

Ex-Post Monitoring of Japanese ODA Loan Project

Zimbabwe

Matabeleland Telecommunications Network Development Project

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

1. Project Description



Project Location



Central Management and Operations Center
(Bulawayo)

1.1 Project Objective

The project's objective was to promote the improvement of telecommunications in the major cities in the state of Matabeleland through installing and expanding telecommunications facilities in the regions, and thereby contributing to the improvement of the living environment and the investment climate in the region.

1.2 Outline of the Loan Agreement

Approved Amount / Disbursed Amount	9,523 million yen/9,189 million yen
Loan Agreement Signing Date / Final Disbursement Date	August 1993 / December 2002
Ex-post Evaluation	2004
Executing Agency	TelOne Pvt. Ltd.(TelOne)
Main Contractor	Telecommunication (India), Itochu Corporation (Japan)
Main Consultant	DETECON (Germany)

1.3 Background of Ex-post Monitoring

The state of Matebeleland (cf. approximately three times the size of Kyushu in Japan) is located in southwestern Zimbabwe, and its capital city of Bulawayo (population 500,000 in 1993 appraisal (cf. nearly the same size at Matsuyama City in Aichi Prefecture in Japan)) is the second largest city in the country. Matebeleland was a region central to the support of the country's thriving processing industry and manufacturing industry. However, at the time of the appraisal, the existing communications facilities including the switchboards, transmission lines, and subscriber cables were conspicuously aged. Moreover, there were as many as 23,700 telephone service applications on the waiting list, which amounted to approximately 30% of the entire domestic waiting list for telephone service. Thus, improvement of telecommunications was an important issue for the development of the industrial infrastructure in the state. Thus, this project installed and expanded telecommunications network in Matabeleland's Bulawayo and surrounding cities.

At the time of ex-post evaluation (2004) several problems were pointed out as there was an outflow of workers and difficulty obtaining spare parts. Also, there were concerns over the sustainability of the project. TelOne incurred losses of 184 billion Zimbabwe dollars due to the inflation which occurred as a result of economic downturn.

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) Number of Subscriber Cables

The number of subscriber cables has increased from the time of ex-post evaluation. However, as shown in Table 1, the number has declined since 2009. According to the interview with TelOne, this is due to customer outflow by the spread of cell-phones.

Table 1. Change in the Number of Subscriber Cables in the Project Regions

	(Unit: cables)							
	2004*	2005	2006	2007	2008	2009	2010	2011
Number of Subscriber Cables	74,040	73,514	74,317	72,820	73,341	79,918	74,560	74,165

Source: TelOne *value from ex-post evaluation

According to information obtained from Postal and Telecommunications Regulatory Authority (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 2, the mobile phone penetration rate, which was 7% in 2006, has increased nine times to 61% after 5 years in 2011.

Table 2. Mobile Phone Penetration Rate in Zimbabwe

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

Source: Ministry of Internal Affairs and Communication

(2) Landline Telephone Penetration Rate

While the mobile phone is showing rapid spread in the country, landline phone has increased 16%, between the time of ex-post evaluation and 2011, in the region that showed the most increment. The



other two regions show a decrease. Similar to subscriber cables, penetration rate of landline phone is affected by that of mobile phone. However, there is a difference between the urban area (Victoria Falls, Bulawayo) and rural area (Hwange, Gwanda). According to the interview with TelOne, reason for the decrease in the penetration rate of landline phone in the urban area is the customers'

tendency to switch to rapidly spreading mobile phone. On the other hand, in the rural areas, although there is a demand for telecommunication, antenna facilities for mobile phone do not exist, and, therefore, cannot switch to mobile phone. This is the reason for the increase in landline phone penetration rate between 2004 and 2009.

Table 3. Landline Telephone Penetration Rate in Zimbabwe

(Unit: %)

	2004*	2009	2010	2011	Difference (2004-2011)
Victoria Falls	14.8	17.0	10.7	9.6	-5.2
Bulawayo	9.7	9.6	9.2	9.1	-0.6
Hwange	2.2	6.3	6.0	6.2	4.0
Gwanda	1.3	18.1	17.9	17.8	16.5

Source: TelOne *value from ex-post evaluation

(3) Number of Lines on the Waiting List

According to the interview with TelOne, the number of lines on the waiting list from 2005 to 2011 is zero. Since the source of the numbers cannot be identified, it is unknown whether the number of lines on the waiting list was completely solved in 2005, or the number obtained in the ex-post evaluation was erroneous. Reason for the zero number of waiting lines is the fact that there is still reserve capacity in the switchboards, although the penetration rate of landline phones are rising in the rural areas. In addition, it can be conjectured that the decrease in the penetration rate of landline phones in the urban area has led to a decrease in the required number of subscriber cables.

(4) Switchboard Usage Rate

Switchboard Usage Rate is shown in Table 4. The average switchboard usage rates for the targeted four regions have decreased since the time of ex-post evaluation. The fact that the numbers decline after reaching its peak in 2009 reflects the decrease seen in the number of subscriber cables. Improvement could be seen in the delay in the laying of landlines, which was indicated in the ex-post evaluation report. After 2004, extension was made to the cable facility, and, compared to before, connection area has been extended.

Table 4. Switchboard Usage Rate

(Unit: %)

	2004*	2009	2010	2011
Victoria Falls	-	81.8	79.5	71.4
Bulawayo	-	81.3	77.6	77.5
Hwange	-	65.4	63.1	65.2
Gwanda	-	78.5	72.5	71.8
Average	75.0	76.8	73.2	71.5

Source: TelOne *value from ex-post evaluation

(5) Call Quality

Call quality has improved; call completion rate is almost 100%. This would mean a significant improvement from 70% in 2004, but TelOne is unsure of the validity of the information from 2004, and the reason for the improvement is unknown. Table 5 shows the fault rate and the rate of failures fixed by the end of the next working day. Call completion rate can be calculated by the difference between fault rate and 100 (100-fault rate). Fault rate is low in all of the regions, and it can be seen that call completion rate is maintained at a high standard. Rate of failures fixed by the end of the next working day has also shown an improvement, and maintains a high restoration rate in all of the regions. Failures such as lightning in which Pinpointing the accident location is difficult and arriving at the accident scene is time consuming make restoration by the next day difficult. Such cases are preventing the further rise of the rate.

Table 5. Fault Rate and Rate of Failures Fixed by the End of the Next Working Day
(Unit: %)

		2004*	2007	2008	2009	2010	2011
Victoria Falls	Fault Rate	-	0.02	0.03	0.03	0.25	0.03
	Rate of Failures Fixed by the End of the Next Working Day	-	79	88	89	84	89
Bulawayo	Fault Rate	3.8	0.02	0.03	0.03	0.25	0.03
	Rate of Failures Fixed by the End of the Next Working Day	-	79	88	89	84	89
Hwange	Fault Rate	-	0.02	0.03	0.03	0.25	0.03
	Rate of Failures Fixed by the End of the Next Working Day	-	79	88	89	84	89
Gwanda	Fault Rate	-	0.02	0.03	0.03	0.25	0.03
	Rate of Failures Fixed by the End of the Next Working Day	-	79	88	89	84	89

Source: TelOne *value from ex-post evaluation

Although improvement can be seen in the call quality and number of lines on the waiting list, penetration rate of landlines and number of subscriber cables is decreasing. In Zimbabwe, mobile phone is spreading more rapidly and widely than landline phone, and the effect of mobile phone can be considered substantial.

From the above indicators, the effect of this project can be judged to be limited. Although there are indicators such as “call quality” which have improved since the time of ex-post monitoring, overall landline penetration rate has decreased as a result of spread of mobile phone. In the rural areas, the landline penetration rate is increasing. However, it can be conjectured that this is due to a

passive motive that the mobile phone facility has not been constructed in the area. Since it is foreseeable that the cell-phone service will be available for the rural area in the future, further spread of landline phones cannot be expected.

3.1.1.2 Internal Rates of Return (IRR)

According to the interview with TelOne, the facilities installed by this project are only in a part of Matabeleland, and it is impossible to calculate the revenue by each facility. Therefore, financial IRR will not be calculated. Regarding economic IRR, the calculation will not be performed since the economic IRR was not calculated at the time of ex-post evaluation.

3.1.2 Qualitative Effects

See Impact for optimization and facilitation of the industry.

3.2 Impact

3.2.1 Intended Impacts

3.2.1.1 Contribution to the Improvement of Investment Environment

Ex-post evaluation reported that foreign direct investment was fluctuating yearly since 2000. However, according to the information obtained through this study, the amount of foreign direct investment from 2009 to 2011 is zero. The reasons are as follows: First, following the Lehman Crisis in 2008, many countries suffered from global economic crisis. As a result, government loan programs were reduced. Second, Zimbabwe economy was unstable; Zimbabwe has experienced repeated hyper-inflation and currency devaluation, and switched its national currency to U.S. Dollars in 2009. Third, developed countries are keeping a distance from the tyrannical government of Zimbabwe, and the countries are paying attention to the outcome of the general election to take place in 2013.

3.2.1.2 Contribution to the Improvement of Living Environment

According to the interview with the Customer Service Department of TelOne, there are no significant problems with the call quality, and there are no problems which might hinder the living environment. However, data concerning customer satisfaction could not be obtained, and contribution to the improvement of living environment could not be ascertained.

3.2.2 Resettlement, Land Acquisition, and Other Impacts

According to the interview with TelOne, there have been no resettlement or land acquisitions resulting from this project since the ex-post evaluation. There are no other positive or negative impacts.

As mentioned above, impact of this project could not be confirmed. Furthermore, foreign direct investment in Bulawayo continues to be zero. However, since factors such as economic instability, which the period of recovery cannot be determined, are involved, prediction of the future impacts of this project is difficult.

3.3 Sustainability

3.3.1 Structural Aspects of Operation and Maintenance

There is no change in TelOne's status of shareholders or the organization of Customer Service Department since the time of ex-post evaluation. 100% of TelOne's stock is owned by the government of Zimbabwe, and there is no plan of privatization. Operation and maintenance is conducted by Central Management and Operations Center (CMOC) in the Customer Service Division under the Commercial Department of TelOne. It is responsible for new installation of telephone, maintenance and inspection, telephone fee collection, and directory assistance. At the time of ex-post evaluation, insufficient manpower as a result of the economic downturn was indicated, but currently, there are no shortages of personnel. There is always an application to fill the vacant position, and there are no problems. According to "Zimbabwe 2012 Facts and Figures" published by World Food Program, Zimbabwe's unemployment rate is 60%. Therefore, there should be plenty of applicants, and TelOne is equipped with a training facility. From these facts, it is conceivable that there is no shortage of personnel. Regarding the shortage of workers reported in the ex-post evaluation report, TelOne had no knowledge of the problem.

3.3.2 Technical Aspects of Operation and Maintenance

There are no significant changes in the procedure of sharing technical information or the level of technical skill concerning the telecommunications system installed by this project. Regarding the operation and maintenance of telecommunications system installed by this project, there are maintenance manuals, and knowledge concerning operation and management is being spread by sharing of technical skills between workers at the workplace. Training on new technology such as optical fiber or technical training for new services is conducted at TelOne Training Center in Harare, when entering the company or when there is a change in personnel.

During nighttime, CMOC uses computers to conduct centralized management. However, computer's operating system and hardware of the computer management system installed by this project have become obsolete. Storage medium for the hardware are no longer in production and new storage cannot be obtained. There is a possibility to obstruct business performance.

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 (South Africa). Its subsidiary is NetOne (established 1996), which is the second largest mobile phone company in Zimbabwe. However, the company's operating funds are insufficient, that obsolete switchboards cannot be replaced immediately. Furthermore, according to the interview with TelOne, landline telephone business is currently dominated by TelOne, but within the next few years, a foreign telecommunications company is planning to move into Zimbabwe. The company has made 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 financial status of TelOne from price competition.



Switchboards: empty slots can be seen



Mini-disc drive used as storage medium

3.3.4 Current Status of Operation and Maintenance

At nighttime, CMOC uses computers to conduct centralized management of operation and maintenance. However, operating system and hardware of computer management system installed by this project has become obsolete. Storage medium for the hardware are no longer in production and new storage medium cannot be obtained. Since new storage mediums are unavailable, CMOC is constantly reusing the existing mediums. In addition, new computer applications cannot be used due to the obsolete operating system. These factors cause problems which obstruct business performance.

Switchboards installed by this project consist of the main component and the backup component, which operates in case of the failure of the main component. However, backup component is currently not functioning due to the lack of spare parts. This would mean that if the main component fails, telephone of the region covered by the switchboard will go down. The lack of spare parts is the result of Fujitsu closing its Zimbabwe office in 2004. The local manufacturer for the switchboard has also stopped its production. Problem with obtaining spare parts has persisted since 2005. Also, since there are also difficulties in obtaining other spare parts, the operating capacity of the facility has decreased to 70%.

From the above, concerning sustainability, technical skills of workers have been maintained from the time of ex-post evaluation, and no problem was detected. The number of workers is sufficient. As for financial aspects, although there are external factors such as economic instability, because TelOne is a state-owned business, and plus, it is the parent company of the country's second largest mobile phone company, it can be said that the continuity of the company is secured. However, TelOne's constant state of deficit has impeded the prompt upgrading of the equipment. Aged facilities and equipment are hindering the conducting of business as a telecommunications company. No solutions have been presented, and concerns remain.

4. Conclusion, Lessons Learned and Recommendations

4.1 Conclusion

Operation status of facilities installed by this project is unsatisfactory due to aging and lack of spare parts. The project has contributed to the improvement of telecommunications in the region since the installed facilities increased its capacity. However, its contribution to the improvement of living environment and investment climate in the country is unclear. TelOne is continually in a deficit, and this has led to negative effects in its operation such as its inability to promptly replace obsolete switchboards. In a few years, a foreign telecommunications company is planned to enter the Zimbabwe telecommunications market, and further losses by TelOne is expected as a result of competition. On the other hand, there is sufficient number of workers, and communication of

technical knowledge is effectively done through seminars and utilization of training centers. Although outflow of workers to rapidly growing mobile phone industry can be seen , TelOne has been constantly hiring new workers to fill the vacant posts, and there is no problem. At the time of ex-post evaluation, outflow of workers due to inflation was indicated, but in this study, no such outflow was detected. Also, concerning the problem of the lack of spare parts, the primary factor is not inflation, but the withdrawal of the parts vendor from Zimbabwe.

The effect of the spread of mobile phone on this project is prominent. Mobile phone is spreading rapidly. Between 2006 and 2011, the mobile phone penetration rate has risen nine times to 61%. On the other hand, the penetration rate of landline phones of the target area of this study was 17% in the highest region, and in almost all the regions, the numbers show a decrease after 2009. 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. Output		
(1) Switchboard renovations and new installations		
a) 4 locations in cities	Total: 75,000 lines	Total: 95,000 lines
-Bulawayo	67,000 lines	83,000 lines
-Hwange	3,000 lines	4,000 lines
-Victoria Falls	2,000 lines	4,500 lines
-Gwanda	3,000 lines	3,500 lines
b) 3 locations outside cities	Total: 1,180 lines	Total: 10,000 lines
-Bulawayo	-	7,000 lines
-Hwange	500 lines	1,500 lines
-Victoria Falls	180 lines	500 lines
-Gwanda	500 lines	1,000 lines
(2) Installation of Transmission Lines		
a) In city(in Bulawayo city)	Optic cable 53 km	As planned
b) Outside city(between Bulawayo, Hwange, and Victoria Falls)	Digital microwave 674 km Optic cable 18 km	As planned
(3) Installation of Subscriber Cables	239,400 pairs	388,769 pairs
(4) Consulting Service	233 M/M	438 M/M
2. Project Period	August 1993 – March 1998 (56 months)	August 1993 – September 2002 (110 months) (excluding additional output of 84 months)
3. Project Cost		
Foreign Currency	9,523 million yen	(unclear) million yen
Local Currency	2,204 million yen (ZW\$87 million)	(unclear) million yen (local currency)
Total	11,727 million yen	(unclear) million yen
ODA Loan Portion	9,523 million yen	9,180 million yen
Exchange Rate	US\$1 = ZW\$4.97 = 125 yen (March 1992)	US\$1 = ZW\$27.94 = 114 yen (average of rates from 1994 to 2002)