis and Sfax, the Tunisian second largest city in the south was heavily trafficked. Particularly, the share of commercial vehicles such as large trucks among all the types of vehicles was high. Since the existing national highway was a two-lane highway for both directions, issues such as traffic accidents due to increasing traffic volume and increase of travel time due to traffic congestion had been concerned.

1.2 Project Outline

The objective of the project was to contribute to promotion of the economic development in both northern and southern regions in Tunisia through establishing efficient production and logistics system, and saving time costs by constructing a motorway between El Jem and Sfax in the southern Tunis. The location of the project site is shown in Figure 1.

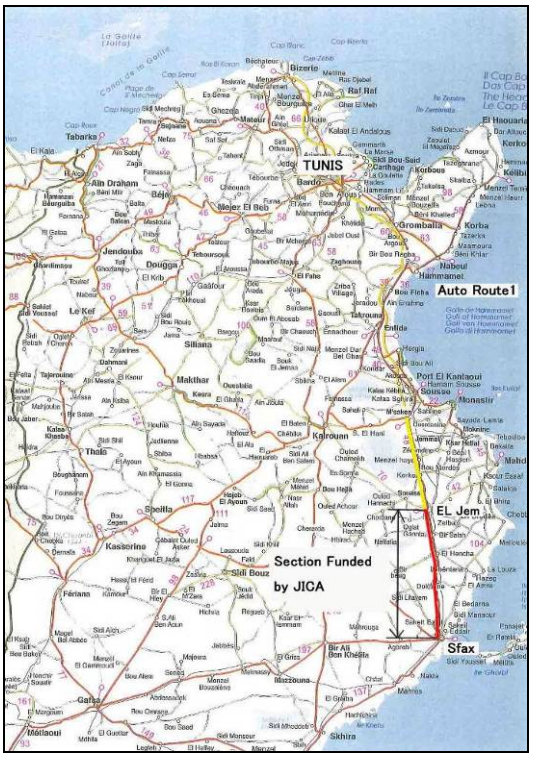

Figure 1 Location of the Project Site

Loan Approved Amount/ Disbursed Amount	12,501 million yen /10,113 million yen
Exchange of Notes Date/ Loan Agreement Signing Date	March 2002 / March 2002
Terms and Conditions	For work: Interest Rate: 2.20% Repayment Period: 25 years (Grace Period: 7 years) Conditions for Procurement: General untied For Consulting services: Interest Rate: 0.75% Repayment Period: 40 years (Grace Period: 10 years) Conditions for Procurement: Bilateral tied
Borrower / Executing Agency (ies)	Societe Tunisie Autoroutes (STA)
Final Disbursement Date	December 2009
Main Contractor (Over 1 billion yen)	Afrique Travaux/Soroubat (El Jem - El Hancha section), SBF/ETEP (El Hancha - Sfax section) (Tunisia)
Main Consultant (Over 100 million yen)	Nippon Koei/SCET Tunisie (Tunisia)
Feasibility Studies, etc.	F/S by Tunisian Consultants (1998), SAPROF (February 2001)
Related Projects	Msaken – El Jem section (50km), which is located in the north of the project section, was funded by European Investment Bank (EIB)

2. Outline of the Evaluation Study

2.1 External Evaluator

Yasuhiro Kawabata, Sanshu Engineering Consultant

2.2 Duration of Evaluation Study

Duration of the Study: July 2011 - September 2012

Duration of the Field Study: December 5 - 19, 2011, January 28 - February 7, 2012, and May 5 - 15, 2012

2.3 Constraints during the Evaluation Study

none

3. Results of the Evaluation (Overall Rating: B[1])

3.1 Relevance (Rating: ③[2])

3.1.1 Relevance with the Development Plan of Tunisia

In the Tunisian 10th Five-Year Plan (2002-2006), following the previous Five-Year Plan, "Development of the infrastructure in order to strengthen the industrial competitiveness" was identified as one of policy guidelines, and importance of the transport sector was emphasized so that particularly the logistical system needed to be improved and industrial competitiveness needed to be enhanced. In the transport sector, particularly, highways had carried about 90% of passengers and about 80% of freight as the most important land transport mode in Tunisia, and thus, the highway development was a key issue in order to promote the economic activities. Moreover, in the motorway development plan issued in September 1998, the subject section was identified as one of 520 km priority sections surrounding Tunis, which was planned to be completed by 2012.

In the 11th Five-Year Plan (2007 - 2011), the economic development with the growth rate of 6.1% per annum was anticipated through the open market policy, enhancement of productivity and creation of new job opportunities. In order to achieve this target, the transport sector has been still considered important to strengthen the industrial competitiveness. Particularly, the development of motorway network has been considered to be an essential investment in order to activate the economic exchanges and trade with neighboring countries, and promote the human exchanges through tourism. Development of arterial highways and rural roads, and establishment of highway network connecting between industrial and commercial cities are also emphasized.

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1 A: Highly satisfactory, B: Satisfactory, C: Partially satisfactory, D: Unsatisfactory

2 ③: High, ② Fair, ① Low

3.1.2 Relevance with the Development Needs of Tunisia

At the appraisal stage, it was anticipated that construction of a safe and efficient motorway would soon commence to address issues such as traffic accidents and increase of transporting time due to traffic congestion, which were basically caused by increase of traffic volume on National Route No. 1 connecting between Tunis and Sfax. Along the corridor, core cities such as Sousse and Monastir (tourist cities) and Sfax (commercial city) exist, and promotion of economic development has been anticipated by constructing a motorway.

The allocation of budgets to the highway/road sector among the transport sector under the 10th and 11th Five-Year Plans were 57% and 31%, respectively, and the highway/road sector was the largest budget taker. Thus, the highway/road sector has been still a priority sector. The motorway development plan with a total length of 1,200 km, which was established in 1998, is still valid. The section to be constructed under the project is the important 50 km section between El Jem and Sfax along Autoroute No.1 with a total length of 630 km, originating at Bizerte, passing along the Mediterranean coast toward south, and ending at the border with Libya. Autoroute No.1 including the subject project section is also the segment of Trans-Africa Highway Route 1 (Maghreb Highway concept) connecting between Cairo and Dakar. The Msaken - El Jem section (50 km), which is located to the north of the subject project, and was funded by European Investment Bank (EIB), was open to traffic at the same when the El Jem - Sfax section was open to traffic. The southern Sfax - Gabes section, also funded by EIB is now under construction and expected to be completed by end 2013. The Gabes - Medenine section will be implemented with the Japanese ODA loan (Loan Agreement was signed on February 17, 2012), and the Medenine - Ras Jedir section with the loan from African Development Bank (Loan Agreement was signed in September 2011).

3.1.3 Relevance with Japan’s ODA Policy

In the Country Assistant Strategy for Tunisia (issued in October 2002), priority sectors and themes to be aimed in Tunisia included the following three pillars: 1) enhancement of industries: 2) development and management of water resources; and 3) improvement of environment. Particularly, regarding the enhancement of industries, the assistance to the economic infrastructure sector focusing on transport and IT/telecommunication sectors was also included together with other items to be assisted. In the Overseas Economic Cooperation Project Implementation Strategy of Japan International Cooperation Agency (JICA), “the development of transport infrastructure which would contribute to strengthening the industrial competitiveness” was listed as one of pillars for financial assistance.

Accordingly, the project has been highly relevant with the Tunisian development plan and needs, as well as Japan's ODA policies. Its relevance is therefore considered high.

3.2 Effectiveness[3] (Rating: ②)

3.2.1 Quantitative Effects (Operation and Effect Indicators)

(1) Average Daily Traffic (El Jen - Sfax section)

The average daily traffic after completion of the project is shown in Table 1.

Table 1 Average Daily Traffic (El Jem - Sfax section)

unit: vehicles/day

	2009	2010	2011 in 3 years after completion
Motorway	- (9,000)	9,000 (9,500)	7,800 (9,900)

Source: Appraisal documents, Responses to Questionnaire
Note 1: At appraisal, opening was scheduled for April 2006. Actual opening date was June 2008.
Note 2: Actual traffic volume in 2010 is the volume during the period when no toll was charged until December 22, 2010.
Note 3: Charging toll commenced on December 23, 2010.
Note 4: Numbers in ( ) are projected volume at the appraisal stage. The projected volume in 3 years after the completion was 9,000 vehicles /day.

The average daily traffic of the El Jem - Sfax section as of 2011 was 7,800vehicles/day, which is 79% of the projected volume. Although one of reasons is delay of opening to public, the demand projection in the feasibility study is seemed to be overestimated[4].

(2) Travel Time (El Jem - Sfax section)

The travel time between El Jem and Sfax after completion of the project became 30 minutes (timed by the evaluation team) , which resulted in saving of one hour travel time compared with that of before the project (96 minutes by using National Route 1 according to the appraisal documents).

(3) Traffic Accident Rates

Changes of accident rates on the motorway and the existing National Route 1 (NR1) after completion of the project are shown in Table 2.

[3] Sub-rating for Effectiveness is to be put with consideration of Impact

[4] The projected traffic volume in the first operational year (2006) of the El Jem - Sfax section was estimated at 15,710 vehicles/day and the share between the existing national road and the new motorway was assumed to be 50/50. Thus, the estimated traffic volume of the motorway was 7,855 vehicles/day. The assumed diversion rate under the traffic condition when the existing national road has still enough capacity to accommodate traffic volume is considered to be too high.

Table 2 Changes of Accident Rates on Motorway and NR1

unit: accidents/100 million vehicles km

	2006	2009	2010
	Before project	Right after opening	In 2 years after opening
Existing NR1	94.3	46.3	41.6
Motorway	-	40.6	33.4

Source: Appraisal documents, Responses to Questionnaire

The traffic accident rate on the existing national road was lowered by half because of reduction of traffic volume after opening of the motorway to public. The accident rate on the motorway in two years after opening has been also lowered as drivers have become familiar with driving on motorways. The reason for lower accident rates on both highways (almost same level as those in European countries and US) is likely that the traffic volume is much less than the highway capacity of each highway.

3.2.2 Qualitative Effects

Promotion of Regional Development

Since by completion of the project, Tunisian largest city, Tunis (with a total population of about 2.4 million including those in neighboring regions) was connected with the second largest city, Sfax (with a population of 920,000) in three hours (about 270 km), the highway network was expanded and the accessibility to markets was enhanced. Moreover, completion of a safe and efficient motorway has contributed to enhancement of production and logistic system.

3.3 Impact

3.3.1 Intended Impacts

Contribution to Promotion of Integrated Economic Development in the North-South Regions

The invested amount and increased employment opportunities in the project affected area (Sousse, Monastir, Mahdia, Sfax) during the past three years (2008 - 2010) were about 20% of the national total. The number of foreign enterprises registered in the project affected area as of October 2010 was 973 (about 32% of foreign enterprises in Tunisia), and they created 94,000 employment opportunities. Enterprises moved in to Sfax after the project completion includes Total Safety Services, which provides training in the health/safety/environmental protection sectors, Risel Industries, which is a metal production company, SLPI, which is a boiler and machinery production company, and Kamel Petto-Ser, which is specialized in petrochemical industry.

It is expected that completion of the project would improve the access to Tunis and promote the integrated economic development along the Tunis - Sfax corridor. It is difficult to directly compare the economic situation between before and after the project in the qualitative terms. In order to examine the economic development made, changes in the land price were investigated. With the economic development, the average land price in Sfax has increased, and the current price is about 2.3 times of that at the commencement of the project. (Note: the average annual inflation rate during the project period was 3.7%)

Table 3 Changes of Average Land Prices in Sfax

unit: Tunisian dinars/m^2

2003	2004	2005	2006	2007	2008	2009	2010
200	250	250	300	300	300	350	450

Sources: Argus Real Estate

3.3.2 Other Impacts

(1) Impacts on the natural environment

Since there were few houses and noise-sensitive facilities along the motorway, no noise barrier has been constructed. As a matter of fact, no complaints from citizens have been received according to the executing agency. Although no environmental monitoring plan was prepared, during the project implementation, watering to prevent dust was undertaken as specified in the contract, and thus no complaint from neighboring citizens was heard.

(2) Land Acquisition and Resettlement

The total land area acquired was about 505 ha (with 715 land owners), and the land acquisition cost was 13.5 million Tunisian dinars (TND). The reason for the increased area (from 390 ha to 505 ha) is that based on the detailed designs, the alignment was partly changed and thus, additional land needed to be acquired depending on the topography where the alignment passes through. According to authorities of the executing agency, the land acquisition work was implemented based on the domestic regulations and procedures, and thus, it took a longer time than expected to negotiate with land owners. Eventually, the amount to be paid and contents to be covered under the compensation scheme were agreed, and no problem has arisen since then. No resettlement occurred as planned.

(3) Other Positive and Negative Impacts

Regarding division of the regional community[5], which would have been caused by construction of a motorway, STA changed the location of overbridges taking into account

[5] Adverse effects such as the case in which the travel distance to the nearest crossing point becomes longer because of introduction of a fully access controlled highway, in which crossing the highway is prohibited.

convenience of residents along the corridor based on the results of hearing with residents.

STA has contributed to increase of job opportunities by employing residents along the corridor as a toll attendant (currently about 90 regular staff) upon completion of the project.

Although the actual traffic volume on the motorway is lower than planned, the travel time was substantially shortened, and the accident rate was also lowered. Thus, development of the safe and efficient infrastructure has been accomplished. The project has somewhat achieved its objectives, and therefore its effectiveness and impact is fair.

3.4 Efficiency (Rating: ②)

3.4.1 Project Outputs

The original and actual output of the project is shown in Table 4.

(1) Civil Work (Motorway and Linking Road)

Table 4 Output (original and actual)

Item	Original	Actual
Motorway (El Jem - Sfax)	Length: 50.3km Interchanges: 3 units Bridges: 4 units Overbridges: 27 units Service Area: 1 unit Others (drainage, traffic safety facilities)	as planned as planned as planned as planned as planned Drainage, sign boards, marking, toll plaza (civil work only), pipes for emergency telephones, planting: as planned
Linking Road	6.0km	as planned

Sources: Appraisal documents, PCR, Responses to Questionnaire

Civil works (a motorway and a linking road) were completed as planned.

(2) Consulting services

The originally planned consulting services included construction supervision (field supervision, progress control, and reporting), and safeguard management (management and monitoring) with the input by 5 foreign experts (95 M/M) and by 2 local experts (62 M/M). However, at the stage of transmitting a request for proposals to consultants, the services to be provided by foreign experts were changed only to progress control and the planned input was revised so that the input by foreign experts was reduced and that by local experts was increased. The actual input was 32 M/M by foreign experts and 105 M/M by local experts, and the originally planned work assignments were implemented almost as planned.

Overbridge

Linking Road
(Sfax Interchange)

3.4.2 Project Inputs

3.4.2.1 Project Cost

The estimated project cost at appraisal was 16.669 billion yen, of which the Japanese ODA loan with a total amount of 12.501 billion yen was to be used to the foreign currency and part of local currency portions, and the rest was to be funded by the motorway company (STA). The actual project cost was 15.355 billion yen, of which the Japanese ODA loan used was 10.113 billion yen and the rest was funded by STA. Thus, the actual cost was lower than planned, which is equivalent to 92% of the planned cost.

The main reason for the lowered project cost is that since the bidding brought severe competition, contracts were awarded with lower contract prices by 25% than the estimated costs. In the original estimated cost, costs for land acquisition and preparation work, toll collection equipment, relocation of power lines (included in the cost for Msaken - El Jem section) and interest during the construction period were not included. The actual cost excluding these costs is 72% of the planned cost.

Table 5 Comparison of Project Cost (Planned and Actual)

Item	Planned					Actual				
	ODA loan (foreign)	Local		Total		ODA Loan (foreign)	Local		Total	
		Own fund	ODA loan	Total	ODA loan		Own fund	ODA loan	Total	ODA loan
	million yen	million yen	million yen	million yen	million yen	million yen	million yen	million yen	million yen	million yen
Civil Work	10,038	1,133	1,399	12,570 (145.02)	11,437	9,877	0	0	9,877	9,877
Consulting services	299	0	79	378 (4.36)	378	236	0	0	236	236
Contingency	602	68	84	754 (8.70)	686	-	-	-	-	-
Taxes	0	2,967	0	2,967 (34.23)	0	0	1,810	0	1,810	0
Land Acquisition, preparation cost	-	-	-	-	-	0	1,190	0	1,190	0
Toll collection equipment	-	-	-	-	-	0	1,000	0	1,000	0
Interest during project period	-	-	-	-	-	-0	800	0	800	0
Relocation of power lines	-	-	-	-	-	-0	442	0	442	0
Total	10,939	4,168	1,562	16,669 (192.31)	12,501	10,113	5,242	0	15,355	10,113

Source: Appraisal documents, Responses to Questionnaire
Exchange rates: 1TD=86.68 yen at appraisal, 1TD=88.20 yen (average during the period between April 2005 and June 2008) at ex-post evaluation
Note: Numbers in ( ) are in million TND.

3.4.2.2 Project Period

The project period was longer than planned. The project period planed at appraisal was from March 2002 (signing of the Loan Agreement) to May 2006 (open to public) with a total period of 51 months. The actual project period was from March 2002 (signing of the Loan Agreement) to June 2008 (open to public) with a total period of 76 months, or equivalent to 149% of the planned period.

Main reasons for delay are as follows:

1) The bidding process for civil work commenced in ten months delay against the original plan.
2) The bidding process was delayed by 11 months because of: i) the lengthy administrative process for securing clearance from relevant agencies and ii) discussions and negotiations on the request for amendment of the contract price due

to increase of oil price by contractors.

3) The topographic condition in some sections was adverse and it required longer construction period.

4) It took longer time to negotiate on the land acquisition of some land owners.

3.4.3 Results of Calculations of Internal Rates of Return (IRR)

(1) Financial Internal Rate of Return (FIRR)

By using the same conditions and assumptions applied to calculate FIRR at appraisal, the FIRR at ex-post evaluation was calculated by the executing agency as shown in Table 6. However, for calculation of the FIRR at ex-post evaluation, the project life was extended to 30 years since the investment costs have incurred over the period of 9 years.

Table 6 FIRR (at appraisal/at ex-post evaluation)

	At appraisal	At ex-post evaluation
FIRR (%)	4.5	3.4

Costs: construction cost, operation and maintenance costs
Benefits: toll revenue, residual value

(2) Economic Internal Rate of Return (EIRR)

By using the same conditions and assumptions applied to calculate EIRR at appraisal, the EIRR at ex-post evaluation was calculated by the executing agency as shown in Table 7. However, for calculation of the EIRR at ex-post evaluation, the project life was extended to 30 years as done for calculating FIRR.

Table 7 EIRR (at appraisal and at ex-post evaluation)

	At Appraisal	At ex-post evaluation
EIRR (%)	18.9	11.0

Costs: construction cost, operation and maintenance costs
Benefits: savings of travel time, VOC savings, reduction of traffic accidents

The FIRR and EIRR are lower than those estimated at the appraisal stage. Main reasons considered are: i) the actual traffic volume is lower than the projected volume by about 20%; and ii) the period when investment costs have incurred is longer than planned since the commencement of the project was delayed by about 2 years and thus it resulted in delay of occurrence of benefits as well.

Although the project cost was lower than planned, the project period was longer than planned. Therefore, efficiency of the project is fair.

3.5 Sustainability (Rating: ③)

3.5.1 Structural Aspects of Operation and Maintenance

Societe Tunisie Autoroutes (STA) is responsible for operation and maintenance of the 360 km expressway network including the project section (about 50 km). As of 2011, 96% of shares are owned by the central government and the rest by financial institutions and private enterprises. Five Regional Management Offices are in charge of the daily operation and maintenance work, and El Jem Management Office is responsible for the section between Msaken and Sfax including the project section. The routine and periodic maintenance work is undertaken by 120 staff of the El Jem Management Office. Since the motorway is still new, no major rehabilitation has been undertaken. All the maintenance works including repair of pavement surface and structures, which need specific construction equipment and vehicles are entrusted to private firms. In addition, the office is staffed with about 90 toll attendants assigned to six interchanges under the control of the office.

El Jem Maintenance Office

Service Area (an operator being recruited)

3.5.2 Technical Aspects of Operation and Maintenance

The technical capacity of staff in charge of operation and maintenance (routine maintenance) at El Jem Management Office is considered appropriate. Manuals on the maintenance and management, toll collection business and other operations have been prepared and newly recruited staff takes training at entry. Regarding the work in the field, on-the-job training has been provided to new staff.

However, the periodic maintenance and major repairs/improvement work soon need to be undertaken. Thus, since the high-level planning strategy including establishment of medium/long-term maintenance work implementation plans and decision on priority of work to be done needs to be developed, further training on the maintenance management plans needs to be undertaken.

3.5.3 Financial Aspects of Operation and Maintenance

When EIB provided the loan for Sfax - Gabes Motorway Project in March 2010, three conditionality were made: i) increase of capital amounting to 279 million TND, which was to be used for the project to be implemented by STA; ii) increase of toll charge (by 15%) every three years after 2010; and iii) increase of capital amounting to 146 million TND to be used for making financial condition healthy and financing for the accumulated deficit. Capital increase was made in 2010 (279 million TND) and in 2011 (450 million TND), the current capital of STA is 999 million TND (about 54 billion yen). The Revenue and Expenditure Status of STA for the last 3 years is shown in Table 8.

Table 8 Revenue and Expenditure Status of STA

unit: million TND

Item	2009	2010	2011
Business revenue (toll)	33.4	39.3	41.8
Operating expenses (operation and maintenance) ( ) concession fees	39.7 (10.1)	45.4 (10.7)	46.7 (0)
Balance (main business)	△6.3	△6.1	△4.9
Investment income (interest and others)	0.2	11.5	25.0
Financial costs	8.1	15.5	18.1
Other general income	0	0.6	-
Other general expenditure	0.2	0.2	-
Balance (all business activities)	△14.3	△9.7	2.0
Cash flow	14.0	19.6	44.9
Repayment of loan/year (capital and interest)	-	36.3	42.3
Cash flow/repayment of loan/year	-	0.54	1.06

Source: Responses to Questionnaire

The toll rate of the motorway in Tunisia including that for the subject motorway section has been 0.023 TND/km (about 1.2 Japanese yen/km) since opening to public, and it is considered extremely low compared with the international standard rates in terms of rate per kilometer.

As shown in Table 8, the financial status of STA was in the red in 2009 and 2010. However, since payment of the concession charge was exempted (the concession charge for 2010 was about 11.5 million TND) and the investment income amounting to 25 million TND accrued, STA ended in the black in 2011. However, there are concerns about the financial viability as a toll highway relying on only the toll revenue, taking into consideration the current low traffic volume on the project section and the projected traffic volume[6] on the further southern sections up to the border with Libya, which are now under

[6] The projected traffic volume in 2018 (2 years after the project completion) of the Gabes-Medenine section is 10,695 - 13,056 vehicles/day. This project section is to be financed by JICA.

construction or planned. As a national policy, the government intends to link major cities by the motorway network[7], in which the 750 km section would be completed by 2016, and to promote the comprehensive economic development. Thus, the government has established the back-up system, in which the financial assistance would be provided by increasing capital instead of increasing the toll rates in case of being in the red, or the government would provide guarantee when the company gets a loan from financial institutions. Thus, since the financial assistance from the government will be provided in the future, no major financial issue is observed at this moment.

3.5.4 Current Status of Operation and Maintenance

Currently, 120 staff of the El Jem Management Office implement the routine and periodic maintenance work by using their own maintenance equipment and the road surface has been maintained well. No cracks, potholes and defects of joints have been observed in the bridges and on the surface of viaducts, and thus it is likely that the maintenance has been properly undertaken. However, the current equipment fleet is minimal including 5 patrol cars, 4 mini-buses, 6 ordinary cars and a truck, and procurement of equipment including water tanks, wrecker trucks, mowing tractors and trucks needs to be accelerated. In some sections, road markings have disappeared. Should the marking work be undertaken by the management office, a line marking equipment also needs to be procured.

The operation and maintenance of the project have been properly implemented, and the effectiveness by the project is expected to continue. However, as a time has passed, items and volume of maintenance work will increase. Thus, the procurement of required equipment needs to be programmed according to the maintenance work plans.

No major problems have been observed in the operation and maintenance system, and therefore, sustainability of the project effect is high.

4. Conclusion, Lessons Learned and Recommendations

4.1 Conclusion

The objective of the project was to contribute to promotion of the economic development in both northern and southern regions in Tunisia through establishing efficient production and logistics system, and saving time costs by constructing a motorway between El Jem and Sfax in

[7] The project section is a segment within Tunisia under the Maghreb Trans-Africa Highway Concept. The total length in Tunisia is about 800 km, among which 300 km has been completed and 150 km is under construction. The 1,200 km section in the western neighboring country, Algeria has been almost completed. The 1,200 km section in its western neighboring country, Morocco has been completed. Construction of the section in the eastern neighboring country, Libya has not commenced yet.

the southern Tunis. The project has been highly relevant to the development plans and needs of Tunisia as well as Japan's ODA policies, and therefore, its relevance is high. Regarding saving of travel time, which is the project's objective, this project has somewhat achieved its objectives and has also contributed to promotion of the economic development in both northern and southern regions in Tunisia. Therefore, its effectiveness is fair. Although the project cost was lower than planned, the project period was longer than planned. Therefore, efficiency of the project is fair. Since no major problems have been observed in the operation and maintenance system (organizational setup, technical capacity and financial status), sustainability of the project is considered high.

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

4.2 Recommendations

4.2.1 Recommendations to the Executing Agency

As a time has passed, items and volume of maintenance work will increase. Thus, procurement of the required equipment needs to be programmed according to the maintenance work plans.

4.2.2 Recommendations to JICA

None

4.3 Lessons Learned

The originally planned project period was 51 months and the actual period was 76 months, which is 149% of the planned. The main reason for delay is that the procurement implementation plan for civil work and consulting services was optimistic. Presently, in establishing the project implementation plan for the ODA loan project at the appraisal stage, the standardized implementation schedule and period for each activity are applied to all the JICA funded projects. It is recommended to discuss and agree with the executing agency on the expected period needed for the procurement process and securing internal clearance based on the previous experience on the similar projects, and on the practical risk management methodology to avoid the delay.

Comparison of the Original and Actual Scope of the Project

Item	Original	Actual
1. Output		
Motorway (El Jem - Sfax section)	Length: 50.3km	as planned
	Interchanges: 3 units	as planned
	Bridges: 4 units	as planned
	Overbridges: 27 units	as planned
	Service Area: 1 unit	as planned
	Others (drainage, traffic safety facilities)	Drainage, sign boards, marking, toll plaza (civil work only), pipes for emergency telephones, planting: as planned
Linking Road	6.0km	as planned
Consulting services	Foreign experts: 95M/M, Local experts: 62M/M	Foreign expert: 32M/M, Local experts: 105M/M
2. Project Period	March 2002 -May 2006 (51 months)	March 2002 -June 2008 (76 months)
3. Project Cost		
Amount paid in Foreign currency	10,939 million yen	10,113 million yen
Amount paid in Local currency	5,730 million yen	5,242 million yen
Total	16,669 million yen	15,355 million yen
Japanese ODA loan portion	12,501 million yen	10,113 million yen
Exchange rate	1TND = 86.68 yen (as of July 2001)	1TND = 88.20 yen (average between April 2005 and June 2008)