

Japan International Cooperation Agency (JICA)
Ministry of Transport, Socialist Republic of Vietnam (MOT)
Transport Development and Strategy Institute (TDSI)

**THE STUDY ON THE
NATIONAL TRANSPORT DEVELOPMENT STRATEGY
IN THE SOCIALIST REPUBLIC OF VIETNAM
(VITRANSS)**

**Technical Report No. 9
AIR TRANSPORT**

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PREFACE

During the period of the Study on the National Transport Development Strategy in Vietnam (VITRANSS), various technical papers have been prepared by different Study Team members in various occasions to facilitate the discussions with counterpart team, concerning subsector agencies and to document major findings and outputs produced in the process of the Study. These papers have been organized into a series of technical reports (See Table A below) which intend to provide more detailed background information for descriptions and discussions made on key study components and issues. These technical reports are working documents of the Study which, however, will be useful for further reference, by the counterpart team and related subsector agencies.

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No. 2	Main Commodities Analysis and Freight Transport
No. 3	Transport Cost and Pricing in Vietnam
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No. 6	Railway
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AIR TRANSPORT

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GLOSSARY

ACCs	Air Control Centers
ADS	Automatic Dependent Surveillance
AFS	Aeronautical Fixed Service
AFTN	Aeronautical Fixed Telecommunications Network
AIP	Aeronautical Information Publication
AIRIMEX	Air Equipment Import Export Company
AIRMEX	Aviation Import-Export Company
AMS	Aeronautical Mobile Services
AMSS	Aeronautical Mobile Satellite Services
ANC	Air Navigation Commission
ANPs	Air Navigation Plans
APANPIRG	Asia/Pacific Air Navigation Planning and Implementation Regional Group
ASEAN	Association of South East Asian Nations
ATC	Air Traffic Control
ATC & C	Air Traffic Command and Coordination Center
ATFM	Air Traffic Flow Management
ATIS	Automatic Terminal Information Service
ATN	Aid-to-Navigation
ATS	Air Traffic Service
ATS-DS	Air Traffic Services Direct Speech
ATTECH	Air Traffic Technical Service Center
AWOC	Automated Weather Observation System
CAAV	Civil Aviation Administration of Vietnam
CAD	Civil Aviation Department
CAMP	Civil Aviation Master Plan
CAT	Category
CATCV	Civil Aviation Training Center of Vietnam
CNS	Communications Navigation and Surveillance
COSCAP	Cooperative for safety Civil Aviation Program
DGNS	Differential GNSS
DME	Distance Measuring Equipment
ELTs	Emergency Locator Transmitters
FIR	Flight Information Region
GCAA	General Civil Aviation Administration
GNSS	Global Navigation Satellite System
GP	Glide Path
ICAO	International Civil Aviation Organization
ILS	Instrument Landing System
ITU	International Telecommunications Union
JICA	Japan International Cooperation Agency
LADGPS	Local Area Differential GPS
LLZ	Localizer
Loc	Locators

MAA	Middle Airports Authority
MASCO	Da Nang Air Service Company
MET	Meteorological
MKR	Marker
MORATS	Middle Region Air Traffic Services
MOT	Ministry of Transport
MPI	Ministry of Planning and Investment
MSSR	Mono-pulse Secondary Surveillance Radar
NAA	Northern Airports Authority
NASCO	Noi Bai Air Services Company
NDB	Non-directional Radio Beacon
NORATS	Northern Region Air Traffic Services
NSC	Noi Bai In-flight Meals Joint Venture Company
ODA	Official development Assistance
OPMET	Operational Meteorological
PAPI	Precision Approach Path Indicator
PAPI	Precision Approach Path Indicator
PSR	Primary Surveillance Radar
PTT	Post, Telephones and Telecommunications
RAA	Regional Airports Authorities
RFF	Rescue & Fire-fighting
SAA	Southern Airport Authority
SAR	Search and Rescue
SARPs	Standards and recommended Practices
SASCO	Tan Son Nhat Air Service Company
SFC	Service Flight Corporation of Vietnam
SMC	Surface Movement Control
SORATS	Southern Region Air Traffic Services
SSR	Secondary Surveillance Radar
STPs	Standardized Training Packages
TCS	Tan Son Nhat In-flight Meals Joint Venture Company
TRADEVICO	Transport Communication Development Investment Company
UNDP	United Nations Development Program
VAC	Vietnam Airlines Corporation
VAR	Vietnam Aviation Program
VASCO	Vietnam Air Services Company
VATM	Vietnam Aviation Traffic Management
VHF	Very High Frequency
VINAPCO	Aviation Petrol Supply Company
VITRANSS	National Transport Development Strategy in the Socialist Republic of Vietnam
VND	Vietnam Dong
VNH	Vietnam Airlines Hotels Joint Venture Company Ltd.
VOR	VHF Omni-directional Radio Range
WADGP	Wide Area Differential GPS
WAFCS	World Area Forecast Centers
WAFS	World Area Forecast System

1 INTRODUCTION

This technical report has been prepared to provide supplemental information to explain in detail and support discussions and planning made in the main text. In this process, the Study Team has been provided with assistance and cooperation by CAAV.

2 REVIEW OF AIR TRANSPORT SUBSECTOR STUDIES, PLANS, PROJECTS AND POLICIES

This chapter briefly describes air transport subsector studies. A list of all ongoing and future projects by Government of Vietnam and other relevant authorities are shown in Appendix A.

2.1 Past Studies and Recommendations

Various studies were carried out in the transport sector and the following reports, related to the air transport sector, were available in April 1999:

- 1) "Civil Aviation Master Plan" by the United Nations Development Program-International Civil Aviation Organization (UNDP-ICAO) in 1992
- 2) "Feasibility Study on Noi Bai International Airport", Hanoi, Vietnam, by O.C.I. (Canada) in 1991
- 3) "A Development Perspective for Tan Son Nhat Airport" by the association of Netherlands consultants in 1992
- 4) "Feasibility Study on New Development of Passenger Terminal at the Northern Part of Noi Bai International Airport" by Aviation Survey, Design and Construction Enterprise in 1994
- 5) "Feasibility Study on New Development Plan of Hanoi International Airport in the Socialist Republic of Vietnam" by JICA in 1997
- 6) "The Study on the Integrated Regional Socio-Economic Development Master Plan for the Key Area of the Central Region of the Socialist Republic of Vietnam" by JICA in 1997
- 7) "Transport Master Plan for the Central Region of Vietnam" by BCEOM (Grant by the French Government) in 1998

Among these reports, the UNDP-ICAO report is the only one that specifically aimed at a national air transport master plan.

According to Vietnam Air Traffic Management (VATM), a nationwide air navigation system master plan was prepared and submitted to Civil Aviation Administration of Vietnam (CAAV) for approval. This report was not available in February 2000 because it has not been officially approved by the CAAV.

Civil Aviation Master Plan by UNDP-ICAO

The Civil Aviation Master Plan (CAMP), submitted in 1992, is a detailed and comprehensive specification of the requirements to develop the civil aviation infrastructure of Vietnam up to the year 2000. It covers all the main air transport sectors such as airport system, air navigation system, air carriers, and the regulatory body. Various recommendations are made on each system. Some important recommendations for the VITRANSS are summarized as follows:

1) Recommendations for Civil Aviation Organizations

In 1991 when the CAMP was carried out, Vietnam Airlines operated the airports, air navigation services and national air carrier. The CAMP recommended establishing separate organizations responsible for civil aviation regulation, air carriers, airports, and air navigation services.

2) Recommendations to Vietnam Airlines

The role of Vietnam Airlines has changed. Vietnam Airlines is under CAAV and no longer operates the airport and air navigation services. It now provides service as the national air carrier. In the CAMP, as a national air carrier and state-owned enterprise, it was recommended to become financially self-sustained.

3) Recommendations regarding Airports

Many recommendations were made on airport development in the CAMP. One of these was the development of Tan Son Nhat as a major international hub airport. Other than this, detailed studies were carried out for the three airports of Noi Bai, Tan Son Nhat and Danang.

(1) Recommendations for Noi Bai International Airport

The major recommendations regarding Noi Bai International Airport in the CAMP were:

- a) Extend the runway by 600 m or a total of 3,800 m
- b) Construct the complete parallel taxiway to Runway 11
- c) Expand the apron
- d) Construct a new international passenger terminal building
- e) Convert the existing international arrival passenger terminal building into a domestic passenger terminal building after the completion of a new international passenger terminal building
- f) Convert the existing international departure passenger terminal building to a cargo terminal
- g) Construct a new control tower
- h) Provide perimeter wall/fence along the boundary of the airport
- i) Construct a maintenance hangar

(2) Recommendations for Tan Son Nhat International Airport

The major recommendations for this airport in the CAMP were:

- a) Extend the runway by 864 m to a total of 3,900 m

- b) Expand the width of taxiways to 44 m.
- c) Change the aircraft parking system from power-in and power-out to power-in and push-out to allow more parking positions
- d) Modify the existing terminal building
- e) Revise the traffic forecast and if required, to construct a new international passenger terminal building
- f) Construct a new cargo terminal
- g) Construct a new category 9 fire station
- h) Install a CAT I lighting system
- i) Construct a maintenance hangar

(3) Recommendations for Danang International Airport

The major recommendations for this airport in the CAMP were:

- a) Overlay runways and taxiways
- b) Construct a new international terminal building
- c) Evaluate the structural conditions of the control tower

(4) Recommendations for other small airports

The general recommendation for the other small airports in the CAMP was to study the possibility of resuming flights at small airports, particularly at airports near the tourism centers of Da Lat, Hue and Phu Cat.

4) Recommendations regarding Air Navigation Systems

There are a number of major recommendations regarding air navigation services of importance to the VITRANSS (refer to Chapter 3.5).

Noi Bai International Airport Development Studies

Various studies were carried out for Noi Bai International Airport. In 1986, there was a plan to construct a new passenger terminal building "G5" west of the existing VIP terminal building in 1986, details of which are not available now. In fact, more than 1,200 piles were already constructed in that year.

The Hanoi International Airport Design Task was the only officially approved plan for Noi Bai International Airport. This was approved on 24 June 1978 (Decision No. 341/TTg). Many supplemental plans were submitted by Pugasop (USSR), Sofreavia (French), General Planning Institute, Airport Facility Design, ICAO/UNDP, and OCI (Canada). But these were not approved by CAAV.

A master plan study was carried out by the Aviation Survey, Design and Construction Enterprise in 1992-1993 and approved by the Prime Minister on 4

April 1994 (Decision No. 152/TTg). The other project, which got the nod of the Prime Minister, was the “Feasibility Study on a New Passenger Terminal T1” by the same company. This study was approved on 5 May 1995 (Decision No. 275/TTg).

The Japan International Cooperation Agency (JICA) also submitted a study. Entitled “Feasibility Study on New Development Plan of Hanoi International Airport in the Socialist Republic of Vietnam”, in March 1997.

1) Noi Bai Airport Master Plan by CAAV

The contents are similar to the recommendations in the CAMP. The difference is that the target year of the master plan is 2010 and it recommended the construction of a secondary runway parallel to and south of the existing one within the period of 2006-2010. The distance between the existing and the proposed runways would be 1,750 m. The reasons for the construction of a parallel runway are as follows:

- (1) A single runway used by both civil and military aircraft is somewhat unsafe for aircraft operations.
- (2) The second runway would increase reliability of operations (e.g. in case of maintenance or accident on the runway, airport services will not be disrupted.)
- (3) The second runway would increase airport capacity.

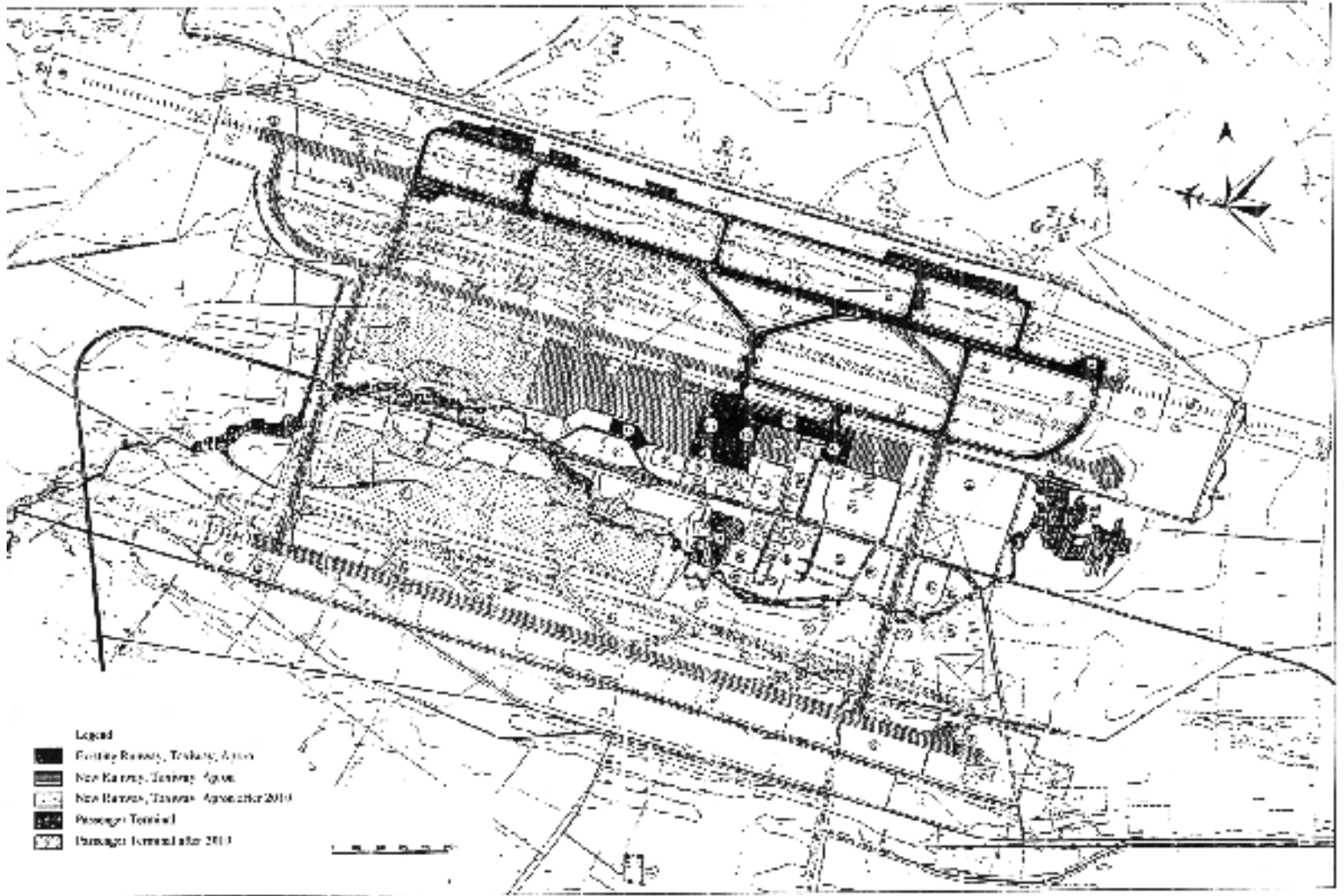
This master plan also recommended the construction of a new passenger terminal building west of the VIP terminal. The layout of the master plan is shown in Figure 2.1.1.

2) Feasibility Study on New Passenger Terminal Building T1

In this study, T1 would be constructed in two stages, i.e., Phase 1 to cope with 2.5 to 3 million passengers per annum or 1,325 passengers per hour; and Phase 2 to cope with 4 to 5 million passengers per annum or 1,850 passengers per hour.

The concept of the T1 is not the linear type as recommended in the CAMP. The footprint of T1 is the same as that of the G5 building planned in 1986 so that old piles can be effectively used. The detailed design was carried out following the feasibility study. The T1 was under construction at the time of VITRANSS in February 2000 and was expected to be completed by the beginning of 2001.

Figure 2.1.1
Noi Bai Airport Master Plan Approved by the Prime Minister



3) JICA Feasibility Study

The “Feasibility Study on New Development Plan of Hanoi International Airport in the Socialist Republic of Vietnam” by JICA was carried out within 1995-1996, with the final report submitted in 1997.

This study limited the development area in the southern side of the airport and recommended the following:

- (1) Construction of a new secondary runway south of the airport at a distance of 1,850 m from the existing runway.
- (2) Construction of new international terminal facilities south of the airport.
- (3) Completion of the T1 building and conversion into a domestic terminal building.

Tan Son Nhat International Airport Development Studies

“A Development Perspective for Tan Son Nhat Airport” by the association of Netherlands consultants was submitted in 1992 to Vietnam Airlines, which was then the operator of the Tan Son Nhat Airport. The following recommendations and plans were made in this report:

- (1) Restructure the organization into two entities – airport and airline
- (2) Extend runway to 3,500 m and overlay
- (3) Construct a new exit taxiway at the end of the runway extension and overlay
- (4) Overlay and extend apron
- (5) Extend passenger terminal building to 16,300 sq m
- (6) Construct a new cargo building
- (7) Extend fire station and upgrade one major fire-fighting vehicle to category 9
- (8) Install new airfield lighting for runway 07R-25L and associated taxiways, including PAPI for both runway ends;
- (9) Install new CAT-I approach lighting for runway 25L
- (10) Install simple approach lighting for runway 07R

A feasibility study for a new international passenger terminal building is being carried out by the CAAV.

Danang International Airport Development Studies

According to the Middle Airports Authority, no master plan for Danang International Airport has been conducted yet, and this makes it difficult to plan further development for this airport. However, there is a recommended project description in “The Study on the Integrated Regional Socio-economic Development Master Plan for the Key Areas of the Central Region of the Socialist Republic of Vietnam” by JICA in 1997. The scope of works is as follows:

- 1) Construction of a new international passenger terminal building
- 2) Construction of a new domestic passenger terminal building
- 3) Construction of a new cargo terminal building

Development Studies for Other Airports

1) Phu Bai Airport

According to the above JICA report, CAAV has produced a master plan for Phu Bai Airport up to the year 2010. The following development plans were recommended by JICA:

- (1) Installation of precision radio navigation aids and lighting system
- (2) Improvement of the air traffic control/communication system and meteorological system
- (3) Widening of runway
- (4) Construction of apron
- (5) Construction of new passenger terminal building
- (6) Construction of new cargo terminal building

2) Chu Lai Airport

Chu Lai Airport is an unused airfield under the Ministry of Defense. It is located in the southeast of Quang Nam-Danang Province. The idea of converting this airfield for the Quang Ngai Provincial People's Committee is related to the development of a deep seaport and industrial zone in Dung Quat.

The Chu Lai Airport Development Project was also recommended in the above JICA report. The scope of work was:

- (1) Upgrading the airfield pavements
- (2) Installation of air navigation system
- (3) Installation of rescue and fire fighting service
- (4) Construction of apron
- (5) Construction of passenger terminal building

Air Navigation System Development Studies

According to VATM, a Nationwide Air Navigation System Development Plan was prepared since 1995 and submitted to the CAAV. Since no approval of this master plan was given, details of the plan were not available.

2.2 Ongoing and Committed Projects

Development of a National Airport System

The overall plan to develop a national airport system was prepared by the Airport Project Council on the basis of the plan jointly drawn up by CAAV and the Ministry of Defense. This plan was approved by the Prime Minister on 24 October 1997 (Decision No.911/1997/QD-TTg) and includes the following number of airfields:

- Airports and airfields: 61
- Reserve landing fields: 67

The plan includes the construction, development and modernization of the following airports up to the year 2000:

- Noi Bai International Airport
- Danang International Airport
- Tan Son Nhat International Airport

Further, it drew up plans for investment in and development of the following domestic airports which concurrently function as reserved international airports:

- Chu Lai Airport
- Long Thanh Airport
- Cat Bi Airport

In this decision, the investment capital for each period is stated as follows:

- Period from 1997 to 2000: VND 19,000 billion
- Period from 2001 to 2005: VND 27,000 billion
- Period from 2006 to 2010: VND 23,000 billion

Investment capital sources are also stated:

- Construction of civil and military airport infrastructure: the State Budget
- Construction of business and service projects: various sources of capital such as credit capital, joint venture capital or capital borrowed and repaid by the enterprises themselves, etc.

Projects in the Northern Region

The following projects are to be carried out in airports operated by the Northern Airports Authority (NAA):

- 1) Master Plan for Noi Bai International Airport

This master plan to construct a new runway at the southern side of the airport was prepared by CAAV in 1992-1993 and approved by the Prime Minister on 4 April 1994 (Decision No. 152/TTg).

2) Noi Bai Airport Expansion and Improvement Project

Project scope is improvement and expansion of the north of Noi Bai International Airport and includes the extension of parallel taxiways, expansion of aprons and installation of new instrument landing system in the civil aviation area. Total project cost is VND 800 million and the financial source is State budget.

3) Passenger Terminal (T1) Construction Project, Noi Bai International Airport

This project plans to construct a new international passenger terminal building in Noi Bai Airport, with a capacity of four million passengers per annum after the completion of Phase 1, scheduled in mid-2000. Total project cost is US\$ 80 million. Phase 2 will commence immediately after the completion of Phase 1, after which the total capacity would be six to six and a half million passengers per annum. Total project cost of Phase 2 will be US\$ 120-150 million.

4) Aircraft Maintenance Hangar Construction Project in Noi Bai International Airport by Vietnam Airlines

This project plans to construct a new hangar east of the existing terminal. Vietnam Airlines Corporation will implement this project and will operate it after. Details of this project are not available. Target date for completion of this hangar is middle of 2000.

Project in the Central Region

At Danang International Airport, the Middle Airports Authority has implemented the Terminal Building Renovation Project. In 1996, the international passenger handling area was expanded. The renovation plan for the passenger terminal building to separate the passenger flow between domestic and international arrival areas was scheduled for completion in October 1999. Information on the amount of funds used and project cost was not available.

Projects in the Southern Region

The following projects are to be carried out in Airports operated by the Southern Airports Authority:

1) New International Passenger Terminal Building in Tan Son Nhat International Airport

This project plans to construct a new international passenger terminal building east of the existing terminal. The total floor area will be 100,000 sq m and the capacity will be eight million passengers per annum. This new building will be connected to the existing one by a corridor. After the completion of this building, the existing one will be converted into a domestic terminal building. Currently, a detailed feasibility study is being carried out. The total estimated cost is approximately US\$ 200 million.

2) Expansion of existing International Passenger Terminal Building in Tan Son Nhat International Airport

The expansion of the international passenger terminal area including two passenger-boarding bridges is being carried out. This work will be completed in 2002. After completion, the total floor area of this terminal building will be 32,000 sq m and the capacity of the building will be approximately five million passengers per annum.

3) Runway, Taxiways and Aprons Overlay in Tan Son Nhat International Airport

The primary runway in Tan Son Nhat Airport was overlaid in 1994. This project plans to upgrade the secondary runway, taxiways and aprons from 1999 to 2001. The total estimated project cost is approximately US\$ 16 million.

4) Runway extension in Tan Son Nhat International Airport

This project is to extend the primary runway in Tan Son Nhat Airport. Details of this project were not available. Total estimated cost of this project is US\$ 1 million.

Other Project

1) Cooperative for Safety Civil Aviation Program (COSCAP)

Vietnam Aviation Regulation (VAR) is being prepared by "Cooperative for Safety Civil Aviation Program (COSCAP) with assistance from the French Government.

2.3 Government Plan and Policy

The administration policy of CAAV for the air transport subsector is described in the following sections.

Development Plan

1) Airport Development

CAAV has recognized the importance of investment for infrastructures in airport and air navigation systems. Government approved the future implementation plan for airport development through Decision No. 911/1997QD-TTg on 24 October 1997. The implementation plan is as follows:

Up to year 2000: To invest in the construction, development and modernization of Noi Bai, Tan Son Nhat and Danang international airports. To draw up plans for investment in and development of the domestic airports of Chu Lai, Long Thanh and Cat Bi which concurrently function as reserved international airports.

After year 2000: To invest in the renovation and upgrading of other important airports.

The target development capacity of the three airports yearly starting 2005 are 1.7 million passengers for Noi Bai, two million passengers for Danang and 6 to 8 million passengers for Tan Son Nhat.

2) New CNS/ATM

A committee to implement a new communications, navigation, surveillance/air traffic management (CNS/ATM) system was organized among the CAAV and VATM. VATM has already submitted the implementation of a new CNS/ATM system to ICAO.

3) Airport Project Investment Capital Sources

Investment capital sources for airport projects are decided by government through Decision No. 911/1997/QD-TTg dated 24 October 1997 as follows:

- Construction of the civil and military airport infrastructure – State budget
- Construction of business and service projects – Various sources of capital such as credit capital, joint venture capital or capital borrowed and repaid by the enterprises themselves, etc.

Government Policy

1) International Air Transport

Vietnam has signed mutual agreements with more than 40 countries including most Asian countries. High priority is placed in developing future international air routes to North America, northeast Asia, the Middle East, and Australia.

Although air transport liberalization is a global trend, it is necessary to provide a favorable condition to national air industries in the process of liberalization, so that they can survive and develop in this competitive environment.

Cambodia, Laos, Myanmar, and Vietnam have established a subregional air transport cooperation agreement to ensure the participation of all states in the exploitation of the international air transport market, wherein developing countries will be accorded certain preferential measures.¹

2) Domestic Air Transport

A sub regional hub and spoke system is applied in the domestic air transport network. The three international airports – Noi Bai, Danang and Tan Son Nhat – will be the hubs of the northern, central and southern areas, respectively and operate as international gateways.

3) Privatization/ Commercialization

The CAAV prepared a privatization program for the air transport subsector.

Air carriers and airport service will be privatized first, then air traffic service. Privatization will be implemented step by step.

4) Airfare/Aeronautical Charges

Airfare is decided based on Article 71, Civil Aviation Law of Vietnam and Decision No. 818-TTg dated 13 December 1995. To encourage Vietnamese people to use air transport, a dual fare system has been applied on domestic air routes and on national air carriers for aeronautical charges. The CAAV will abolish this system by year 2002.

5) Competition in Air Transport Subsector

The CAAV has encouraged competition in the domestic market, but there are only two companies qualified to operate as air carriers exploiting international air routes under the principle of equal opportunity.

¹ Agreement among Directors General of the Civil Aviation of the Kingdom of Cambodia, the Lao People's Democratic Republic, the Union of Myanmar, and the Socialist Republic of Vietnam on the Establishment of Sub regional Air Transport Cooperation in January 1998.

6) Civil Airport and Military Issues

The Vietnamese government has had a clear policy to separate civil aviation and military aviation in its airports since 1980. Although airports in Vietnam are jointly used for civil and military purposes, civil and military facilities are separated. Taxiways and aprons for civil aviation are secured in the airport area, the runway is the only facility for joint use.