Ex-Post Monitoring of Japanese ODA Loan Project

Zimbabwe

Mashonaland Manicaland Digitalization Project (II)

External Monitoring Consultant: Katsumi Matsuyama, Nakamoto&Associates Co., Ltd.

1. Project Description

Project Location

Switching Station (Harare)

1.1 Project Objective

The project aims to fulfill the increasing demand for telecommunications by developing telecommunication facilities including switchboards, transmission facilities and out-station facilities in the Mashonaland Provinces including the capital Harare and Manicaland to install an additional 128,800 lines (excluding suburbs), thereby contributing to the improvement of the living and investment environments of the region.

1.2 Outline of the Loan Agreement

Approved Amount / Disbursed Amount	11,451 million yen / 1,745 million yen
Loan Agreement Signing Date / Final Disbursement Date	July 1996 / October 2001
Ex-post Evaluation	2006
Executing Agency	TelOne Pvt. Ltd.(TelOne)
Main Contractor	-
Main Consultant	Nippon Information Technology Consulting Co., Ltd. (Japan)

1.3 Background and Reason of Ex-post Monitoring

Zimbabwe's existing facilities such as analogue switchboards were decrepit, and could not fulfill the rapidly growing telephone demand. Especially in central regions of Zimbabwe's economy such as Mashonaland and Manicaland which include the capital, Harare, there was concern over the shortage of telecommunication facilities that could be a bottleneck for business activities and constitute an obstacle to everyday life. In addition, shortage of subscriber cables created problems in the effective utilization of the telecommunication system as a whole, making it difficult to satisfy the tight demand for telephone services. In order to improve this situation, this project follows the installation of telecommunications facilities by Japanese ODA Loan, "Telecommunication Expansion Project (ZI-P3)", and implemented the installation of switchboards, switchboards, transmission facilities and out-station facilities in the Mashonaland Provinces including the capital Harare and Manicaland.

However, due to a series of problems related to the implementation process, the project was canceled. Of the planned installation of 125,800 subscriber cables, only 38,300 cables (excluding long-distance) were installed in Mashonaland; and in Manicaland, neither the replacement of the switchboards nor the installation of subscriber cables was implemented. In Zimbabwe, there is a problem of communication failure due to capacity shortage and aging of subscribed cables; the effect of the installation of switchboards only is believed to be limited.

This project was planned to be managed by Post & Telecommunication Corporation (PTC), but PTC was split and incorporated in July 2000 and the telecommunication service division was succeeded by TelOne (Pvt) Ltd. (TelOne).At the time of ex-post evaluation (2006), the government of Zimbabwe owned all shares of TelOne, but it had been decided by the Cabinet that TelOne will be privatized. Shares after privatization were planned as, Zimbabwe holding 70% of the share and the remaining 30% by a private entity. However, the specifics of the privatization had not been decided, and the future of TelOne was unclear. In addition, TelOne was continually in a deficit due to the country's economic downturn, and there were concerns over the procurement of spare parts and securing of budget necessary for personnel training.

Therefore, this project was selected for ex-post monitoring and reviewed under each criterion with the findings from the field survey and other research activities with a final conclusion being drawn.

2. Outline of the Monitoring Study

2.1 External Monitoring Consultant

Katsumi Matsuyama (Nakamoto & Associates Co., Ltd.)

2.2 Duration of Monitoring Study

Duration of the Study: September 2012 – June 2013

Duration of the Field Study: November 24, 2012 – December 5, 2012

3. Monitoring Results

3.1 Effectiveness

3.1.1 Quantitative Effects

3.1.1.1 Operation and Effect Indicators

(1) Installation of Switchboards

Switchboards installed by this project were only a part the switchboards operating in Mashonaland and Manicaland. In the region, there are older switchboards still operating, and there has been installation of subscriber cables. From 2002, year following the completion of the project, to present, TelOne is implementing the gradual replacement of operating outdated switchboards to switchboards made by Chinese manufacturer, Huawei. The replacement is taking time due to the limited budget provided by the government of Zimbabwe. In addition, switchboards installed by this project are classified as outdated, and is targeted for replacement. Regarding the number of subscriber cables, according to the interview with TelOne, currently there is a total capacity of 400,000 lines for switchboards and subscriber cables in Mashonaland and Manicaland. Capacities of the switchboards installed by this project, which are a part of the 400,000 lines, have decreased its capacity to 60% of its original capacity due to the lack of spare parts. The number of subscriber cables only for switchboards installed by this project could not be obtained.

On the contrary, ex-post evaluation report reported the number of subscriber cables as a total of 38,300 cables. From the fact that the difference in the number of subscriber cable is nearly 10 times between the number of subscriber cables reported in the ex-post evaluation and the findings of this study, and from the finding from an interview result that the older switchboards were in operation at the time of ex-post evaluation, it can be assumed that the ex-post evaluation's report pertained only to the switchboards installed by this project. Therefore, the comparison is not possible, since the definition for the number of subscriber cables seems to differ. However, according to the interview with TelOne, the capacity of switchboards and subscriber cables have increased as a result of the replacement of switchboards to Huawei switchboards and the additional installation of subscriber cables.

Table 1 shows the utilization rate of switchboards in Mashonaland and Manicaland. Utilization rate from 2006 to 2011 is approximately 70% in Mashonaland and 50% in Manicaland; there is surplus in capacity.

Table 1. Switchboard Utilization Rate

(Unit: %)

	2006	2007	2008	2009	2010	2011
Mashonaland	79	81	78	73	71	69
Manicaland	51	51	51	50	48	47

Source: TelOne

(2) Subscriber Cables

Subscriber cables were not installed through this project. However, according to the interview with TelOne, there is no waiting list for phone lines which is caused by shortages of subscriber cables in Mashonaland or Manicaland in 2012. According to statistics from Postal and Telecommunications Regulatory Authority of Zimbabwe (POTRAZ), the total number of subscriber cables in Zimbabwe was 346,211 in June of 2012. From the fact that the capacity of installed switchboards and subscriber cables is 400,000, it can be assumed that the service is rendered without any waiting list. The reason for the discrepancy from the ex-post evaluation report could not be obtained by this survey.

(3) Landline Telephone Penetration Rate

Landline telephone penetration rate in Mashonaland slightly increased in 2008, where it peaked at 7.9%, and have declined thereafter. Manicaland was leveled at 6% until 2008, and then declined. According to the interview with TelOne, outflow of customers due to the spread of mobile phones is the reason for the decline in landline telephone penetration rate after 2009.

Table 2. Landline Telephone Penetration Rate

(Unit: %)

	2006	2007	2008	2009	2010	2011
Mashonaland	7.1	7.9	7.9	7.3	7.4	6.9
Manicaland	6.6	6.6	6.6	6.5	6.2	6.1

Source: TelOne

Mobile phone penetration rate is shown in Table 3. According to statistics obtained from POTRAZ, numbers of subscribership to the three largest mobile operators are: Econet 6.4 million, NetOne (100% subsidiary of TelOne) 2.5 million, and TelCell: 2 million. As can be seen in Table 3, the penetration rate, which was 7% in 2006, has increased nine times to 61% after 5 years in 2011.

Table 3. Mobile Phone Penetration Rate

	2006	2007	2008	2009	2011
Penetration Rate (%)	6.78	9.82	13.29	31.99	61.25
Subscribers (1,000 people)	849	1,225	1,654	3,991	7,700

Source: Ministry of Internal Affairs and Communications

(4) Rate of Failures Fixed by the End of the Next Working Day

Rate of failures fixed by the end of the next working day in 2011 was 91% in Matabeleland and 88% in Mashonaland; the numbers have been maintained at high levels since 2009. The reason the rate of failures fixed by the end of the next working day does not reach 100%, can be accounted to failures such as lightning in which restoration by the next day is difficult. Pinpointing the accident location is difficult in such cases, and arriving at the accident scene is time consuming. Such failures are preventing the further rise of the rate.

Table 4. Rate of Failures Fixed by the End of the Next Working Day

(Unit: %)

	2007	2008	2009	2010	2011
Mashonaland	52	89	91	93	91
Manicaland	62	87	90	89	88

Source: TelOne

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

This project was terminated in the initial stage of its implementation and its cost and benefits are limited. Therefore, calculation of the internal rate of return will not be performed.

3.1.2 Qualitative Effects

See impact.

From the above indicators, the effectiveness of this project is satisfactory as the rate of failures fixed by the end of the next working day is maintained at a high level. Furthermore, there is ample telephone circuit and reserve in the capacity of switchboards from switchboard replacement and subscriber cable installation implemented by the Zimbabwe government. In addition, the number of people on the waiting list is currently zero, and quantitative effects were confirmed over the problems of insufficient switchboards and subscriber cables indicated at the time of ex-post evaluation. However, due to the spread of mobile phone, landline phone users have decreased, and as

a result, utilization rate and of switchboards and landline telephone penetration rate has decreased. This trend is expected to continue in the future.

3.2 Impact

3.2.1 Intended Impacts

3.2.1.1 Customer Satisfaction of TelOne's Communication Status

Data, such as customer surveys to ascertain the satisfaction of the communication status were not available. However, in an interview with the residents of Harare, there were no problems detected in the usage of landline telephone. The fault rates, shown in Table 5, are considerably low, and no problem can be seen. According to the interview with TelOne customer service department, since TelOne has engaged in the replacement and installation of subscriber cables, there is no significant problem. Typical complaints to the call center are due to unusual circumstances such as call failures caused by lightning or nearby construction work. Fault rate is very low. From the interview with residents and the fact that the fault is caused not by the failure of facilities but by external events, it can be concluded that the call quality has greatly improved from the time of ex-post evaluation.

Table 5. Fault Rate

(Unit: %)

	2007	2008	2009	2010	2011
Mashonaland	0.38	0.42	0.39	0.41	0.42
Manicaland	0.33	0.45	0.38	0.4	0.39

Source: TelOne

3.2.2. Other Impacts

3.2.2.1 Environmental Impact

According to the interview with TelOne, there are no environmental impacts caused by this project since the time of ex-post evaluation

3.2.2.2 Resettlement and Land Acquisition

According to the interview with TelOne, there are no resettlement or land acquisitions since the ex-post evaluation.

From the above, during this ex-post monitoring, impact of improvement in the telecommunication environment could be seen compared to the time of ex-post evaluation. In addition, communication failure rate has been maintained at a low level, and there are almost no complaints over call quality.

3.3 Sustainability

3.3.1 Structural Aspects of Operation and Maintenance

At the time of ex-post evaluation, TelOne's privatization was decided by the Cabinet. However, the government of Zimbabwe continues to hold all shares of TelOne. According to the interview with TelOne, there is no plan of privatization in the future. There is no change in the status of shareholders or the organizational structure of TelOne from the time of the ex-post evaluation.

Considering the innovation and the rapid spread of mobile phones, TelOne does not have an optimistic outlook of the landline telephone sector. However, TelOne is planning to expand its ISDN business focusing on services to companies that use landline telephones. Also, NetOne, the second largest mobile phone company in the country, is a 100% subsidiary of TelOne. Expansion of new business apart from landline telephone has become an urgent management issue.

Operation and maintenance of facilities in Mashonaland and Manicaland is conducted by the Central Management and Operations Center (CMOC) in the Customer Service Division under the Commercial Department of TelOne. Problems of staff shortage and outflow of engineers indicated at the time of ex-post evaluation have been resolved. Although information on the number of staff were not available, according to the interviews, there is approximately 105 exchange facilities with more than one engineer at each facility; and so, there is no problem of staff shortage. Engineers regularly receive training at TelOne's training center, and new engineers are recruited constantly to fill vacant positions. Application form for job seekers is available on the company website.

3.3.2 Technical Aspects of Operation and Maintenance

TelOne has a training center in Harare, where technical training is offered to its employees. The center is also the country's only training institution where acquisition of a variety of national qualifications related to communication is possible. Staff shortage, anticipated at the time of ex-post evaluation, has not occurred. According to the interview with TelOne, technical skills of individual workers, in addition to maintenance manuals, are shared at the working site, and there are currently no problem with the necessary technical skills for operation and maintenance. However, there is a need for TelOne to upgrade its training contents in order to expand its business to ISDN. Currently, TelOne is searching for a partner that can provide the knowledge of this technology.

3.3.3 Financial Aspects of Operation and Maintenance

At the time of ex-post evaluation, operating profit ratio was 4.1%. Currently, consolidated operating profit ratio, including NetOne, is 2%, and have worsened since the time of ex-post evaluation. In 2011, Revenue was 150 million US dollars (13.5 billion yen / 16% decrease from previous year), total comprehensive income was 3 million US dollars (260 million yen / 50%

decrease from previous year), and balance in equity was insolvency of 160 million US dollars. Operating loss was 30 million dollars. The main reasons for the loss are decrease in revenue due to the expansion of the mobile telephone market, constant appropriation of bad debt loss, and increases in personnel expenses resulting from the inflation from the switching of national currency in 2009. Loss for a single fiscal year has decreased by 20 billion yen from the time of ex-post evaluation, but this is due to the fact that temporary factors such as inflation and currency devaluation were not present in 2010. Although TelOne has an insolvency of 160 million US dollars, 150 million US dollars which amounts to 90% is ODA loan from the Japanese government. 40 million US dollars is a loan from African Development Bank.

It is very unlikely that TelOne will suspend its business. TelOne is a state-owned enterprise, and is engaging in an investment negotiation from a foreign company. Its subsidiary is NetOne (established 1996), which is the second largest mobile phone company in Zimbabwe. However, the company's operating funds are insufficient, and obsolete switchboards cannot be replaced immediately. Furthermore, according to the interview with TelOne, although landline telephone business is currently dominated by TelOne, a foreign telecommunications company is planning to move into Zimbabwe within the next few years. The company has begun preparations for constructing cable facilities. Since cooperation between the foreign telecommunications company and TelOne's landline phone business cannot be expected, there is concern over the worsening of the financial status of TelOne from price competition.

Switching board: empty slots can be seen

Fan is used to substitute for cooling system

3.3.4 Current Status of Operation and Maintenance

The CMOC, visited during this study, acts as the central management center for all the switching stations. Switchboards installed by this project are also operated and maintained, according to the maintenance manual, by the CMOC, and the switchboards are properly operated. Regarding the status of operation and maintenance, the equipment is showing significant signs of deterioration

compared to the time of ex-post evaluation due to lack of spare parts. Switchboards installed by this project have already become obsolete. Fujitsu, which is the vendor of the parts, closed its Zimbabwe office in 2004. The local manufacturer of spare parts has also stopped its operation. Spare parts have been lacking since 2005, and the usage rate of the switchboards is declining. In addition to the lack of spare parts, from the rapid innovation of information technology, the switchboards have become obsolete. TelOne is planning on replacing the switchboards to those made by Huawei as soon as budget is secured.

From the above, problems with organizational structure and technical capacity, which were indicated in the ex-post evaluation report, could not be seen. However, financial situation has continued to be insolvent, and this has led to an obstruction to the company's operations, such as its inability to promptly replace obsolete switchboards. In addition, the entry of the private company has been scheduled in the near future, and the current monopoly of the telephone business by TelOne will cease. It is likely that the financial situation of TelOne will worsen. Although the existing facilities are managed properly, the equipment is dilapidated due to the lack of replacement parts. However, for the budget is insufficient to replace the existing switchboards.

4. Conclusion, Lessons Learned and Recommendations

4.1 Conclusion

According to the interview with TelOne, overall capacities of the switchboards and subscriber cables have increased since the time of ex-post evaluation. TelOne has engaged in the replacement of cables and additional construction of cable facilities, and there is no significant problem with the call quality. However, the operation of facilities installed by this project is unsatisfactory due to aging and lack of spare parts. Concerning impact, communication environment has improved in the regions where the facilities were constructed by this project, leading to the reinforcement of the capacity. However, the project's contribution to the living environment and the improvement in investment condition in the country is unclear.

In financial terms, TelOne is in a deficit, and this has resulted in the obstruction of some of the company's operations such as its inability to promptly replace obsolete switchboards. In addition, foreign telecommunications company is planned to enter Zimbabwe in a few years, therefore TelOne's financial situation is expected to worsen. On the other hand, concerning the structural and technical aspects of operation and maintenance, there is sufficient number of staff, and communication of technical knowledge is effectively done through seminars and utilization of training centers; no problem could be seen in this respect Concerning the outflow of engineers, there are cases where the engineers move to the rapidly-growing mobile phone industry, but TelOne recruits new engineers in such cases and there is no problem. The effect of the spread of mobile

phone on this project is prominent. Mobile phone is spreading rapidly. Between 2006 and 2011, the penetration rate has risen nine times to 61%. On the other hand, comparing the values landline phone penetration rate for 2006 and 2011, decrease can be seen in all of the regions targeted by this project. Zimbabwe's telecommunication demand is changing, and the penetration rate of the landline phone is not expected to increase dramatically in the near future.

4.2 Recommendations

None.

4.3 Lessons Learned

None.

Comparison of the Original and Actual Scope of the Project

Item	Original	Actual
1. Outputs		38,300 lines
1) Installation of switchboards	128,800 lines in total	Not started
·Local switchboards	125,800 lines	Not started
·Long-distance switchboard	3,000 lines	Not started
2) Installation of subscriber cables	131,364 pairs in total	Construction of exchange stations (8 additional stations) in urban areas of Harare
3) Installation of transmission lines		Not started
·Inter-station transmission lines	Fiber-optic cables	Partially implemented (the portion involving the installed switchboards)
·Backbone transmission lines	Backbone transmission lines: 140 Mb/s system for Harare-Ruwa, 34 Mb/s system for Rusape-Mutare	Partially implemented (the portion involving the installed switchboards)
4) Construction of station buildings	Expansion of existing buildings: 24 stations	
5) Installation of batteries	Installation of batteries	
6) Consulting services	Detailed design, preparation of bidding documents, bid evaluation, construction supervision	
7) Training services	Technical transfer to the staff of the executing agency by the consultants and contractors	
2. Project Period	44 months July 1996 – February 2000 (Started with signing of L/A and ended with termination of the consultant contract)	64 months July 1996 – October 2001 (Started with signing of L/A and ended with loan expiry because of the problem in procurement)
3. Project Cost		
Foreign Currency	11,451 million yen	1,591 million yen
Local Currency	1,504 million yen	Not known (the portion involving construction of station buildings)
Total	12,955 million yen	Not known
ODA Loan Portion	11,451 million yen	1,745 million yen
Exchange Rate	Foreign currency 95.2 yen/US dollar Local currency 11.2 yen/ZW dollar (As of October 1995)	