

Table 20.2.2 Interior Finishing Schedule (2)

Power Station Building		Equipment	Floor	Ceiling	Baseboard	Wall	Door	Lighting	Special installation
Generator room	Generator Service tank Automatic switch board	Concrete, Steel trowel, Dust-proof paint	Concrete slab, Engine muffler Effective height H=2,700 Engine muffler suspender from slab, Vinyl paint spray	Mortar, Steel trowel H=100 Dust proof paint	Mortar plaster, +Vinyl paint	Steel door	about 200 lx	Outdoor oil tank (1kl) Man hole 1,000x1,500 Terminal box	
UPS room	UPS	Concrete, Steel trowel, Dust-proof paint	Concrete slab, Vinyl paint spray	Mortar, Steel trowel H=100 Dust proof paint	Mortar plaster, +Vinyl paint	Steel door	about 200 lx	Air conditioned	
Battery room	Battery	Concrete, Steel trowel, Dust-proof paint	Concrete slab, Vinyl paint spray	Mortar, Steel trowel H=100 Dust proof paint	Mortar plaster, Acid proof paint	Wood door	about 200 lx	Ventilator (Explosion proof) Portable fire extinguisher (2)	

Table 20.2.2 Interior Finishing Schedule (3)

Room	Equipment	Floor	Ceiling	Baseboard	Wall	Door	Lighting	Special Installation
Equipment room	Radar data recorder Radar data processing unit	Vinyl tile Anti-static Floor pit (300W x 250D)	Suspended ceiling Plaster board Ceiling height 2,700	Vinyl H=100	Mortar Plaster Emulsion Paint	Glass wood door : double Wood door : single	Office standard No fixed equipment above	Air conditioner Cables for radar and communication Switch Board Book Shelf
Maintenance office		Vinyl tile	Suspended ceiling Plaster board Ceiling height 2,500	Ditto	Ditto	Wood door	Ditto	Telephone duct Air conditioner
U.P.S.	U.P.S.	Concrete with steel trowel Dust proof paint	Concrete slab Vinyl paint spray	Mortar with steel trowel H=100	Mortar plaster vinyl paint	Outside: Locked steel double door Inside: wood door	Approx. 200lx	Air conditioner
Battery room	Battery	Ditto Acid proof paint	Ditto	Ditto Acid proof paint	Ditto Acid proof paint	Wood door with louver	Ditto	Explosion proof ventilator
Storage		Concrete with steel trowel	Ditto	Mortar with steel trowel H=100	Mortar	Steel door	Ditto	Central Power Distribution Board Outdoor Cooling Condenser
Toilet		Ceramic tile	Suspended flexible ceiling board Vinyl paint Ceiling height 2,500		Mortar Plaster Emulsion Paint	Wood door	Approx. 300lx	Western/Nepal style water closet Male/female: 8/2
Entrance		Terrazzo	Plaster board Emulsion paint	Terrazzo H=100	Plaster board Emulsion paint	Steel frame wire glass Double door		Other facilities Emergency light Portable fire extinguisher Elect. cleaner

Table 20.2.2 Interior Finishing Schedule (4)

Radar operation building (First Floor)		Equipment	Floor	Ceiling	Baseboard	Wall	Door	Lighting	Special Installation
Simulator room	Equipment	Radar console	Carpet tile	Suspended ceiling plaster board	Wood H=100	Mortar acoustic board	Wood	Standard; Office lighting control	Air-conditioned Telephone
Radar operations room		Radar console, Comm. console	Ditto	Ditto	Ditto	Ditto	Ditto	Ditto	A.C
Operations office room			Vinyl tile	Ditto	Vinyl base board H=100	Mortar plaster +E.P	Ditto	Standard; Office	Telephone, A.C.
Briefing room			Ditto	Ditto	Ditto	Ditto	Ditto	Ditto	Ditto
Toilet (F)			Ceramic tile	Flexible board +V.P.		Plaster + Vinyl P.	Ditto	Approx. 300lx	Toilet (F) Western, Nepal style, mirror
Corridor & stair-case			Terrazzo	Plaster board suspended ceiling +E.P.	Terrazzo H=100	Plaster +E.P.		Approx. 200lx	Space under stair is storage portable fire extinguisher Notice board (2) Emergency light Elect. cleaner Water supply direct connection from main pipe Sewerage: Connect to collective pipe

Table 20.2.2 Interior Finishing Schedule (5)

Radar Training Building								
Room	Equipment	Floor	Baseboard	Wall	Ceiling	Door	Lighting	Remarks
Data-digital lab		Vinyl tile	Vinyl H=100	Mortar-plaster +Emulsion paint (EP) Ditto	Acoustic board H=2,700	Wood		
Storage		Ditto	Ditto	Ditto	Asbestos cement board +EP H=2,500	Ditto		
Instructor room (1) (2)		Ditto	Ditto	Ditto	Acoustic board H=2,700	Ditto		
Class room (1) (2)		Ditto	Ditto	Ditto	Ditto H=3,000	Ditto		
Simulator room		Carpet Tile, Anti-static	Wood H=100	Mortar, Acoustic panel	Ditto	Ditto		
Simulator computer room		Ditto	Ditto	Ditto	Ditto	Ditto		
W.C (M&F)		Mortar, Ceramic tile 200x200		Mortar-plaster Vinyl paint (VP) Ceramic tile, 100x100 H=1,500	Asbestos cement board +EP H=2,500	Ditto		
Entrance Hall		Terrazzo tile	Terrazzo H=100	Mortar-plaster +EP	Acoustic board H=3,000	Steel frame glazed		
Radar lab		Vinyl tile	Vinyl H=100	Mortar-plaster +EP	Ditto	Wood, steel		
Kitchen		Terrazzo tile	Terrazzo H=100	Mortar-plaster +VP	Asbestos cement board +VP H=3,000	Ditto		
Cafeteria		Ditto	Ditto	Ditto	Acoustic board H=3,000	Wood		
Chief CATC		Vinyl tile	Vinyl H=100	Mortar-plaster +EP	Ditto H=2,700	Ditto		
Conference		Ditto	Ditto	Ditto	Ditto H=2,700	Ditto		
Library		Ditto	Ditto	Ditto	Ditto H=2,700	Ditto		
Guard room		Terrazzo tile	Terrazzo	Ditto	Ditto H=2,700	Ditto		

20.2.8 Implementation Plan

(1) Implementation Policy

The implementation Plan for the project shall be established with the objective of radar system operations only and other implementation programs such as building construction for radar operations and/or equipment installation shall be controlled under the project objectives.

Thus, the implementation plan should be established to allow the full performance of the radar system in the final stage of the program.

To this effect the Implementation plan, which consists of many short-term programs, should be combined and controlled in terms of the overall program control based on radar operations.

To achieve this policy, the following requirements should be taken into account in the planning and implementation plan:

- The radar equipment manufacture and installation work will require the longest working period among the other work items on the project implementation program. Thus, the radar equipment implementation program shall be specified as the critical item on the implementation schedule, and shall control progress of the work.

A detailed implementation schedule will be required to control and monitor the critical items of each stage, such as systems design, manufacture, installation, commissioning, inspection and testing.

The implementation schedule for other facilities will be arranged with coordination with the critical item executing schedule, and will be combined with the master schedule step-by-step.

- Most of the assembly modules, parts and materials which consist of the equipment are manufactured individually with special designs and production controls, and it will take a long time for their transportation to Nepal.

For this reason, careful handling and management will be required for the handling of the equipment.

In the case of equipment failure occurring in the equipment, this will affect the overall implementation schedule.

- Some of the construction sites located in the airport, and the interconnection work with existing ATC equipment will be carried out during airport operations. Attention shall be provided to close coordination with airport operation staff in order to avoid confusion, and allow practical airport operations.
- The construction field work is specified in two categories, as architectural, and civil engineering, with also radar equipment manufacture, installation, testing. A large amount of coordination concerning radar equipment installation, operation and maintenance will be required with the building construction work.

Since civil and architectural work will precede the equipment installation work, close coordination will be required to ensure that both schedules will complement each other.

(2) General Condition of Construction in Nepal and Points to be noted for Construction

There are no significant problems in the construction works of this project. Since the construction sites are located within the property area of DCA, land acquisition is not required. Therefore, there are no serious problems to affect the construction schedule.

Among the four construction sites, two sites are located within the Airport and the others are outside the Airport. Since the road conditions to each site are generally poor, except for the operation building site, four-wheel drive vehicles must be used for access to the sites. In the rainy season, the road is often flooded and damaged in many places even by light rain. Geological conditions are generally unstable.

(3) Construction Supervision Plan

Characteristics of the works, which are mainly composed of electronic and communication equipment, require many fields of building construction. The works of each field shall be controlled under the overall schedule.

Considering the subdivided speciality of electronic engineers, it is most important to establish the organization which coordinates these specialists and integrates them with the architectural and facility planning.

In the construction supervision plan, therefore, an organization shall be established which has the function of coordinating and integrating all work. The overall construction shall be monitored and controlled by the above organization.

(4) Material and Equipment Procurement Plan

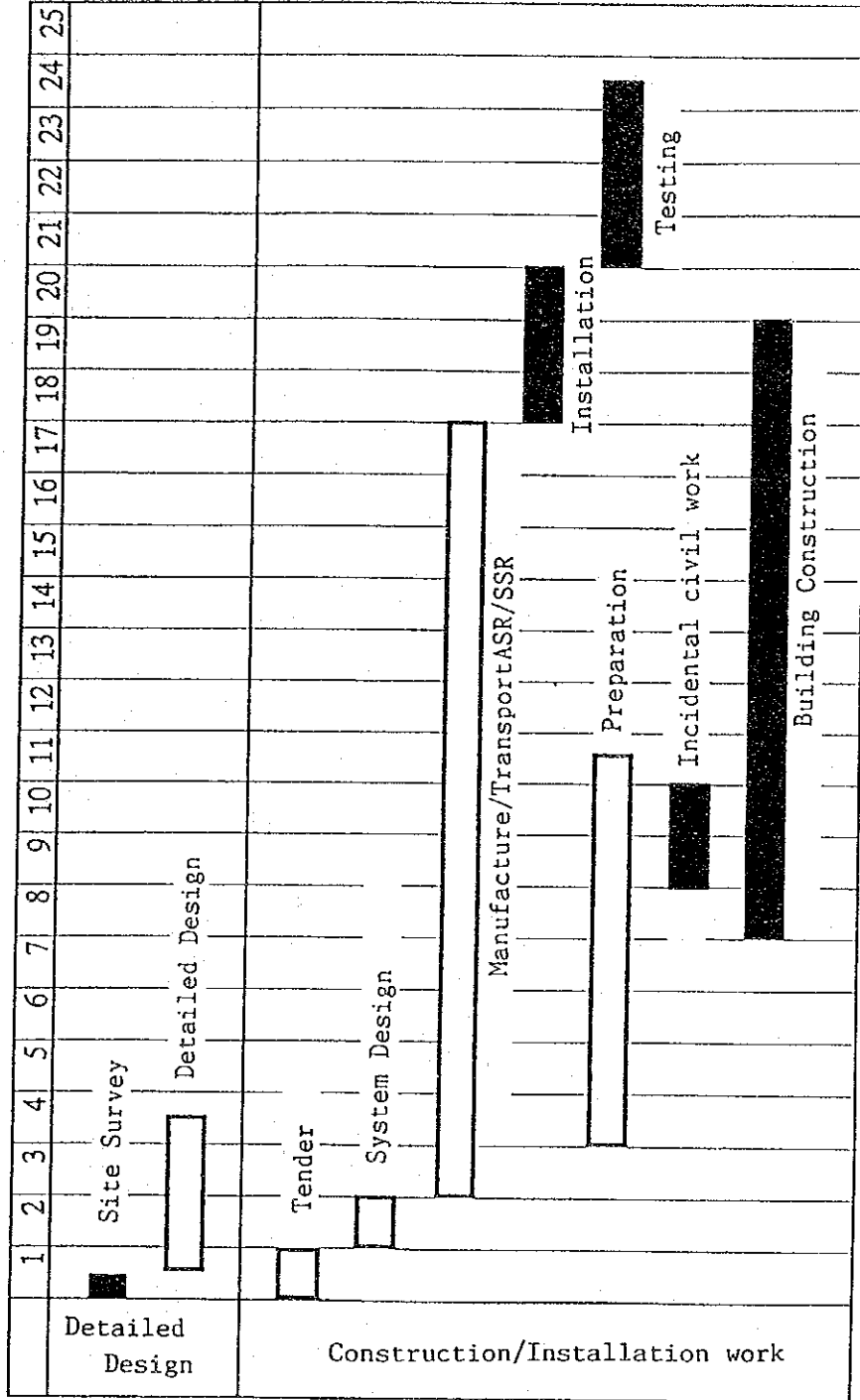
The radar equipment for this project may be procured from any manufacturer of any country if complying with the requirements of the technical specification and local conditions of Nepal.

However, if the training for the radar controllers and maintenance staff is planned in Japan, the radar equipment which is manufactured in Japan, can be adaptable because the same type of equipment is desirable for the equipment which is used for the actual operation. Furthermore, the equipment for training can also be procured from Japan for the same reason.

Although the equipment, except for the above-mentioned, can be procured from a third country, it is necessary to confirm some points such as interface conditions and difficulty of maintenance in terms of spare parts procurement.

Figure 20.2.3 shows the implementation program of the works.

Table 20.2.3 Project Implementation Program



20.3 Human Resources Development Plan

20.3.1 General

As mentioned in chapter 10.9, it is required to establish a suitable human resources development plan which, together with technical assistance by international experts, plays an important role in determining the quality and the reliability of the radar service. In this chapter, a detailed human resources development plan is described particularly with regard to the introduction of radar at TIA.

20.3.2 Prerequisite

The following should be taken into consideration in the process of planning:

- The radar service at TIA will be limited to radar monitoring initially. However, the controller should complete an approach radar training course at a suitable CATC abroad in order to meet the requirements specified in Annex-1 and to prepare for the introduction of approach radar control scheduled in the near future.
- The maintenance personnel should also receive full scale maintenance training in order to acquire the required skill and knowledge even though module replacement maintenance will be introduced.
- Familiarization training will be commenced immediately after hand over of the radar equipment to Nepal. The radar operational equipment and the radar training equipment (simulator) will be handed over to Nepal simultaneously.
- Facility hand over field training for maintenance personnel will be planned at TIA.
- Radar trainees will be selected from the experienced personnel at TIA.
- Working schedule will be (when manpower becomes sufficient) three crews/three shifts.

20.3.3 Training Demand

By the commencement of radar monitoring at TIA, the following number of personnel will have completed the suitable training.

Operation	- operation	: 6 (2 per shift)
	- supervisor	: 3 (1 per shift)
	- TIA instructor	: 3
	- CATC instructor	: 2
	- <u>DCA staff</u>	: 2
	TOTAL	: 16
Maintenance	- radar head	: 6 (2 per 1 shift)
	- processor	: 6 (2 per 1 shift)
	- TIA instructor	: 3
	- CATC instructor	: 2 (1 for radar head, 1 for processor)
	- <u>DCA staff</u>	: 3
	TOTAL	: 20

20.3.4 Training Objectives, Assignment of Experts and DCA Action

Training objectives, assignment of experts and DCA action in the Urgent Project are expected to be as follows:

I : Preparation Phase (~ facility accomplishment)

In this phase, initial preparations for the introduction of the radar service at TIA will be conducted.

(a) Operation

Training

- Airspace adjustment and radar procedures (KTM)

During this stage, the DCA will execute the airspace adjustment in accordance with radar procedures supported by international experts.

- Approach Radar Control training (overseas)

The controllers should acquire sufficient knowledge and skill for approach radar control service as specified in Annex-1 before the commencement of the radar service at TIA. An approach radar control course at a suitable training center should be utilized.

Technical assistance by international experts

Assist the DCA in:

- Preparation of procedures, documents, training syllabi, airspace (MVA) and radar rating
- Design evaluation of the radar system
- Arrangement of the overseas training
- Arrangement of the flight calibration

(b) Maintenance

Training

- Instructor training (overseas)

Selected radar instructors will be trained at the first stage in this phase so that the instructors can prepare a suitable training plan.

- Basic radar theory and digital training (KTM)

Introduction of the radar and review of the digital techniques

- Vendor training (overseas) for selected trainees.

Acquisition of sufficient radar maintenance knowledge such as preventive maintenance repair, adjustment and alignment, module replacement, system monitor and control modification and data update.

- Radar maintenance training (KTM)

Acquisition of sufficient radar maintenance knowledge by the personnel who received the vendor training.

Technical Assistance by international experts

Assist the DCA in:

- Introduction of the radar system
- Theoretical training and OJT on digital techniques
- Preparation of maintenance manuals and training syllabi
- Advice on the design of the radar system
- Arrangement of the overseas training
- Arrangement of the flight calibration

(c) Action to be taken by Nepal DCA

- Acceptance of the international experts
- Selection of the counterpart personnel and the trainee
- Preparation of procedures, documents, training syllabi, airspace (MVA) and radar rating
- Design evaluation of the radar system
- Arrangements required for the fellowship training
- Skill evaluation
- Arrangement of the flight calibration

II : Hand-over Phase (facility accomplishment ~ hand over)

During this phase, facility hand-over field training is conducted by the equipment manufacturer at TIA and at the new CATC.

(a) Operation

Same as I (a)

(b) Maintenance

In addition to I (b)

Training

- Facility hand-over training (KTM)

Acquisition of sufficient knowledge and OJT for the maintenance of the installed radar system.

Technical assistance

Assist the DCA in:

- Facility acceptance inspection
- Facility hand-over field training

- (c) Action to be taken by Nepal DCA

In addition to I (c)

- Facility acceptance inspection
- Facility hand-over field training
- Supervision of the training progress
- Issuance of NOTAM

III : Familiarization Phase (hand-over ~ commencement of radar monitoring)

During this phase, familiarization training is conducted at TIA and the new CATC using the equipment provided under the project.

- (a) Operation

Training

- Simulator training

Simulator training by a suitable method for the traffic situation at TIA using the simulators at TIA and the new CATC.

- Familiarization with the installed radar system
- Confirmation of the limitation of the installed radar system

Technical assistance by international experts

Assist the DCA in:

- Simulator training
- Skill evaluation
- Review of procedures, documents and airspace (MVA)
- Preparation for the commencement of radar monitoring
- Issuance of radar rating

(b) Maintenance

Training

- Familiarization training

Implementation of radar maintenance training using the equipment at TIA and the new CATC

- Familiarization with the installed radar system

Technical assistance

Assist the DCA in:

- Practical and laboratory training
- Radar maintenance
- Simulator maintenance
- Skill evaluation
- Review of documents
- Spare parts and test equipment control

(c) Action to be taken by Nepal DCA

- Execution of the simulator training
- Skill evaluation
- Review of procedures, documents and airspace (MVA)
- Issuance of NOTAM on the radar monitoring service at TIA
- Issuance of radar rating
- Execution of the flight calibration

IV : Operation Phase of radar monitoring (radar monitoring ~)

During this phase, radar monitoring is conducted at TIA. Training for backup personnel and brush-up training for the radar rated controller are conducted in order to maintain and improve the skill and to prepare for the introduction of approach radar control.

(a) Operation

Training

- Approach radar control training for the backup personnel
- Brush-up training
- Management training

Technical assistance by international experts

Assist the DCA in:

- Advice on daily radar operation and training
- Training of the backup personnel
- Review and revision of procedures, documents and airspace (MVA)

- Brush-up training
- Skill evaluation
- Improvement of radar service
- Preparation for the introduction of approach radar control

(b) Maintenance

Training

- Radar maintenance training for the back-up personnel
- Brush-up training
- Improvement of management ability and motivation

Technical assistance by international experts

Assist the DCA in:

- Advice on daily radar maintenance and training
- Training of the backup personnel
- Brush-up training
- Skill evaluation
- Improvement of the radar maintenance
- Establishment of reliability control
- Simulator maintenance

(c) Action to be taken by Nepal DCA

- Arrangement of the radar training
- Skill evaluation
- Review and improvement of the existing radar services
- Study and preparation of approach radar control
- Arrangement of the management training course at the new CATC

20.3.5 Time frame of the training

The training will be basically scheduled in sequence as shown in Table 20.3.1.

20.3.6 Remarks

Though human resources development under the Urgent Project will be planned in accordance with the progress of other elements of the project, detailed arrangements for its execution may sometimes be flexible.

The overseas training for example, depends on the availability of space and financial resources and it may not necessarily be able to be conducted under the optimum conditions.

Detailed planning of human resources development is beyond the scope of this report and should be finalized by the authorities concerned in cooperation with the international experts.

Table 20.3.1 Time Frame of the Training for the Urgent Project

	Preparation Phase			Hand-over Phase		Familiarization Phase	Operation Phase of the Reader Monitoring
	Manufacturing	Transport	Installation (KTM)	Facility Hand-over (KTM)	Flight Test		
EQUIPMENT							
OPERATION	Instructor Training (oversea)		Approach Radar Control Training (Oversea)	Hand-over Training (KTM)		Familiarization Training (KTM)	Trading of the Backup Personnel (KTM) Management Training
	Air space Adjustment Radar Procedures (KTM or Oversea)						Brush-up Training (KTM)
MAINTENANCE	Basic Training (KTM)	Vender Training (Oversea)	Radar Maintenance Training (KTM)	Hand-over Training (KTM)		Familiarization Training (KTM)	Training of the Backup Personnel (KTM) Management Training
	Instructor Training (Oversea)						Brush-up Training (KTM)
ASSISTANCE	Technical Assistance by International Experts						

20.4 Technical Evaluation

The purpose of this Project is to install an Airport Surveillance Radar at TIA in order to secure the safe operation of the aircraft flying in the airspace around TIA by monitoring and controlling the aircraft on the approach, go-around, takeoff, and climbing stages which are relatively dangerous.

The radar coverage, which is in general the most important factor in the radar operation, is not sufficient for full-scale radar control at TIA. However, the original purpose of the radar operation of this Project is not radar control of many aircraft but monitoring of the aircraft, so that it is considered that the purpose of the project can be fully accomplished even in the above situation.

Since the radar installed by this Project is the first one in Nepal, a few problems must be resolved by themselves for smooth operation and maintenance of the facilities. Especially, training of the radar controller and maintenance staff is very important.

By the operation of the Airport Surveillance Radar, safety of aircraft operations will make great strides at TIA, and it is forecasted that the activities of the airport will become more busy. As a result, this will contribute to the promotion of tourism industry, increase employment opportunities, and increase earnings of foreign currency. It is considered that the effect on the enhancement of public welfare and enrichment of the social structure in Nepal will be considerable.

This project will contribute to improving the safety of aircraft operations at Kathmandu Airport, and will contribute to the constant development of the air transport network in Nepal. It will thereby contribute to the overall political and economic development and promotion of tourism.

From the technical viewpoint, it is possible to accumulate the technology for radar control and maintenance through the experience of operations and maintenance at TIA, and it will be easy to shift to a full-scale radar control in accordance with increase of air traffic volume at TIA in future.

Apart from these indirect effects, the following are the direct effects of safe operation at the airport expected by the radar.

Table 20.4.1 Effect of the Urgent Project

The Present Situation and Problems	The Methods Taken by This Project	The Effect of the Project and the Degree of Implement
<p>1. The air traffic control system at Tribhuvan International Airport is based on predetermined procedure controls previously issued. This method specifies the aircraft position, direction, height, etc. and when they are difficult to confirm from the ground, and when the aircraft cannot identify its own position, grave accidents may occur.</p>	<p>The Kathmandu Terminal Control Area (25 NM radius) will be provided with a terminal radar which can monitor this area. The ancillary building to accommodate the radar equipment and a radar operations building will also be provided.</p>	<p>It will be possible to determine the aircraft's position, direction, and altitude at night and in times of low visibility from the ground with the radar. The radar will permit the aircraft to be controlled and monitored from the ground at all times. Accidents due to the mistaken identity of aircraft can be prevented.</p>
<p>2. There are high hills in the approach and departure routes at Tribhuvan International Airport, and should the aircraft take an incorrect approach, takeoff, or incorrect heading, it will encounter problems, but these decisions are left up to the pilot to make his own decision.</p>	<p>With the secondary radar, the height of individual aircraft will be monitored automatically and shown on the radar display.</p>	<p>The aircraft altitude will be monitored by the radar controllers who will notice any irregular display, and can pass on instructions to alter his height or rate of ascent or descent.</p>
<p>3. If aircraft flies at a wrong altitude, corrections cannot be made, since flying altitude cannot be confirmed from the ground.</p>	<p>Functions of Minimum Safe Altitude Warning (MSAW) will be added to radar data processing equipment.</p>	<p>Warning is indicated on the radar display if aircraft has descended or is expected to descend below the minimum descent altitude.</p>
<p>4. Air space is overcrowded due to the increase of departing and arriving aircraft at the airport so that near misses are a serious matter.</p>	<p>The direction and altitude of each aircraft is forecasted in the processing of radar signal, and conflict alarm will be made, if necessary.</p>	<p>If the air traffic controller confirms the alarm, he will give the instruction to the aircraft to change altitude and/or heading, so that a near miss can be prevented.</p>
<p>5. Existing training facilities of CATC is superannuated and small, and the equipment is inadequate. Especially there are no facilities for training of the required staff for the radar operations mentioned above.</p>	<p>Practical training facilities for the radar operation shall be established.</p>	<p>Training for the radar controller and maintenance staff can be executed by themselves in their own country.</p>

PART E.

*CONCLUSIONS
AND
RECOMMENDATIONS*

CHAPTER 21

CONCLUSIONS AND RECOMMENDATIONS

CHAPTER 21 CONCLUSIONS AND RECOMMENDATIONS

21.1 Conclusions

The report studied the Modernization Plan for the long-term modernization of Kathmandu International Airport aiming at the year 2010 and the Feasibility Study on the short-term modernization aiming at the year 2003, in view of air safety and ground facilities improvements.

The conclusions of the Feasibility Study are summarized as follows;

(1) Technical Aspects

The Short-term modernization plan within the framework of the Modernization Plan consists of urgent and necessary improvements of facilities and equipment at the airport. These are indispensable to secure air safety and a higher level of the service at the airport and are selected as being cost-effective.

(2) Environmental Aspects

The environmental impact assessment indicates that there will not be any expected serious influences caused by the project as a whole. However, it will be necessary in the future to introduce exact land use controls around the airport, in order for TIA to be in harmony with the surrounding communities, particularly concerning aircraft noise.

(3) Economic and Financial Aspects

The project cost is estimated to be Rs. 7,393 million.

The economic and financial analysis gives the following results:

EIRR	17.1 %
NPV	Rs. 2,400 million
B/C	1.47
FIRR (Base Case)	-6.2 %
FIRR (Raising Tariff Case)	1.8 %

The results of the economic analysis are favorable. On the other hand, as observed in the above Sections, the results of the financial analysis (for the base case) are not optimistic.

Although a separate study should be considered for the increase of the revenue by making changes in the airport charges, this Project (the airport facility as an important transport infrastructure) gives benefits to the national economy for the increase of foreign income and the conveniences for the air travel of the Nepalese; when evaluated from an overall viewpoint its implementation can be considered to be adequate from the economic and financial stand.

Consequently, it is confirmed that the short-term modernization plan is feasible from the technical, environmental and economic/financial aspects.

It is also confirmed that the Urgent Project is technically feasible through the technical evaluation.

As a whole, the Shore-term Modernization Plan and the Urgent Project will also contribute to enhance and improve the following performances in national and regional fields, even though their values are not calculated in the analysis.

- a. improvement of air safety
 - enhancement of the reliability of air transport
 - increase of air transport demand
 - increase of foreign tourists
 - promotion of tourism industry and industries concerned
 - increases of national and regional income
- b. enhancement in comfort of airport users by solving congestion and improving services, which are a requisite of an international airport
- c. promotion of exports and imports in terms of quick and smooth cargo handling
- d. enhancement of domestic air transport and improvement of domestic air transport safety by means of airport facility development
- e. modernization of Nepalese air transport

21.2 Recommendations

(1) Project Implementation

In order to implement the project as scheduled in this Study, the following measures are recommended to be taken in Nepal.

- a. National and regional consensus for the project implementation should be obtained.
- b. The preparatory and coordination works for the project implementation are advisable to be taken among the parties concerned.
- c. Financial arrangement for project implementation should be prepared, including construction of new aircraft maintenance hangars because of its exact first step to the terminal development sequence.
- d. In view of the economic and financial analysis, a proper tariff raising measure in future should be sought, and construction funds to be obtained should have a low interest rate wherever possible.

(2) Urgent Improvement Plan

The Urgent Improvement Plan of TIA aims particularly at easing the work load of a pilot who is seriously kept busy in maintaining the aircraft position during approaching, and at giving precise information of an aircraft position to an air traffic controller for more secured control. Thus the plan is very important to be achieved, because of recovering the air safety of TIA and showing the quick effect of air safety.

Therefore it is quite necessary to achieve the plan as soon as possible.

The Urgent Project has been implemented as the first stage of the plan, since the diplomatic note on the detailed design of the radar system and other facilities was exchanged between Nepal and Japan on January 1994.

The Project was selected in the urgent improvement plan taking into account the rather long period of the production of radar system and the construction of the concerned buildings, which is estimated to govern the overall project period. Therefore ASR/SSR and the training facility are expected to be completed as the first stage. And the succeeding installation of the additional SSR and LDA/DME and also the improvement of CATC as the second stage of the plan will fully complete the object.

(3) Human Resources Development

In accordance with the airport modernization, modern systems and new equipment are planned to be introduced. This implies the necessity of higher handling capacities to support these modernized systems in airport operations and management. Therefore human resources development is strongly requested.

To develop the necessary human resources by themselves in Nepal is a primary policy. However, it is expected to utilize international technical assistance at the beginning of the development. As CATC is the core institute of human resources development, it is expected to improve and strengthen its condition.

(4) Radar Approach Control

The purpose of radar control at TIA is to improve and secure the safety of aircraft operations, particularly at the stage of approach to the airport.

At the same time, special attention should be paid because it will be the first time that a radar system has been installed and operated in Nepal.

In this context, the transition of radar control from monitoring to full scale control should be carefully, performed with the confirmation of the requisite conditions of (a) obtaining full familiarity with radar operations and techniques by the Nepalese staff, (b) sufficient and adequate training for the staff, and (c) satisfactory radar coverage.

The transition should be affirmatively and steadily performed by spending enough time and utilizing international technical assistance fully.

(5) Operation and Maintenance of Radar

A radar system will be installed and operated for the first time in Nepal so as to improve and secure the safety of aircraft operations. It is clearly required for the radar system to be kept under the normal condition of regular operations and good maintenance at all times. Therefore it is strongly recommended to secure a number of staff and to train them to provide these operation and also to have an adequate budget to sustain these.

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