

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



Site Map: Jamaica



Site Photo: Microwave Transmitter

**1.1 Background**

The expansion of telephone service within Jamaica has lagged behind the rest of Central and South America. As of 1986 there were only 3.2 subscriber lines for every 100 people, and the roughly 70,000 subscriptions for telephone lines met but half of total demand. Jamaica's switching equipment was outdated, using Step by Step or Crossbar systems that had been introduced during the mid-1960s to the 1970s. As such, the machines were becoming obsolete and manufacturers (mainly companies in England and Canada) had discontinued production of the equipment, and the supply of spare parts dried up. As a result it became impossible to respond to problems resulting from equipment failure, and it became necessary to upgrade existing equipment quickly.

**1.2 Objectives**

The objective of this project was to upgrade and modernize the telephone network, in order to meet the demand for telecommunication service in Jamaica.

**1.3 Project Scope**

This project included: construction and installation of 1) digital switching equipment supporting 38,745 lines at 14 stations and local and long distance relay exchanger for 35 port at one station; 2) digital microwave radio system for 19 routes at 90Mb/s; 3) 321,215 pair km of subscriber line and 4) 141,000 telephone sets. The JBIC loan was to cover the total foreign currency cost of materials, equipment, installation, and consulting services.

**1.4 Borrower / Executing Agency**

The Government of Jamaica / The Jamaica Telephone Company Limited (At present: Cable & Wireless Jamaica)

## 1.5 Outline of Loan Agreement

Loan Amount	9,059 million yen
Loan Disbursed Amount	8,154 million yen
Date of Exchange of Notes	June, 1988
Date of Loan Agreement	November, 1988
Teams and Conditions	
Interest Rate	3.75 %
Repayment Period (Grace Period)	30 years
Procurement	(including 10 year grace period) Partially untied loan
Final Disbursement Date	January, 1994

## 2. Results and Evaluation

### 2.1 Relevance

In November of 1987, the Jamaican government formulated a Five Year Public Sector Investment Program (1987-1992) with the goal of revitalizing production and exports while developing social infrastructure. For the telecommunications sector, a key sector for the revitalization of production, a Five Year Program of Capital Expenditure and Telephone System Development 1988-1992 was also formulated. This program aimed to spur social development through expanding telephone service. This was to be achieved by setting up switching equipment to support roughly 50,000 telephone lines, and thus introducing a digital network and improving the economic efficiency and service quality of telecommunications. This project was indispensable to the realization of that plan. Moreover, the project was a factor in the response to the rapid increase in demand for telephone service during the 1980s, and is still viable as a result of the increased importance of the telecommunications network.

### 2.2 Efficiency

#### 2.2.1 Implementation Schedule

The implementation of each component proceeded smoothly, and the project was completed as planned in December of 1991.

#### 2.2.2 Project Scope and Cost

In order to meet with demand which was reexamined after the original appraisal, there were some modifications in scope; change of station in which equipment was installed, upgrading of microwave radio volume, extension of subscriber cables, and the introduction of a high-capacity digital microwave radio system. Project costs were less than estimated at the time of appraisal due to cancellations of material and equipment orders which was covered by the executing agency's budget, a decrease in M/M for consulting services due to these changes, and a decrease in cost of procured materials and equipment.

Table 1: Comparison of the Original Plan and Actual

Project Component	Plan (Top: Scope) (Bottom: Cost (Yen)Only Foreign Currency Costs )	Actual (Top: Scope) (Bottom: Cost (Yen)Only Foreign Currency Costs )
Switching equipment	14 stations, 38,745 lines ¥2.173 billion	13 stations, 39,395 lines ¥2.004 billion
Digital Microwave Radio System	19 routes, 90Mb/s ¥836 million	19 routes, 135Mb/s ¥1.225 billion

Project Component	Plan (Top: Scope) (Bottom: Cost (Yen)Only Foreign Currency Costs )	Actual (Top: Scope) (Bottom: Cost (Yen)Only Foreign Currency Costs )
Subscriber Cables	321,215 pair km ¥2.639 billion	327,088 pair km ¥2.156 billion
Telephones	141,000 sets ¥477million	102,000 sets ¥525 million
Cellular System	17 stations 3,500 lines ¥2.088 billion	17 stations 3,500 lines ¥1.966 billion
Consulting Services	107 M/M ¥332 million	88 M/M ¥240 million

Source: Executing Agency

### 2.2.4 Implementation System

At the time of signing the loan agreement, the Jamaican government held 80% of the stock of Telecommunication of Jamaica (TOJ), the holding company for the executing agency: Jamaica Telephone Company Limited (JTC). However, Cable & Wireless expanded its shareholding of TOJ stocks from 9% to 79%, in 1990, consequently, the executing agency was privatized. This project successfully completed its objectives within the planned time period without being affected by the privatization, which was not foreseen at the time of appraisal.

## 2.3 Effectiveness

### 2.3.1 Response to demand for telephone service

At the time of appraisal, demand for telephone service was projected at 130,000 lines, but as of the completion of the project in 1992, 160,000 lines were already in use. Also, telephone density ratio rose by a dramatic 2.25 times, from 3.2 phones per 100 people in 1986 to 7.2 phones per 100 people, and the project contributed to meeting rapidly expanding demand for phone service. Through further expansion of facilities, the telephone density ratio rose to 21 phones per 100 people in 1998, a sevenfold growth over 10 years. However, there is a trend towards the increased number of unfulfilled applications for telephone service, and demand for improvement of telecommunications service in Jamaica is still high.

### 2.3.2 Contributions to Improvement of Communications Reliability

The service failure rate of 8% in 1990 fell to 7% in 1992 after completion of the project, and since then stays around 5%. It shows that the project contributed to such an increase in reliability by replacement and installation of new telephone switching equipment and peripheral devices.

Table 2 Operation Indicator for Telecommunication

	1986	1992	1993	1994	1995	1996	1997	1998
No. of Telephone Calls (in minutes)	N.A.	55,643	49,784	49,899	51,689	58,270	58,793	61,549
No. of Phone Lines in Operation (in thousands)	72	167	208	251	290	357	416	463
No. of Cellular in Operation (in thousands)	N.A.	8	15	26	45	46	58	79
No. of Unfilled Applications (in thousands of people)	114	133	170	208	168	186	180	211
Telephone Density (in sets for 100 people)	3.2	7.22	9.15	11.19	13.4	15.95	18.54	21.04
Failure Ratio (yearly average at 100 major stations)	8.0 (1990)	7.0	5.8	5.7	5.6	5.0	5.4	5.3

Source: Executing Agency

### 2.3.3 The Financial Internal Rate of Return

At the time of appraisal, the project's projected internal rate of return was 12.7%. However, due to lack of necessary data such as the initial investment costs, or the maintenance expenses and benefits, the internal rate of return could not be recalculated for this report.

### 2.4 Impact

There is no quantitative data to show the contributions of this project for the socio-economic development aspect. The executing agency's officers indicated development in the tourism sector, expansion of the manufacturing and the banking sectors and creation of employment in local communities were some of factors which may imply the impact from the project.

### 2.5 Sustainability

#### 2.5.1 Operation and Maintenance

In C&WJ, the executing agency at present, the Network Operations Department of the Network Service Division, the External Plant Development and Maintenance, and exclusive section of each group of the Customer Support Operation are responsible for operation and maintenance. Technical specialists appear to have acquired satisfactory skill levels, and there is no particular problem that will impede the facility management system and customer support. In 1998, the cellular system, which was procured under this project, was replaced and upgraded in order to meet increasing needs.

#### 2.5.2 Financial Status

Although the project is showing increases in net profit after taxes, there is an inescapable liquidity gap wherein current liabilities are greater than current assets. There is a need to establish stronger financial stability under the trend of liberalization in the Jamaican telecommunications market as stated in the next section.

Table 3: Profit and Loss Account (Unit: thousand of Jamaica Dollar)

	1997	1998	1999	2000
Profit before net Financing costs and taxation	NA	NA	6,012,105	5,805,047
Net Financing Cost	NA	NA	-743,017	-322,567
Profit before taxation	NA	NA	5,269,088	5,482,480
Taxation	1,439,764	1,675,517	1,793,511	1,718,169
Net Profit	2,665,775	3,138,786	3,475,577	3,764,311

Table 4: Balance Sheet (Unit: thousand of Jamaica Dollar)

	1997	1998	1999	2000
Assets	32,877,101	37,676,246	41,952,913	45,996,754
Current Assets	3,810,634	4,283,556	5,566,623	5,715,537
Others	29,066,467	33,392,690	36,386,290	40,281,217
Liability	14,690,432	15,328,099	16,682,039	17,462,544
Current Liabilities	4,982,197	5,656,876	7,333,300	8,788,256
Loans & Deferred Taxation	9,708,235	9,671,223	9,348,739	8,674,288
Capital & Retained Earnings	18,186,669	22,348,147	25,270,874	28,534,210
Share Capital	3,862,736	7,725,472	9,270,566	10,956,124
Capital Reserve	5,630,657	4,602,520	4,637,531	4,951,011
Retained Earnings	8,693,276	10,020,155	11,362,777	12,627,075

### 2.5.3 Others

It is highly important for operational aspects to count the liberalization of the telecommunications market. Till the year 2000, C&WJ had monopolized domestic and international telephone service, only the comparatively insignificant cellular phone market was allowed for multiple service providers. A closed monopolized market and lack in market mechanisms did not reduce problems such as the increasing number of unfilled applications and high user costs, although improvement was seen in the telephone density. In 1998, the Jamaican government agreed to the WTO policy document concerning deregulation, which aims to allow competition, lower service charges, and diversity in services by deregulating world telecommunications services. Soon thereafter, a series of revisions to the Telecommunication Legislation was made to meet the requirements of the agreement, and through these reforms, the Jamaican telecommunications market will take incremental steps towards full deregulation of the market by 2003.

As part of the opening of the telecommunications market, C&WJ is strongly expected to improve the quality and efficiency of its service such as discounting service charges.

### Comparison of Original Plan and Actual

Item	Plan	Actual
1. Project Scope		
1) Digital Switching Equipment	1) 14 stations 38,745 lines	1) 13 stations 39,395 lines
2) Digital Microwave Radio System	2) 19 routes 90Mb/s	2) 19 routes 135Mb/s
3) Subscriber Cables	3) 321,215 pair km	3) 327,088 pair km
4) Telephone	4) 141,000 sets	4) 102,000 sets
5) Cellular System	5) 17 stations 3,500 lines	5) 17 stations 3,500 lines
6) Consulting Service	6) 107MM ① Preparation of tender specification and field survey ② Detailed design and preparation of bid documents ③ Evaluation of bid and support for contract negotiation ④ Progress of works supervision	6) 88MM ① Preparation of tender specification and field survey ② Detailed design and preparation of bid documents ③ Evaluation of bid and support for contract negotiation ④ Progress of works supervision
2. Implementation Schedule		
1) Selection of Consultant	1) Feb 1988 to June 1988	1) Feb 1988 to June 1988
2) Consulting Services	2) Aug. 1988 to Dec. 1991	2) Aug. 1988 to Dec. 1991
3) Tender/Evaluation	3) Feb. 1989 to June 1989	3) Feb. 1989 to Sep. 1989
4) Manufacturing/Installation	4) July 1989 to Dec. 1991	4) Oct. 1989 to Dec. 1991
3. Project Cost		
Foreign Currency	9,059 million yen	8,154 million yen
Local Currency	1,991 million yen	N.A.
Total	11,050 million yen	N.A.
ODA Loan Portion	9,059 million yen	8,154 million yen
Exchange Rate	J\$ 1 =26.3 yen (As of 1987)	J\$ 1 = 15.7 yen (Average over disbursement period)