Zimbabwe

Matebeleland Telecommunications Network Development Project

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Field Survey: October 2004

1. Project Profile and Japan's ODA Loan

Region Map of Project Site

Switchboard at Bulawayo City Exchange

1.1 Background

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.

1.2 Objective

The project's objective was to promote the improvement of telecommunications in the major cities in the state of Matebeleland 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.

1.4 Borrower/Executing Agency

Zimbabwe Post and Telecommunication Corporation (PTC) / Zimbabwe Post and Telecommunication Corporation (PTC)(currently known as TelOne)

1.5 Outline of Loan Agreement

Loan Amount/Loan Disbursed Amount	9,523 million yen/9,189 million yen
Exchange of Notes/Loan Agreement	June 1993/August 1993
Terms and Conditions -Interest Rate -Repayment Period (Grace Period) -Procurement	3.0%30 years (10 years) General Untied
Final Disbursement Date	December 2002
Main Contractors	Itochu Corporation (Japan), Telecommunication (India)
Consultant	DETECON (Germany)
Feasibility Study, etc.	1990 Zimbabwe Post and Telecommunication Corporation (PTC)

2. Results and Evaluation

2.1 Relevance

2.1.1 Relevance of the Plan at the Time of Appraisal

In the 2nd 5-year national development plan (1991-1995), installation and expansion of the telecommunications sector were upheld as one of the country's important policies. The 5-year plan of PTC's telecommunication sector (1992-1996) aimed at installation and expansion of telecommunication facilities, and in particular, installation and expansion of the telecommunications network in Matebeleland, where the second largest city in Zimbabwe, Bulawayo, is located, was a high-priority issue. This project was to install and expand the telephone network connecting Bulawayo with surrounding cities in Matebeleland, and thus had high priority.

2.1.2 Relevance of the Plan at the Time of Evaluation

In the current national economy revitalization plan 2003 (2003-2004)[1], installation and expansion of the telecommunications sector are upheld as one of the important policies. In the current 5-year plan of PTC's telecommunications sector (2001-2005) as well, the installation and expansion of a telecommunications network in Matebeleland continues to be a priority issue. Thus, this project, which promotes the installation and expansion

[1]Since 2000 in Zimbabwe, no 5-year national development plans have been prepared. Instead, development plans that announce medium-term objectives have been prepared every two years. These are the "Zimbabwe Millennium Economic Recovery Program 2001 (2001-2002)" and the "National Economic Revival Plan 2003 (2003-2004)."

of a telecommunications network in Bulawayo and the surrounding cities of Matebeleland, continues to be highly important.

2.2 Efficiency

The output was implemented as planned, with the exception of expanding the extent of switchboard renovations and newly installed switchboards, as the result of a review of telephone demand predictions. The project period (excluding the period required for the above-mentioned expanded output) was 1.5 times longer than originally planned, but the project cost remained within the planned amount. Aside from the delay in the project period, the output achieved exceeded the plan, and thus the efficiency of the implementation of this project is largely considered as high.

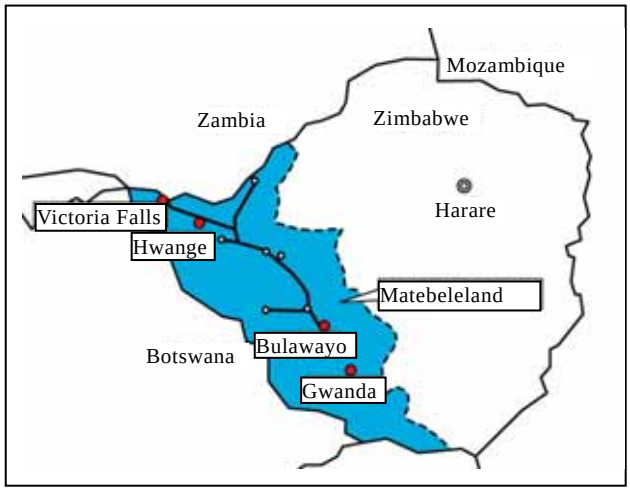
2.2.1 Output

The output planned at the time of the appraisal is as follows.

(1) Switchboard renovations and new installations:
   a) 4 locations in cities (Bulawayo, Hwange, Victoria Falls, Gwanda): Total 75,000 lines
   b) 3 locations outside cities (Hwange, Victoria Falls, Gwanda): Total 1,180 lines
(2) Installation of transmission lines:
   a) In city (in Bulawayo): Optic cables, 53 km
   b) Outside city (between Bulawayo, Hwange, and Victoria Falls): Digital microwave, 674 km; optic cables, 18 km
(3) Installation of subscriber cables: 239,400 pairs

The actual achievement of the above-mentioned plan was expanded from 75,000 lines to 95,000 lines of city switchboard renovations and new installations, and from 1,180 lines to 10,000 lines of outside-city switchboard renovations and new installations. Also, subscriber cables were increased from 239,400 pairs to 388,769 pairs. Installation of transmission lines was performed as planed. One reason for the expansion of switchboard and increase in

Figure 1 Region Map of Project Site



subscriber cable was to adjust for the new demand forecast produced by the project consultants who reviewed the demand forecast up to 2003, due to the sudden increase in telephone demand in the project region following the 1990 feasibility study. Another reason for the increase in subscriber cables was that paper-wrapped cables were used for approximately 53% (approximately 16,000 pairs) of subscriber cables in Bulawayo, and it was necessary to renew them.

2.2.2 Project Period

Whereas the project period in the plan at the time of appraisal was August 1993 to March 1998 (56 months), the actual project period was August 1993 to September 2002 (110 months), which represents a delay of 54 months compared to the plan. However, if one excludes the project period required for the above-mentioned additional output of expansion of switchboard capacity, then the delay was 28 months compared to the plan. The main reasons for the delay, aside from the extension of the project period due to the additional output, included the delay in evaluation of bids (extended from four months to one year seven months) and the delay (eight months) due to reconsideration of the results of the bid evaluations following the changes in the membership of the PTC Board of Directors.

2.2.3 Project Cost

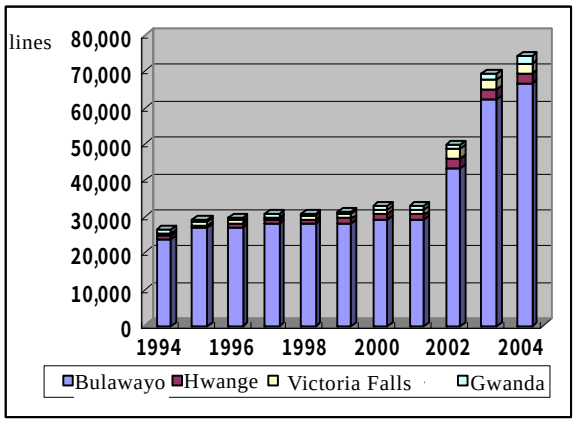
The project cost planned at the time of the appraisal was 11,727 million yen (of which 9,523 million yen was an ODA loan). Because no information was provided concerning the local currency portion of the total project cost, the final project cost could not be confirmed for this study. However, the expenditure of the ODA loan portion, which constituted the main portion of the project const, was 9,189 million yen, and it was within the amount planned.

2.3. Effectiveness

2.3.1 Increase in Telephone Ownership

The actual work on the switchboard renovations and installations began gradually in 2000 in the projects four main areas (Bulawayo, Hwange, Victoria Falls, Gwanda). The number of subscriber cables increased starting in 2000 from 33,026 cables (2000) to 74,040 cables (2004), an expansion of approximately 2.2 times. It is estimated that

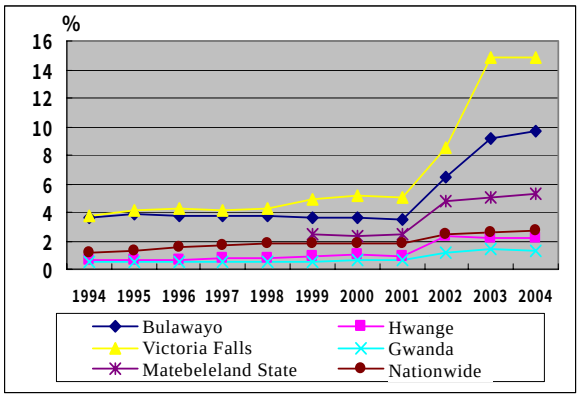
Figure 2 Number of Subscriber Cables



approximately 40,000 households benefited from this project (Figure 2).

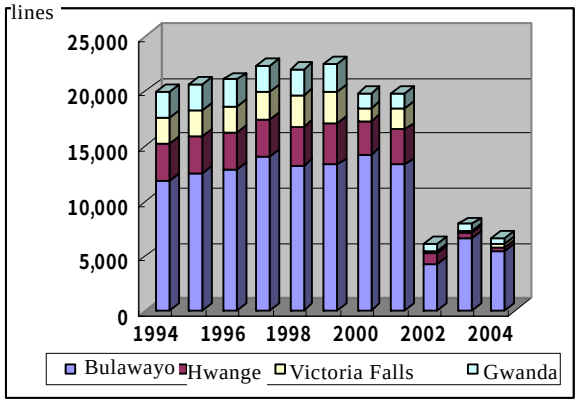
The telephone density[2] also improved in the four areas due to the increase in subscriber cables. The largest improvement was seen in Victoria Falls, with an increase from 5.1% (2000) to 14.8% (2004). This was followed by Bulawayo, with an increase from 3.6% (2000) to 9.7% (2004); Hwange, from 1.0% (2000) to 2.2% (2004); and Gwanda, 0.7% (2000) to 1.3% (2004). This project made a large contribution to the increase in telephone density in Matebeleland overall from 2.3% in 2000 to 5.3% in 2004 (Figure 3).

Figure 3 Telephone density



Source: TelOne

Figure 4 The Number of Lines on the Waiting



Source: TelOne

2.3.2 Reduction in Waiting List

The number of lines on the waiting list[3] has also been greatly reduced. In 2000, the total number of lines on the waiting list in the four areas that benefited from the project was 19,792 lines. In 2002, that figure had been greatly reduced, to 6,071 lines, due to the expansion of switchboards by this project. In Bulawayo and Victoria Falls, there was a slight increase in the waiting list from 2002 due to an increase in telephone demand, but the reduction of the waiting list has progressed in Hwange and Gwanda. In 2004, the total waiting list in the four areas that benefited from the project was 6,577 (Figure 4).

2.3.3 Usage of Switchboards

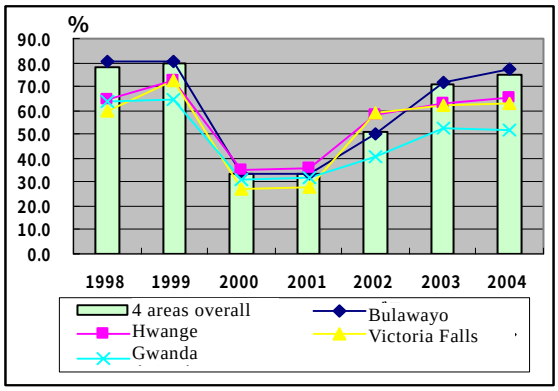
The usage rate[4] of the switchboards in the four areas that benefited from this project dropped temporarily due to the expansion of switchboard capacity by this project. Subsequently, however, the usage rate steadily grew as new subscriber cables increased. In 2004, the usage rate in the four areas that benefited from the project was 75% (Figure

[2]The number of telephones per 100 of population
[3]Number of lines for which an application has been filed but which are not yet in operation.
[4]The usage rate is the ratio (n/N) of the number of lines in use at the switchboard facility (n) to the capacity of the switchboard facility (N).

5).

The reasons reported by TelOne as to why the waiting list is not reduced (in 2004 the total waiting list in the four areas that benefited from the project was 6,577), despite the extra switchboard capacity even now of 25% in the four areas are (1) TelOne is not responding aggressively to provide telephone service due to the fact that the profitability is low either because the applicants are located far from the switchboard exchange[5] or because there are few applicants in the area covered by the given switchboard exchange, (2) the switchboard capacity of some switchboards is already full and cannot be expanded, and (3) the laying of telephone lines is not progressing due to the fact that it is difficult to procure subscriber cables because of the deterioration of the Zimbabwean economy. TelOne is aware of these problems and is currently implementing a progressive expansion plan to procure subscriber cables, etc., so as to boost the usage rate of unused switchboard capacity.

Figure 5 Usage Rate

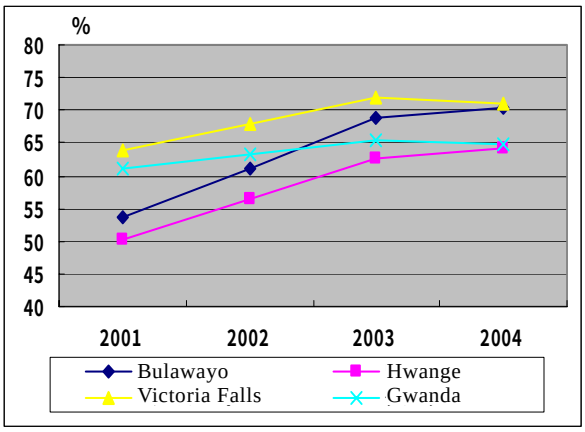


Source: TelOne

2.3.4 Improvement of Call Quality

Effects were recognized not only in the quantitative increase of telephone service in the four areas that benefited from this project, but also in improvement of the qualitative aspects. The call completion rate [6] has improved in all four geographical areas. Among the areas, improvement in Bulawayo was striking, displaying an improvement of 16.7 points, from 53.6% in 2001 to 70.3% in 2004 (Figure 6).

Figure 6 Call Completion Rate

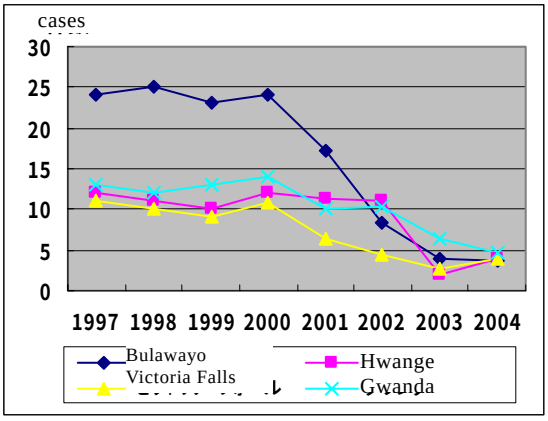


Source: TelOne

[5]Because the area covered by the Bulawayo switchboard exchanges is extensive, there are 13 switchboard exchanges in the city under the Bulawayo Central Exchange.
[6]The call completion rate is the ratio (n/N) of the number of calls placed (N) to the number of times the connection was made (n).

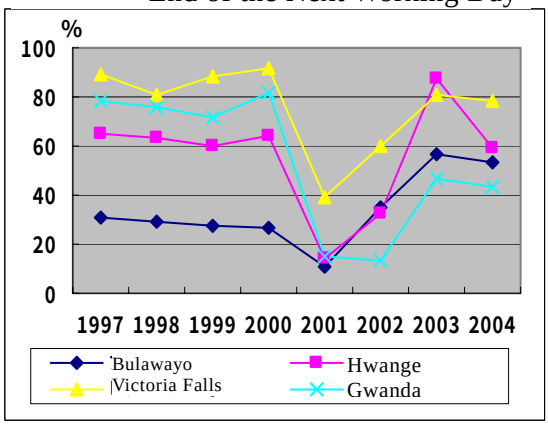
Moreover, the fault rate[7], which is an index that indicates the technical stability and maintenance condition of the facilities of this project, has improved greatly. As seen likewise with the call completion rate, the improvement in the fault rate is particularly striking in Bulawayo, where a large improvement of 20.2 points was observed, from 24% in 2000 to 3.8% in 2004. The other three areas also improved steadily, and the fault rate in the four areas in 2004 was in the range of 3% to 4% (Figure 7). Considering that the average failure rate in Africa (of 21 countries, excluding Zimbabwe) in 2002 was 27.5%[8], the approximately 74,000 subscribers (as of 2004) in the four areas are receiving high-quality telephone service.

Figure 7 Fault rate



Source: TelOne

Figure 8 Rate of Failures Fixed by the End of the Next Working Day



Source: TelOne

Looking at the rate of failures fixed by the end of the next working day[9], there was a sizable deterioration in the four areas that benefited from the project from 2000 to 2001(Figure 8). According to the executing agency, TelOne, it was difficult to respond swiftly to failures because the deterioration of the Zimbabwean economy in 2000 resulted in an insufficient budget for maintenance and repair and because it is difficult to obtain imported parts including subscriber cables. However, since 2001, the rate of failures fixed by the end of the next working day has been being in an upward trend.

2.3.5 Recalculation of the Financial Internal Rate of Return (FIRR)

The FIRR at the time of appraisal was 10%, taking as expenses the construction and the operation and maintenance cost while taking as benefits the telephone installation fees, the rental fees, and the call charges of the project's telephones, and assuming a

[7]The fault rate is the number of disorders that occur annually per 100 calls.
[8]Source: "World ICT Visual Data book 2005," The International Telecommunication Union (ITU) Association of Japan, Inc.
[9]The percentage of disorders, etc., repaired by the end of the next working day.

project life of 20 years from the completion of the project. When FIRR was recalculated for this evaluation using the same conditions, the result was 14.9%. The reason why the FIRR was higher than the level planned is that switchboard capacity was expanded beyond the amount planned, and thus there was a congruent increase in the amount collected as telephone installation fees, rental fees, and call charges, etc.

2.4 Impact

2.4.1 Contribution to Improvement of Living Environment

A beneficiary survey was conducted of 220 telephone subscriber households (120 households in Bulawayo, 100 households in Victoria Falls) that benefited from this project. Of the 220 households in the survey (of which 141 households were new telephone subscribers following implementation of the project), 137 households responded that there was a positive impact on the living environment. The main means of communication of those 137 households prior to the project was “public telephones” (40 households), “verbal messages” (21 households), “postal mail” (21 households), “hand-carried letters” (17 households), and “neighbors’ telephones” (14 households). Following the project, the main means of communication became “our own telephone,” and thus the means of communication was significantly improved.

When the 220 households participating in the survey were questioned about the impact on other living environment following the project, 184 households, or approximately 80%, responded that “communication with family members increased” after the project. Other responses included “access to information improved” (20 households), “household income rose” (15 households), “family safety rose” (13 households), and “it became easier to find ways to resolve health problems” (12 households). It was confirmed that positive impacts were felt by households who were already telephone subscribers prior to the project as well as who became new subscribers after the project.

2.4.2 Contribution to Improvement of Investment Climate

In Bulawayo, the second largest city in the country, the amount and the number of cases of foreign direct investment have been fluctuating yearly in recent years ever since the internal unrest and economic crisis (see Footnote 14) started in 2000 (Table 1).

Table 1: Foreign Direct Investment in Bulawayo (FDI)

	2000	2001	2002	2003	2004
Total Amount (million $US)	2.2	1.0	9.1	1.8	4.0
Cases	8	3	6	2	6

Source: TelOne

Note 1: 2004 figures are for January through June 2004

Meanwhile, in another beneficiary survey of 22 local companies in the processing industry and manufacturing industry (11 companies in Bulawayho and 11 companies in Victoria Falls), 19 of the 22 companies (including 8 companies that were new telephone subscribers following the project) responded that the project had a positive impact on the investment climate. Specifically, comparing before and after the project, responses stated that "the quality of the company's service rose" (4 companies) and "access to information improved" (1 company).

2.5 Sustainability

2.5.1 Executing Agency

2.5.1.1 Technical Capacity

The digital switchboard system and the optic fiber transmission lines, etc., installed by this project had already been introduced to TelOne (then PTC) by a previous ODA loan project[10], and thus TelOne had already acquired the necessary technical capacity for operation and maintenance of the project's facilities. The staff receives overseas technical training as well as domestic technical training at TelOne's training center. Concerning operation and maintenance, the staff performs daily, weekly, and monthly inspections and preventative inspections in accordance with the manual on a regular basis. At nighttime, the Central Management and Operations Center (CMOC) at the Bulawayo Central Exchange uses computers to conduct centralized management of all digital switchboard exchanges in Matebeleland, including the four areas that benefited from this project, and there are no technical problems. However, according to the executing agency, there is a shortage of engineer staff at numerous switchboard exchanges because many engineers migrate abroad to seek work due to the deterioration of the Zimbabwean economy.

2.5.1.2 Operation and Maintenance System

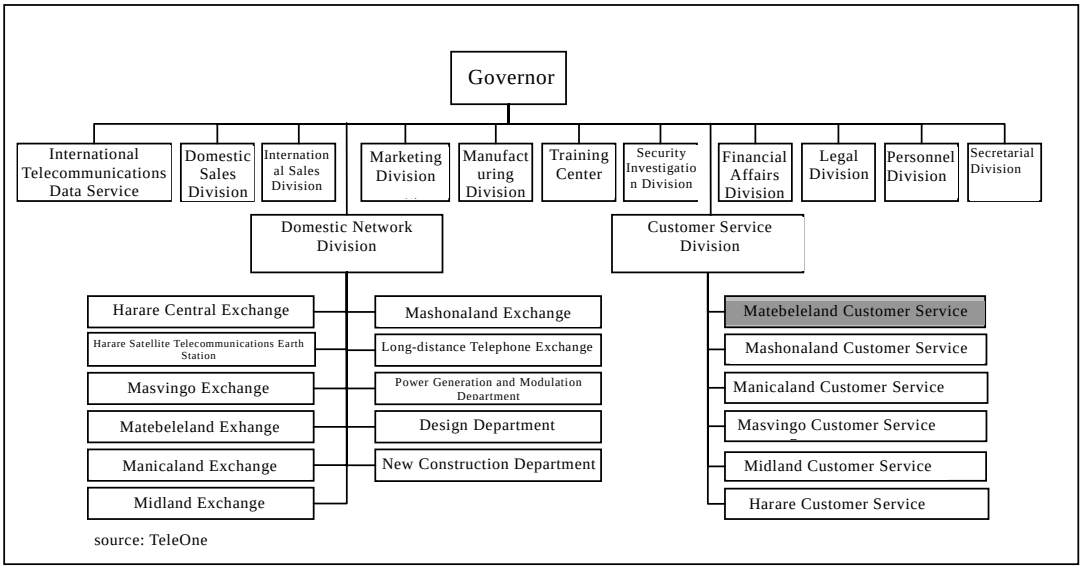
Accompanying the reorganization of the Zimbabwe Post and Telecommunication Corporation (PTC) in accordance with the Zimbabwean Government's policy of deregulations of the telecommunications sector[11], TeleOne was established in 2001 as a

[10] The ODA loan project, "Telecommunication Expansion Project (1989-1996)"replaced the old switchboards with digital switchboards and constructed optic fiber transmission lines, etc., at 13 switchboard exchanges including in Harare.

[11] The transmission sector deregulation policy reorganized PTC, where the postal sector and the telecommunications sector had been merged, and deregulated and commercialized each sector for the purpose of encouraging competition. This plan promoted the progressive privatization of TelOne by (1) reorganizing PTC (splitting apart the postal, postal savings, land line telephone, and cell phone sectors), (2) establishing and commercializing TelOne, the land line telephone company, and (3) encouraging private capital investment in the telecommunications business. (1) and (2) have been completed, but concerning (3), although the Zimbabwean Government issued a telecommunications business license to a private land line telephone company in 2003, the business had not yet been started as of the end of 2004. Also, privatization

state-owned enterprise responsible for the telephone service section of the former PTC. Operation and maintenance of this project's facilities are conducted by the 317 persons in the Matebeleland Customer Service unit. This Customer Service unit conducts customer service for Matebeleland that includes both sales and technical matters, such as installation of new telephones, maintenance inspections of switchboards, transmission lines, subscriber cables, collection of telephone charges, and directory assistance, etc.

Figure 9 TelOne Organization Chart



2.5.1.3 Financial Status

According to TelOne's audit report, sales in 2003 increased by five times compared to the previous year as a result of a hike in call rates resulting from a rise in prices in general. However, expenses for the same period increased by approximately 6.5 times compared to the previous year due to increased depreciation costs as a result of (1) an increase in general expenses and personnel expenses, etc., due to inflation and (2) an increased depreciation cost due to review of the value in domestic currency of imported equipment and a reassessment of investment in plant and equipment resulting from the large devaluation of domestic currency. For those reasons, the operating income to net sales was only 4.46 billion Zimbabwe dollars in 2003, and the ratio of operating income to net sales declined from 28.7% in 2002 to 4.1% in 2003. Furthermore, due to a massive foreign exchange loss (196.1 billion Zimbabwe dollars), ultimately a loss of 184 billion Zimbabwe dollars (approximately 23 billion yen) was posted (cf. in 2002, there was a profit of 5 billion Zimbabwe dollars). This foreign exchange loss occurred due to existing obligations to repay foreign currency loans and the interest on those loans

of TelOne still has not been achieved (currently 100% of the stock is government-owned).

(because the foreign exchange rate dropped significantly from US$1 =ZW$55 in 2002 to US$1=ZW$824 in 2003). When assets (imported equipment) were reassessed on the Balance Sheet, furthermore, a reassessment reserve of approximately 180 billion Zimbabwe dollars equivalent to the appreciation was posted in capital accounts, and liabilities in excess of assets came to 8.5 billion Zimbabwe dollars[12].

Table 2: TelOne's Main Financial Data

	2002	2003
(a) Total Assets (average of beginning and end of period)	29,093,793	175,748,662
(b) Current Assets	12,194,270	69,296,059
(c) Current Liabilities	10,620,178	111,787,636
(d) Capital	6,634,526	-8,599,818
(e) Net Sales	22,414,327	108,421,563
(f) Operating Profit	6,428,257	4,462,711
Pre-Tax Profit	5,781,375	-183,288,531
After-Tax Profit	481,629	-184,722,302
Expenses	16,098,016	104,332,846
Sales Expenses	6,937,640	58,794,668
(depreciation cost)	1,702,451	25,250,864
General Expenses(office expense)	1,996,851	7,159,554
Personnel Expenses	7,163,525	38,378,624
Foreign Exchange Loss	985,873	196,142,205
Long-term Foreign Currency Loans	10,183,303	175,526,726
Return on Assets (ROA)(%) (f)/(a)	22.09	2.54
Operating Income to Net Sales (%) (f)/(e)	28.68	4.12
Turnover Ratio of Total Liabilities and Net Worth (e)/(a)	0.77	0.62
Current Ratio(%) (b)/(c)	114.82	61.99
Equity Ratio(%) (d)/(a)	22.80	-4.89

(unit: 1,000 Zimbabwe dollars)
source: TelOne Audit Report

2.5.2 Operation and Maintenance Status

The technical support unit at the TelOne Headquarters in the capital city of Harare conducts centralized management of procurement of replacement parts. The main replacement parts are managed by the CMOC, and only the parts that frequently require replacement, such as subscriber cable cards, are stored at each switchboard exchange. Therefore, the operation and maintenance system for this project is properly established.

[12]As analyzed in this report, the deterioration in the financial condition of TeleOne was due to external factors such as inflation and the drop in the foreign exchange rate, etc. Starting in 2000 in Zimbabwe, internal unrest due to land reform problems negatively affected the tobacco industry, etc., which is a major industry. In 2001, the economy steadily deteriorated as the inflation rate exceeded 100% and the unemployment rate exceeded 70%. In politics as well, following the report from a monitoring team that the presidential election in March 2002 was unfair, the British Commonwealth of Nations decided to suspend Zimbabwe's seat on the Commonwealth Council for one year (and subsequently, Zimbabwe withdrew from the Commonwealth). Moreover, EU, the US, Australia, and northern European countries imposed sanctions such as forbidding entry to their countries by high officials of the Zimbabwean Government and freezing Zimbabwean assets, etc.

3. Feedback

3.1 Lessons Learned

None

3.2 Recommendations

None

Comparison of Original and Actual Scope

Item	Planned	Actual Performance
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 TransmissionLines		
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)