# CHAPTER 8

# FINANCIAL ANALYSIS

# CHAPTER 8 FINANCIAL ANALYSIS

## 8-1 General

The purpose of the financial analysis is to examine the financial viability of the Lusaka International Airport Development Project based on an assumption that the Airport would be administered on a self-supporting accounting principle.

The evaluation is made in terms of the financial internal rate of return (FIRR) derived from the financial cost-benefit analysis which is made with the cash flow of the financial costs and the financial benefits, comparing the Project with the Base Case as defined in Section 7-2-1 of the preceding chapter.

## 8-2 Estimate of Financial Costs

### 8-2-1 Investment Costs

The construction costs estimated in Chapter 6 hereinabove are based on the market prices, and are, therefore, used as the financial costs of the investment for the Project. The financial cost of the Base Case inclusive of indirect taxes is estimated based on the results shown in Table 7-1 in Section 7-3-1 of the preceding chapter.

8-2-2 Maintenance and Operation Costs

Estimates of the financial costs of the annual maintenance and operation of the Airport in the Project case and the Base Case for the assumed project life of 20 years, commencing in the year of opening of the Phase I facilities, are made in the same manner as described in Section 7-3-2 of the preceding chapter, with the results as shown in Table 8-1.

Table 8-1 Financial Costs of Annual Maintenance and Operation of Lusaka International Airport

(In 1985 thousand Kwacha)

| Item | Base Case | | | Overall Project | |
|---|---|---|---|---|---|
| | 1990-1996 | 1997 | 1998-2010 | 1990-1999 | 2000-2010 |
| (1) Maintenance | | | | | |
| Airfield | 2 | 4,838 | 87 | 398 | 693 |
| Terminal Area | 33 | 33 | 33 | 1,003 | 1,962 |
| Air Navigation | 929 | 929 | 929 | 1,878 | 2,425 |
| Subtotal | 964 | 5,800 | 1,049 | 3,279 | 5,080 |
| (2) Operation | | | | | |
| Operation | 866 | 866 | 866 | 866 | 866 |
| Wage | 1,470 | 1,470 | 1,700 | 1,825 | |
| Subtotal | 2,336 | 2,336 | 2,336 | 2,566 | 2,691 |
| (3) General | 330 | 814 | 339 | 585 | 777 |
| (4) Grand Total | 3,630 | 8,950 | 3,724 | 6,430 | 8,548 |

## 8-3 Estimate of Financial Benefits

Financial benefits of the Project comprise the airport revenue increments consisting of those accruing from the airport tariff and airport premises rentals as shown below.

### 8-3-1 Airport Tariff

The airport tariff is collected on the 4 charge items of landing, lighting, parking and passenger service based on the current airport tariff structure of Zambia, and the tariff increments are estimated on the basis of the Aviation (Aerodromes Fees) Notice, 1984, comparing the Project case with the Base Case not only for foreign users as described in Subsection 7-4-2 (2), but also for domestic users of the airport as shown below.

(1) Landing Charges

Day landing charges for domestic flights are levied at 50% of the charges applicable to international flights.

(2) Lighting Charges

Lighting charges for domestic flights are levied at 50% of charges applicable to international flights.

(3) Parking Charges

Parking charges for domestic flights are levied at the same rate as for international flights.

(4) Passenger Service Charges

Domestic passenger service charges are levied at K5.00 per embarking passenger.

Table 8-2 shows the annual airport tariff increments estimated based on the above conditions for the assumed project life of 20 years.

8-3-2 Airport Premises Rental Increments

Airport premises rentals are collected from tenants such as airlines, freight forwarders, travel agents and concessionaires operating under contract with the Government. Based on the current rental rates and existing space, estimation is made on the airport premises rentals on the planned rentable space for the Project case as shown in Table 8-3.

Table 8-2 Financial Airport Revenue Increments

(In 1985 thousand Kwacha)

| YEAR | Landing Charge | Lighting Charge | Parking Charge | Passenger Service Charge | Total Revenue |
|---|---|---|---|---|---|
| 1990 | 1,223 | 154 | 43 | 1,060 | 2,480 |
| 1991 | 1,492 | 193 | 52 | 1,315 | 3,051 |
| 1992 | 1,760 | 232 | 61 | 1,586 | 3,640 |
| 1993 | 2,029 | 272 | 71 | 1,874 | 4,246 |
| 1994 | 2,298 | 312 | 82 | 2,180 | 4,872 |
| 1995 | 2,565 | 351 | 93 | 2,505 | 5,515 |
| 1996 | 2,931 | 408 | 107 | 2,850 | 6,296 |
| 1997 | 3,296 | 464 | 121 | 3,217 | 7,098 |
| 1998 | 3,661 | 519 | 137 | 3,608 | 7,924 |
| 1999 | 4,026 | 576 | 153 | 4,022 | 8,776 |
| 2000 | 4,389 | 633 | 169 | 4,463 | 9,653 |
| 2001 | 4,870 | 703 | 177 | 4,819 | 10,568 |
| 2002 | 5,351 | 773 | 185 | 5,192 | 11,502 |
| 2003 | 5,832 | 843 | 194 | 5,583 | 12,453 |
| 2004 | 6,314 | 913 | 203 | 5,993 | 13,423 |
| 2005 | 6,789 | 982 | 212 | 6,423 | 14,405 |
| 2006 | 6,659 | 1,021 | 223 | 6,870 | 14,773 |
| 2007 | 6,529 | 1,058 | 234 | 7,340 | 15,161 |
| 2008 | 6,400 | 1,095 | 245 | 7,831 | 15,571 |
| 2009 | 6,270 | 1,132 | 257 | 8,346 | 16,005 |
| 2010 | 6,139 | 1,170 | 269 | 8,885 | 16,463 |
| TOTAL | 90,822 | 13,804 | 3,287 | 95,961 | 203,875 |

Table 8-3 Airport Premises Rental Increments

| | Present | Phase I | Phase II |
|---|---|---|---|
| (1) Rental Space (sq.m) | | | |
| Airlines Office | 730 | 1,900 | 3,500 |
| Restaurants | 1,680 | 1,200 | 2,300 |
| Concessions | 300 | 750 | 1,100 |
| Total | 2,710 | 3,850 | 6,900 |
| (2) Rentals (K thousand) | 327 | 466 | 835 |
| (3) Rate per sq.m (K) | 121 | 121 | 121 |
| (4) Increments (K thousand) | - | 139 | 508 |

8-4 Financial Evaluation

Financial cost-benefit analysis is made on the basis of the cash flow of the financial costs and the financial benefits obtained through comparison between the Base Case and the Project case in the same manner as in the economic analysis. The results are shown in Table 8-4 for the Project including both Phase I and Phase II, while Table 8-5 shows the results for the Project with only Phase I implemented.

The financial internal rate of return (FIRR) for the Project including the phase I and II shows a negative value, while the FIRR for the Phase I of the Project is 2.3%. If the current

airport tariff is increased at 10% as a whole, then the FIRR for the entire Project will show a positive value of 0.6%, and that for the Phase I only will be 3.4%.

It is concluded that the Project is not financially feasible under the current airport tariff structure if the Airport is to be run on a self-supporting accounting principle. In the event that the Project is implemented with financial assistance of foreign loans, it will be necessary to take some effective measures to increase the Airport's operational revenues either by raising the level of the airport tariffs by more than 10%, or by governmental subsidy. In the former case, it would be desirable to implement only the Phase I of the Project to start with, because the required increase of the current airport tariffs which is already ranked among the highest in SADCC countries, might cause a decrease in operations by foreign airlines. A decision on the implementation of the Phase II should be made after carefully reviewing the Airport's presently forecast demand in the light of the actual future demand at Lusaka Internationa Airport in the years to come.

## Table 8-4 Cash Flow of Financial Cost and Benefits

(The Entire Project)

(In 1985 thousand Kwacha)

| YEAR | Financial Cost of Phase1 & 2 (A) Invest Cost | Mainte Operat Cost | Financial Cost of Base Case (B) Replace-ment Cost | Mainte Operat Cost | Incre-mental Cost (C=A-B) | Financial Benefits Land-ing Charge | Light-ing Charge | Park-ing Charge | Pass-enger Service Charge | Premi-ses Rentals | Total Benefits (D) | Net Finance Benefits (D-C) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1987 | 6,012 | 0 | 0 | 0 | 6,012 | 0 | 0 | 0 | 0 | 0 | 0 | -6,012 |
| 1988 | 22,303 | 0 | 2,539 | 0 | 19,764 | 0 | 0 | 0 | 0 | 0 | 0 | -19,764 |
| 1989 | 75,699 | 0 | 20,072 | 0 | 55,627 | 0 | 0 | 0 | 0 | 0 | 0 | -55,627 |
| 1990 | 0 | 6,430 | 0 | 3,630 | 2,800 | 1,223 | 154 | 43 | 1,060 | 139 | 2,619 | -,181 |
| 1991 | 0 | 6,430 | 0 | 3,630 | 2,800 | 1,492 | 193 | 52 | 1,315 | 139 | 3,190 | 390 |
| 1992 | 0 | 6,430 | 0 | 3,630 | 2,800 | 1,760 | 232 | 61 | 1,586 | 139 | 3,779 | 979 |
| 1993 | 0 | 6,430 | 0 | 3,630 | 2,800 | 2,029 | 272 | 71 | 1,874 | 139 | 4,385 | 1,585 |
| 1994 | 0 | 6,430 | 0 | 3,630 | 2,800 | 2,298 | 312 | 82 | 2,180 | 139 | 5,011 | 2,211 |
| 1995 | 0 | 6,430 | 0 | 3,630 | 2,800 | 2,565 | 351 | 93 | 2,505 | 139 | 5,654 | 2,854 |
| 1996 | 0 | 6,430 | 0 | 3,630 | 2,800 | 2,931 | 408 | 107 | 2,850 | 139 | 6,435 | 3,635 |
| 1997 | 3,811 | 6,430 | 0 | 8,950 | 1,291 | 3,296 | 464 | 121 | 3,217 | 139 | 7,237 | 5,946 |
| 1998 | 5,242 | 6,430 | 0 | 3,724 | 7,948 | 3,661 | 519 | 137 | 3,608 | 139 | 8,063 | 115 |
| 1999 | 56,888 | 6,430 | 0 | 3,724 | 59,594 | 4,026 | 576 | 153 | 4,022 | 139 | 8,915 | -50,679 |
| 2000 | 0 | 8,548 | 0 | 3,724 | 4,824 | 4,389 | 633 | 169 | 4,463 | 508 | 10,161 | 5,337 |
| 2001 | 0 | 8,548 | 0 | 3,724 | 4,824 | 4,870 | 703 | 177 | 4,919 | 508 | 11,076 | 6,252 |
| 2002 | 0 | 8,548 | 0 | 3,724 | 4,824 | 5,351 | 773 | 185 | 5,192 | 508 | 12,010 | 7,186 |
| 2003 | 0 | 8,548 | 0 | 3,724 | 4,824 | 5,832 | 843 | 194 | 5,583 | 508 | 12,961 | 8,137 |
| 2004 | 0 | 8,548 | 0 | 3,724 | 4,824 | 6,314 | 913 | 203 | 5,993 | 508 | 13,931 | 9,107 |
| 2005 | 0 | 8,548 | 0 | 3,724 | 4,824 | 6,789 | 982 | 212 | 6,423 | 508 | 14,913 | 10,089 |
| 2006 | 0 | 8,548 | 0 | 3,724 | 4,824 | 6,659 | 1,021 | 223 | 6,870 | 508 | 15,281 | 10,457 |
| 2007 | 0 | 8,548 | 0 | 3,724 | 4,824 | 6,529 | 1,058 | 234 | 7,340 | 508 | 15,669 | 10,845 |
| 2008 | 0 | 8,548 | 0 | 3,724 | 4,824 | 6,400 | 1,095 | 245 | 7,831 | 508 | 16,079 | 11,255 |
| 2009 | 0 | 8,548 | 0 | 3,724 | 4,824 | 6,270 | 1,132 | 257 | 8,346 | 508 | 16,513 | 11,689 |
| 2010 | 0 | 8,548 | 0 | 3,724 | 4,824 | 6,139 | 1,170 | 269 | 8,885 | 508 | 16,971 | 12,147 |
| TOTAL | 169,955 | 158,328 | 22,611 | 82,772 | 222,900 | 90,822 | 13,804 | 3,287 | 95,961 | 6,978 | 210,853 | -12,047 |

FIRR = -.820824698092

Table 8-5 Cash Flow of Financial Cost and Benefits

( Phase I of the Project )

(In 1985 thousand Kwacha)

| YEAR | Financial Cost of Phase 1 Invest Cost | Financial Cost of (A) Mainte Operat Cost | Financial Cost of Base Case (B) Repalce-ment Cost | Financial Cost of Base Case (B) Mainte Operat Cost | Incre-mental Cost (C=A-B) | Financial Benefits Land-ing Charge | Light-ing Charge | Park-ing Charge | Pass-enger Service Charge | Premi-ses Rentals | Total Benefits (D) | Net Finance Benefits (D-C) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1987 | 6,012 | 0 | 0 | 0 | 6,012 | 0 | 0 | 0 | 0 | 0 | 0 | -6,012 |
| 1988 | 22,303 | 0 | 2,539 | 0 | 19,764 | 0 | 0 | 0 | 0 | 0 | 0 | -19,764 |
| 1989 | 75,699 | 0 | 20,072 | 0 | 55,627 | 0 | 0 | 0 | 0 | 0 | 0 | -55,627 |
| 1990 | 0 | 6,430 | 0 | 3,630 | 2,800 | 1,223 | 154 | 43 | 1,060 | 139 | 2,619 | -,181 |
| 1991 | 0 | 6,430 | 0 | 3,630 | 2,800 | 1,492 | 193 | 52 | 1,315 | 139 | 3,190 | 390 |
| 1992 | 0 | 6,430 | 0 | 3,630 | 2,800 | 1,760 | 232 | 61 | 1,586 | 139 | 3,779 | 979 |
| 1993 | 0 | 6,430 | 0 | 3,630 | 2,800 | 2,029 | 272 | 71 | 1,874 | 139 | 4,385 | 1,585 |
| 1994 | 0 | 6,430 | 0 | 3,630 | 2,800 | 2,298 | 312 | 82 | 2,180 | 139 | 5,011 | 2,211 |
| 1995 | 0 | 6,430 | 0 | 3,630 | 2,800 | 2,565 | 351 | 93 | 2,505 | 139 | 5,654 | 2,854 |
| 1996 | 0 | 6,430 | 0 | 3,630 | 2,800 | 2,931 | 408 | 107 | 2,850 | 139 | 6,435 | 3,635 |
| 1997 | 0 | 6,430 | 0 | 8,950 | -2,520 | 3,296 | 464 | 121 | 3,217 | 139 | 7,237 | 9,757 |
| 1998 | 0 | 6,430 | 0 | 3,724 | 2,706 | 3,661 | 519 | 137 | 3,600 | 139 | 8,063 | 5,357 |
| 1999 | 0 | 6,430 | 0 | 3,724 | 2,706 | 4,026 | 576 | 153 | 4,022 | 139 | 8,915 | 6,209 |
| 2000 | 0 | 6,430 | 0 | 3,724 | 2,706 | 4,389 | 633 | 169 | 4,463 | 139 | 9,792 | 7,086 |
| 2001 | 0 | 6,430 | 0 | 3,724 | 2,706 | 4,389 | 633 | 169 | 4,463 | 139 | 9,792 | 7,086 |
| 2002 | 0 | 6,430 | 0 | 3,724 | 2,706 | 4,389 | 633 | 169 | 4,463 | 139 | 9,792 | 7,086 |
| 2003 | 0 | 6,430 | 0 | 3,724 | 2,706 | 4,389 | 633 | 169 | 4,463 | 139 | 9,792 | 7,086 |
| 2004 | 0 | 6,430 | 0 | 3,724 | 2,706 | 4,389 | 633 | 169 | 4,463 | 139 | 9,792 | 7,086 |
| 2005 | 0 | 6,430 | 0 | 3,724 | 2,706 | 4,389 | 633 | 169 | 4,463 | 139 | 9,792 | 7,086 |
| 2006 | 0 | 6,430 | 0 | 3,724 | 2,706 | 4,389 | 633 | 169 | 4,463 | 139 | 9,792 | 7,086 |
| 2007 | 0 | 6,430 | 0 | 3,724 | 2,706 | 4,389 | 633 | 169 | 4,463 | 139 | 9,792 | 7,086 |
| 2008 | 0 | 6,430 | 0 | 3,724 | 2,706 | 4,389 | 633 | 169 | 4,463 | 139 | 9,792 | 7,086 |
| 2009 | 0 | 6,430 | 0 | 3,724 | 2,706 | 4,389 | 633 | 169 | 4,463 | 139 | 9,792 | 7,086 |
| 2010 | 0 | 6,430 | 0 | 3,724 | 2,706 | 4,389 | 633 | 169 | 4,463 | 139 | 9,792 | 7,086 |
| TOTAL | 104,014 | 135,030 | 22,611 | 82,772 | 133,661 | 73,556 | 10,445 | 2,774 | 73,305 | 2,919 | 162,999 | 29,338 |

FIRR = 2.27600747295

CHAPTER 9

# PROJECT IMPLEMENTATION PROGRAMM

# CHAPTER 9 PROJECT IMPLEMENTATION PROGRAMME

## 9-1 General

The organizations and training programme and the financing plan for the implementation of the Project are studied based on the results of the preceding Chapters, with the supplemental materials compiled in Appendices G and H.

## 9-2 Organizations and Training Programme

### 9-2-1 Airport Administration Organization

The existing Lusaka International Airport is well operated, but no exclusive organization exists for the comprehensive and integrated administration of the Airport. It will be absolutely necessary and is highly recommended, therefore, to have an independent administrative organization established for the Airport for the sake of its effective management, operation and maintenance. Fig. 9-1 shows a recommended plan of such administrative organization.

The Airport's proposed administrative organization is envisaged to be similar in basic structure to the existing organization, belonging to the DCA and being composed of Technical Division and Administration Division, both under the control of the airport commandant. The planning and constructior

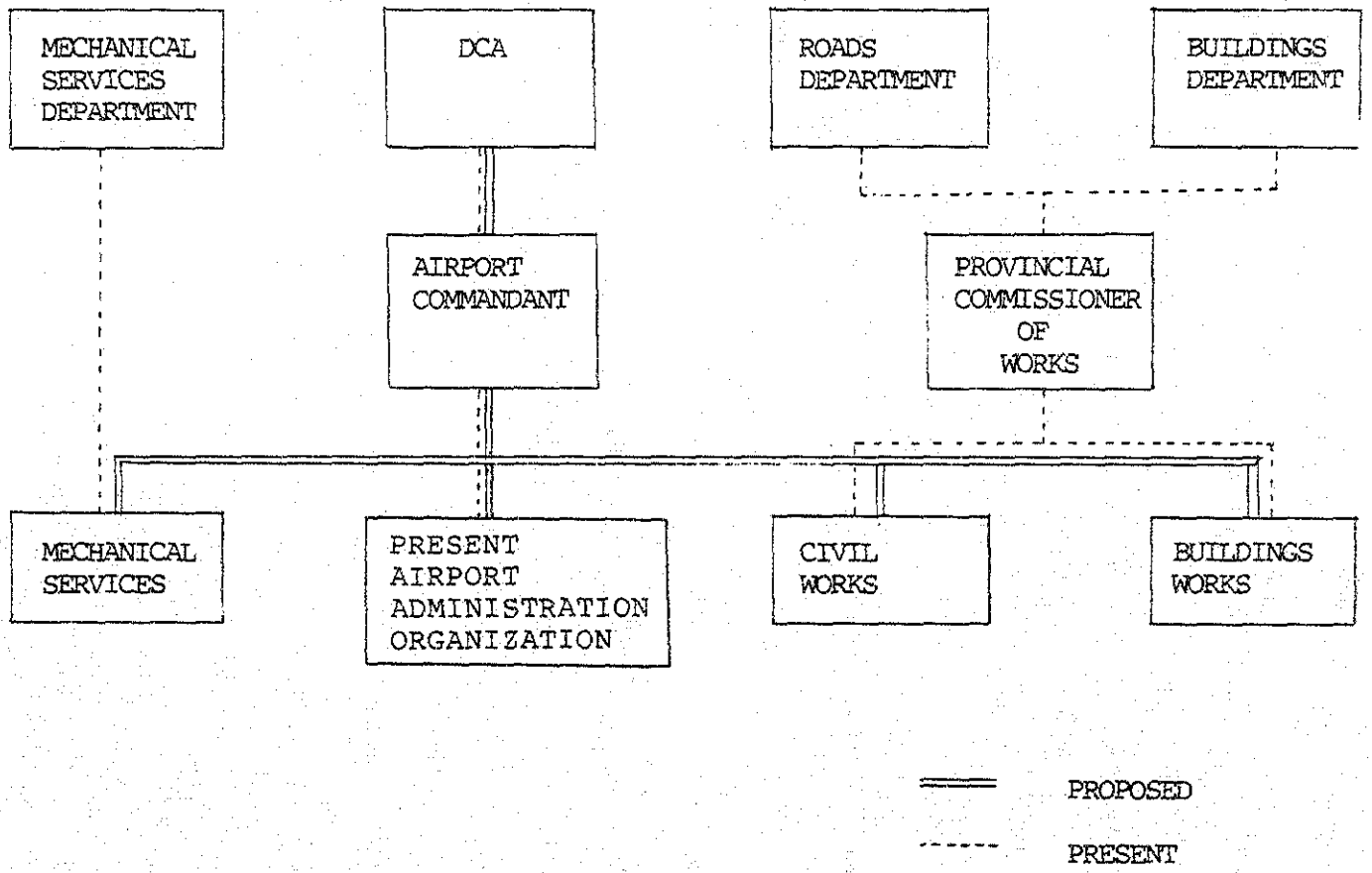



Fig. 9-1 Proposed Organization for Lusaka International Airport

of the improvement work of the Airport should fall under the jurisdiction of the Roads, Building and Mechanical Services departments, as it does today.

The Technical Division will be responsible for the effective and efficient operation and maintenance of the Airport, and be composed of the air traffic control services, telecommunications (engineering), telecommunications (operations), and rescue/fire service, all of which exist today, as well as the civil works, buildings and mechanical services section which are to be newly included as shown in Fig. 9-1.

The air traffic control section will be in charge of the control of aircraft landing and taking off at the Airport as well as those flying over and around the Airport using ASR/SSR. The number of controllers required for the initial year of the new ASR/SSR operation will comprise one chief of the ATC section and 5 senior air traffic control officers, each heading a 10-member team, working on 5 shifts. Thereafter no particular need for the staff increase is anticipated.

The telecommunications (engineering) section will be in charge of maintaining the radio navaids and telecommunications equipment, all of which are planned to be renewed under the Project, except for ASR/SSR Radar and Data Processing System which are to be newly added. An increase in the number of staff will, therefore, be required only for the new facilities.

The telecommunications (operations) section will be responsible for approving flight plans and providing aeronautical information and telecommunications services. No necessity to increase the present number of staff for the telecommunications facilities is anticipated throughout the project life.

The rescue/fire service section staff will comprise 1 divisional fire officer, 2 mechanical superintendent, 7 fire officers and 99 staff members grouped into 4 teams working on 4 shifts, with no increase in the number of staff being necessitated during the project life.

The civil works section will be in charge of daily maintenance, including upkeep, of the runway, taxiway, apron and drainage, as well as of the turfing in the landing area, etc. It is recommended that present Lusaka International Airport senior road inspector and his staff be transferred to work under the control of the airport commandant. No staff increase in this section is envisaged throughout the period of the project life, except for the airfield maintenance vehicle drivers for the pavement area cleaning.

The buildings section will be in charge of maintenance of the passenger and cargo terminal buildings, administration building, etc., including their normal upkeep. It is recommended that all existing staff of this section belonging to the Buildings Department be transferred to be directly under the control of the

airport commandant. It is necessary to increase the number of staff here in order to cope with the planned increase in the building floor area of the Airport.

The mechanical services section will be responsible for the maintenance of the airfield lighting facilities and all of the electrical and mechanical facilities of the Airport. It is recommended that all existing staff of this section belonging to the Mechanical Services Department be transferred to be directly under the control of the airport commandant. This section will require an increase in the number of staff in order to cope with the planned addition of new facilities and new equipment concerned.

The Administration Division will be composed of the general duties, registry, stores and accounts sections, all of which are expected to require an average annual increase in the number of staff of about 2% throughout the project life. The division staff for security check of the passengers and for collection of passenger service charges will need to be increased in order to cope with the expected increase of passengers and new installation of equipment of the Airport.

Table 9-1 summarizes the manning programme of the Airport's administration, operation and maintenance for the years of completion of the proposed improvement works, namely 1990 and 2000 for Phase I and Phase II respectively.

Table 9-1 Recommended Manning Programme of Lusaka International Airport Organization

| YEAR / CLASSIFICATION | PRESENT (1985) | 1990 | 2000 |
|---|---|---|---|
| AIRPORT COMMANDANT | 1 | 1 | 1 |
| AIRPORT MANAGER | 2 | 2 | 2 |
| ADMINISTRATION | 1 | 1 | 1 |
| TECHNICAL | 1 | 1 | 1 |
| ADMINISTRATION STAFF | 131 | 173 | 218 |
| GENERAL ADMINISTRATION | 118 | 128 | 140 |
| SECURITY CHECK | 10 | 36 | 63 |
| PASSENGER SERVICE CHARGE | 3 | 9 | 15 |
| TECHNICAL | 209 | 239 | 240 |
| ATC | 34 | 56 | 56 |
| COM. ENGINEERS | 31 | 39 | 40 |
| COM. OPERATORS | 35 | 35 | 35 |
| RESCUE/FIRE SERVICE | 109 | 109 | 109 |
| MAINTENANCE | 240 | 265 | 269 |
| CIVIL WORKS | 134 | 139 | 139 |
| BUILDING WORKS | 84 | 86 | 88 |
| MECHANICAL SERVICES | 22 | 40 | 42 |
| GRAND TOTAL | 583 | 680 | 730 |

## 9-2-2 Project Implementation Organization

In order to facilitate implementation of the Lusaka International Airport Development Project, it is highly desirable to establish a Project Office within and under the control of the DCA with 10 staff members as shown in Fig. 9-2. It will also be necessary to reinforce the capability of the Project Office in matters related to international bidding, management of the detailed engineering and construction works, training of the airport operation and maintenance personnel, etc. To this end, included in the recommended organization as shown in Fig. 9-2 is the expatriate advisor whose major role is to give appropriate advice to the Project Office on all matters of the Project and who will need to be well versed in the planning, engineering and supervisory works of airport construction. The role of the Zambian coordinator is to audit the Project accounts from the design stage through the completion of the construction work, and to advise the chief of the Project Office on the Project's financial matters as appropriate. It is naturally desirable that the members of the Project Office staff will constitute the key personnel in the recommended airport administration organization, except for the expatriate advisor and the Zambian coordinator.

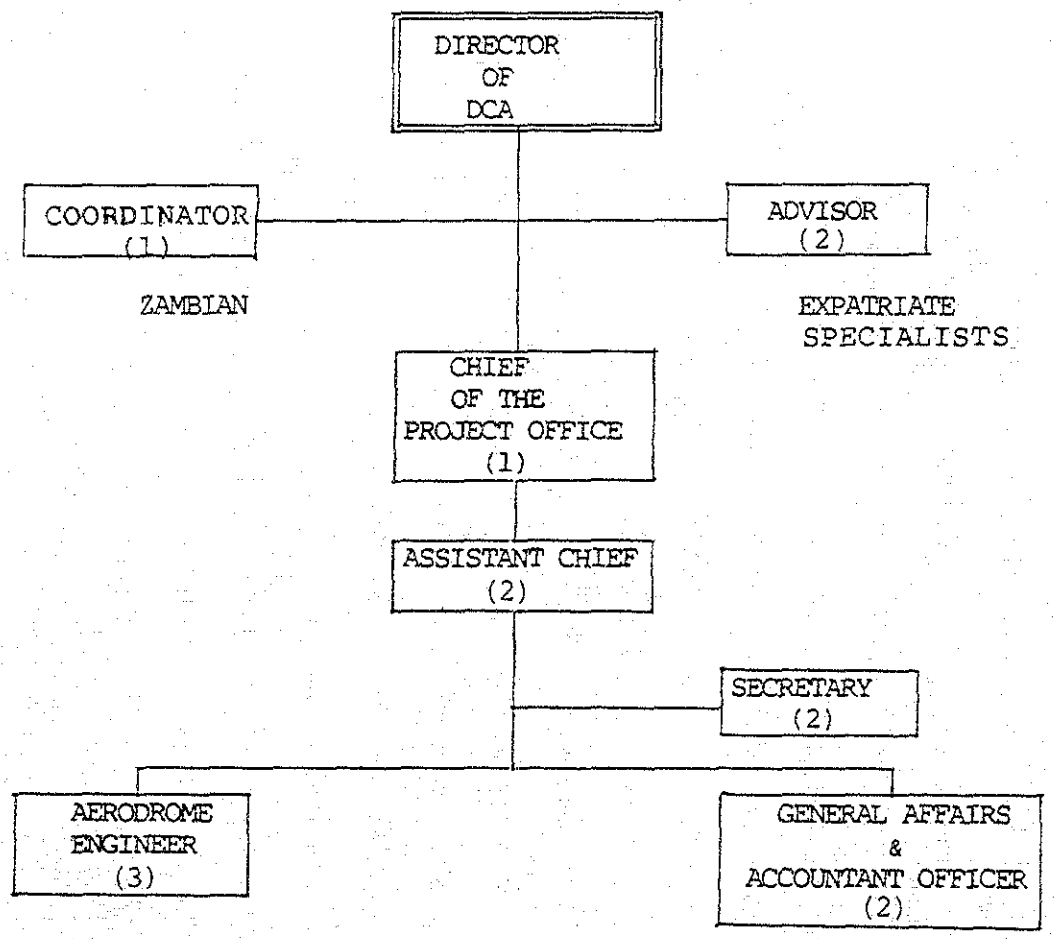


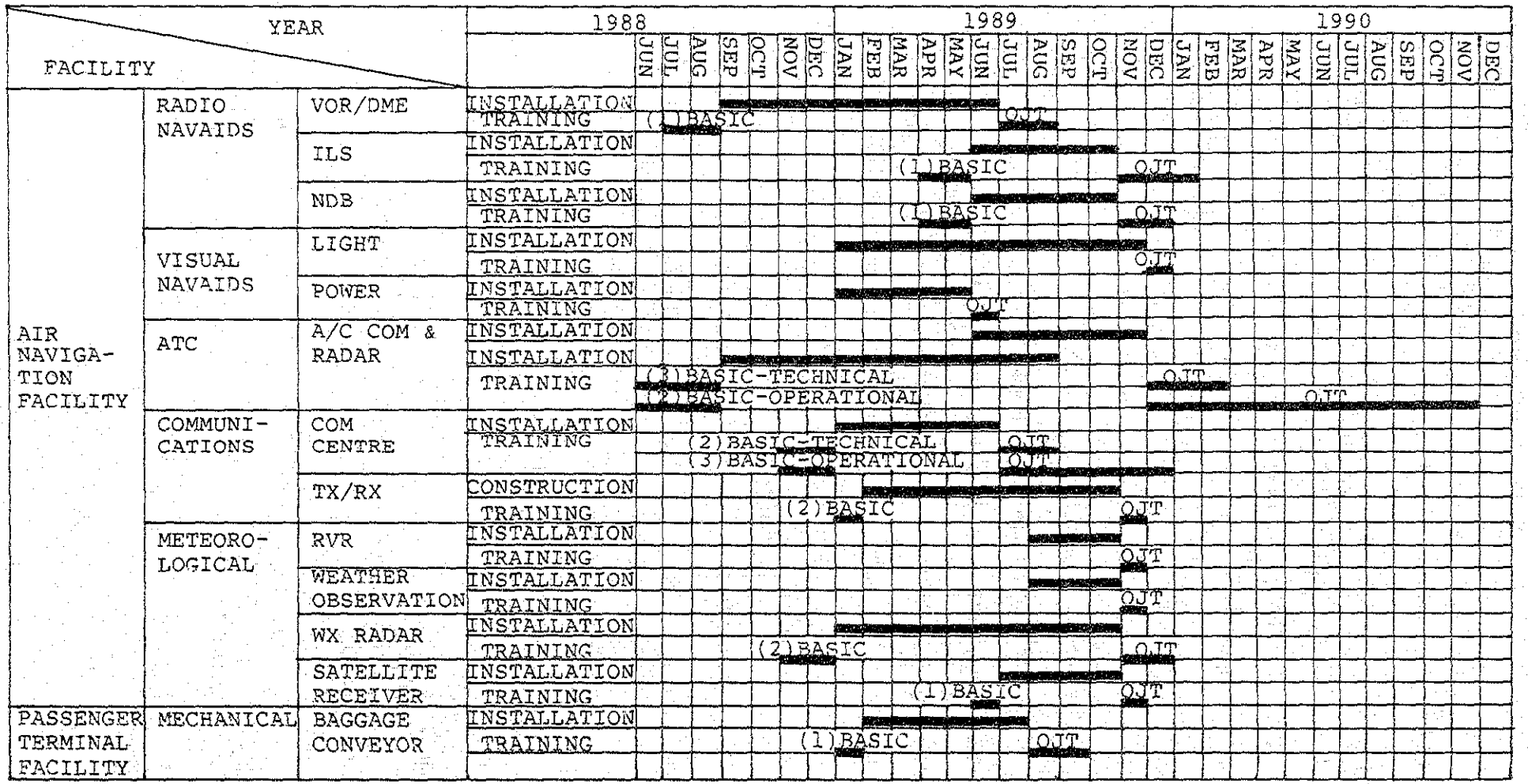

Fig. 9-2 Proposed Project Implementation Organization

### 9-2-3 Personnel Training Programme

It will be necessary to establish and implement a special personnel training programme for the air navigation facilities and mechanical facilities of the Airport.

The training is divided into two parts, one basic and the other on-the-job. In the basic training the trainees will receive the training beginning at the manufacturing stage of the equipment at the factory. On-the-job training will be given in Zambia to the trainees who have completed the basic training at the manufacturer's factory. The proposed schedule of the special training programme by facility is summarized in Table 9-2.

Table 9-2 Proposed Training Schedule for Lusaka International Airport Development Project




BASIC : TRAINING AT MANUFACTURE'S FACTORY

OJT : ON THE JOB TRAINING

## 9-3 Financing Plan for the Project

The objective of this section is to make a forecast of the cash flow during the period 1987 - 2010 for the implementation of the Phase I Plan of the Project based on the assumed conditions of the necessary financing.

### 9-3-1 Assumptions

The assumptions made for the forecast of the cash flow are as follows:

(1) Price Contingency

It is estimated at 5% per annum for the foreign portion of the funds based on the past inflation rates in eligible source countries, and at 15% per annum for the local portion based on the past inflation rates in Zambia.

(2) Conditions of Funds

The conditions of funds available are assumed as shown in Table 9-3.

Table 9-3 Conditions of Funds Available

| Portion | Type of Funds | Interest Rate | Grace Period | Repayment Period |
|---|---|---|---|---|
| Foreign | Soft Loan | 3.5% | 10 years | 30 years |
| | Hard Loan | 8.5% | 5 years | 15 years |
| Local | Commercial Loan | 13% | 3 years | 10 years |
| | Government Finance | 0% | - | - |

(3) Cases of Forecasting

Forecast of the cash flow is made for the 4 cases as shown in Table 9-4.

Table 9-4 Cases of Forecast of Cash Flow

| Case | Portion | Type of Funds | Ratio (%) |
|---|---|---|---|
| Case 1 | Foreign | Soft Loan | 100 |
| | | Hard Loan | - |
| | Local | Commercial Loan | - |
| | | Government Finance | 100 |
| Case 2 | Foreign | Soft Loan | 100 |
| | | Hard Loan | - |
| | Local | Commercial Loan | 100 |
| | | Government Finance | - |
| Case 3 | Foreign | Soft Loan | 50 |
| | | Hard Loan | 50 |
| | Local | Commercial Loan | - |
| | | Government Finance | 100 |
| Case 4 | Foreign | Soft Loan | 50 |
| | | Hard Loan | 50 |
| | Local | Commercial Loan | 50 |
| | | Government Finance | 50 |

## 9-3-2 Results of Forecast

Based on the above assumptions, forecast is made of the cash flow in which annual deficits are subsidized by the Government, with the results as shown in Table 9-5.

Table 9-5 Forecast of Cash Flow with Government Subsidy

| Case | Turning Point for Surplus | | Maxmimum Annual Subsidy by the Government |
|---|---|---|---|
| | Annual Surplus | Cumulative Cash | |
| Case 1 | the year 1992 | the year 1992 | K3,105,000 in 1989 |
| Case 2 | the year 1998 | the year 1998 | K6,347,000 in 1989 |
| Case 3 | the year 2000 | the year 2000 | K5,332,000 in 1989 |
| Case 4 | the year 2000 | the year 2000 | K8,564,000 in 1989 |

If the annual deficit is to be financed by a short-term commercial loan with an assumed interest rate of 13.0%, then much worse financial results are obtained as shown in Table 9-6.

Table 9-6 Forecast of Cash Flow with Short-Term Commercial Loan

| Case | Turning Point for Surplus | |
|---|---|---|
| | Annual Surplus | Cumulative Cash |
| Case 1 | Year 2000 | Year 2000 |
| Case 2 | beyond 2010 | beyond 2010 |
| Case 3 | beyond 2010 | beyond 2010 |
| Case 4 | beyond 2010 | beyond 2010 |

It is concluded, therefore, that the Project should be financed by a soft loan for the bulk of the foreign portion and by the Government subsidy for the annual deficits, if it was to be implemented with the current tariff structure remaining as is. If this financial set up is not realized, then the increase of the airport tariff will be inevitable in order to secure a viable financial status of the Project.