

Bangladesh

## Greater Dhaka Telecommunications Network Improvement Project (II)

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Field Survey: February and April 2007

### 1. Project Profile and Japan's ODA Loan



Map of project area



Switchboard installed under the project

#### 1.1 Background

The telephone density in Bangladesh was 0.18 per 100 people as of 1987, one of the lowest even among the least developed countries. Since the existing facilities were obsolete and insufficient to meet the growing demand for telecommunications, an ODA loan project mainly aimed to install digital telephone exchanges started in the northern part of Greater Dhaka in 1986 ("Greater Dhaka Telecommunication Network Improvement Project"). In the southern part of Greater Dhaka not covered by the above project, the old-generation equipment (step-by-step switching system) was more decrepit and the telecommunication services were deteriorated. In order to meet the growing demand for telecommunication services in Greater Dhaka, the expansion of switching capacity was required. Also for the enhancement of social and economic activities, improvement of the telecommunications infrastructure, such as this project, was urgently needed.

#### 1.2 Objective

The project objective was to assist in eliminating the waiting list for telephone subscription and to improve the telecommunication services in the southern part of Greater Dhaka by renewing and constructing telephone switching facilities and external plants, thereby contributing to the activation of economic activities in Bangladesh.

### 1.3 Borrower/Executing Agency

People's Republic of Bangladesh/Bangladesh Telegraph and Telephone Board (BTTB)

### 1.4 Outline of Loan Agreement

Loan Amount / Loan Disbursed Amount	14,761 million yen / 13,641 million yen
Exchange of Note / Loan Agreement	September 1990 / May 1992
Terms and Conditions -Interest Rate -Repayment Period (Grace Period) -Procurement	1.0% 30 years (10 years) LDC untied (Consulting service portion is partially untied)
Final Disbursement Date	February 2003
Main Contractors	Marubeni Corporation, Mitsui & Co., Ltd., Mitsubishi Corporation(Japan)
Consultant Services	Nippon information Technology Consulting Co., Ltd. (Japan)
Feasibility Study (F/S), etc.	1984 "Basic Plan for Expansion of Greater Dhaka Telecommunications Network" (JTEC)

## 2. Evaluation Result ( Rating:B )

### 2.1 Relevance (Rating: a)

#### 2.1.1 Relevance at the time of appraisal

In the 3rd Five-Year Plan (1985–1990) and the 4th Five-Year Plan (1990–1995), the revitalization of the economy through the development of telecommunications and IT was centered as an important economic policy along with the improvement of other infrastructure. Since then, telecommunications has remained an important sector for revitalization of domestic economy and attracting direct investment indispensable for the economic development of Bangladesh.

The aim of the telecommunications sector set forth in the 3rd and 4th Five-Year Plans was the expansion of exchange capacity and the increase of telephone subscriber lines. At the time of appraisal, the situation whereby 51,000 subscribers were on the waiting list for telephone subscription in Greater Dhaka (as of 1989) was considered a problem to be solved within the sector.

The serious gap between supply and demand for fixed telephone services was identified as the issue of the first priority in the 4th Five-Year Plan. Considering the huge gap between demand and capacity at that time, implementation of this project by BTTB, which provides fixed telephone services in Dhaka area, as the executing agency, was highly consistent with the national and sector policy and, therefore, was relevant.

### 2.1.2 Relevance at the time of evaluation

The 5th Five-Year Plan (1997–2002) further emphasized the importance of the telecommunications sector and set the target of improving telecommunications in rural and urban areas, international telecommunications, and telecommunications in industrial areas such as EPZ (Export Processing Zone). The economic plan discussed development of not only the BTTB business but also fixed telephone services and mobile telecommunications services. Diversification of telecommunications services (fixed telephone, mobile telephone, beeper, Internet, etc.) was set as a goal for telecommunications.

The government allows deregulation and the entry of new competitors as a policy to promote the development of the telecommunications sector. As BTTB alone cannot satisfy all the demand or provide services in all areas where there is a demand, newcomers are expected to help improve the situation and thus deregulation has been rapidly promoted. Following the first licensing of private fixed telephone service carriers (BRTA and Sheba Telecom for rural areas) and a mobile telephone service carrier (Pacific Bangladesh Telecom) in 1995, Grameen and Telecom Malaysia were licensed to operate mobile telephone services in 1996 and Internet service providers including Integrated Service Network, Grameen Cybernet, BRAC, Prodesta, and Spectranet were granted licenses in the same year. However, in Greater Dhaka, where no private fixed telephone service carrier has been licensed to operate, improvement of telecommunications services based on competition has not been realized.

Under the National Telecom Policy adopted in 1998, a structural reform of relevant authorities was conducted in addition to deregulation for both fixed and mobile telecommunications. After 2002, these practices of deregulation and invitation of foreign capital that were carried out in the 1990s were confirmed and promoted. Under this policy, the division of authority between the Ministry of Post and Telecommunications (MOPT), which is in charge of policy planning, and Bangladesh Telecommunication Regulatory Commission (BTRC), which is in charge of regulation in the telecom sector, is clearly defined both nominally and in reality. While MOPT plans and administers policies, BTRC engages in the regulation and supervision of new private companies entering the market, thus maintaining the system of checks and balances.

In Bangladesh, the economy has been growing at a rate of around 5% to nearly 6% in terms of GDP. In spite of rapid expansion of the mobile telephone market, the demand for fixed telephone services is still strong and unmet demand still exists. As of 2007, the number of mobile telephone subscriptions is 10 per 100 households (in the whole nation) whereas the number of fixed telephone subscribers is 0.8 per 100 households (in the

whole nation). In Greater Dhaka, the number of applicants on the waiting list amounted to 88,000 lines at the time of evaluation (2006). Given the current situation that the capacity for telephone service is insufficient to meet the demand, the need for fixed-telephone services that necessitated this project still exists and the project should have been implemented on an even larger scale. Also, the fixed telephone network serves as the infrastructure which supports diversified telecommunications services (such as Internet and CDMA-type fixed wireless telephone) promoted under the government policy. Therefore, this project remains relevant as of the time of evaluation.

## 2.2 Efficiency (Rating: b)

### 2.2.1 Outputs

This project covered the southern part of Greater Dhaka and the planned outputs have been achieved. Since the price of the conventional type of telephone exchange equipment, etc., declined in the international market due to technological advancement and the sharp decline in the price of Chinese products, additional procurement for central optical transmission lines, SDH equipment, optic fibers, ducts, and M/W transmission lines were carried out within the budget, which resulted in the expansion of the project scope.

As the implementation of the land acquisition plan was difficult due to the rise in land prices and difficulty in price negotiations with local residents, some changes were made including the construction of transmission lines for remote offices.

In addition, using the unused portion of the ODA loan amount, the exchange equipment at Chalk Bazaar, which had been damaged by fire, was repaired. The following shows the summary of the outputs.

- (1) Construction and reconstruction of exchange offices (normal and tandem)
  - ✓ Normal: 142,000 lines
  - ✓ Tandem: 15,300 lines
- (2) Construction of repeatered transmission network
  - ✓ Central repeatered transmission network (optical cable): 140 mb × 11 places
  - ✓ Remote repeatered transmission network (optical cable): 12 places
  - ✓ Microwave: 2 places
  - ✓ Remote UHF repeatered transmission lines: 2 places
- (3) Construction of new subscriber lines (300 K × 2 km)
- (4) Peripheral equipment of switching offices (installation and renewal)
- (5) Consulting services
- (6) SDH equipment, optic fibers, ducts, M/W transmission lines
- (7) Repair of Chalk Bazaar Telephone Exchange Office

### 2.2.2 Project period

The project period was substantially prolonged due to various factors such as land acquisition, cost reduction due to technological advancement, rehabilitation of the exchange office damaged by fire, which was financed by the unused portion of ODA loans. Since the equipment and materials procured in this project are IT products with technology advanced rapidly, technological advancement had a great impact on the delay in procurement. The procurement of new models, whose spare parts would be more stably supplied, caused a delay. This delay is simply inevitable because of the innovative nature of IT products.

Plan (at the time of appraisal)	Actual
<ul style="list-style-type: none"> <li>▪ May 1992–May 1997</li> <li>▪ 60 months</li> </ul>	<ul style="list-style-type: none"> <li>▪ May 1992–February 2003</li> <li>▪ 129 months (215% of planned period)</li> </ul>

### 2.2.3 Project cost

The planned and actual project costs are shown below.

	Plan (at the time of appraisal)	Actual
Total project cost	19,255 million yen	20,555 million yen (107% of planned amount)
ODA loan amount	14,761 million yen	14,551 million yen (98.6% of planned amount)
Foreign currency portion	11,122 million yen	14,551 million yen (131% of planned amount)
Local currency portion	8,133 million yen (1,807 million Taka)	6,004 million yen (1,590 million Taka) (74% of planned amount)

While the local currency portion was less than planned, the foreign currency portion exceeded the planned amount. In total, the project cost was slightly higher than planned. The factors that caused the increase in the project cost include the additional procurement and fluctuations of the exchange rate. The additional procurement that led to the increase in the project cost was made after the specifications planned after the appraisal requirements had been met.

The exchange rate which was 1 yen = 0.3142 Taka at the time of appraisal rose to 1 yen = 0.4 Taka, a nearly 30% depreciation of the Taka against yen. This change in the exchange rate contributed to the increase in the foreign currency portion of the project cost. Considering that these elements tend to be affected by external factors, they may be regarded as unavoidable reasons.

## 2.3 Effectiveness (Rating: a)

### 2.3.1 Number of subscriber lines, waiting list for telephone subscription, telephone exchange capacity, and telephone density

At the time of appraisal, targets to be attained were set for the number of subscriber lines and the number of applicants on the waiting list for main lines (in Dhaka), and telephone exchange capacity and telephone density (in Bangladesh). At the time of evaluation, the attainment of the project objective was examined by comparing the actual results with their planned targets. Apart from the waiting list for telephone subscription in Greater Dhaka, which has not been reduced due to stronger demand for telecommunication services, other targets were exceeded by substantial margins.

The number of applicants on the waiting list for telephone subscription can increase in a growing economy of a developing country despite capacity increases if the applications for telephone subscriptions increase with economic growth.

- Number of subscriber telephone lines: 142,000 lines (146% of planned target)
- Telephone exchange capacity in Bangladesh: 1,240,000 (318% of planned target)
- Telephone density in Bangladesh: 0.8/100 (222% of planned target)

Reference: Waiting list for telephone subscription in Greater Dhaka: 88,000 lines (2006) (178% of that at the time of appraisal)

### 2.3.2 Beneficiary survey

A beneficiary survey was conducted in the project area (Greater Dhaka) to analyze the questions for which sufficient information was not obtained in the above-listed indicators such as the “quality of telecommunications services” and “reason for subscription to telephone services” (Column 1). The results of the beneficiary survey reveal that both households and businesses recognize the quality improvement by digitization and that those who do not subscribe to telephone services refrain because of the cost.

Column 1: Survey of beneficiaries and non-beneficiaries in the project area

(Evaluation of the quality of telephone services)

(1) Objective, method and targets

A social survey was conducted in order to examine the effects of the increase in the number of fixed telephone lines and quality improvement on households and businesses in the project area and to identify the impact of this project. From the project area, seven service areas of BTTB's exchange offices (four administrative districts) of different types were selected including the housing district, small-scale business district, industrial district, and export processing district.

Household and business subscribers were randomly selected from the subscription list while non-subscribers were selected by the snowball sampling method, aiming to secure at least 250

Column-Table 1.1: Targets of Survey

	Subscribers	Non-subscribers	Total
Household	262	263	525
Business	252	251	503
Total	514	514	1028

valid responses in each category (1,000 in total), and as a result 1,028 responses were received (Table 1.1).

(2) Evaluation of the quality of telephone services

Asked about the change in the quality of telephone services after the project was implemented, 58.8% (154) of subscriber households and 70.2% (177) of subscriber businesses

Column-Table 1.2: Improvements after 2001  
(multiple answers)

said the quality had improved after 2001. The main points of improvement were "digitization" (which reduced occurrences of disconnection, noise, crossed lines and reaching wrong numbers), "improvement in services, sound quality and telephone lines" and "international call services" (Table 1.2).

	Subscriber Households (%)	Subscriber Businesses (%)
Digitization	62	88
Improvement of services	22	0
Improvement of sound and line quality	17	8
Start of ISD international call services	11	14

The reasons for not subscribing to telephone services mentioned by most households and businesses were financial reasons such as "income is not sufficient" and "call charges are high". 16% of non-subscriber households and 13% of

Column-Table 1.3: Reason for Non-subscription  
(multiple answers)

	Non-subscriber Households (%)	Non-subscriber Businesses (%)
Low income	45	37
High call charges	29	41
Insufficient services	21	36
Difficulty in connecting	28	44
Unnecessary	36	23

non-subscriber businesses tried to subscribe but were faced with problems such as the shortage of

subscription lines, unreasonably high charges, and long waiting periods (Table 1.3).

### 2.3.3 Internal rate of return (IRR)

Based on the data on income, investment expenditures and maintenance costs obtained from BTTB, cash flow was calculated assuming the project life was 20 years after the start of operation as assumed at the time of appraisal based on reasonable assumptions, and then the financial internal rate of return (FIRR) was calculated.<sup>1</sup>

FIRR: 6.9%

Costs: project cost, operation and maintenance expenses (same as at the time of appraisal)

Benefits: call charges, subscription fees, telephone installation fees

Assumptions: full operation would start in 2005 and after that the income and the expenditure would be maintained at certain amounts.

Project life: 20 years after the start of operation

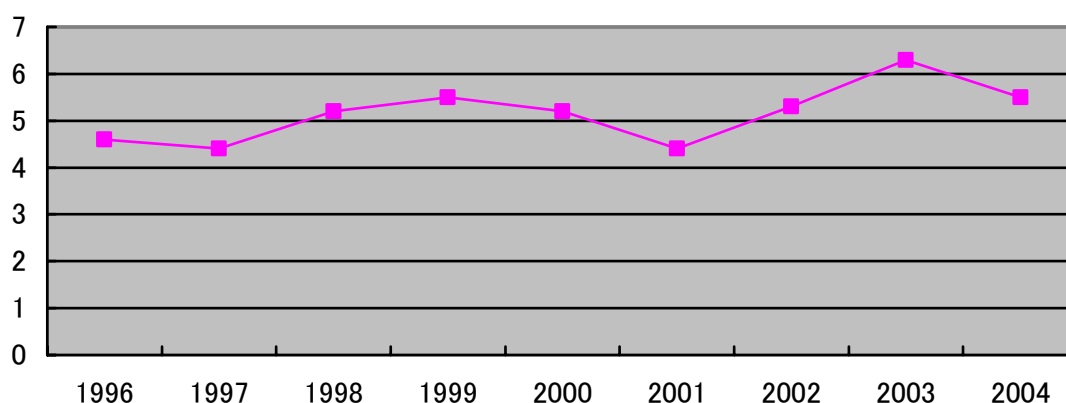
## 2.4 Impact

### 2.4.1 Quantitative effects (at the time of evaluation)

As an indicator of quantitative effects, the development of the economy of Bangladesh from a macroscopic perspective is presented below.

The real GDP growth rate is 5.8% (2004), which is almost unchanged, 105% of that as of the time of appraisal.

Figure 1: Change in GDP Growth Rate of Bangladesh (%)



(Note) Prepared based on statistics by World Bank

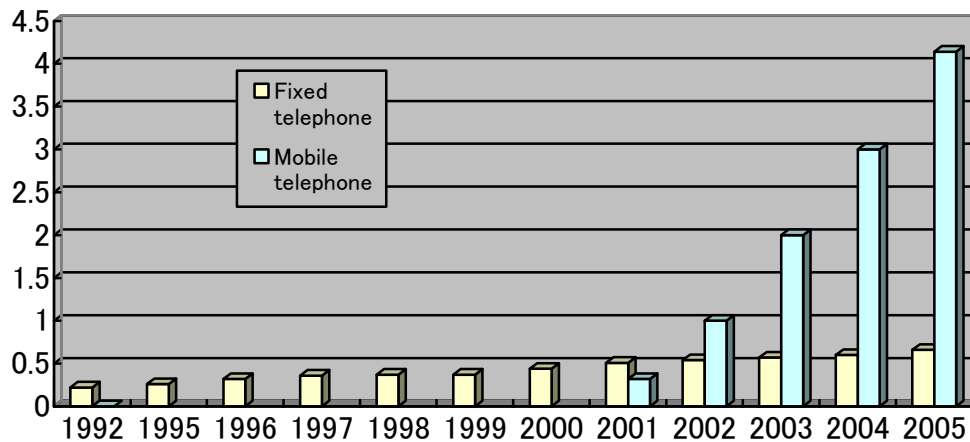
<sup>1</sup> Economic internal rate of return (EIRR) was not calculated for evaluation because it was not calculated at the time of appraisal and therefore there are no values to compare.



As indicators relating to telecommunications, subscription densities of mobile telephone and e-mail services at the time of evaluation are shown below.

- Mobile telephone density is 10 (per 100 households)
- Mobile telephone density is 15 (per 100 households in Dhaka area)
- E-mail users are less than 1% (mostly in Dhaka only)

Figure 2: Changes in Fixed and Mobile Telephone Densities in Bangladesh  
(per 100 persons)



(Note) Prepared based on data from BTTB

#### 2.4.2 Qualitative evaluation

According to the interview survey conducted in the project area, many respondents pointed out those benefits as listed below (see Column 2 for details).

- Fixed telephone subscriptions are important for business transactions and the credibility of business owners.
- Opportunities of employment and education are expanded.
- Costs of transportation and travel time are reduced.

As of 2005, there are nearly 3.4 million overseas workers in Bangladesh (Statistical Pocketbook Bangladesh 2005) and their needs for international calls among family members are high. The benefits of the project include the satisfying of their demand and, in particular, the improvement of the quality of telephone lines.

In connection with the gender issue, women are often subject to restrictions on physical mobility because of Islamic customs. As they tend to stay at home, they suffer inconvenience in communicating with relatives and have limited access to information.

Fixed telephone services brought considerable benefits to women by securing communications with relatives in and outside of the country and expanding opportunities to obtain information helpful for daily lives. The same can be said about elderly people who spend their time mostly at home.

As a benefit of fixed telephone subscriptions in the business field, foreign-owned companies in EPZ say that they can add extension lines via PBX and install many inter-office telephones with a small number of external lines. Some of these companies say that fixed telephone enables them to make international calls between their head offices abroad. Among them, a few companies can make internal calls with their head quarter via telephones lines connected to satellite communication providers.

Column 2: Survey of beneficiaries and non-beneficiaries in the project area (evaluation of the impact of fixed telephone subscriptions)

Subscriber households said that subscriptions to fixed telephone services led to “the saving of time” (84%), “the saving of cost” (66%) and “access to information” (64%) (multiple answers).

Subscriber businesses also pointed out that “saving of time” (91%), “saving of cost” (69%) and “access to information” (62%) were realized (multiple answers). Fixed telephone subscription helped both households and businesses obtain necessary information and time- and cost-saving (particularly the cost of transportation).

Column-Table 2.1: Benefits of Telephone Subscription (multiple answers)

	Subscriber Households (%)	Subscriber Businesses (%)
Access to information	64	62
Information exchange	22	23
Better network	19	35
Information collection	7	17
Saving of time	84	91
Saving of transportation costs	66	69
Communication with relatives	3	-

## 2.5 Sustainability (Rating: b)

### 2.5.1 Executing agency

#### 2.5.1.1 Technical capacity

In the telecommunications sector, technological innovation advances rapidly and the upgrading of new communications technology is taking place on a global scale. Even the newly introduced exchange equipment and WLL technology (Wireless Local Loop such

as CDMA) are becoming outdated. Being aware of such technological trends in the world, BTTB places emphasis on the training of engineers.

For this project, BTTB emphasizes related training and from 2003 to 2004 (3–62 days) sent 47 employees to 19 countries for overseas training. A total of 611 engineers and managers attended 17 courses of seminars and workshops in Bangladesh. Also, a total of 59 engineers attended 32 courses of seminars and workshops abroad. The breakdown of the training was as follows:

- Digital exchange: 18 employees (Malaysia, 12 days–3 months)
- Digital transmission: 3 employees (Japan, 1 month)
- Electric power plant: 6 employees (Malaysia, 12 days–1 month)
- Advanced training on the operation and maintenance of NEC exchange equipment: 6 employees (Japan, 20 days)
- External plant: 8 employees (Japan, 1 month)
- Diesel engine generator: 2 employees (one in Japan for 10 days and the other in Bangladesh for 10 days)
- WLL: 5 employees (Bangladesh, 2 weeks)
- Fiber cable-related external plant: 1 employee (Japan and the Philippines, 1 month in total)
- Project management: 2 employees (Bangladesh, 12 days)
- Qualification for training on radio equipment: 1 employee (Bangladesh, 12 days)
- External plant: 8 employees (Bangladesh, 2 weeks-1 month)
- Traffic accounting: 2 employees (Bangladesh, 5 days)
- Digital switching system: 3 employees (Bangladesh, 5 days)
- Transmission line testing: 3 employees (Bangladesh, 15 days)

With technological advancement, suppliers of this project are ceasing to manufacture spare parts of the exchange equipment in operation, a situation which causes technological concern over operation and maintenance. Among the models that are now working, NEC decided to discontinue manufacturing spare parts and Ericsson will also discontinue manufacturing old models, though it will continue the supply of spare parts for the new model. Alcatel intends to continue the supply of spare parts.

Due to the spare part issue, two switching offices of BTTB were consolidated with other offices. The plan was to close two offices which operated the exchange equipment whose spare parts are not produced any more (the old models of Ericsson and NEC products) and make up for the lost capacity with other exchange equipment for the time being (spare parts were also distributed). By April 2007, when the spare parts will run out, the plan is to introduce equipment made by Huawei (China) into these two offices to

resume normal operation. Therefore, although there is no problem with operation at present, an unstable situation may occur.

#### 2.5.1.2 Operation and maintenance system

BTTB consists of four divisions under the Board of Directors: the Financial Division, the Management Division, the Operation and Maintenance Division, and the Planning and Development Division. Management matters are decided by the Board of Directors. As it is not incorporated, BTTB is under the strong influence of the policy of the government (MOPT). The system is such that BTTB makes decisions concerning individual projects and daily operations while it follows MOPT's directions for decisions concerning the management system (e.g. appointment of top management) and management policy. In other words, intentions of the government are reflected in the management policy through the directors who are former MOPT officials.

The regulating and licensing of authorities of the telecom sector were transferred to BTRC when it was separated from MOPT in 2002. However, given that officials of MOPT are sent to BTTB, there is a possibility that MOPT may give preferential treatment to BTTB over other private companies and hamper the improvement of services through the principle of competition. In fact, the service areas of the two private companies, which were permitted to provide fixed telephone services in 1995, are limited to suburban agricultural areas, and do not include the central part of Dhaka. The current situation, where efficiency improvement through competition among BTTB and private newcomers are prevented in a central urban area, where the highest profitability is achievable, is not desirable from the viewpoint of promoting reforms of the whole telecommunications sector and improvement of efficiency.

In the field survey, some subscribers to fixed telephone services pointed out dubious billing practices in all aspects from subscription to telephone use such as "an additional amount is charged when installing a subscription line," "fees are charged when using brokers in order to make subscription lines available," "telephone charges are exorbitant," "some payment is demanded for recovery from disconnection," etc. These problems result in the distrust of BTTB. In order to improve services, BTTB needs to improve the billing system and to reform the business management system including eliminating corruption.

#### 2.5.1.3 Financial status

Because of its nature as a government agency, BTTB is operated fully with government fiscal funds. The operating fund may be allocated from the government's general expenditure account or special accounts for investment.

Based on cash basis accounting, BTTB covers business expenses and the repayment of

debts from special accounts with the difference between income and expenditure. The fund allocated from general expenditure accounts is formally handled as capital. However, as BTTB presently is not even an incorporated entity (for which funds provided by the government would constitute shares owned by the government and funds borrowed from the government constitute debts for BTTB), it can be said that the finances of BTTB are virtually managed based on cash basis accounting fully dependent on the national treasury funds.

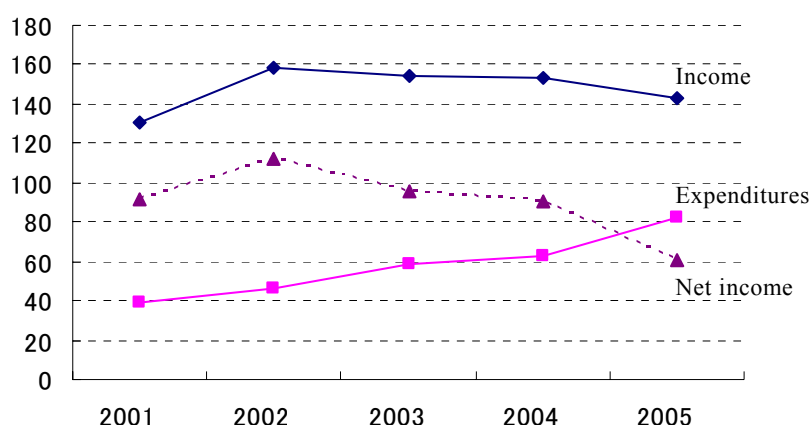
Foreign funds from ODA and OOF as part of foreign savings mobilization are selected according to the fund allocation by the government, and are not BTTB's decision<sup>2</sup>. In recent years, the difference between incomes and expenditures on a cash basis has been expanding, causing concern over decline in BTTB's capacity to borrow from the government. The main reasons for the income decrease are: (1) reduction in telephone charges as a result of intensified competition, and (2) a loss of income from licensing fees, which, formerly BTTB was permitted to collect from new telephone operating companies, since the separation of BTRC in 2002. One of the factors contributing to the increase in expenditures is a steep rise in the prices of imported materials caused by a depreciation of the local currency (Taka).

Currently, the finances of BTTB appear to be surplus because of the system to compensate for deficits with national treasury funds. However, as details of income from the telephone business and operating costs are unclear, it cannot be concluded that there will be no problem with its financial management in the future. Still, as long as the current status is maintained, BTTB's finances are covered by the government budget for each year, whether its source is general expenditure accounts or borrowings from special accounts, as deficits are to be covered by the national treasury funds in the following year. If BTTB were corporatized, business efficiency would be questioned. However, as long as it remains in its current status, no serious problem will arise in business operation and sustainable operation would continue. BTTB began considering incorporation (as a public corporation) and is now tackling the improvement of organizational efficiency, the clarification of costs, and the examining of the efficiency of investment from the national treasury.

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<sup>2</sup> One example of this special accounting is a buyer's credit from China Machinery Import and Export Corporation (211 million dollars) with which exchange equipment, telephone lines, external plant and OSP are planned to be installed (capacity increase by 500,000 lines).

Figure 3: Changes in Income and Expenditures of BTTB (unit: million Taka)



Source: prepared by the survey team based on materials obtained in response to inquiries

### 2.5.2 Operation and maintenance status

BTTB currently operates and maintains switching offices in Greater Dhaka with five employees assigned to each office. Compared to the situation before the introduction of digital exchange equipment with use of the ODA loan whereby, 50 employees were assigned to each office to operate the manual exchange equipment, a substantial improvement in labor productivity is realized by the introduction of digital exchange equipment.

In this project, training was provided within the Operation and Maintenance Division. The operating rate of exchange equipment was 100% in central Dhaka, where the survey team visited, probably due to the effects of the training. The average operating rate of Ericsson exchange equipment is 97.5%, according to the available data.

A problem was found in the monitoring of the fault rate, one of the indicators of service quality. Although present data is available, the past data is not. It was revealed that the organization had no continuous monitoring system.

## 3. Feedback

### 3.1 Lessons Learned

#### 3.1.1 Deregulation and corporatization

The forming of a project (particularly in the telecommunications sector) is well-grounded on the ongoing argument on deregulation and regulation policies (including corporatization) in consideration of changes in the industrial structure<sup>3</sup>.

<sup>3</sup> As of the time of appraisal of this project at the beginning of the 1990s, BTTB was the only provider of telecommunications services in Bangladesh and assistance to BTTB was appropriate from the viewpoint of bringing wide-ranging benefits to the county. However, as a result of deregulation after 1995, private

## 3.2 Recommendations

### 3.2.1 Telephone charges (to the executing agency)

According to the field survey, distrust of BTTB among subscribers to fixed telephone services comes mostly from the non-transparent billing, such as additional charges for installing subscriber lines, unfair billing, additional payments claimed in the case of disconnection, etc. In order to maintain and enhance the quality of services using the equipment and materials procured with the ODA loan, BTTB should take measures to rectify these problems.

It is desirable to take concrete measures urgently not only to ensure sustainability of this project but also to solve the problem of corruption, one of the biggest issues addressed by the current government.

### 3.2.2 Finance (to the executing agency)

Although the gross profit on sales of BTTB is disclosed, the service cost structure is not made publicly available. Since it constitutes a bottleneck in the discussion about the improvement of management efficiency including the discussion about conversion to a public corporation, such a situation should be improved. The World Bank, which provided financing to a project of the same type as this project, also gave recommendations from a similar viewpoint. Urgent measures are needed in this respect.

### 3.2.3 Operation and maintenance (to the executing agency)

As part of the fixed telephone services, the time required for recovery from disconnection, etc. should be shortened. Also, a system should be established to quickly respond to disconnection. In this regard, basic data such as the fault rate and waiting period are required. These data, which are important for the maintenance and improvement of services, are insufficient at present and therefore improvement is desired.

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companies entered into the fixed telephone business. Recently, conversion of BTTB to a public corporation has been discussed.

Comparison of Original and Actual Scope

Item	Plan	Actual
1. Outputs	<p>(1) Construction and reconstruction of switching offices Normal: 60,000 lines Tandem: 12,000 lines</p> <p>(2) Construction of transmission network Optical transmission lines: 140 mbps × 5 places Remote optical transmission lines: 19 places Microwave: 3 places Remote UHF transmission lines: 2 places</p> <p>(3) Construction of new subscriber lines: 300 K × 2 km</p> <p>(4) Peripheral equipment of switching offices (installation and renewal)</p> <p>(5) Consulting services Foreign consultants: 120 M/M Local consultants: 90 M/M</p>	<p>(1) Construction and reconstruction of switching offices Normal: 142,000 lines (236% of planned output) Tandem: 15,300 lines (128% of planned output)</p> <p>(2) Transmission network Optical transmission lines: 140 mbps × 11 places (220% of planned output) Remote optical transmission lines: 12 places (37% of planned output) Microwave: 2 places (67% of planned output) 1 place (site changed), 1 place (changed to optical cable), 1 place (no change) Remote UHF transmission lines: 1 place (site changed), 1 place (no change) (100% of planned output)</p> <p>(3) Construction of new subscriber lines: 300 K × 2 km (100% of planned output)</p> <p>(4) Peripheral equipment of switching offices (installation and renewal) (100% of planned output)</p> <p>(5) Consulting services (almost 100% of planned output)</p> <p>(6) SDH equipment, optic fibers, ducts, M/W transmission lines (additional procurement)</p> <p>(7) Chalk Bazaar Exchange Office (repair)</p>
2. Project Period	May 1992–May 1997 5 years	May 1992–February 2003 10 years 9 months (215% of planned period)
3. Project Cost		
Foreign currency	11,122 million yen	14,551 million yen (131% of planned amount)
Local currency	8,133 million yen (1,807 million Taka)	6,004 million yen (74% of planned amount) (2,402 million Taka)
Total	19,255 million yen	20,555 million yen (107% of planned amount)
ODA loan portion	14,761 million yen	13,640 million yen (92% of planned amount)
Exchange rate	1 Taka = 4.5 yen (at the time of appraisal)	1 Taka = 2.5 yen (exchange rate used in PCR)