JAPAN INTERNATIONAL COOPERATION AGENCY (JICA)

DEVELOPMENT STRATEGY INSTITUTE (DSI)
MINISTRY OF PLANNING AND INVESTMENT (MPI)
THE SOCIALIST REPUBLIC OF VIET NAM

THE STUDY
ON
THE INTEGRATED REGIONAL SOCIO-ECONOMIC DEVELOPMENT MASTER PLAN
FOR
THE KEY AREA OF THE CENTRAL REGION
OF
THE SOCIALIST REPUBLIC OF VIET NAM

FINAL REPORT
MASTER PLAN 2010

MARCH 1997

PACIFIC CONSULTANTS INTERNATIONAL
SANYU CONSULTANTS INC.
INTERNATIONAL DEVELOPMENT CENTER OF JAPAN

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The following foreign exchange rate is applied in the study:

US$ 1.00 = 11,000.00 Vietnamese Dong (as of October 1996)

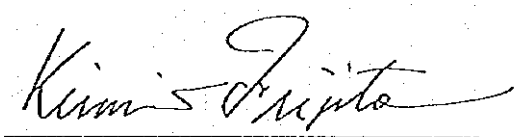
Preface

In response to a request from the Government of the Socialist Republic of Viet Nam, the Government of Japan decided to conduct a study on the Integrated Regional Socio-Economic Development Master Plan for the Key Area of the Central Region of the Socialist Republic of Viet Nam and entrusted the study to the Japan International Cooperation Agency (JICA).

JICA composed a study team headed by Mr. Itaru MAE, Pacific Consultants International, and sent the study team to Viet Nam several times between November 1995 and November 1996. The study team had a series of discussions with the officials concerned of the respective governments and the representatives of private organizations, and conducted necessary surveys at the study area. Through further studies in Japan, the present report was prepared. I hope this report will contribute to the promotion of the plan and to the enhancement of friendly relations between Viet Nam and Japan.

I wish to express my sincere appreciation to all the people concerned for their close cooperation extended to the study team.

March, 1997



Kimio Fujita
President
Japan International Cooperation Agency

March 1997

Mr. Kimio Fujita

President
Japan International Cooperation Agency
Tokyo, Japan

Letter of Transmittal

Dear Sir:

We are pleased to officially submit herewith the final report of "The Study on the Integrated Regional Socio-economic Development Master Plan for the Key Area of the Central Region of the Socialist Republic of Viet Nam".

This report compiles the results of the study which was undertaken in the Socialist Republic of Viet Nam, from November 1995 to March 1997 by the Study Team, jointly organized by Pacific Consultants International, Sanyu Consultants Inc. and International Development Center of Japan.

We would like to express our deep appreciation and sincere gratitude to all those who extended their kind assistance and cooperation to the Study Team, particularly the officials concerned of the Development Strategy Institute, Ministry of Planning and Investment, the Socialist Republic of Viet Nam, and other members of the Viet Nam's Counterpart Team.

We also acknowledge and appreciate greatly the excellent support given by your agency and the Embassy of Japan in the Socialist Republic of Viet Nam.

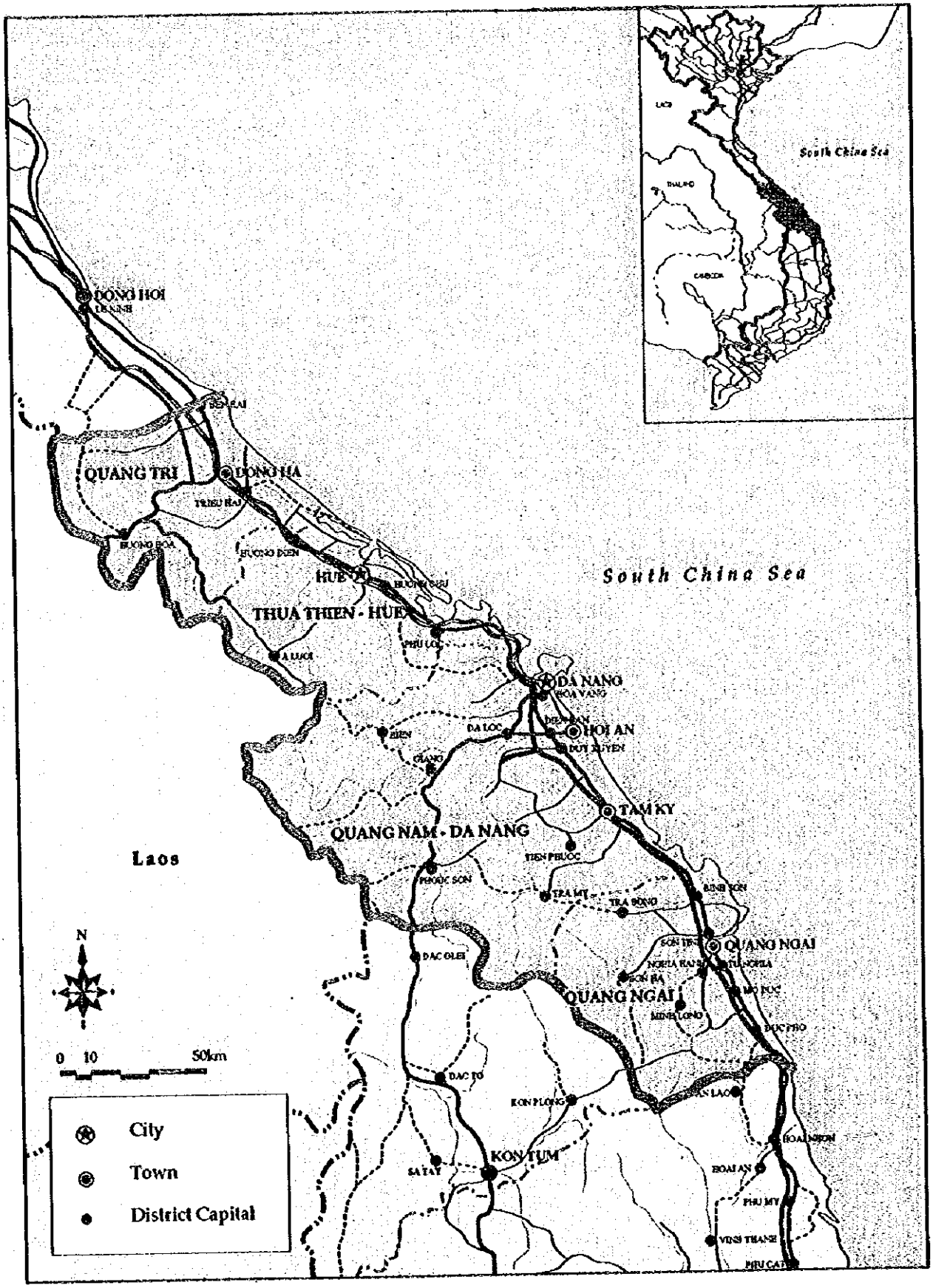
We sincerely hope that this report will be of help for the socio-economic development of the country as a whole. This report would be able to contribute really to Viet Nam's people and socio-economic development in the future.

Very truly yours,

Itaru Mae

Team Leader
The Study Team for the Study on the Integrated Regional Socio-economic Development Master Plan for the Key Area of the Central Region of the Socialist Republic of Viet Nam

Map of the Study Area



Map of the Study Area

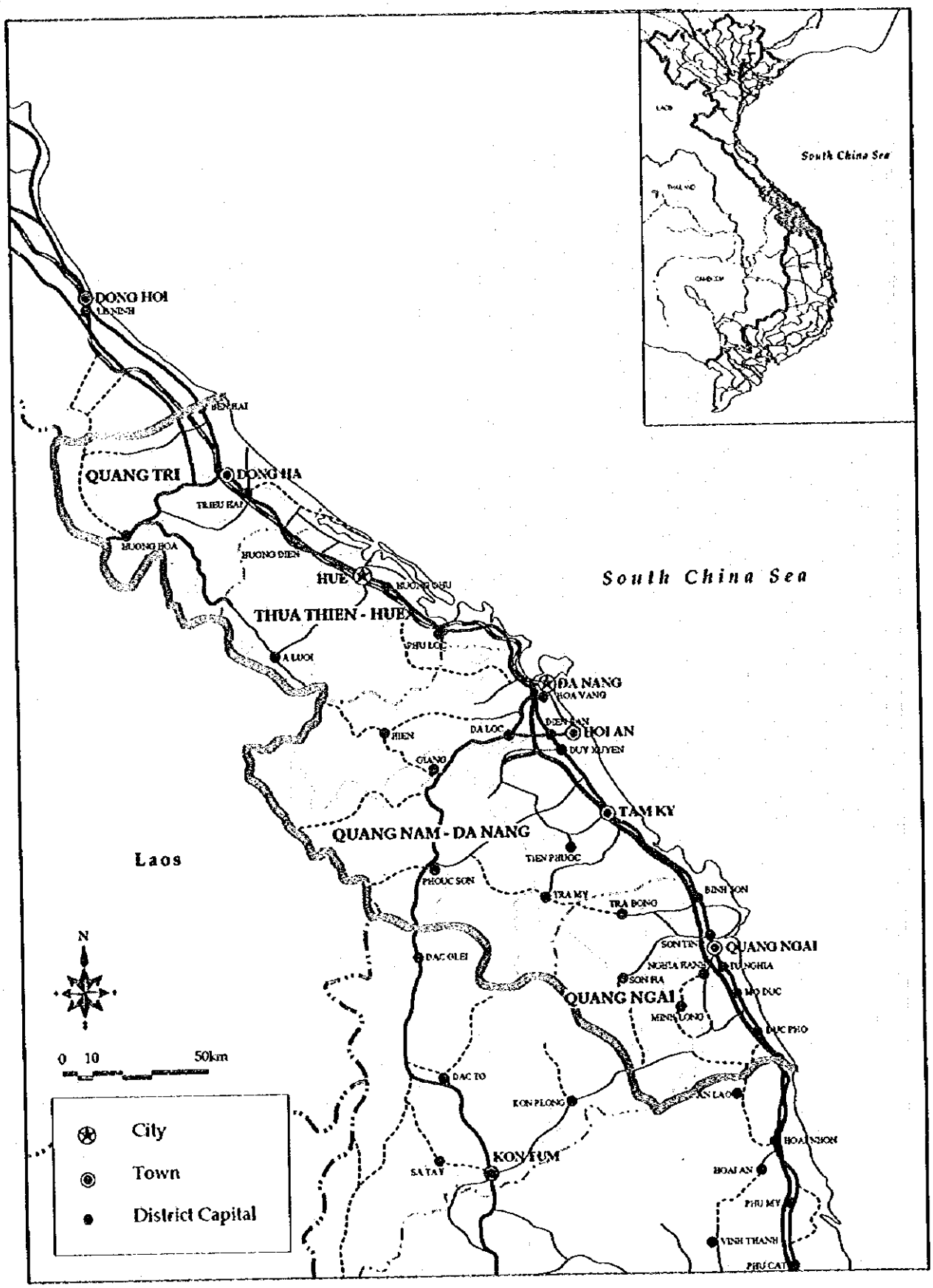


TABLE OF CONTENTS

APPENDIX:

LIST OF TABLES

LIST OF FIGURES

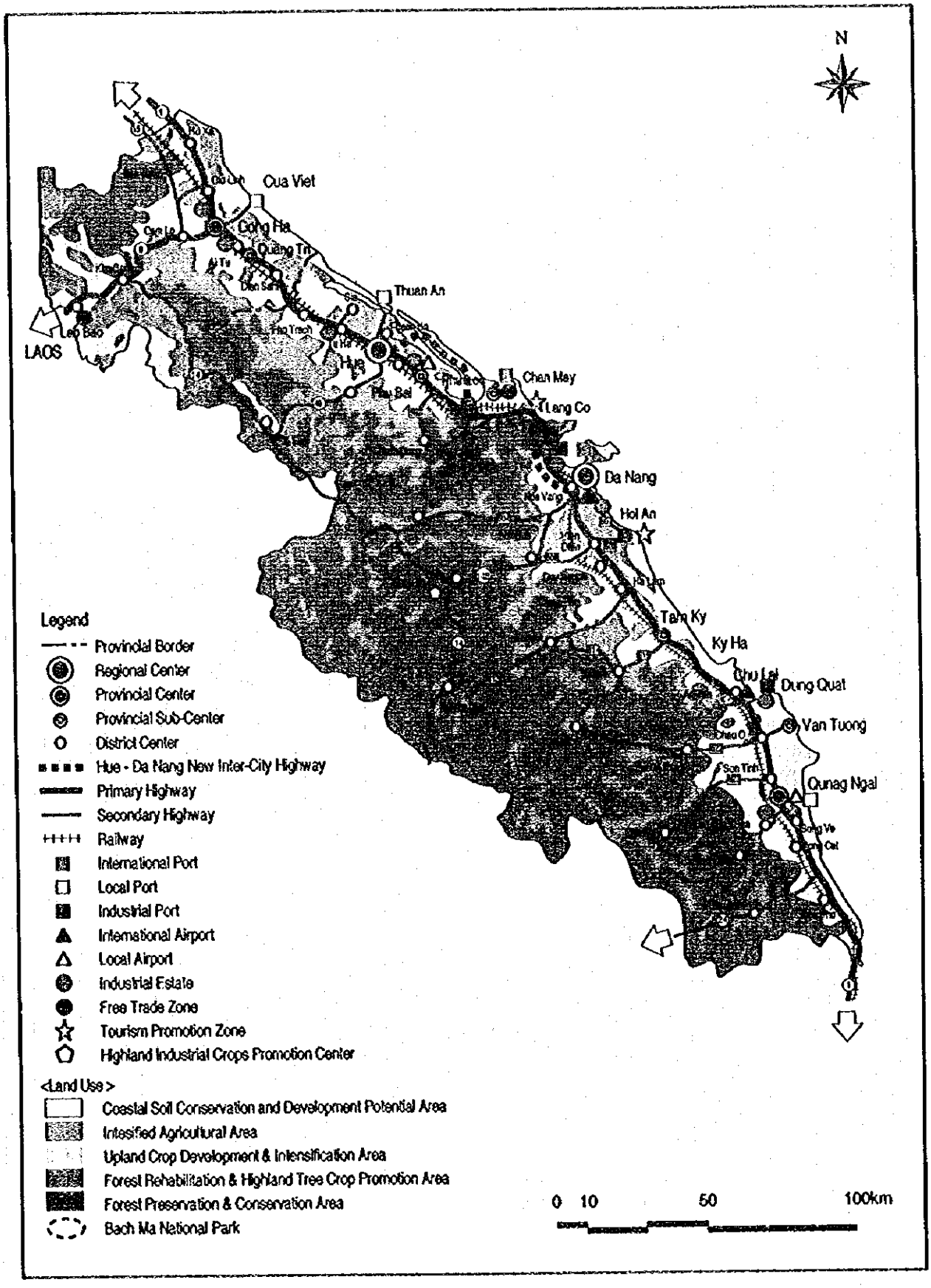
ABBREVIATIONS

AFTA	ASEAN Free Trade Area
AICO	ASEAN Industrial Cooperation (Scheme)
ASEAN	Association Of South-East Asian Nations
BBC	Brand to Brand Complementation
BOD	Biological Oxygen Demand
BOT	Build, Operate and Transfer (formula)
CEPT	Common Effective Preferential Tariff (scheme)
CITES	Convention on International Trade in Endangered Species of Wild Fauna and Flora (Washington Convention)
CKD	Completely Knocked Down
CRDC	Central Region Development Committee (proposed)
CSC	Central Steering Committee (proposed)
CWH	Convention on Wetlands of International Importance Especially as Waterfowl Habitat (Ramsar Convention)
DC	Domestic Consumption
DIM	Development and Import Method
DMZ	The Demilitarized Zone
DOSTE	Department of Science, Technology and Environment
DQI	Dung Quat Industrial Development Project (proposed)
DSI	Development Strategy Institute
EIA	Environmental Impact Assessment
EMC	Central Region Environmental Management Center Project (proposed)
EPL	Environmental Protection Law in Viet Nam
EPZ	Export Processing Zone
EU	European Union
F/S	Feasibility Study
FDI	Foreign Direct Investment
GAP	Gross Agricultural Product
GCF	Gross Capital Formation
GDLA	General Department of Land Administration
GDP	Gross Domestic Product
GNS	Gross National Savings
GOV	Government of Viet Nam
GRDP	Gross Regional Domestic Product (at Province Level)
GTZ	Gesellschaft fur Technische Zusammenarbeit

GVO/E	Gross Value of Output per Employed Person
HCM	Ho Chi Minh
HCMC	Ho Chi Minh City
HDH	Hue-Da Nang Inter-city Highway Construction Project (proposed)
HIC	Highland Industrial Crops and Reforestation Promotion Program (proposed)
IBRD	International Bank for Reconstruction and Development (World Bank)
ICPB	International Convention for the Protection of Birds
IE	Industrial Estate
IEE	Initial Environmental Examination
IKD	Incompletely Knocked Down
IMF	International Monetary Fund
IP	Industrial Park
ISO	International Organization for Standardization
J/V	Joint Venture
JICA	Japan International Cooperation Agency
M&A	Merger and Acquisition
MARD	Ministry of Agriculture and Rural Development
MCM	Million Cubic Meter
MOC	Ministry of Construction
MOSTE	Ministry of Science, Technology and Environment
MPI	Ministry of Planning and Investment
NFIEC	National Food Industry Enterprising Company
NGO	Non-Governmental Organization
NIEs	Newly Industrialized Economies
NIURD	National Institute of Urban and Rural Development
ODA	Official Development Assistance
OECF	Overseas Economic Cooperation Fund
OEM	Original Equipment Manufacturing
PFP	Policy Framework Paper
PMU	Project Management Unit
Q.N.D.N.	Quang Nam Da Nang
Q.Ngai	Quang Ngai
Q.Tri	Quang Tri
QUATEST	Technical Centers for Quality Assurance Testing Measurement
R&D	Research and Development
RCD	Integrated Rural Community Development Program (proposed)
ROE	Return on Equity
ROI	Return on Investment
SCCI	State Committee for Cooperation and Investment

SDR	Socio Economic Development Region
SKD	Simple Knocked Down
SMI	Small and Medium Scale Industry
SOE	State Owned Enterprise
SPC	State Planning Committee
SRI	Secondary Road Improvement Project (proposed)
SQC	Statistical Quality Control
STAMEQ	Directorate for Standards and Quality
T.T.Hue	Thua Thein Hue
TTI	Tourism Infrastructure Improvement Project (proposed)
TC	The Training Center for Standardization Metrology and Quality
TFAP	Tropical Forest Action Plan
TPZ	Tourism Promotion Zone Development Project (proposed)
TSIC	Tourist Service Improvement Committee
UNESCO	United Nations Education, Science and Culture Organization
UNICEF	United Nations (International) Children's Fund
USD	United States Dollar
VAC	Vegetable garden, pond and animal state, or Vuon, Ao, Chuong (fruit trees, ponds and piggery in Vietnamese)
VCCI	Chamber of Commerce and Industry of Vietnam
VINAFOOD	Vietnam State Company of Food Processing
VLSS	Vietnam Living Standards Survey
VNAT	Vietnam National Administration of Tourism
VND	Vietnamese Dong
WID	Women in Development
WTO	World Tourism Organization
WTO	World Trade Organization

Development Master Plan 2010
(Master Plan of the Key Area of the Central Region)



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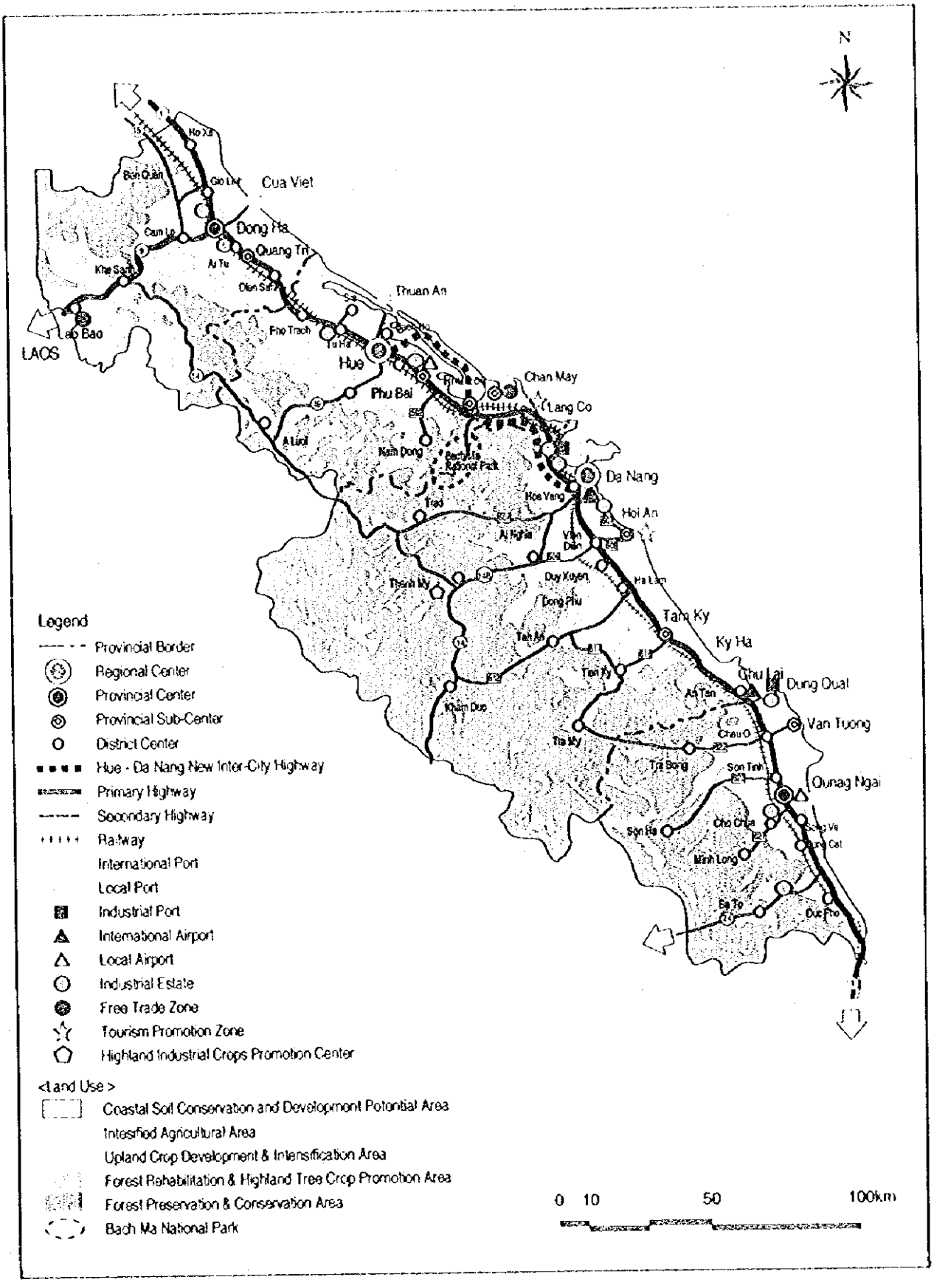


CHAPTER 1

INTRODUCTION

CHAPTER 1 INTRODUCTION

1.1 BACKGROUND OF THE STUDY

In response to a request from the Government of the Socialist Republic of Viet Nam (GOV), the Government of Japan (GOJ) agreed to conduct "The Study on the Integrated Regional Socio-Economic Development Master Plan for the Key Area of the Central Region of the Socialist Republic of Viet Nam". The key area of the Central Region comprises Quang Tri, Thua Thien -Hue, Quang Nam -Da Nang and Quang Ngai Provinces (hereinafter referred to as "the study area").

The Development Strategy Institute (DSI), the Ministry of Planning and Investment (MPI) acted on behalf of the GOV as the Counterpart Agency to the Japanese study team.

Viet Nam's economy has been growing rapidly under the "Doi Moi" (renovation) policy, which was adopted by the GOV with a view to achieve the economic target of a per capita income of US $ 500 by the year 2000. However, regional economic disparities within the country have widened in the course of rapid national economic growth, mainly due to different inherited regional economic endowments. In fact, the Ho Chi Minh centered South Region has attracted a large part of foreign direct investment (FDI) coming into the country, followed by the Ha Noi centered North Region. The study area is characterized by an underdeveloped economic status relative to the national average and its development level remains far below that of the Southern Region and the Ha Noi centered Northern Region.

The GOV recognizes the urgent need to promote rapid economic development of the study area in order to narrow regional gaps by establishing an economic bridge between the economic powerhouses in the southern and the northern parts of the country. In this context, the GOV places distinct emphasis on industrial development, which will be build around a new industrial growth pole, the Dung Quat Industrial Estate (DQIE) located in Quang Ngai Province. Viet Nam's first and second oil refinery as well as a petrochemical and heavy industrial complex shall be established in the DQIE.

The study area has, in addition to the industrial growth pole, a variety of development potentials in agriculture and tourism, and it is well placed to function as a transshipment hub and processing trade center in the Mekong Sub-region covering the hinterland of North-Eastern Thailand, South Laos and South Cambodia.

It is also recognized by the GOV that accelerated economic development in the study area will have to be flanked by focused social development efforts, which aim at reducing the existing disparities between both the rural and urban populations, and the people living in mountainous and low land and urban areas. Integration of minorities and the poor into the mainstream of the economy will be a central issue in this context.

1.2 STUDY FRAMEWORK

1.2.1 Objectives of the Study

The study aims at formulating an integrated development master plan covering the key area of the Central Region. The objectives of the study are :

- To prepare an integrated regional socio-economic development master plan with the target year of 2010 for the target area, that is Quang Tri, Thua Thien -Hue, Quang Nam -Da Nang and Quang Ngai Provinces
- To identify priority projects and programs for which pre-feasibility studies will be conducted
- To conduct an initial environmental examination (IEE) on the selected priority projects and programs
- To formulate recommendations on the institutional and regulatory measures necessary for the effective implementation of the master plan prepared; and
- To conduct technology transfer to the Vietnamese counterpart personnel in the course of the study.

1.2.2 Implementation of the Study

Implementation of the study was divided into the following five principal phases and major tasks :

Phase I : Preparation of an Inception Report, analysis of the present situation and problems and identification of development potentials and constraints

Phase II : Formulation of Development Scenarios and an integrated regional socio-economic development master plan

Phase III : Identification of strategic projects/programs and selection of priority projects and programs

Phase IV : Implementation of pre-feasibility studies and initial environment examination (IEE) on the priority projects/programs, and

Phase V : Preparation and Submission of the Final Report.

The implementation schedule of the study, which is depicted in Figure 1.2.1, comprised two field visits to Viet Nam, namely :

First field visit : From 27 November 1995 to 19 March 1996, and

Second field visit : From 24 May 1996 to 28 November 1996

and a work period in Japan for the preparation of the Final Report.

Figure 1.2.1 Project Implementation Schedule

	Name	Position
DSI/MPI	Dr. Hoang Ngoc Phong	Economist
DSI/MPI	Dr. Nguyen Quang Vinh	Transport Planner
DSI/MPI	Eng. Nguyen Ngoc Ha	Agricultural Specialist
DSI/MPI	Eng. Bui Bich Hoa	Industrial Specialist
DSI/MPI	Dr. Nguyen Van Phu	Physical/Regional Planner
DSI/MPI	Eng. Dinh Cong Ton	Secretary

The JICA study team conducted over 300 interviews with Government organizations at national and target area levels, state-owned and private enterprises, associations and non-governmental organization, foreign embassies and bilateral and multilateral ODA organizations. Four surveys were undertaking to gather primary empirical data on the following subject matters:

- Foreign direct investment (FDI) survey among 30 companies and entities in Japan
- Foreign direct investment (FDI) survey among 60 domestic, J/V and WFO companies in Viet Nam
- Social survey among 332 households in the study area, and
- Steel sector survey among 15 Vietnamese steel manufacturers, importers and wholesalers.

In line with the requirements of the established work program, the JICA study team held five seminars as scheduled:

Seminar 1 : Presentation and discussion of Progress Report I, Ha Noi, 30 January 1996,

Seminar 2 : Presentation and discussion of Progress Report II, Hue, 15 March 1996,

Seminar 3 : Presentation and discussion of the Interim Report, Quang Ngai, 5 July 1996,

Seminar 4 : Presentation and discussion of the Draft Final Report, Da Nang, 19 November 1996, and

Seminar 5 : Presentation and discussion of the Draft Final Report, Ha Noi, 22 November 1996.

1.2.3 Study Organization and Participants

The study has been conducted by the JICA study team with the participation of a counterpart team, which was organized by the Development Strategy Institute, Ministry of Planning and Investment. The counterpart team is listed in Table 1.2.1. A Steering Committee was established by the GOV to provide guidance and to give comments on the study. The Steering Committee members are listed in Table 1.2.2 and the JICA study team members in Table 1.2.3.

Table 1.2.1 Study Counterpart Team

	1995		1996											1997		
	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3
Work in Viet Nam																	
Work in Japan																	
	Δ		Δ		Δ		Δ					Δ					Δ
Report Presentation	IC/R		PR/I		PR/II		IR					DFR					FR

Note: IC/R: Inception Report; PR/R I: Progress Report I; PR/R II: Proress Report II
IT/R: Interim Report; DF/R: Draft Final Report; F/R: Final Report.

Table 1.2.2 Members of the Steering Committee

	Name	Position
Chairman	Dr. Luu Duc Hong	Vice President, DSI/MPI
Permanent Member	Dr. Nguyen Ba An	Vice Director, DSI/MPI
Member	Dr. Le Huu Phuc	Chairman, Quang Tri People' Planning Committee
Member	Eng. Hoang Ngoc Trac	Chairman, Thua Thien Hue People's Planning Committee
Member	Dr. Vu Ngoc Hoang	Chairman, Q.N. Da Nang People's Planning Committee
Member	Dr. Nguyen Kim Hieu	Chairman, Quang Ngai People's Planning Committee
Secretary	Eng. Dinh Cong Ton	Expert, DSI/MPI

Table 1.2.3 Members of the Study Team

Position	Name	Assignment
Team Leader	Mr. Itaru Mae	Team Leader/Regional Planner
Deputy Team Leader	Mr. Tadashi Kume	Deputy Team Leader, Regional/Land Use Planner
Member	Mr. Klaus-Dieter Schneider	Economist/Trade Investment Planner
Member	Mr. John E. Thompson	Transport Planner
Member	Mr. Yoshiki Aoyama	Road Engineer
Member	Dr. Kenji Yamada	Development Administration and Institutional Specialist
Member	Ms. Sonoe Yamada	Social Development Planner
Member	Mr. Toshihide Shibata	Agricultural Development Planner
Member	Mr. Osamu Narasaki	Fishery Development Planner
Member	Mr. Kiyoshi Fujii	Forestry Development Planner
Member	Mr. Natsuhiko Matsushita	Tourism Development Planner
Member	Mr. Makine Kusano	Tourism Facility Planner
Member	Mr. Shigeyoshi Ohara	Industrial Development Planner
Member	Mr. Akifumi Hijikata	Petrochemical Engineer
Member	Mr. Yusaku Yokoyama	Power Plant Engineer
Member	Mr. Hisashi Matsuda	Foreign Investment Promotion Specialist (A)
Member	Mr. Hisaaki Mitsui	Foreign Investment Promotion Specialist (B)
Member	Mr. Fumimichi Obu	Water Resources Development and Flood Control Specialist
Member	Mr. Jacques Valdelievre	Power System Planner
Member	Mr. Nobuo Kawamura	Port and Harbor Engineer
Member	Mr. Hiroyuki Ueda	Air Transport Planner
Member	Mr. Toshiaki Kudo	Urban Planner
Member	Mr. Tadashi Shohji	Sanitary Engineer
Member	Mr. Osamu Isoda	Environmental Specialist
Member	Mr. Makoto Yajima	Project Economist
Member	Ms. Rie Kawahara	Project Coordinator

Mr. Atsuyoshi Toda served as advisor to JICA during implementation of the project.

1.3 STRUCTURE OF THE FINAL REPORT

The study team has formulated an integrated regional socio-economic development master plan for the key area of Viet Nam's Central Region. In addition, pre-feasibility studies for the selected high priority projects have been prepared. The study's major results, conclusions and recommendations are presented in the following six volumes, summary report and supporting documentation :

Vol. 1	:	Executive Summary
Vol. 2	:	Main Text (Master Plan 2010)
Vol. 3	:	Part One - Pre-feasibility Study for Highland Industrial Crops and Reforestation Promotion Program
		Part Two - Pre-feasibility Study for Integrated Rural Community Development Program
Vol. 4	:	Pre-feasibility Study for Dung Quat Industrial Development Project
Vol. 5	:	Pre-feasibility Study for Tourism Infrastructure Improvement and Tourism Promotion Zone Development Project
Vol. 6	:	Pre-feasibility Study for Hue -Da Nang Inter-city Highway Construction and Secondary Road Improvement Project
Sector Report 1	:	Sector Development Plan for Agriculture, Forestry, Fishery, Industry and Tourism
Sector Report 2	:	Sector Development Plan for Infrastructure, Social Development and Environment

The intermediate reports, that is the two Progress Reports as well as the Interim Report, contained a wealth of analysis, information and documentation, the essence of which has gone into the preparation of the Draft Final Report (DF/R). In order to avoid unnecessary duplication and keep the DF/R in a readable format, such information is not repeated in the DF/R.

After having received the comments and observations of the GOV on the Draft Final Report, they have been incorporated into this Final Report for final submission to the GOV in March 1997.

CHAPTER 2

POTENTIALS AND CONSTRAINTS

CHAPTER 2 POTENTIALS AND CONSTRAINTS

2.1 NATURAL AND PHYSICAL CONDITIONS

2.1.1 Environment

The following are the main problems on the environmental protection and management in Viet Nam:

- Watershed management (including reforestation, flood control, and soil management)
- Pollution control (including environmental and monitoring network systems, waste and sewerage management, and toxic chemicals & hazardous substances control)
- Proper use of natural resources (including coastal zone and wetland management, water resource management, and landuse plan)
- Regulation on the conservation of cultural properties and aesthetics
- Environmental impact assessment system (including resettlement program, and livelihood assurance program)

Also, the environmental monitoring and enforcement currently conducted in Viet Nam is considered inadequate to identify the occurrence of pollution or deterioration of environmental quality which tends to aggravate over time in the country. Under the circumstances, real needs exist to strengthen the capacity of environmental monitoring and legal/institutional enforcement at the provincial level for the purpose of achieving the following objectives.

- To strengthen the capacity of regional environmental laboratories and enable them to properly undertake the environmental monitoring practice,
- To develop a nation-wide environmental monitoring network involving regional environmental laboratories, and
- To improve the capacity of provincial governments to enforce pollution control measures and increase public awareness on the environmental quality control.

2.1.2 Land Use

To maintain the sustainable social and economic development, land use potentials and constraints are examined based on the environmental vulnerability and development suitability. To formulate the land use master plan conservation and protected areas should be designated to the environmentally sensitive area. Rehabilitation and improvement of the soil and water to maintain stable and high productivity of the land should also be considered. Increase of the forest coverage ratio by utilizing the unused land is key issue for the improvement of environment for both production and living. Based on the analysis on the land use potential, more than one million hector need rehabilitation or reforestation in the hill and mountain area. One third to a half of the reforestation area may be able to use as a production forest. Reforestation and introduction of tree crops in the hill and mountain area is the most important issue from the environmental conservation, economic development and poverty alleviation point of view.

A real expansion capacity for agriculture is also located in the hill and mountain area. In the plain and coastal area, the room for agriculture land expansion is limited. It will be less than 10 % expansion of the area at maximum. It has to be noted that the land in this area will compete with urban and other infrastructure development in the future. Table 2.1.1 shows the potential forestation area and agriculture development area in the study area. Other than above mentioned land, conservation of land in river bed and basin is also necessary.

Table 2.1.1 Potential Land for Reforestation and Development

(Unit: 1,000 ha)

Forestatioan Required Area	Q. Tri	T.T.H	QN-DN	QN	Study Area
Reforestation Area	208.4	167.6	435.5	244.0	1,055.5
Forestation in Plain	3.8	1.7	3.9	15.1	24.4
Forestation in Mountain & Hill	204.6	165.9	431.6	228.9	1,031.1
Agriculture, Tourism, Industry, Urban and Infrastructure Development Area					
Plain Land	17.8	7.9	18.1	0.0	43.9
Hill and Mountain	47.9	32.6	67.4	0.0	147.8

Source: Existing Land Use 1993, Geographycal Dept.

2.1.3 Water Resources

The river runoff in the study area is provided with abundant rain water. Annual rainfall ranges 1980 mm in Da Nang city to 3,200 mm at Tra Bong in Quang Ngai province. As shown in Figure 2.1.1, thirteen major rivers, covering an area of 25,630 km^2 in the study area, have a great potential of water resources development with the estimated anuual amount of rainfall of 56 billion c.m.

The runoff amount of the rivers fluctuates seasonally as shown in Figure 2.1.2. 70% of the total amount concentrates from September to January, and most part flows into the East Sea without being used for irrigation or other sectors. On the other hand, only 30% of the anuual total amount flows in the dry season from February to August when the water demand increases.

Existing maor irrigation faciliteis cover approximately 60,000 ha and supply 722 mega cubic meter (MCM) of water for irrigation in a year which is approximately 20% of the irrigation area and water demand. Remaining areas are irrigated by samll scaled hydraulic facilities.

Rivers of the study area are short and steep, and plain areas are so narrow that the tide spreads over the flood plains. Tidal influence on water regime varies with incoming water from upper reaches. River water is salinized by tidal influence in the dry season, affecting on agricultural field and drinking water. On the other hand, in the rainy season, serious floods frequently cause heavy damages in the vast area as shown in Figure 2.1.3, due to lack of medium and large scaled reservoirs and river dykes for flood control.

Figure 2.1.1 Map of River Basin in Each Province

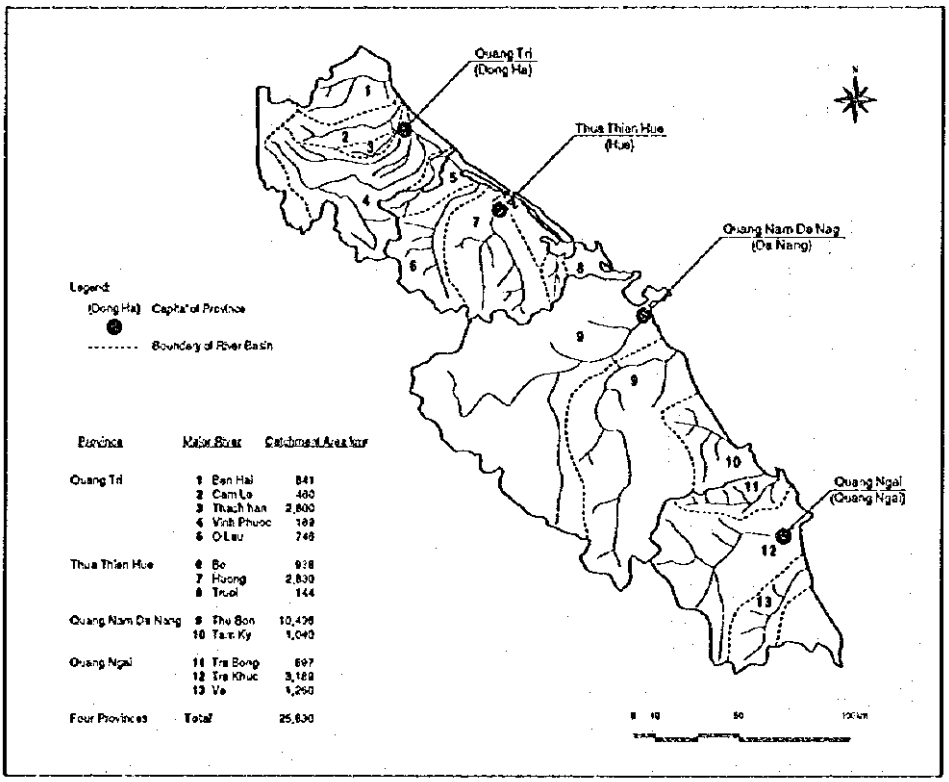
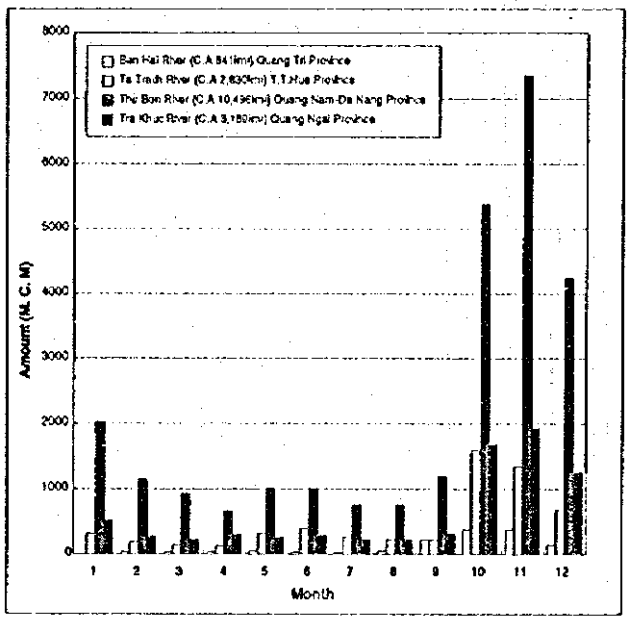
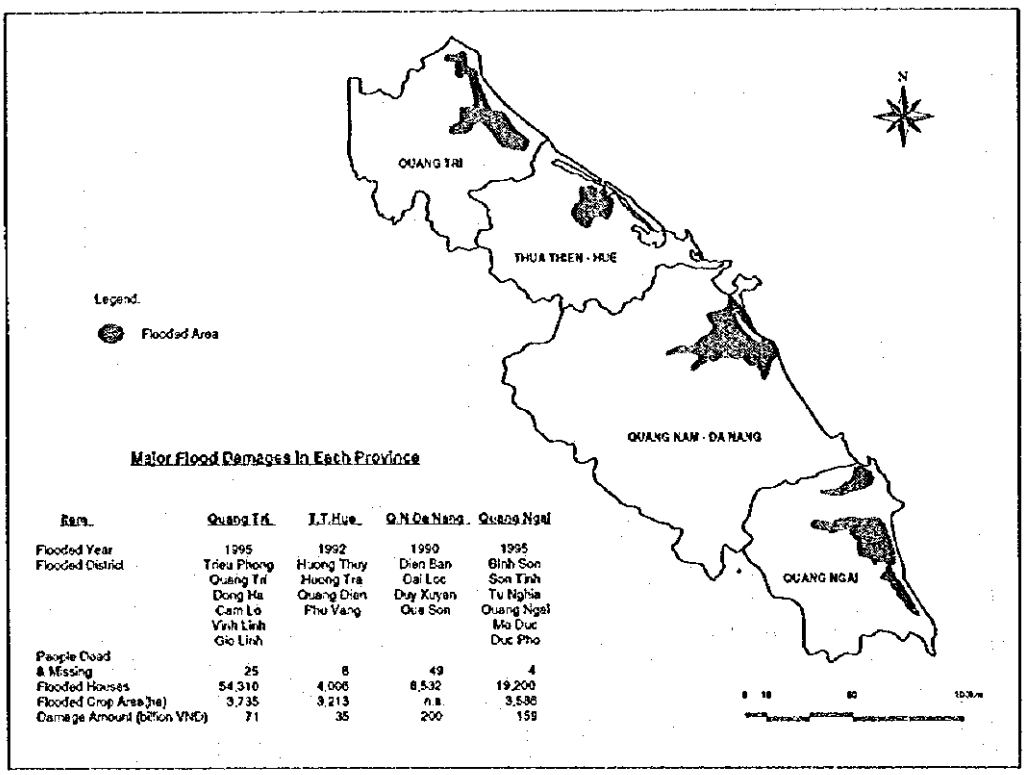


Figure 2.1.2 Major Monthly River Runoff



Note: C.A stands for the whole catchment area
M.C.M denotes million cubic meter

Figure 2.1.3 Flooded Area in the Study Area



Major Flood Damages in Each Province

Item	Quang Tri	T.T.Hue	Q.N Da Nang	Quang Ngai
Flooded Year	1995	1992	1990	1995
Flooded District	Trieu Phong Quang Tri Dong Ha Cam Lo Vinh Linh Gio Linh	Huong Thuy Huong Tra Quang Dien Phu Vang	Dien Ban Dai Loc Duy Xuyen Que Son	Binh Son Son Tinh Tu Nghia Quang Ngai Mo Duc Duc Pho
People Dead & Missing	25	6	49	4
Flooded Houses	54,310	4,006	8,532	19,200
Flooded Crop Area (ha)	3,735	3,213	n.a.	3,586
Damage Amount (billion VND)	71	35	200	159

2.2 SOCIAL ENVIRONMENT

2.2.1 General

Of the 72 million population of Viet Nam, approximately 87% are Kinh people, the majority of which live in the urban and lowland areas, and the remaining people are ethnic minorities, who largely inhabit mountainous regions. Bru-Van kieu, Pa ko-Ta oi, Co-tu, Gie-trieng, Xo-dang, and Hre people live in the western mountainous regions of the study area.

The rural population comprises roughly 80% of the entire population. In the study area the urbanization rate is the highest in the Quang Nam-Da Nang Province, where only about 70% of the population live in the rural area, and the lowest is in Quang Ngai Province, where 91% of the people are rural dwellers. The average rate of rural population in the four Provinces together is about 80% which is nearly equal to the national average.

The poverty rate of Viet Nam as of 1996 is estimated somewhere around 20 to 40% of the population (the figures vary from data to data). Of these, 90% of the poor people are the inhabitants of rural areas, and the poorest people are concentrated among the ethnic minority groups who live in mountainous regions. Although they are farmers, many of them are unable to feed themselves all year around and they are receiving government subsidies.

Simultaneously, these people are provided with the least degree of social infrastructure and social services. Thus, economically and socially they are the poorest and weakest people in Viet Nam who should be assisted.

2.2.2 Major Issues and Potentials

In the light of the existing social conditions in Viet Nam as mentioned above, the basic issues, and potentials and constraints are summarized as follows:

1) Poverty Alleviation

The most important social issue in Viet Nam is the existence of a large number of "poor people". Thus, "poverty alleviation" is the first priority of the socio-economic development policy of the Government. The Government is particularly concerned about the conditions of ethnic minorities because the extent of poverty among these people is extremely severe.

Accompanied by the rapid economic growth of last few years, the rate of poverty is rapidly decreasing. However, this economic growth is regionally imbalanced and locally disproportional. The benefits of the booming economy are hardly reaching those poorest people. Because of poverty, many people from rural areas are migrating to large cities and causing urban problems. This is another issue that the Government is very much concerned about.

The conditions of many minority peoples in the study area are also harsh. The disparity of income between urban residents and ethnic minorities is generally four to five times, but between those of the poorest it reaches up to ten times. The poorest are caught in a vicious circle of poor living conditions; poor house, poor school attendance, frequent sickness, lack of knowledge, poor sanitation and poor diet. Their "basic human needs" are not satisfied.

The potentials for the alleviation of poverty of the poorest people are production expansion of, principally, cash crops, establishment of small-scale or cottage industries for the products in the communes or neighboring towns to add values and secure markets, and the establishment of storages for farm products or processed products.

There is a good potential for increasing incomes and diversifying income sources, if technical and financial assistance are accompanied with the production expansion, because a significant

area of arable lands are still available in the mountainous region, and climate and soil are suitable for industrial crops in some areas. However, this should be accompanied by a mechanism to provide some sort of financial assistance.

In addition to poverty, an issue involving minority groups is their "slash and burn" farming practice. In fact, shifting agriculture is a quite reasonable method for infertile land where no fertilizers are available. The problems are shortening of the cycle of shifting and expanding areas of shifting agriculture due to population increase. The government policy is to settle these people down.

Soil improvement is the key to this problem. Introduction of improved farming methods such as the production of leguminous plants and intensification of VAC may be the potentials. This topic is discussed in the agriculture section of this report.

The constraints are, again, physical inaccessibility to many mountainous villages and lack of appropriate knowledge of the people in general.

2) Social Infrastructure

The second social issue is insufficient provision of social infrastructure and social services in rural areas, particularly in the mountainous regions. They are poor roads and bridges, school facilities, health facilities and services, shortages of power supply, water supply, market access, lack of irrigation, scarce credit loans, and lack of various information. Provision of social services is basically the responsibility of government. Lack of social infrastructure and social services are intertwined with those people's social and economic conditions and they are exacerbating the situation of the poorest people.

The potential for overcoming lack of infrastructure is to utilize local resources including human resource as much as possible and construct necessary infrastructure by people's participation. Existing solid social organizations and administrative structure are useful in mobilizing people and give directions. Also, the people may organize themselves and carry out projects to construct necessary infrastructure because commune level infrastructure can be of a modest scale, and farmers themselves are able to build them given some technical assistance.

3) Health Care

One important issue of the health sector is the existence of a number of malnourished children under five years old. After a certain degree of economic growth, still a national average of approximately 44% of the total number of children under five years old are malnourished. A reliable information reveals that those children have mainly vitamin and protein deficiencies in addition to food deficiency.

An average of the child malnutrition rate in the study area is slightly higher than 48%, which is higher than the national average. The worst situation among the four Provinces is 50.63% in the Quang Ngai Province.

The first potential is the production of sufficient amount of staple food to satisfy their minimum need all year around, and the second is to educate people about the importance of feeding their children with balanced foods. The intensification of rice production with improved farming practice and preparation of irrigation for paddy fields, to a certain degree, are the potentials for reducing food shortage.

Another important and practical potential is to educate people about the importance of balanced diet and production of such crops in their gardens. This can be done with women's efforts with minimum assistance. This shall be a significant potential.

2.2.3 Constraint

Underlying constraints for all the above are of physical and social nature. Physical aspects of constraints are "isolation" by topographic condition, "risks" burdened by crop failures and natural disasters or sickness, and "scarce and poor productive resources" of physical nature include infertile soil, farm land without irrigation, and scattered or steep lands.

Social nature of constraints may be intellectual and social "isolation", which is basically caused by topographic isolation, "lack of productive resources" of social nature means principally lack of capital to expand and secure production, and "inadequate participation" is that the poorest are under-represented in the social or political procedures for planning or decision making.

The physical isolation due to the topographic conditions in the mountainous regions eventually results in the insufficient provision of social infrastructure and social services for schools, health care, power supply, market availability, or lack of clean water.

The physical isolation also results in the poor provision of production resources such as fertilizers, seedlings or credit loans because not only the access with vehicles, topography inhibits the accessibility by people, particularly during the rainy seasons so that the provision of such resources become impossible.

The social and intellectual isolation eventually put them in further poorer conditions, because their contact with other people or obtaining various information is limited. Social and intellectual isolation is basically attributable to lack of education and lack of means of communications. In the society where some 88% of the population are literate, some of the communes, where majority of the population is composed of ethnic minorities, have more than 40% of illiterate people who even do not speak sufficient Vietnamese to communicate, particularly women.

The construction of all-weather roads to all communes may be the most urgent necessity with regard to infrastructure. This point shall be discussed in "Section 2.9.1, Road."

The possible social and economic impacts of the roads to communes or inter-commune roads are great. The construction and improvement of such roads shall help enable the construction of schools, health clinics and other necessary social infrastructure which have been impeded by physical inaccessibility. Improved roads shall provide people with easier access to other villages and communes, and shall help activate their economic and social activities.

Also, an important necessity is to provide basic education to all including those adults who were unable to receive education in the past. The provision of basic education shall lead to a capacity building of the people and shall enable the people to participate in economic and social activities. The education shall especially help women who cannot presently participate in such activities due to lack of education (illiterate people are not eligible for leaders or board members). Also, out-of-school education by small groups in various fields should be given more attention. The education shall provide as well a great potential for the younger generation to bring job opportunities and improving of their daily life.

Among the requests for the government assistance within the surveyed communes, the highest was for the provision of credit loans for business activities including farming in all communes of all areas, urban, sub-urban, rural, coastal and mountainous, followed by education and training, health care, and safe water supply. Also, the majority of the surveyed households evaluated credit loans, road construction, education, health care and water supply as very effective assistance.

Accordingly, the provision of such assistance should be considered as necessities as well as potentials.

2.3 ADMINISTRATION SYSTEM

2.3.1 Development Administration

One of the major concerns among the aid community and governments in developing countries is how to build institutions that can produce intended benefits. Inputs, such as capital, labor and technology, cannot themselves automatically produce outcomes, such as economic growth and/or poverty alleviation. Institutional building is critical for any development program that is able to convert inputs to desired outcomes. In order to build an effective institution for the integrated regional socio-economic development programs, the current planning and financial frameworks for socio-economic development in Viet Nam is first focused, evaluating them from the perspective of project sustainability.

2.3.2 Importance of Project Sustainability

Project sustainability can be defined as the capacity of a project to continue to deliver its intended benefits over a long period of time. Recently, there is a growing awareness among the aid community that special attention should be paid not only to project implementation but also to issues of operation, maintenance, and sustainability. Available evidences suggest that project sustainability is a serious problem. Following phenomena are prevalent in many development projects.

- Lack of maintenance funds leads to the deterioration of infrastructure such as roads and irrigation. This may often result in expensive emergency maintenance operations when infrastructure has deteriorated to a crisis level.
- Quality of services is affected both by the deteriorating condition of plants and equipment and by reduction in project staff who provide expertise and other support services.
- The deterioration of infrastructure and quality of delivery systems often cause that services such as irrigation, transport, local health services, and urban infrastructure cease operation many years before the expiration of their intended life.

Although there are many factors affecting project sustainability, it is often reflected in the financial capability and effectiveness of the institutial machinery at many levels in a country.

2.3.3 Institutional Constraints

Integrated regional development projects/programs are, in principle, implemented and maintained by local governments. For the effective implementation and maintenance, local governments need to possess sufficient authority to plan and to manage the projects/programs with enough institutional capability and discretionary funds. Current situations in Viet Nam, however, are likely to prevent local governments from pursuing their tasks.

The vast majority of all capital projects in the country including commune level investment is ultimately approved or disapproved by the Center. Although each level of government formulates its own development plan, they are not autonomous units because their plans need approval from the government directly superior to it and ultimately by the Central Government. Although the present centralized system of planning administration may be effective in the utilization of technical resources and the standardization of quality of plans, the system also produce enormous costs.

- Where a project is planned, monitored, and evaluated by a central agency, local organizations are less likely to be enthusiastic to implement and maintain the project.
- Where local and regional level organizations lack an adequate planning and management capacity, the project is unlikely to be sustained. Planning and management capacity at the regional and local levels, however, results from the opportunities provided to these units through decentralization policies and programs.
- A centralized mode of decision-making may not provide a structure which allow stakeholders to participate in mobilization of resources as well as in identification of local needs and priorities, which contributes to the sustainability of development projects.
- The centralized planning system hardly stimulate innovative development planning and management. An innovative plan may be ignored or discouraged in the process of a series of approval by upper levels of governments.
- The centralized approval system of development plans tend to overload the works of the central government. This may prevent the central and local governments from responding in a timely manner to changes in local investment needs.

2.3.4 Financial Constraints

The fiscal situation facing many local governments in Viet Nam is that local governments have little "own" revenue sources and overly transfer-dependent. Local authorities have little autonomy and flexibility in deciding the level and composition of their current expenditures. They have virtually no independent revenue-raising power, and both revenue assignment and expenditures are decided at the central level. As a result, local governments have difficulties in exerting much influence on the pattern of socio-economic development in their regions.

Second, the lack of stability in tax assignments and tax sharing arrangements creates both uncertainties and disincentives for provincial governments which are attempting to pursue long-term development plans. The transfer system also discourages local responsibility, so recipients are tempted to run bigger deficits to increase transfers.

Third, to the extent they involve negotiation, the transfer system is criticized for lack of transparency and accountability. As a result, expenditure allocation is likely to respond to bureaucratic and political judgments at the central level and also to be influenced by the relationship between political leaders at the central and provincial levels. The future development of transfers should incorporate simple formula-based criteria both to discourage negotiation and to consider different characteristics among regions.

2.4 FOREIGN DIRECT INVESTMENT (FDI)

2.4.1 Constraints of FDI in Viet Nam

The study team conducted the foreign direct investment survey among 60 domestic and joint venture companies in Viet Nam and among 30 companies and entities in Japan. As a consequence, the following constraints are identified in Viet Nam;

- Market competition is very severe with Chinese and Russian products,
- Production facilities are mostly obsolete and production technology is outdated,
- Vietnamese consumers are apt to prefer the brand of products,

- Difficult access to commercial loans coupled with high interest rates,
- State enterprises should be changed to pursue economic rationale but such changes are still in a transitional stage,
- Lack of appropriate business partners and limited access to market information, and
- Business associations such as the Chamber of Commerce and Industry of Viet Nam (VCCI) is very useful for the industrialization process, however, they have not been well functional yet.

2.4.2 Constraints of FDI in the Central Region

The comments on the industrialization in the Central Region obtained from entrepreneurs in the North and the South Regions are mainly categorized into the following three subjects.

- Adverse climatic condition such as recurrent typhoons and resultant floods is one of the serious disadvantages in the Region,
- Regional consumer markets in the Central Region are so small and not functionally organized yet, and
- Absolute insufficiency of adequate infrastructure especially mobile infrastructure such as transportation and information networks.

2.4.3 Constraints of FDI in Japan

As a result of the interview survey conducted by the study team, the following issues are identified for future solution or improvement;

- Basic mobile infrastructure to support the regional socio-economic activities should be reasonably improved on a priority basis,
- Entrepreneurs and management of enterprises should be encouraged to gain earlier experiences of internationally acknowledged business practice,
- Efforts should be made to grow the regional market functions which can support small and medium-scale indigenous industries, whilst achieving the creation of industrial cores having competitive production scale and quality with the help of FDI companies, and
- Improvement of institutional and legal frameworks to induce continuous inflow of FDI, along with provision of adequate industrial parks and free trade zones.

The investment trends towards Viet Nam are not the same as the cases experienced by NIEs and ASEAN countries. The interview survey conducted in Japan revealed that FDI movements are clearly and rapidly changing in correspondence with the changing investment circumstances. Therefore, it requires deliberate considerations and measures to induce FDI from Japan to the Asian-Pacific region in general, and in particular to Viet Nam. Those factors considered at present as constraints for investment in Viet Nam are summarized as follows:

- Market image of Viet Nam is generally synonymous with Ho Chi Minh City (HCMC), which implies that the other regions give very weak image or no image as a potential investment place,
- Due to the above reasons, foreign investment missions often except the visit to the Central Region,

- Although there exist laws and regulations pertinent to investment incentives, the final terms and conditions are often decided through time-consuming negotiations with relevant agencies,
- Global production systems such as international specialization and division of work have been by and large established by each international business group, which implies that Viet Nam has to have certain disadvantages as a late comer in the market,
- Viet Nam signed the CEPT of AFTA to reduce their customs duties between 0 % and 5 % until 2006, which implies in a sense that FDI companies lose the protection by the Government,
- Assembling industries particularly car industries are suffering from shrinking markets,
- Industries are increasingly concerned about the competitive production cost with the result of seeking for the scale of production economy in their respective special fields, however, investment circumstances in Viet Nam are not ready for such a large-scale investment,
- There exists a competitive market situation where small and medium-scale industries (SMI) that produce parts and components are actively induced by NIEs and ASEAN,
- In the Indochina region, Myanmar is becoming a new investment market competing with Viet Nam particularly for labor intensive and agro-based industries, and
- In spite of the prevalent FDI laws, investment terms and conditions are normally decided by negotiations due to lack of international legitimacy in Viet Nam.

2.4.4 Potentials of FDI in the Central Region

During the interview survey in Viet Nam, there were no doubts that the Central Region of Viet Nam would become the third growth pole on the national development corridor in the not too distant future. Even there are a lot of constraints, the Central Region of Viet Nam has still its potentials to induce FDI. Those potentials are identified as follows:

- The Central Region is the third national growth pole having geographical advantages such as good accessibility to neighboring ASEAN and Indochina countries,
- Labor cost in the Central Region is relatively low as compared to other competing countries and regions within the country,
- Availability of land for industrial use is better in the Central Region coupled with still relatively low land cost compared to the other regions,
- There remain traditional industrial backgrounds in the Central Region,
- An oil refinery construction project has been committed as a national strategic project by the Government, which is expected to serve as the first step for subsequent industrial growth,
- There exist the favorable circumstances on the part of Japanese and NIEs industries which are looking for investment opportunities in the raw materials supply such as plastic, iron and steel, etc., and
- There is a growing movement where new products are fully developed and produced in developing countries throughout the whole production cycle, which would provide a chance to produce even new products in the Central Region under such circumstances.

2.5 AGRICULTURE, FORESTRY AND FISHERY

2.5.1 Agriculture

1) Existing constraints

Farm population suffer from a lot of constraints, of which major ones are as follows:

- Petty size of farm land per agricultural household
- Unfavorable natural (land, soil, climatic) conditions
- Underdeveloped farm infrastructure (irrigation etc.)
- Frequent and heavy damages from natural calamities
- Low level of food self-sufficiency and poor farm assets
- Limited non-farm income sources
- Limited availability of farm inputs and backward marketing system

Constraints are parametrized to compare with other regions in Vietnam in Table 2.5.1.

2) Limitations in development

There are a number of limitations to solve or ease the above cited constraints, thus fostering a vicious circle against intended development ;

- Scarce room for expanding paddy fields by reclamation, because almost all flat land have been exploited except for saline area, land prone to floods, etc.
- Remoteness of hilly-mountainous area where reclaimable land exists without proper access road, access to market, nor irrigation water.
- Scarcity of investment resources both in public authorities and private farmers and necessity of waiting during embryonic periods for tree crop growing, etc.

3) Remaining Potentials for Threshold of Development

Among gloomy conditions, the following ways of solving such constraints still remain in the area:

- There remains only vertical expansion, i.e. yield improvement through higher irrigation coverage, prevention of flood / drought damages, higher input use including hybrid rice seed and chemicals, in flat plains or granary areas.
- There exists some room for farmland expansion by settlement and reclamation in hilly and mountainous areas (usually 5 ha is allotted per settler's household).

Some improvement in farm household income can be expected through crop diversification from paddy or subsidiary crops to cash crops, provided that additional demand with purchasing power arises from urban population.

4) Plan of Agricultural Development towards 2000 and 2010

Unless maximized efforts are made for struggling with population pressure, the study area will fail to realize sustainable growth and acceptable living standard in forthcoming decade. Land availability is assessed for farm-land expansion in the Table 2.5.2:

Table 2.5.1 Comparison of Agricultural Indicators among Areas

Indicator	Unit	State	North	Central	Study Area	South
Demographic Distribution State-population: 71,465,000	%	100	37.0	25.4	6.3	37.6
GAP/GDP ratio	%	36.9	38.9	31.7	31.9	33.5
Annual GAP Growth 12,658million VND 90 - 94	%	0.54	0.60	0.28	0.00	0.86
GAP Share by Areas	%	100	30.7	22.0	3.8	47.3
Per Capita GAP 1989 price	1,000 VND	177	147	153	103	223
Farmland Distribution State-Total 6,993,200 ha	%	100	29.0	37.1	4.3	46.7
Per Capita Farmland in sq.m	m^2	979	767	933	643	1,218
Dist. of Annual Sown Area State-Total 7,578,000 ha	%	100	32.0	24.0	5.2	44.0
Per Farm-labor Farmland	m^2	3,670	3,520	3,370	2,290	5,850
Dist. of Farm Labor force State-Total 19,051,000	%	100	30.2	40.4	6.9	29.3
Farmland rate to Territory	%	21.1	17.6	11.1	11.4	51.8
Rate of Paddy Acreage	%	58.8	58.6	48.8	54.2	63.7
Rate of Industrial Cropping	%	16.2	17.4	23.7	24.1	18.0
Dist. of Food Production State Output 23,789,000 ton/year	%	100	30.1	19.6	4.6	50.3
Yield Level of Food-Crop	t/ha	3.15	2.95	3.03	2.98	327
Annual Growth Cropping Area	%	2.25	0.45	0.87	0.82	3.85

Note : Data for the study area always included in the cases where state total gives 100 %. Distribution sometimes is abbreviated as Dist.. "north" covers region I, II and III, "central" does region IV, V and VI, and "south" indicates region VII and VIII.
Source: Agricultural Statistics, State Economy Statistics 1995 edition arranged by the study team.

Table 2.5.2 Land Availability for Expanded Farm Base and Yield Potential in Future Development

unit : ha and ton / ha

Period	1993	2000	2010
paddy area	160.8	166.4	172.0
single - double crop	85.4	98.6	111.8
upland crop plot	86.8	96.4	106.0
perennial tree crops	30.2	57.7	85.2
paddy yield level	2.7	3.3	4.2
cane yield level	30	39	53

The expected values derived from the above listed expansion is estimated as follows:

Table 2.5.3 Expected Value for Expanded Farm Base

unit : 1995 million VND

Period	1993	2000	2010
paddy area	2,043	2,584	3,400
single - double crop	0	53	71
upland crop plot	608	877	1,054
perennial tree crops	263	502	741
livestock herds	360	414	480
Total Farm Value	3,274	4,430	5,746

5) Measures for Agricultural Development

To realize the above listed improvement plan, strategies are formulated in the following way:

- From the land use point of view, agricultural zoning in the study area should be established, and development plans are formulated according to this zoning.
- Agricultural intensification that can be driven in existing paddy land, is improved to raise yield with an optimum cropping intensity, while crop diversification and VAC can be promoted so that cash crops can be introduced in a way matching to the demand arising from urban expansion.
- In the hilly and mountainous area, which in other words the most promising area for industrial crops plantation and tree planting, both reclamation and technical improvement should be promoted in a sustainable way through the establishment of supporting media, consisting of mechanism of technical transfer, creation of access to revolving funds and better access to international market.

The long list of agricultural projects/programs are given in the Table 2.5.4 to put the above described strategies into practice within the study area.

Table 2.5.4 Long List of Agricultural Projects

(projects are classified by the common cord number)

Province	Quang Ngai	Quang Nam - Da Nang	Thua Thien - Hue	Quang Tri
R-1 Water Res.	Duc Pho etc.	Que Son etc.	Huong Tra etc.	Vinh Linh etc.
R-1 Sugar Cane P	Ducpho, Sontinh	Tam Ky	Phong Son	Huong Hoa
R-1 Research St.		Vinh Dien	Hue University	
R-2 Highland IC	New Econ. Zone	Thanh My	New Econ. Zone	New Econ. Zone
R-2 Dairy Cow P		Giang ,Dailoc		
R-2 Sericulture P		Hien, Giang		Gio Linh, Cam Lo
R-2 Rubber Plant			Phong Dien	Huong Hoa
R-2 Coffee Plant				Huong Hoa, Cam Lo
R-2 VAC Project			Aloai Nambong	
R-3 Bean Peanut	Mo Duc Tu Nghia			
R-3 Cashewnut P	Binh Son		Pha Tam Giang	
U-3 Vegetable C		Hoa Vang		Trieu Phong

6) Key programs to be Pursued for the Goal 2000 and 2010

Among the proposed projects/programs, two of them have special importance in order to facilitate stable farming in both traditional flat land and new economic zone. These are :

- Highland Industrial Crop Promotion and Reforestation Program
- Water Resources and Agricultural Development Project by Medium and Small Reservoirs

Of the two key programs cited above, the former covers hilly and mountainous area of four provinces, with the objective of creating a firm technical and financial base for settlement in new economic zones, while the latter aims at yielding improvement in granary area of flat plains.

2.5.2 Forestry

Table 2.5.5 shows the area of bare land included in the forest land within the study area, as the summary indicating the forest status. It is desired that priority should be given to afforestation in the bare land, with a view to activate the functions of forest reserve to ensure public welfare in the following manner:

- Bare land in Special Use Forest (441 sq.km.) should be planted to serve for tourism and amenity by preserving landscape in the National Parks, etc.
- The land distributed in Protection Forest (4,861 sq.km.) should be planted as windbreak for controlling shifting sand as well as for soils and water conservation.
- Bare land found in Production Forest (4,870 sq.km.) having potentials of creating through afforestation the forest resources, soils and water conservation, employment opportunities, possible future wood-processing industry development, and so on.

Table 2.5.5 Forest Land of Study Area and Bare Land

unit : sq. km.

Forest Land	Study Area Total	in which Bare Land	% of Bare Province	Land per cent
Special use forest	1,027	441	Qunag Tri	66.5%
Protection forest	9,015	4,861	T. T. Hue	44.3%
Sub Total	10,042	5,302	Q. N. D.N.	47.6%
Production forest	9,284	4,870	Quang Ngai	69.8%
Grand Total	19,326	10,172	Total 4 Prov.	52.6%

Source: Forestry Department of Each Province, 1994

However, such constraining factors as shortage of funds for afforestation and under developed infrastructure (especially local road and feeder road network) will limit afforestation. On the other hand, existing wood-processing industries except for those receiving wood chip logs from existing natural forests should be minimized in order to control the deforestation that further deteriorate the forest reserve, and to rehabilitate it so as to enhance forest functions properly.

1) Required Forestation Area

Table 2.5.6 shows the planned area for afforestation up to 2010, and the required forestation area in bare land is derived from Table 2.5.5, and obtained in such a way that the bare land area is allocated in coastal area as well as mountain & hill area, based on the data of the Existing Land Use 1993 by Geographical Department.

Table 2.5.6 Bare Land and Afforestation Plan Area

unit : sq.km.

	Bare Land	Afforestation Plan Area		~2010	2011~
Special use forest	441	Coastal area	160	160	0
Protection forest	4,861	Mountain & Hill	5,142	3,870	1272
Sub Total	5,302	Sub Total	5,302	4,030	1,272
Production forest	4,870	Coastal area	50	50	0
		Mountain & Hill	4,820	2,640	2,180
		Sub Total	4,870	2,690	2,180
Grand Total	10,172		10,172	6,720	4,452

Source: Existing Land Use 1993, Geographical Dept. & Forestry Dept. of Each Province, 1994

2) Special use Forest and Protection Forest

- To establish shifting sand control forest of 160 sq.km. in coastal area up to 2010.
- Planting tree species : Casuarina spp., Pinus spp., Acacia spp., Eucalyptus spp., and indigenous species
- Planting method : Concentrated planting
- Implementing Agencies : Ministry of Agriculture and Rural Development.

3) Production Forest

- Plantation of cashew nuts and other crop trees are mainly planned up to 2010, into an area of 50 sq,km. in coastal area.
- Afforestation in 2,640 sq.km is planned up to 2010, within the mountain and hill area. This chiefly consists of industrial plantation by private sector, but it is also envisaged that 20% of them, say 528 sq.km can be planted by farmers under an agro-forestry system. Besides, plantation of long rotation industrial species such as rubber, coffee / tea trees along with cinnamon and pine trees is also designed. Major planting tree species for industrial plantation comprise Acacia spp., Eucalyptus spp., Pinus spp., Cinnamomum spp., and others.

2.5.3 Fishery

The country's territory stretches out from north to south forming a narrow land strip all along the entire coast line that extends over the distance of 3,200 km and the Exclusive Economic Zone of the nation has the area of approximately one million square kilometers. It is mentioned that the marine fishery resource potential in this water mass of EEZ is estimated at about three million tons, out of which only about 750,000 tons are now utilized annually.

It is also mentioned that there are over 110 rivers flowing into the sea throughout the coastal area and these rivers form wide areas of estuaries water surface. And, in addition, lagoons, which are said to be the largest of its kind in Asia along the sea coast of the Central Region, offer huge expanse of inland water surface. And it is mentioned that out of the total inland water surface of 1.4 million hectares, only about 300,000 hectares or about 21% has so far been utilized for inland-water fishery and aqua-culture, with annual output of 450,000 tons.

The projection in the development plan for 1996-2000 period sets a target for the sectoral production growth at 1.6 million tons, an increase by 400,000 tons from the current level of production, and, the target so set does not appear to be unattainable, given the resource potential as above.

However, it is also reported that the fishery resources in coastal areas had already been heavily over-exploited and that the production of the marine fishery sub-sector shows a steadily declining trend over the past decade or so. At the same time, the fleets of existing fishing vessels are said to be inefficient and incapable of deep-water operations in the high seas for their inadequate power capacities and poor seaworthiness.

For increasing the marine fishery output, it is definitely essential to go farther out to the high seas for harvesting the resources that remain untapped, but this requires fresh input of more efficient fish capture efforts in the forms of modern fishing vessels and more efficient fishing gears. It will probably be necessary to equip the fishing vessels with engines of larger power capacities, with highly mechanized navigation equipment, and also with sophisticated fish finding devices to find aggregated fish shoals out of the vast expanse of the high seas. And it is also essential for the fishermen to acquire the knowledge and the technology of navigating ships to and from fishing grounds in the high seas where no landmarks could be sighted and for an extended period of fishing trips.

It would then be absolutely necessary to establish and manage infrastructure in adequate scales to serve as fishing ports or fish landing centers with facilities for fish handling, storage under refrigeration, ice-making, and, distribution and marketing.

For opening up further the unutilized water surface of inland water areas or lagoons for aqua-culture, it is not really so easy as it appears. The characteristics or quality of water will have to be maintained at optimum levels, the salinity for instance, to meet the specific needs for the growth of specific species of fish or shrimps and this would require certain measures for controlling flow of freshwater or seawater inward and outward. It will also be necessary to

extend and improve the hatcheries production and supply capacities to meet the expanding needs for fish fries and infant shrimps. Installation of those facilities for post-harvest fish handling and quality preservation, marketing distribution and fish transport will also have to be looked into.

During the visits to certain fish landing sites and to the fish/shrimp processing factories in the provinces of the study area, the study team had an impression that the post-harvest fish preservation is quite carefully done to maintain the freshness and the quality of fish catches. However, there are yet rooms for further improvement in the preservation manners. Installation of adequate facilities for retail sales to consumers and storage under refrigeration at urban fish markets in cities or townships, as well as the measure to keep the hygienic conditions at urban market places, should be seriously studied and implemented. The public infrastructure and facilities to develop higher domestic consumption of aquatic products appear to have been totally lacking.

Financial aspects of the development needs will also require careful studies and various financial means and credit facilities will have to be considered and made available to the industry to support fund raising to meet the varying needs for capital investment and operational working funds.

The lack of statistical information on the performance of the fishery sector should be noted with particular attention. It is absolutely essential to have reliable statistical data to address the situation of the sector and to plan and work out development strategies and improvement measures. It is therefore strongly suggested that proper and efficient systems should be established for monitoring the performance of fisheries and for collecting and analyzing as well the data by sub-sector, province, fish species, fishing method, fish capture unit, etc.

2.6 INDUSTRY

Viet Nam's strategy for industrialization will require a supportive and stable macroeconomic framework to ensure continued accelerated growth of the manufacturing sector. Industrial planning, which is interpreted by planners as basically investment project oriented planning, is geared towards two principal objectives :

- To avoid output collapse in the still dominant state owned sector (some 70% of gross value of output originate from SOEs), which is so typical for transition economies and instead achieve and maintain high output growth, and
- To attract and accommodate increasing amounts of FDI with a view to (i) establish a viable manufacturing structure, (ii) upgrade manufacturing processes and products, (iii) import modern technology and management techniques, and (iv) gain access to regional and global markets (some 49% of the total accumulated FDI of 22 billion US $ are invested in general industry, about 6% in oil & gas development, some 3% in industrial zones and about 1% in EPZ's).

However, Viet Nam still is and will remain in the medium term at an early phase of industrialization characterized by the following constraints :

- An underdeveloped manufacturing structure, which is unbalanced in terms of regional distribution (strong concentration in the south and north with a minor manufacturing core in the Central Region),
- Structural deficiencies with weak and/or non-existent back- and forward linkages (50% of gross value of output being fuels and foodstuff), the latter of which is being enhanced by the unbalanced regional distribution,

- Low investment efficiency and loss of manufacturing jobs (the gross value of output per employee and manufacturing unit has been falling and some 0.5 million manufacturing jobs have been lost in recent years),
- Completely outdated process and product technologies (manufacturing equipment is typically some 20 to 30 years old and it has originated mainly from ex socialist block countries). It is estimated by the MOI that only replacing the outdated machinery would need some 50 billion US $ over the coming 5 to 10 years, 2.5 times the size of the country's current GDP,
- A still young and inexperienced entrepreneurial base in both, the state and private sectors, which is not yet fully familiar with market mechanisms and which has had only limited exposure to the competition in regional and global markets,
- A not yet fully structured financial sector, which does not yet properly address the manufacturing sector's needs for short term (working capital) and long term investment financing,
- A not yet fully established system of industrial standards, testing and quality control, which would meet international requirements,
- A so far undeveloped indigenous R&D capability and capacity,
- A still weak though growing domestic market, and
- A labor force, the skills of which do not fully correspond to the skill needs in modern competitive manufacturing.

Domestically, these structural deficiencies are enhanced by the lack of a comprehensive and integrated overall industrial policy, which, instead of thinking in terms of single isolated projects, takes a structural and sector oriented view. In addition there is still the danger of distortions in the overall incentive framework, which may lead to lowering investment efficiency, because public and private asset holders respond to high levels of protection and/or specific tax breaks.

It should be emphasized that the deficiencies in Viet Nam's manufacturing sector will have to be removed within the AFTA framework, that is within a 10 years frame, since tariff protection measures will not be possible beyond 2006. By that time Viet Nam's manufacturing enterprises will have to be 100 percent competitive with their counterparts in other ASEAN member states.

However, Viet Nam has also a number of distinct potentials, which, if efficiently exploited, will ease the way for rapid and sustainable industrialization and modernization. They are:

- A favorable geostrategic position,
- Membership in ASEAN, with its potential of market access to the markets of member states,
- Political stability and a strong minded and fully development committed political leadership,
- A disciplined, hard working and fast learning labor force, which is, for this early phase of industrialization, the distinct asset attracting cheap labor seeking FDI,
- A natural resource endowment, which has the potential to be employed as a stepping stone for a more balanced and advanced manufacturing structure. Of particular importance in this context are the oil and gas reserves, mineral resources, such as iron ore in Thach Khe, coal, limestone, gold, titanium and so on,

- A potentially huge domestic market, if the targeted increases in per capita are realized. Viet Nam's population size already now exceeds that of Thailand, and Viet Nam may well become a strong player in Indochina,
- A potentially rich primary sector, in particular agriculture, which, if developed in the right direction, may well become a strong base for agro-based manufacturing and rice lead primary commodity exports, and
- Strong potentials for tourism development, with its linkage effects on agriculture and manufacturing.

The above identified constraints and potentials apply to the whole country. However, as regards the study area, that is the Central Region of Viet Nam, there is an additional set of distinct constraints and potentials. Taken the four Provinces in the study area together as one planning unit, constraints may be identified as :

- Unfocused efforts by planners and policy makers to exploit the development potential of the region,
- As a consequence of the above, insufficient development of the physical infrastructure, in particular the north south and east west road networks, insufficient provision of adequate utilities and communication networks and of adequate watershed management schemes. This lack of concentrated development efforts has left the region with a poor physical infrastructure endowment, which lacks far behind that of the north and the south and more than suboptimal externalities needed for the development of the industrial and other economic sectors,
- Unfavorable weather conditions (regular typhoons, Laotian wind), which in combination with the inadequate infrastructure for watershed and flood control management has led to frequent and considerable economic damages in rural and urban areas, thus weakening even more an already weak economic base,
- Unfavorable and difficult topographical features with an urbanized coastal belt and a mountainous poor hinterland, which naturally limits the potential locations for industries,
- A relatively small and strongly rural population base with a per capita income below national average and thus small and little diversified regional aggregate demand, and
- A fragmented manufacturing structure with small to very small production units mainly supplying the regional and local area markets with products utilizing local resources.

Hence, there is a need to establish economic critical mass in terms of both, urban and rural consumer markets and a third industrial growth pole. This need derives from two fundamental considerations. Firstly, to balance the country's overall manufacturing structure (north - Central Viet Nam - south) and, secondly, to establish the foundation for Viet Nam's economic unification. Such an approach should take advantage of the study area's following potentials :

- Its existing two urban agglomeration centers, namely Q.N. Da Nang and Hue, which combined will provide a sizable urban agglomeration needed for accelerated industrialization. Such a twin agglomeration would also combine the tourism potential of Hue (old capital) with the modern manufacturing structure being created by the 0.5 billion US $ FDI inflow into Q.N. Da Nang,
- Its undeveloped land resources in the mountainous area, which are particularly suitable for the establishment of industrial crops,

- Its technically suitable locations for deep sea harbor development. This is of particular importance, since Viet Nam has only few locations, in spite of her long coastal line, which are technically suitable for deep sea harbor development,
- Its technically suitable location for an integrated heavy industrial complex,
- Its geostrategic position to serve as a corridor and short outlet to the Ocean for landlocked Laos and the northeast of Thailand (Greater Mekong Sub-region concept),
- Its gas potentials in the offshore of Da Nang and so far untapped tourism resources in the study area, and
- More than 6,420 ha of industrial use land in industrial estates (IE) existing, under construction and/or planned in all four Provinces. The occupancy rate in the existing IE remains so far low, however, due to the insufficient physical infrastructure in the study area. Given such situation, a well planned and targetted approach for implementing all planned IE will be needed.

Finally, and from an overall national perspective, the Government of Viet Nam will have to review and adjust its industrial policy in the medium term, objectives and instrument mix into a more coherent and consistent strategy, which is based on realized potentials in strategic and in key manufacturing sectors, such as oil and gas, steel and related ferrous and non-ferrous industry, transport equipment and electrical and non-electrical machinery. Such review and adjustment should be envisaged within the coming five years, but not later than the year 2000.

2.7 TOURISM

2.7.1 Tourism Market

The tourism business is a service industry which sells unique and unusual experiences to customers. The products usualy involve the provision of services for all or part of the transportation, accomodation, foods and some admition fees necessay to form the tour or travel. To promote tourists to the destination is one of the most important activities for the tourism sector. Identification of potential markets and strategic marketing promotion are key activities for the tourism development. The following are the potentials for and constraints on the tourism development of the study area from the marketing point of view.

1) Potentials

(1) Viet Nam is located in the center of the world fastest growing tourist market of Asia

According to the statistics of the World Tourism Organization (WTO), the number of international tourists traveling around the world and their total spending were 475 million and US$ 278,705 million in 1992, of which the number of tourist arrivals in the Asia and Pacific region was 54 million which account for about 12 percent of the total arrivals. It can be said that tourist arrivals in the Asia and Pacific region have been steadily increasing, and the trend would continue over the foreseeable future as the political and economic situations in the region become more stable and improved.

(2) Attractiveness as one of the newly developed destinations

Not only tourists, but also travel agencies are always looking for new destinations in order to expand their good travel business. Viet Nam, especially the study area, has attractiveness as one of the newly developed destinations.

(3) Established origin markets

Viet Nam tourism has three big advantageous origin market countries. The first is France, the second market county is U.S.A., and the third market is Japan at present.

(4) Vietnamese good business ability

Vietnamese people are originally well business minded with flexible attitudes on their business actions. Once the real meaning of tourism, tourist tendencies and importance of tourism promotion activities are recognized by Vietnamese tourism-related agencies and persons, Vietnamese tourism trade will make a rapid progress.

(5) Abundant tourism resources

The Central Region is well known by the existence of abundant tourism resources.

a) Affluent Historical and Cultural Relics and Vestiges

Thai Hoa Dien (palace) in the Hue Citadel, a traditional Hue folk music concert and Thien Mu Pagoda are popular among many tourists.

b) Scenic Beauty on Some Coastal Beaches

Scenic beauty is available on some coastal beaches with clean and blue water, white sand, and good shallows for sea-bathing. Specifically, the calm and leisurely Lang Co, site will become a strong selling point in the Central Region.

c) Gourmet Cuisine

The taste of Vietnamese cuisine is well accepted by many tourists. Especially "royal delicacies" in Hue is and will be a popular seller and an important attractiveness.

d) Promising Handicraft Souvenirs

Lacquerware, mother-of-pearl inlay, fine art articles, bamboo and wicker articles, embroidery, casting, sculpture, *ao dai*, conical palm hats, coffee and so on would be good souvenirs.

e) Amiable Character of Human Resources

Human resources is a precious Viet Nam's tourism capital, especially their amiable and hospitable characters. Their friendly behaviors may well promote the tourism in the Central Region.

2) Constraints

(1) Insufficient tourism promotional activities

Viet Nam is weak at present in the presentation of her tourism, and stands at insufficiency for her tourism sales promotional activities. For instance, there are almost no tourist brochures and posters which are readily available. There is few market promotion materials written in Japanese prepared by Vietnamese organizations, although the Japanese origin market has a high potential..

(2) Incomplete tourism policy

The Government has left all the roles of advertisement activity to the private tourism sector, mainly due to budget constraints, and also there is a misunderstanding about the meaning of publicity and promotion. For example there appears to be no governmental tourism promotion office in foreign countries. Vietnam Airlines has distributed its calendars and tourism promotion videos, and offered its air-tickets as a prize for the contests held in travel trade fairs abroad. Vietnam Airlines has its own advertising budget.

Today's Viet Nam's tourism policy appears to be somewhat short-sighted as it pays too much attention to maximizing tourism incomes from foreign tourism related companies as well as from foreign tourists visiting Viet Nam.

The dual-pricing system applied between domestic tourists and foreign tourists may undoubtedly lead to negative effects on the foreign tourist market promotion, since foreign tourist are also increasingly budget conscious in opting their destinations. The tourist prices such as hotel's room rates, admission fees and so on for local visitors are in fact less than half of those for foreign visitors.

(3) Absence of official governmental tourism office abroad

It is a fundamental defficiency for Vietnamese tourism that no governmental official tourism promotion office has been established in market places.

(4) Lack of international linkages between Vietnamese tourism-related bodies and travel agencies abroad

At present, it is very difficult for overseas travel agents to sell "Tours to Viet Nam" to their customers. The principal reasons are as follows:

- As the price information on Vietnamese tourist facilities is not readily available by overseas travel agents, it is extremely difficult for them to estimate the cost of the tour to Viet Nam. Therefore, quotations of "Tours to Viet Nam" presented to customers are always not reasonably accurate, as compared to other destination tours.
- Even when arrangements and operations of tours are sublet to Vietnamese local tour operators, there is no price incentives between high and low season, and no competitive alternatives depending on diverse tour conditions to be applied for hotel room rates, tourist bus fares, tourist guide fees and so on.
- It is very risky for overseas travel agents to carry out "Tours to Viet Nam" because the cost/prices involved are not tranparent and commited prices are not always fulfilled in Viet Nam.

(5) Lack of suitable guide-interpreters

Tour guides and interpreters are in short supply in terms of number. There is no Japanese-speaking guide-interpreters in the study area. Vocational education and training system for the tourism industry is deemed necessary.

(6) Incompletion of human resources education for tourism.

In order to upgrade the quality of services, human resource development is the key for this sector. Eeducation is needed not only for tourism-related personel but also citizens in the tourism area.

(7) Cumbersome entry formalities

Intricate and time consuming formalities dicourages potential tourist arrivals. As for entry formalities, the requirement for invitation letters should be abolished, and the procedures for acquiring visas should be simplified.

2.7.2 Product Development Potentials and Constraints

- Based on the current tourist activities, Ho Chi Minh City and Ha Noi City are the prime tourism gateways of Viet Nam. However, it is necessary to consolidate the existing and open more gateways in order to accommodate the sharp increase in international tourists. In 1993, the latest year for which complete statistics are available, Viet Nam received some 669,862 foreign visitors, sharply increased by some 52.2% from the 440,000 foreign visitors recorded in 1992.
- It is projected that foreign visitor arrivals are expected to grow to some 3.8 million people by the year 2000 and 6.2 and 8.7 million people by the year 2005 and 2010, respectively. To achieve the targets, efforts should be made to divert tourist flows in the country by placing strong emphasis on the Central Region where abundant tourism resources are available including the World Heritage site of Hue historical city and other potential areas.
- To supporting this tourism growth, many plans and projects have already been formulated in an attempt to make the best use of potential tourism resources.

However, it is also true that the four Provinces of the study area have certain disadvantages in encouraging tourism activities. The general features described as potentials and constraints of the four Provinces of the study area with regard to tourism products are presented and discussed below.

2.7.3 Plans and Projects for Each Tourism Development Area

1) National Tourism Products Development Plan

The master plan of Vietnam entitled " Master Plan for Tourism Development in Vietnam (1995-2010) " was prepared in 1994 by the Vietnam National Administration of Tourism (VNAT). The plan indicates the prevailing situation and it provides an assessment, identifies objectives and a development strategy, identifies tourism zoning, facilities development and a training strategy for the whole of Viet Nam. According to the zoning plan the study area belongs to the North-Central Tourist Zone, which comprises the tourist territory system Hue - Da Nang - Lao Bao tourist zone. The national development plan identifies the study area as a natural - cultural resources (heritages) base tourism development area.

2) Plans and Projects of Each Province

(1) Quang Tri Province

- General guide line of provincial tourism development plan in (Tourism Department of Quang Tri Province,1996), and
- Investment plan for tourism development and accommodation program (Planning and Investment Department of Quang Tri Province,1996).

(2) Thua Thien Hue Province

- Tourism development plan (Tourism Department of Thua Thien Hue Province, 1996)
- Tourism development master plan (Institute for Tourism Development Research, 1994)
- Investment plan for tourism development and accommodation program (Planning and Investment Department of Thua Thien Hue Province,1996)
- Workshop on Sustainable Tourism Development in World Heritage Sites - Planning for Hue (UNESCO 1995), and
- Thuan An Touristic Resort Master Plan (French Consultants , 1994).

(3) Quang Nam Da Nang Province

- Tourism planning to the year of 2010 (Tourism Department of Quang Nam Danang Province,1996)
- Project for preserving, restoring and beautifying the relics of Hoi An ancient town (Hoi An Municipal, 1992)
- Identification / assessment of critical constraints on tourism development in Hoi An, Viet Nam (World Travel & Tourism Council, 1995)

- Hoi An Town Conservation Project, 10years (Hoi An Municipality, 1992), and
- Planning project on scenery - environment improvement of Cau Pagoda area (Japanese Bridge) Hoi An (Culture Department of Quang Nam Danang Province,1996).

(4) Quang Ngai Province

- General guide line of provincial tourism development plan in (Tourism Department of Quang Ngai Province,1996), and
- Investment plan for tourism development and accommodation program (Planning and Investment Department of Quang Ngai Province,1996).

2.7.4 Development Potentials and Constraints for Each Tourism Development Area

1) Tourism Resources

(1) Natural resources

- Abundant beautiful coast area with white sand beach potential for resort activities, but with seasonal storms and without coral reefs/\
- Valuable montainous nature for eco-tourism and high land resort
- Attractive large-scale river landscapes and possibilities to use water recreation
- Hotspring potentials for spa resort, and
- Very dense geographical distribution of natural resources (beach-river- mountain) in Thua Thien Hue and Q.N. Da Nang Provinces.

(2) Historical and cultural resources

- Cultural World Heritages in Hue City with the Nguyen dynasty culture as core of this region. However, it is necessary to restore and protect these cultural assets from various threats
- "Archeological center" of Cham culture and ruins, but it is also necessary to restore and protect them from various threats particularly from recurrent floods.
- Historical town as a ancient international trade center
- Attractive arts and crafts. But it is necessary to promote them for effective exhibition
- Memorial places of the past era (colonial era, wartime era and so on)
- Minorities village and life styles have potentials to attract tourists, but there is a problem of access to the hinterland and the villages are not yet mature enough for village tourism
- Very dense geographical distribution of historical heritages as a core showing ancient Viet Nam's history in Thua Thien Hue and Q.N. Da Nang Provinces.

Figure 2.7.1 summarizes in a graphical manner the tourism product potentials in the study area.

2) Visitor Arrivals

- Shortage of length of stay. In Quang Tri Province 1.07 days, Thua Thien Hue 1.95 days, Q.N. Da Nang 1.4 days and Quang Ngai Province 1.0 days. Whereas, the average length of stay in Viet Nam is 3.5 days
- Transit destination functions through the country tour flow (Ha Noi- Central Region-Ho Chi Minh).

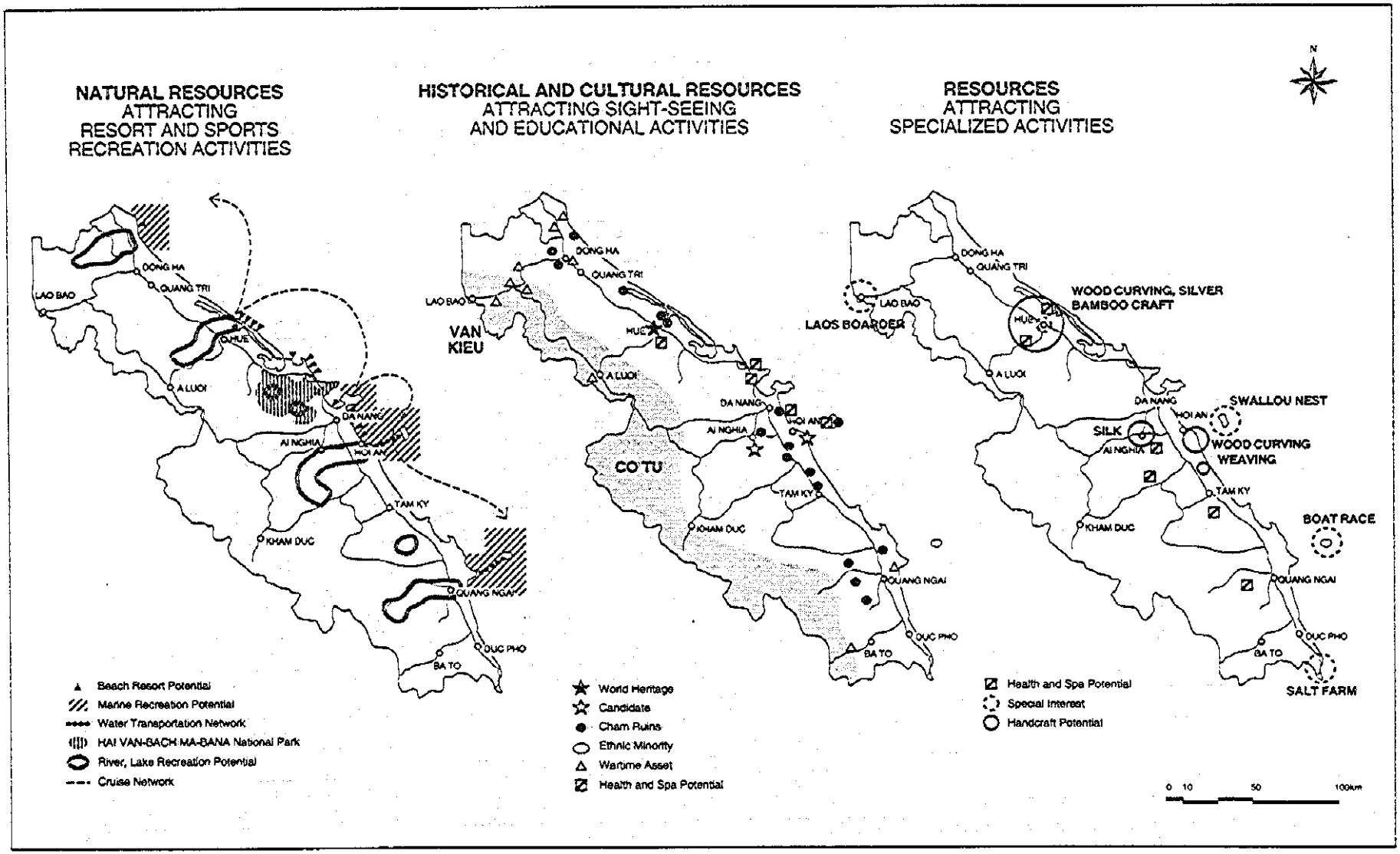
3) Tourist Accommodation

- Shortage of international standard hotels, especially high to medium class hotels, while many mini-hotels serve domestic tourists and budget conscious tourists
- Predominant distribution in the cities (Hue and Da Nang City) with a few resorts in the coastal or mountain areas
- Disadvantage with seasonal fluctuation (Hue's lowest season case = 20% occupancy rate)
- Domestic tourists stay predominantly at mini-hotels or guest houses and not so much with friends and relatives, owing to capacity problems in their homes.

4) Tourist Facilities

- Shortage of adequate tourist information centers in the gateway cities and/or tourist base towns, which should guide tourists with hospitality into tourist areas
- Shortage of suitable signs and information boards in different languages at tourist sites
- Shortage of adequate public tourist facilities, such as shower rooms at beaches, toilets and rest spaces with shelter, and
- Shortage of attractive facilities in order to enhance valuable tourist sites with adequate landscaping, lighting and so on.

Figure 2.7.1 Tourism Product Potentials in the Study Area



5) Infrastructure

(1) Transportation

a) Air transportation

- It is necessary to have direct access from abroad to the Da Nang International Airport
- It is necessary to expand the passenger sheat capacity of air carriage, and
- It is important to coordinate airport functions between Da Nang and Hue.

b) Land transportaiton

- Capacity shortage of vehicle carriages (semi-mass transportation like bus, minibus and so on)
- Disadvantage of accessibility caused by road conditions (road surface, width of roads and so on) to tourism sites and resources. This is true not only for access roads (local roads), but also arterial roads (provincial and national roads). Poor road conditions affect negatively the time schedule of tour route programs
- Atmospheric problems caused by direct access and/or proximity to the valuable tourism areas such as historical ruins
- Suitable means at the tourism sites by small-scale vehicle, such as cyclo, and
- Shortage of suitable parking areas.

c) Water transportation

- High valuable means not only as substitutive transportation, but also sight-seeing in the rivers and sports, such as canoe, kayak and so on
- Shortage of tourism water transportation facilities or recreational facilities related to water sports (sea and river), except in Hue City.

(2) Utilities

- Not sufficient to provide adequate water supply not only for urban dwellers, but also for tourism facilities, and
- Shortage of sewerage system for the quality management of river and coast water.

(3) Environmental consideration

- Historical heritages are deteriorating under the natural conditions with only limited efforts of preservation and restoration work, caused by budget constraints
- Natural and historical monuments suffer from human activities (roads, farming and so on) and natural forces (flood, erosion and so on), and
- Valuable landscape and historical enviroment may be affected negatively by modern development activities (high-rise buidings, advertisment and so on).

6) Overall Potentials and Constraints for Each Tourism Development Area

- A combination of historical & cultural resources with coast and mountain resorts

  This would increase the potential to expand the length of stay. However, in order to achieve this, it would be necessary to enhance the integration of nature resources and cultural & historical resources to ensure diversification for tourism. It would also be necessary to build tourist bases in order to support this combination.

- Co-existence of historical environment and modernization by tourism development.

  To achieve this, it is necessary to improve the infrastructure of historical cities in terms of living environment. In such efforts, participation and co-operation by local communities should be ensured in conservation programs and tourism development. Traditional industrial activities should be maintained, in order to sustain the historical environment.

- Enhancement of integrated cultural activities as "Historical and Cultural Center".

  This would entail the integration of cultural activities, such as educational activities, cultural MICE (meetings, incentives, conferences, and exhibitions) activities and reseach and development, in order to promote the cultural environment potential of the study area. Likewise, enhancement and development of traditional performance, arts and crafts would be required.

- Human resources development

  It will be essential for the future development of the tourism sector to consolidate tourism industry's actvities from a manpower development point of view by providing suitabe and adequate training schools or seminars.

2.8 URBAN SYSTEM AND DEVELOPMENT

2.8.1 Potentials and Constraints

1) Potential

- Locational advantage

  The study area is located on the strategic location of the Greater Mekong Sub-region located on the east edge through the east-west trade corridor of the region, especially to Lao PDR and the north-eastern Thailand. This is one of the biggest advantages to develop this area. This will stimulate and further develop the trade and commercial activities, which leads to the activation of urban functions.

- Rich tourism resources

  Tourism is one of the leading sectors in the study area. Urban development in connection with this sector will be a big potential and vehicle to develop urban areas. TT-Hue is endowed with rich historical, cultural and natural tourism resources, such as Hue Royal Citadel, Bach Ma national forest, and Lang Co Beach. In QN-DN, there are plenty of tourism resources like China Beach (Non Nuoc), Cham heritage, Marble Mountain, Tien Sa mountain, etc., which will provide a good amenity to urban life. Hoi An and My Son are another major tourist destinations.

- On-going and proposed industrial development

  With rich industrial resources including minerals to industrial crops, urban development of the area will progress. Also a big project of "Chan May FIZ

Development" and "Dung Quat Industrial Development" will require new urban area development.

- Transportation network

  There are international and local airports (Da Nang international airport and Phu Bai airport) and seaports (Tien Sa port, the planned Dung Quat port and Chan May port). Also, national road network and railway is running through the area.

- Existing urban functions in Da Nang city

  As regional center of service and industrial activities, further intensification of urban functions of the city would be expected to facilitate the Area's industrialization and modernization linking with other urban centers and small and medium size towns scattered in the rural areas.

- Natural settings and urban area

  Unlike Hanoi and HCMC, Da Nang has natural beauty, namely, "beautiful sea and mountains." This will be a strong sales point of Da Nang appealing to outside. Also, Hue has historic heritage, the Huong River and mountains, which are also to make a good urban landscape. Also, the national park including Back Ma and Bana has great potentials as highland resort near the urban corridor.

2) Constraints

- Insufficient infrastructure

  The area is lacking adequate infrastructure ranging from roads, water supply and sewerage systems, etc. Insufficient infrastructure hampers the area's urban development led by industrial, trade, and tourism development.

- Natural disaster

  The study area is frequently attacked by typhoon causing flood over the low flood plains. The vulnerability to floods is a big constraint for urban development as well as for other developments.

- Inadequate urban land use control

  Cadastral mapping is of urgent neccessity. And also, the land use management by a proper law enforcement is necessary for a legitimate urban development avoiding haphazard developments.

- Over-concentration in Da Nang city

  Da Nang is the regional core city. However, the old city area of Da Nang is very densely inhabited as much as more than 700 persons/ha. The zone is also a commercial and business area of the city. The over-density of population hampered the healthy urban development causing traffic jams in the zone and adverse effects on efficient economic activities. To make the zone function properly, the well-planned land use with proper density control is necessary. As Da Nang is a smaller urban center than Hanoi and Ho Chi Minh City, urban agglomeration is necessary to induce a wide variety of business activities by attracting more investments.

- Hai Van pass

  Hai Van pass is a kind of obstacle to connect Hue and Da Nang to form an urban conurbation. This also is a bottleneck in road transportation linking the north and the south regions. A Hai Van road tunnel has been studied by the World Bank, and will also be studied by this JICA study.

- Degrading urban environment

  Urban environment is being degraded: air pollution caused by motor-traffic and industry, water pollution by industrial wastes, domestic waste and garbage dumped, car noise and so on.

- Insufficient capability of urban development staff

  UNDP gives a training project of staff of NIURD, Hanoi and HCMC, as planning staff ability is insufficient. CIDA also holds a HRD program for the MOC staff. This sort of HRD program should be applied to the local government staff in the study area so that they can properly manage and administrate the regional development plans and programs.

2.8.2 Development Issues

1) Urbanization and Urban Hierarchy

(1) Creation of Urban Agglomeration and Linkage

Urbanized areas in the study area are concentrated in the four provincial capitals in a way that each of them has a weak relation with each other and closed influence area. There are gaps in size of economies among the four provincial capitals. However, to drive the region's economic growth as a whole, the functional division based and linkage to supplement to each other should be formulated based on the local resources.

The study area must be considered with urban hierarchy and urban core system consisting of the primary, secondary, tertiary urban centers according to such urban functional hierarchy. Also to meet the governmental policy of development of small and medium sized towns, such structure must be attained.

(2) Avoiding Overpopulation

To mitigate overpopulation of a city, a considerable attention must be paid to a combination of planning a new satellite city area and developing of other small town in expanding the urban areas. This is especially true with Da Nang city.

2) Integration of Urban and Rural Areas

(1) Strengthening of Urban and Rural Economic Linkage

As rural areas, especially in mountainous areas, have a weak linkage with urban areas, they are backward in economic activities. Urban and rural linkage in economic activities is necessary in order to boost the rural economy.

To this end, physical and non-physical linkage must be developed. As physical linkage, road connection is the most desirous infrastructure. On the other hand, building of producer-consumer relationship based on marketing information will help to vitalize the rural economy through urban - rural linkage. It is considered in relation to agricultural and rural community development so as to improve rural economic condition.

(2) Unified Development Plan Urban and Rural Areas

Apart from economic aspect, but from physical land use and urban environmental point of view, urban and rural area, in particular, those adjacent to urban area, must be integrated into the one coherent development area..

3) Urban Development Management

(1) Development of Infrastructure

In the urban areas in the study area, social and economic infrastructure is not sufficient as mentioned in the respective chapters. Improvement and development of the socio-economic infrastructure is a key issue of the area as a whole. This is basically because of insufficient fund sources available for the infrastructure development.

(2) Growth Management

For sustainable urban development, a balanced growth between resources available and population should be paid due attention. Infrastructure development is related to the various factors such as the population to be served, the balance between supply and demand, availability of funding sources, and so on. In principle, demand for services and supply of infrastructure should be concomitant, otherwise urban problems will rise and result in serious adverse impacts on the socio-economic conditions. This is especially a big issue in Da Nang city which is already suffering from the over-population in the central zone.

Population management of cities and towns based on the land use zoning and development control should be considered to keep the pace of urbanization and delivery of social services. Also, population management through family planning is expected to keep population growth rate low. Regarding in-migrants from rural areas, rural development or rural industrialization is critical to partly absorb the labor surplus in rural areas and retain them from excessive immigration.

(3) Creation of Amenity

Landscape, townscape and street-scape of the historical and cultural heritage with nature (green and water) in Danang, Hue and Hoi An, and other urban areas are an important issue. Well planned landscape will give more value to the cities and towns, and thus give better images of the areas.

In addtition, it is also preferable to create recreational facilities, sch as city parks and waterfront facilities for more amenity in urban areas for those who live, work, and visit there. This is especially in the congested downtown areas of Da Nang and Hue.

(4) Urban Environmental Management

It is a big issue to minimize adverse impact on environment by industrialization, motorization and daily life. Environmental control system should be set up for monitoring and enforcement of regulations and laws of environmental protection.

Urban areas are not kept clean by garbage dumped on streets, canals and ponds. This leads to not only bad image of urban areas but also unhealthy and unsanitary urban areas. Regarding domestic garbage dumping, campaign for People's awareness of "no garbage dumping" will be helpful.

In addition, urban amenity should be maintained by controlling of landscape, street-scape, building height, the other urban design related things.

(5) Urban Traffic Management

Urban traffic congestion is becoming serious in Da Nang, Hue, and Hoi An even though the situation is not as bad as in Ha Noi and Ho Chi Minh where the mixed traffic including cyclos, bicycles, motorbikes, and cars are causing seriously congestion. However, unless any remedial measures be taken to this, the urban traffic conditions in the study area would be worsen. This, in turn, will cause environmental problems (air pollution, noise, and vibration) and inefficient economic activities.

To mitigate urban traffic congestion, an urban traffic management plan must be implemented. Such measures as may include the construction of bypasses to avoid the through traffic in the downtown, adoption of efficient public transportation systems, employment of "traffic cell system" in tourism centers of Hue and Hoi An should be undertaken before the situation be carried to extreme.

(6) Training of Urban Development Personnel

Urban development personnel is considered not capable in planning and managing urban development, in particular at local level. Therefore, personnel training programs like those conducted by UNDP and CIDA for the central government personnel are necessary for the staff of local governments. More importantly, the central planning functions should be partly delegated to local governments so that they can involve and experience in urban development issues from planning to operation and maintenance of projects and programs.

2.9 INFRASTRUCTURE

This section sets forth opportunities and constraints for the improvement of transport systems within the study area. The presentation is, of necessity, abridged. Interested readers are urged to consult *Annex 2* to the *Main Report*, where additional detail is provided.

2.9.1 Road Network

Road sufficiency analyses have confirmed that, from a capacity point of view, upgrading of select road links within the study area is in order. However, it should not be inferred that capacity considerations are the only criteria; indeed the Master Plan framework[1] accepts that social and economic issues are important catalysts for road transport improvements. In response, a road improvement strategy for the study area was, in a hierarchical manner, defined (Figure 2.9.1). While each hierarchy is discussed separately in subsequent paragraphs, it should not be inferred that any set of improvements can be conceived in isolation. Instead, roads must be viewed as an inter-related system, whose focus must be closely coordinated with study area land uses and/or major development projects.

[1] Refer "Interim Report", op. cit, for detailed discussion of formulated framework and underlying sectorial investigations.

Figure 2.9.1 Potential Road Improvement Hierarchy

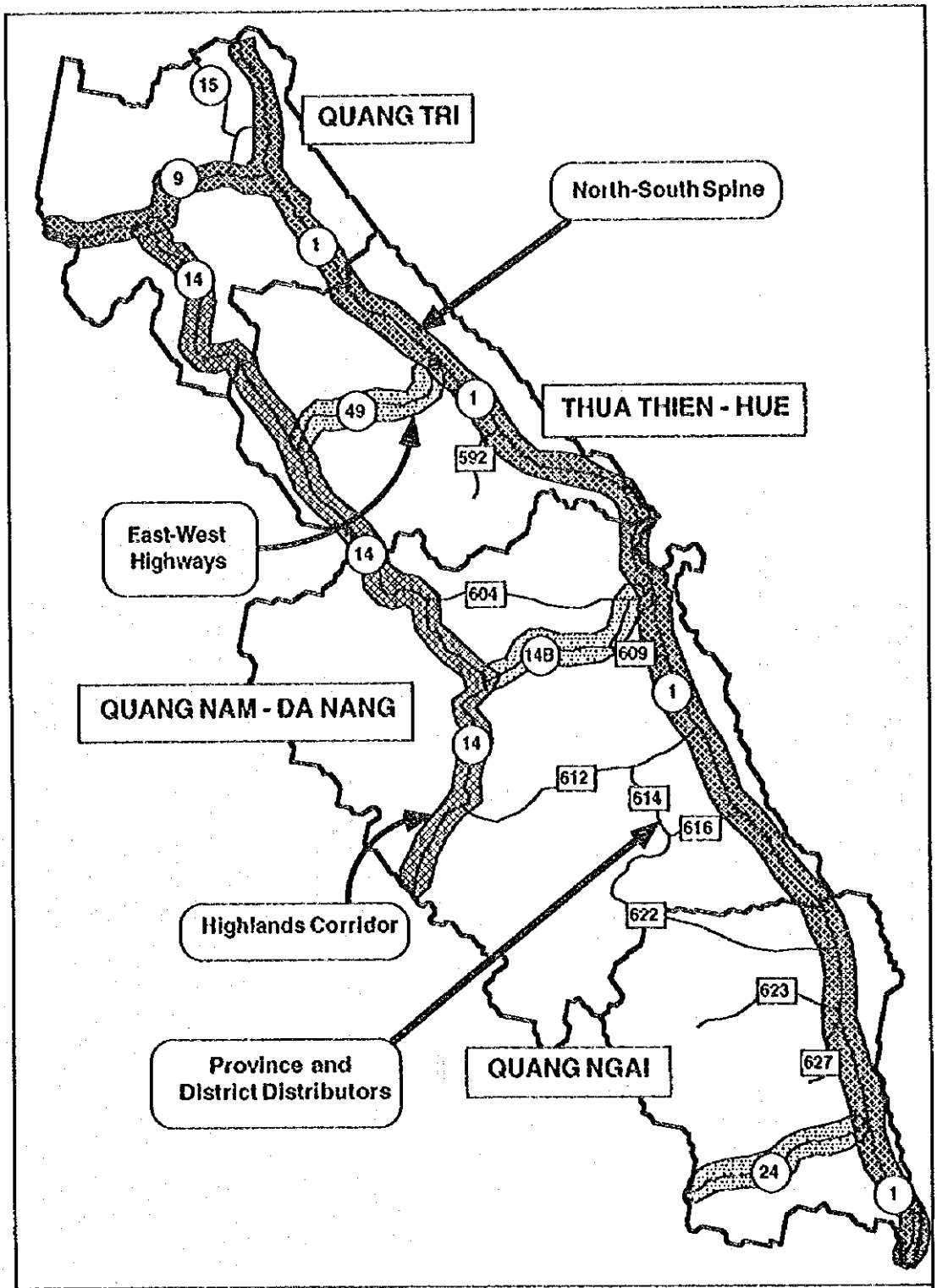


Figure 2.9.1

POTENTIAL ROAD IMPROVEMENT HIERARCHY

1) The North-South Spine

Highways 1 and 9 are unique to the study area in that they represent critical road facilities of both national and international importance. Highway 9 has been extensively studied, and will most likely evolve as the principal (but not only) east-west road corridor linking Thailand, Lao PDR and Viet Nam. The subregional implications of Highway 9 are profound vis-à-vis the study area. Pertinent strategic issues can, on a general basis, be summarized as:

- The physical and operational improvement of the Highway 9 corridor between Dong Ha and the Lao PDR border. It is be expected that improvement to high-order two lane road status (TEDI Class III) will adequately upgrade road capacity for the foreseeable future. Thus, an institutional framework to enhance cross-border flow must concurrently be derived if international vehicular flows are to truly benefit from physical road improvements.
- The hinterland distribution opportunities for international traffic using the Highway 9 corridor must be developed to an acceptable standard. This principally includes the Highway 1 corridor between Dong Ha and selected ports and/or major regional cities such as Hue and Da Nang. Upgrading of Highway 14 could also prove beneficial for distribution of cross-border cargo flows.

The Highway 1 improvement currently visualized under IBRD and ADB highway improvement programs should fulfill near to mid-term future needs. However, demand forecasts clearly confirm that a two-lane road, even in "top condition", cannot forever meet the needs of a rapidly-expanding area. This is particularly so given the urban scenarios conceived for Dong Ha, Hue, Danang and Quang Ngai; the evolution of the Hue - Danang urban corridor; the advent of planned mega-projects such as Dung Quat port, and a continuing growth in north-south trade fueled by a rapidly expanding national economy.

The challenge is therefore the development of an integrated and cascading strategy which effectively combines several key elements.

- An "immediate-action" program centered on low-cost, but highly effective, actions loosely termed Transportation System Management (TSM). This would include optimized utilization of existing road infrastructure via installation of traffic signals, road safety devices, truck weighing stations, improved signage and markings, public education, driver training as well as honest and on-going enforcement.
- Upgrading to acceptable two-lane section in line with IBRD and ADB recommendations, with separation of non-motorized vehicles from the larger and faster-moving motorized traffic stream being a key objective. At this stage, the implementation of urban bypasses should also be pursued, particularly for Hue and Danang.
- As capacity approaches saturation levels, more cost-intensive solutions must be implemented along Highway 1, likely in a staged manner with high-volume segments receiving top priority. Demand forecasts suggest that the Hue - Danang urban corridor should considered as a priority candidate in this regard.

Upgrading the Hue - Danang corridor implies the provision of additional traffic lanes. Multi-lane status can be achieved in a number of ways:

- Widening Highway 1 along the existing alignment. This course of action could, however, be problematic due to the intense roadside development already existing along virtually the entire extent of Highway 1.
- Constructing a new arterial road along a new alignment possibly several kilometers west of Highway 1. While this offers undeniable advantages from a road-building

point of view, care is required since socio-economic impacts, such as potential loss of arable land, will result.

- Major geographic constraints, particularly Hai Van pass, must be addressed. A recently completed pre-feasibility study evaluates alternative improvement options for a Hai Van pass crossing, including the construction of tunnel sections.[1]

Preliminary plans have been developed by Government for a motorway which will, in the very long-term future, link Hanoi and HCMC. In the study area, a preliminary alignment some 3-10 kilometers west of Highway 1 is potentially indicated. The Master Plan Team supports the long-range concept of this project, and recommends that high-order, access-controlled facilities (with or without tolls) should only be considered if clearly warranted on demand grounds and supported by robust socio-economic evaluations. Nevertheless, if construction of an arterial along a new alignment is considered between Hue and Danang, careful reviews are required to ensure that such plans do not conflict with longer-term motorway goals. Indeed, with proper planning and design, a new arterial on new alignment could represent a "first-step" element of an ultimate motorway mosaic.

2) The Highlands Corridor

Highway 14 forms an important north-south corridor within the study area. The physical role is apparent in that the highlands corridor could potentially offer an attractive route of travel vis-à-vis Highway 1. Highway 14, due to its junction with Highway 9 in Quang Tri province, also offers potential as a distributor facility for road traffic to/from Lao PDR and Thailand.

In addition to transport utility, upgrading of the highlands corridor could catalyze a vast improvement in standard of living for people residing within the corridor. The highland area, road access to which has always been problematic, is under developed. Full realization of economic and developmental potential is thus stunted, and regional wealth correspondingly low. Societal benefits would occur not duly due to enhanced access to centers of activity within the study area, but also to Kon Tum province (and beyond) in the south. The Government of Viet Nam has committed to an upgrading of Highway 14 using its own funds.

3) East-West Highways

Successful functioning of the twin north-south routes (Highway 1 and Highway 14) absolutely requires that adequate east-west distribution be available. Highways 9, 14B, 24 and 49 fulfill several essential roles in this regard:

- Provide direct linkage between Highway 1 and Highway 14, both being north-south corridors of flow within the study area.
- Link major regional towns such as Aluoi, A Nghia, Thanh My and Ba To with major urban centers and higher-order road facilities.
- Connect intermediate communes and serve in a collector capacity for intermediate district/commune roads.
- Offer connections with neighboring Lao PDR. Some crossings, such as Highway 9, represent major international gateways. Others, such as Highways 24 and 49, offer possibilities for more localized cross-border contact.

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[1] "Pre-Feasibility Study of Hai Van Pass Tunnel of Highway No. 1", by Express Highway Research Foundation of Japan, for IBRD and Ministry of Transport, Government of Viet Nam, March, 1996 (Draft Final Report).

Efforts should focus on improving one east-west link in each province: Highway 9 in Quang Tri province (already included for consideration in the previously defined "North-South Spine"), Highway 49 in Thua Thien-Hue province, Highway 14B in Quang Nam-Da Nang province and Highway 24 in Quang Ngai province. Upgrading should likely be to Class III standard, that is, seven meter pavement in flat terrain and six meter paved surface in rolling/mountainous terrain.

4) Local Roads

The fourth road hierarchy is the essential connection between villages as well as communes and larger settlements as well as higher-order road systems. The district and commune road system is extensive. Together these facilities account for almost 9,700 kilometers, or about 80 percent of the total study area road network. The importance of roads at the commune/district level is undeniable in that they:

- Enhance agricultural productivity and is associated with the development of off-farm income opportunities and greater participation in the market economy;
- Affect labor mobility, which is significantly related to economic status;
- Associate with the existence of permanent markets, enterprises, as well as economic diversification; and,
- Contribute positively toward crop and livestock output, crop area and yield as well as fertilizer demand.

Yet, paradoxically, the condition of rural roads in the study area is poor, even by the standards of the Vietnamese road system. Of the total district and commune network, fully 80 percent are earth surfaced. The system includes some 1,900 bridges (extending over 23.4 kilometers) of which some 1,000 bridges are limited in carrying capacity to 5 tons, and a further 720 bridges to a capacity of between five and 10 tons.

Discussions with representatives of provincial Peoples Committees confirms that the surface condition of district and commune roads is poor and that, during the rainy season, the majority of district and commune roads remain effectively closed due to wash-outs and flooding. The problem of market access is expressed even more poignantly by representatives of District Peoples Committees, who indicate that many commune residents must walk from three to five days in order to reach a market for either selling products or purchasing supplies.

The problem of poor commune road access (or no access at all) is typically associated with mountainous regions of the study area, and justifiably so. Indeed, these precincts have been officially labeled by DSI representatives as being "difficult to develop", largely as a result of inadequate road access. However, similar analogies are also appropriate in coastal areas, particularly Thua Thien-Hue province which possesses a large lagoon system. There, lack of adequate all-weather road access has stymied full exploitation of the fishing and fishery industry potential.

Two broad goals seem realistic in this regard:

- All district capitals should be accessible during all seasons via all-weather roads which permit the passage of cars, buses and trucks.
- All commune centers should, in principle, enjoy road access during all times of the year. However, practically speaking, this goal will be difficult to attain in the near-term future. A more modest acceptable objective might therefore be that road access is guaranteed during all seasons by at least two-wheeled vehicles.

Due to the immensity of the task, and differing local concerns, it is essential that any improvement program be defined via a local participation process. Only in this manner can

enhancements, be they improvement, maintenance or project-specific endeavors such as bridge replacement, truly reflect the needs and aspirations of local residents. Likewise, responsibility for carrying out, and subsequently maintaining, rural road improvements should be the responsibility of the commune and district, with, at early stages, advice and training provided by provincial (or higher) authorities.

To facilitate local road strategies, improvements are integrated and coordinated with the Rural Community Development Program Sector of the current study.

2.9.2 Rail Network

The improvement of rail services within the study area can only be achieved as an integral element of upgrading the Ha Noi-HCMC line. The initial step in this process would be likely to include:

- Rail structure rehabilitation: bridge inspections, rehabilitation and replacement; tunnel inspection and rehabilitation; drainage measures and installation of treatments to combat flooding and/or submerging of tracks;
- Track rehabilitation and station improvements;
- Signaling and communication rehabilitation;
- Rolling stock rehabilitation, upgrading of workshops and new rolling stock acquisition;
- Formulation of specific measures to integrate rail operation with urban transport in Ha Noi and HCMC.

The Hue-Da Nang section of the Ha Noi-HCMC line emerges as a likely candidate for a demonstration project which, in addition to previously-mentioned line-wide upgrading, can serve as a model for subsequent specific improvements of other priority sections in the Vietnamese rail system. To achieve this goal, several site-specific projects will be likely to be needed:

- Hue and Da Nang stations will need to upgrade ticket counters, waiting areas, toilets, parking areas, public spaces and other passenger amenities. A computerized ticket reservation and issue system will be essential, as will proper displays of up-to-date train operations and schedules. Multi-lingual services should be available for the convenience of all passengers.
- In addition to limited express trains between Ha Noi and HCMC, inter-city services should be provided not only between Hue and Da Nang, but possibly also Vinh, Dong Hoi and Hue/Da Nang. Rolling stock for this service should be modern and well-maintained.
- Cargo handling at Hue and Da Nang stations can significantly be improved via the acquisition of proper fork lifts and other stocking/storing machinery, as well as the provision of cargo sheds which instill the potential user with a degree of comfort that cargo shipments will be handled speedily and safely.

The physical improvements suggested for the Ha Noi-HCMC line are expected to address the existing capacity constraint posed by the Hai Van tunnels. Thus, section capacity could be increased with enhanced trackage, signaling and construction of additional sidings. However, rail demand in the longer term may still be constrained even if the existing Hai Van tunnel section is improved to practical and possible limits.

- It is therefore urged that, at the earliest opportunity, a feasibility study be initiated to examine realistic options for improving line capacity for the Hai Van section between Lang Co and Kim Lin.

This study should examine a comprehensive range of options, including the possibility of constructing new tunnels along an alternative alignment.

2.9.3 Airports

1) Da Nang and Phu Bai Airports

Air transport development in the regional context should be addressed as a supporting sector of urban development. As the level of economic development progresses, cities tend to specialize, through trade and for economic efficiency, in production of a narrower range of goods and services. Da Nang and Hue are the two largest cities in the study area, and are forecast to evolve into an urban agglomeration, that is, a twin-cities corridor concept. In general, they are expected to form a mixed commerce, trade and industry area; however, they also have great potential particularly in manufacturing, tourism and other related sectors. Airport development must therefore be pursued so that those advantages are realized and higher urban productivity achieved.

The only EPZ and most industrial estate developments in the study area are located in and around Da Nang city. From the viewpoint of encouraging manufacturing locations, Da Nang and Phu Bai Airports are essential facilities for those EPZ and industrial estates. Air transport will not only facilitate movements of passengers and cargo, but promote foreign direct investment (FDI). FDI is a main ingredient for Viet Nam's industrialization in terms of capital formation and technology transfer. Since the study area has no large market in itself, the integration of external economies is certainly a high priority issue for its overall development strategy. As is well known, the semi-conductor and electrical parts industries always locate in airport proxemity while market-sensitive industries such as apparels, footwear and sporting goods require convenient access to air transport to quickly respond to constantly changing market conditions and consumers' preference. Exports of fresh vegetables, fruits, cut flowers and fish are made possible in many countries by air transport together with adequate air cargo terminal facilities. Furthermore, Hue, Da Nang and Hoi An offer a unique series of tourist attractions, which have the potential for mass tourism in the study area. As analyzed in the tourism section of this report, the area is abundant in historic, cultural, artistic, ethnic, scenic and recreational resources, which have so far not been exploited effectively. However, without convenient air access, those resources will merely continue to attract special-interest tourists, who, in turn, have marginal impacts on regional economies. Therefore, airport development should also be pursued in parallel with the development of tourism.

In this regard, Da Nang airport offers greatest opportunity since it has a long-term capability to serve as one of the major gateways to Viet Nam. The airport already has two 3,048m long runways equipped with the air navigation system and fire fighting facilities of international standard. The runways can be extended to 3,600m when operations of long-distance nonstop flights to/from Europe or North America are anticipated. The major problem at the existing Danang airport is the poor condition of terminal facilities. Although there is a temporary international passenger facility in the terminal building, it is inadequate to handle the volume of scheduled flights expected at Da Nang airport in the near future. The domestic passenger facilities have sufficient capacity to cope with the present level of air traffic; however, given the current very rapid increases of air traffic at this airport, capacity expansion is an immediate need for domestic facilities also. An efficient air cargo terminal will also be an essential facility for some sections of industries.

Phu Bai airport, thought the fourth busiest airport in terms of air passenger traffic in Viet Nam, is a small airport with only 8-10 operations per day, mainly using ATR72 (66 seats)

eqiupment. However, it is the fastest growing airport (86% increase for 1994-1995) with highest proportion of foreign passengers (57% in 1995) in Viet Nam. The CAAV plans to introduce larger aircraft, most likely A320 (140-150 seats), and, at time of writing, a runway extension to 2,700m is underway. The most promising airport to have regular international flights in Viet Nam after Da Nang is Phu Bai airport. However, with the evolution of the Hue-Da Nang integrated urban corridor, and completion of the contemplated transport improvements in this corridor, it is unlikely that both airports, separated only by one and a half hours land travel, will both support international air traffic. Therefore, it is reasonable that Phu Bai airport be further developed as a domestic airport

2) Chu Lai Airfield

This military airfield can technically be upgraded to civil airport status with relatively small investment. However, the concept of Chu Lai airport seems to be an outgrowth of the simple idea that it is near the planned Dung Quat deep-water seaport and industrial zone. There is no study on expected air traffic demand and/or the size and kind of required airport facilities. There are two groups of potential users at Chu Lai airfield. The first group is business persons related to the Dung Quat project. The other will be passengers generated and attracted by Quang Ngai city, who have presently no convenient access to air transport services -- it takes three hours to travel from Quang Ngai city to Danang airport via Highway 1. The scale and timing of the Dung Quat development are still rather nebulous. However, even once clarified, it is unlikely that air traffic demand from the Dung Quat development will be of sufficient magnitude to commercially justify regular air services. Although Vietnam Airlines is state-owned, it is against the self-accounting and self-financing policy of state-owned enterprises for the Government to force them to service Chu Lai airfield. On the other hand, Quang Ngai city may well generate air traffic great enough to commercially justify regular air services. An examination of geographical distribution of airports in Viet Nam relative to GDP and population distributions suggests that an airport near Quang Ngai city would potentially generate passengers at least equivalent to Vinh airport in Ha Tinh Province. At this stage of the study, it is recommended that a detailed feasibility study be conducted evaluating the potential of Chu Lai airfield serving Quang Ngai city, possibly with an option that the airport be expanded once significant demand from the Dung Quat development is realized.

3) Financial and Institutional Aspects

The Middle Airports Authority (MAA) financially functions like a governmental department, whose expenditures are allocated from the national treasury through the CAAV, and whose revenues are, in turn, returned to the national treasury. Although the financial records of the MAA are not available, it is easily estimated that revenues are much smaller than current expenditures since the levels of airport charges for domestic flights and passengers are very low. The situation implies the difficulty of raising resources for investment, operation and maintenance of airports from user charges. To enable sustainable development of airports in the study area, the level of airport charges, which are currently below economic cost, should be increased, and at the same time, the institutional framework of the MAA should be altered to permit financial autonomy. In fact, the MAA together with other two regional airport authorities in Viet Nam function as subsidizing agencies for Vietnam Airlines, which is also forced by the Government to keep domestic airfares for resident Vietnamese lower than economic cost. This must eventually be changed in that the airfare of all passengeres should be based on realistic financial strategies. Furthermore, the current system tends to reduce the incentive of the MAA to develop new revenue sources or increase income from existing sources since it cannot make use of revenues it generates to defray expenses for which it holds responsibility.

2.10 ENVIRONMENTAL SANITATION

The study area have remained at quite poor stage in all subsectors of environmental sanitation: water supply, sewerage and solid waste management, due to insufficient investment, shortage of trained manpower and coordinated strategies/plans for development. A major constraint factors for such present status can be deemed to result from shortage of public awareness on environmental relationship with human health and lack of well-coordinated health and environmental protection policy, and planning in both central and local governmental section.

In light of the socio-economic development in the Central Region, it is obvious that the promotion with development and upgrading in all subsectors of environmental sanitation is crucial matters in order to enhance natural/human living environment in urban and rural areas, and to support the activities of manufacturing, commercial, tourism industries, etc. Major constraint elements including important issues identified through the field survey in the study area are summarized hereinafter.

2.10.1 Water Supply

At present, in the whole of the study area, there are totally no more than ten (10) piped-water supply systems[*1] in operation, as shown in Table 2.10.1.

Table 2.10.1 Existing Piped-Water Supply Facilities in the Study Area

Provinces	Locations	Production and Distribution Capacity	Remarks
1. Quang Tri Province	Dong Ha Town	7,500 cu-m/d	Original capacity 15000cu-m/d
	Quang Tri Town	3,000 cu-m/d	
	Vinh Linh District	1,000 cu-m/d	
2. TT-Hue Province	Hue City	25,000 cu-m/d	
3. QN-Da Nang Province	Da Nang City	54,000 cu-m/d	
	Hoi An Town	500 cu-m/d	Original Capacity 6000 cu-m/d
	Tam Ky Town	6,000 cu-m/d	
	Dien Ban District	2,000 cu-m/d	
	Hiep Duc District	1,500 cu-m/d	
4. Quang Ngai Province	Quang Ngai Town	10,000 cu-m/d	Intake from deep well

Source : Compiled by JICA Study Team.

So, current service coverage rate and per capita consumption of safe water supply by pipe-water supply system are remaining at quite low level and, even in provincial centers of the study area like Don Ha, Hue, Da Nang and Quang Ngai, they are far from the Government target as shown in Table 2.10.2. Thus, first of all, it is concluded automatically that the development of piped water supply is urgent theme in the study area, especially in large urban centers and newly development zones.

[*1] : The "piped-water supply system" stands for the water supply facilities which provides water to users by distribution pipe networks, regardless of the category of raw water intake measures.

Table 2.10.2 Present Per Capita Consumption in Provincial Centers

Area	Urban population (number)	Capacity of water supply (m3/d)	Per cap consumption (lit/d.cap)	Government target (lit/d.cap)
Quang Ngai Town	62,000	8,000	54	70 to 80
Da Nang City	437,000	54,000	52	100 to150
Hue City	223,000	28,000	53	100 to150
Dong Ha Town	50,800	7,500	62	70 to 80

Note : This table shows estimation based on the data in 1995 on the assumption of residential use 60%, leakage ratio 30% and full urban population coverage.

Unprotected water supply utilized diversified methods such as rain water storage ponds, shallow wells, small streams, etc. is dominating in rural area of the study area, while a series of small safe water supply programs are going on. More accelerated promotion movement for the expansion in service coverage calls for betterment of public health environment in rural areas of the study area.

In addition to quantitative aspect of water supply, common qualitative issue is also prevailing in the study area. Almost all urban centers located along sea coast in the study area, as seen typically in Hue, Da Nang and Quang Ngai, are suffering from saline water supply in dry season caused by sea water intrusion to raw water sources. It is essential matter that proper alleviation for drinking water sources including new water source development should take place to secure suitable drinking water source.

The leakage ratio from water distribution pipes in the existing water supply system is reported as high as 30 to 50 % due to superannuation of the facilities and shortage of maintenance works. More efforts for rehabilitation to recover the present water supply capacity should be exerted. The field survey also revealed that poor operation practices are commonly used in the study area. Thus, besides the provision of physical facilities, enhancement of technologies relevant to management and operation for water supply is essential, which requires a training scheme for HRD.

2.10.2 Sewerage

Table 2.10.3 shows quite a poor situation of present sewerage in the study area. There is no sewerage system[*1] equipped with any kind of treatment system. In addition, it has been observed in many places that large part of ditches and pipes for rain water drainage are not working effectively due to being superannuated and/or baddly silted.

Table 2.10.3 Existing Sewerage in the Study Area

Provinces	Locations	Total Length of Sewer Drain Route	Remarks
1. Quang Tri Province	Dong Ha Town	2.0 km	
2. TT-Hue Province	Hue City	43.4 km	Equivalent to 23 % of road length
3. QN-Da Nang Province	Da Nang City	117 km	20 % length is not usable
	Tam Ky Town	2.3 km	
4. Quang Ngai Province	Quang Ngai Town	7.8 km	

Source : Compiled by JICA Study Team based on the results of interview survey.

[*1] : In this study, the word " sewerage" means the facilities to cover both waste water and storm water. The aspect of river water control to prevent from flood and inundation is separately covered in the Water Resources Sector.

Almost all urban centers in the study area have been so often suffering from periodical floods and this has seriously hampered urban life activities and the socio-economic development in the Region. Inundation easily takes place even by quite a small rainfall due to shortage of adequate drainage capacity. Obviously, crucial and urgent matter in such flood-prone regions is to expand drainage capacity by rehabilitation of silted ditches, repair of damaged canals/pipes, and construct new drainage facilities. Besides this, it is also highly emphasized that flood mitigation should take place not simply in the way of providing water ways inside the urban area, but also including a comprehensive waster sheds control planning in the respective water basins.

In the study area, all of waste water from households, industries and others are discharged into public water ways without any kind of treatment, which creates serious pollution concerns for drinking water sources as well as aquaculture and fishery zones. Hence, introduction of waste water treatment system is crucial for the study area, especially for heavily polluted zones at present, large urban centers, and large industrial zones.

Although regulations to limit effluent waste water have been promulgated under the environment protection law at present, any effective enforcement and management cannot be expected because of lack of investment in this field for the time being. More realistic and precisely phased steps based on the comprehensive environment management should be established in order to undertake effective water pollution control through legislative and institutional measures.

2.10.3 Solid Waste Disposal

Almost all communities in the study area are suffering from serious shortage of facilities/equipment to handle solid waste as shown in Table 2.10.4. Accordingly, environmental sanitation, especially in large urban centers, are seriously hampered by open dumping of solids waste such as vegetables and fruits from markets, waste bricks from construction sites, and garbage from households.

Table 2.10.4 Existing Solid Waste Disposal Facilities in the Study Area

Provinces/Locations	Collected Solid	Waste Disposal Facilities
1. Quang Tri Province	10 ton/d	
/Dong Ha Town	5 open dumping sites	
2. TT-Hue Province	60 ton/d	4 vehicles for collection and transportation
/Hue City	Open dumping site	
3. QN-Da Nang Province	290 ton/d	17 vehicles for collection and transportation
/Da Nang City	Open dumping site	
4. Quang Ngai Province	44 ton/d	3 vehicles for collection and transportation
/Quang Ngai Town	Open dumping sites	

Source : Compiled by JICA Study Team based on the results of interview survey.

While the only way for final disposal in the study area is landfill at present, some of landfill sites exert bad smell and serious danger to ground water with infiltration of leachate, since they are simple open dumping without adequate treatment of environmental impediment caused by degradation of wastes and rainfalls. Introduction of proper landfill scheme like sanitary landfills is mandatory to protect human living environment with safe water sources for water supply.

Toxic/hazardous waste from hospitals, medical institutes, and industries, are observed in the study area, being mixed together with other wastes without separation. Such practice may risk human health directly, through intermediate of recovered goods by illegal scavengers from waste, and by leachate intrusion into water source. Introduction of incineration and/or completely shielded-type landfills should be provided to eliminate unsanitary and dangerous situations.

2.11 LONG LIST OF PROJECTS AND PROGRAMS

The following is a long list of projects and project ideas, as they have emerged as a result of the analysis of the potentials and constraints of the study area as well as interviews with all parties concerned conducted during this phase of project implementation.

1) Environmental Management and Protection

ENV-01: Central region environmental management center (ECM) project

2) Water Resource Management

WATER-01: Master plan for comprehensive water resources development and management of the Huong River basin
WATER-02: Utilization of lagoon water
WATER-03: Expansion of irrigation area by provision of medium scaled reservoirs
WATER-04: Protection of salt water intrusion
WATER-05: Water supply for drinking and rural industry
WATER-06: Comprehensive watershed management of major rivers
WATER-07: Fresh water supply to salt-affected areas
WATER-08: Protection of flood by tidal influence and river regime
WATER-09: Exploitation of new water resources
WATER-10: Overall flood control measures
WATER-11: Inventory of water resources for municipal water supply
WATER-12: Exploitation of new water resources for industrial base and water supply plan
WATER-13: Rehabilitation and upgrading of existing hydraulic facilities
WATER-14: Roa Quan River multi-purpose development (flood control and power generation)

3) Agricultural/Forestry Sector

AGRI-01: Highland industrial crops and reforestation promotion program
AGRI-02: Water resources and agricultural development project by medium and small scale reservoirs
AGRI-03: Livestock and industrial tree crop project
AGRI-04: Reforestation, afforestation and agro-forestry project
AGRI-05: Silica sand area soil improvement project
AGRI-06: Industrial tree crop project in coastal area
AGRI-07: Post harvest improvement project
AGRI-08: Industrial crop processing project
AGRI-09: Wood processing project
AGRI-10: Afforestation at coastal sandy area
AGRI-11: Perishable products development project
AGRI-12: Agro marketing development project
AGRI-13: Paper manufacturing mill project
AGRI-14: Post harvest improvement project in district centers
AGRI-15: Industrial crop processing project district centers

AGRI-16: Wood processing project district centers
AGRI-17: Industrial crop processing project urban area
AGRI-18: Slash & burn area resettlement project
AGRI-19: Crop intensification & diversification project on paddy field

4) Fishery Sector

FISH-01: Fishery port development
FISH-02: Aquatic culture base development, Hue
FISH-03: Local fishery port development in Quang Tri
FISH-04: Shrimps, crabs in semi-salt coastal areas, Hue
FISH-05: Garden-pond-fish-forest, Hue

5) Industry and Trade Sector

INDUS-01: Pre-F/S for petrochemical industry
INDUS-02: Pre-F/S for iron and steel indusry in Central Region
INDUS-03: Pre-F/S for engineering sector review and policy
INDUS-04: Pre-F/S for thermal power plant in Central Region
INDUS-05: Review and policy for promotion activitiy in Central Region
INDUS-06: Review and policy for fertilizer industry in Central Region
INDUS-07: Pre-F/S for Quang Tri border trade zone development project
INDUS-08: F/S for Chan May free trade zone project
INDUS-09: F/S for Phu Bai airport industrial complex project
INDUS-10: Industrial estate development and review for Da Nang EPZ, Lien Chieu-Hoa Khanh IE and Dien Nam-Dien Ngoc IE
INDUS-11: F/S for vocational/educational center establishment project
INDUS-12: F/S for Dung Quat industrial estate project
INDUS-13: Promotion activity for development of Dung Quat industrial estate
INDUS-14: Review and policy for shipbuilding and ship-breaking sector

6) Energy and Telecommunications Sector

ENER-01: Electricity network mountainous communes and coastal areas Hue
ENER-02: Development of power transmission and distribution facilities
ENER-03: Development of identified hydropower generation projects recommended in the least cost planning prepared by EVN Planning Division
ENER-04: Development of micro hydropower plants for electrification of remote areas (within the framework of highland communities development program)
TELCOM-01: Upgrading of telecommunications systems in commercial and industrial zones

7) Tourism Development

TOUR-01: Tourism development of the key area of the Central Region
TOUR-02: Tourist base (resort) development, 3 beaches and 1 highland
TOUR-03: Hue old town tourist service improvement & rectification

TOUR-04: Hoi An tourist town development plan
TOUR-05: Village tourism development
TOUR-06: Tourist sites visitor facility/service improvement at major tourist sites
TOUR-07: Market promotion & information system development
TOUR-08: Human resource development
TOUR-09: Museums and cultural centers development
TOUR-10: Conservation of cultural and historical assets

8) Transportation

TRANS-01: Improvement of highlands corridor and east-west linkages
TRANS-02: Hai Van Pass road improvement project
TRANS-03: New Hue - Da Nang Highway
TRANS-04: Local road improvement project
TRANS-05: Improvement of Highway 9
TRANS-06: Hue - Da Nang port development
TRANS-07: Dung Quat port development
TRANS-08: Da Nang international airport improvement
TRANS-09: The north-south road spine (National Highway 1)
TRANS-10: Rail infrastructure upgrading (Hue - Da Nang Sector)
TRANS-11: Coastal route from Thanh Binh To Lien Chieu (Da Nang City)
TRANS-12: Do-Xu bridge (Da Nang City)
TRANS-13: East Bach Dang route (Da Nang City)

9) Urban Development

URBAN-01: Commercial and business area (re)development in Da Nang
URBAN-02: Urban environment improvement project of the Hue Royal Citadel
URBAN-03: Townscape rehabilitation and conservation project in Hoi An
URBAN-04: Urban poor resettlement projects in Hue
URBAN-05: Waterfront park development in Hue and Da Nang
URBAN-06: Urban traffic management program in Da Nang and Hue
URBAN-07: City and town beautification program
URBAN-08: Chan May new industrial city development
URBAN-09: Van Tuong new town development

10) Environmental Sanitation

SANI-01: Expansion of piped-water supply system in Dong Ha and Quang Tri
SANI-02: Extension of storm water drainage in Dong Ha and Quang Tri
SANI-03: Reinforcement of solid waste disposal facilities in Dong Ha and Quang Tri
SANI-04: Development of water supply facilities, sewerage and solid waste disposal facilities in newly constructed industrial zones such as QL 9 industrial estate and Nam Dong-Ai Tu industrial estates
SANI-05: Sewerage improvement project in the Hue Citadel

SANI-06: Development of piped-water supply facilities in Huong Thuy and Phu Loc
SANI-07: Development of water supply facilities, sewerage and solid waste disposal facilities in Lang Co
SANI-08: Expansion and rehabilitation of water supply facilites in Hue
SANI-09: Expansion of sewerage in Hue
SANI-10: Reinforcement of solid waste disposal facilities in Hue
SANI-11: Development of solid waste disposal facilities in newly constructed industrial zones such as Chan May and Phu Bai
SANI-12: Rehabilitation of water supply facilities in Da Nang
SANI-13: Development of piped-water supply facilities in Hoa Vang, Duy Xuyen and Tra My
SANI-14: Development of sewerage in Da Nang
SANI-15: Reinforcement of solid waste disposal facilities in Da Nang
SANI-16: Development of water supply facilities, sewerage and solid waste disposal facilities in the south new town of Da Nang
SANI-17: Improvement of water supply facilities and sewerage in Hoi An
SANI-18: Development of water supply facilities, sewerage and solid waste disposal facilities in the north new town of Da Nang
SANI-19: Expansion of piped-water supply system in Quang Ngai
SANI-20: Development of piped-water supply facilities in Son Tin and Tu Nghia
SANI-21: Expansion of storm water drainage in Quang Ngai
SANI-22: Reinorcement of solid waste diposal facilities in Quang Ngai
SANI-23: Development of water supply facilities, sewerage and solid waste disposal facilities in Van Tuong new town

11) Social Development

SOCIAL-01: Integrated community development program - pilot projects
SOCIAL-02: Rural communes health and child care program
SOCIAL-03: Improvement in family planning and primary health care
SOCIAL-04: Upgrading of primary and intermediary schools
SOCIAL-05: Integrated community development program - pilot projects
SOCIAL-06: Rural communes health and child-care program with two components
SOCIAL-07: Loans to the "Poor People's Bank"
SOCIAL-08: Provision of mobile clinic with necessary equipment and instruments
SOCIAL-09: Improvement of child malnutrition through campaign
SOCIAL-10: Renovation of medical faculty and provision of necessary instruments of Hue University
SOCIAL-11: Removal of land mines
SOCIAL-12: Renovation or construction of schools and health clinic
SOCIAL-13: Open seminars for effective use of loan
SOCIAL-14: Improvement of basic education through provision of textbooks

12) Project and Program Management

ADMI-01: Central Region institutional development program

CHAPTER 3

DEVELOPMENT FRAMEWORK

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3.1 DEVELOPMENT GOALS AND OBJECTIVES

3.1.1 Introduction

Regional development planning is the process to clarify social and economic development objectives and formulate a comprehensive development plan in the regional context in a manner consistent with the national development policies, whilst taking into consideration the distinctive social and economic characteristics, and potentials and constraints of a region. In order for a region to accelerate the economic growth process and reach higher social and economic goals, regional development planning should have several dimensions. The first dimension relates to the administrative level where regions of a nation are one level at which panning takes place, national states are the second level, and the urban areas, which are part of regions, are the third important level. The second dimension relates to the economy, concerning the outputs of industries, the resources needed for development, the income earned by its people, the investment made in a region, and other economic elements.

The third dimension concerns the institutional, administrative, and political structure under which a region lives, and pursue the optimum ways and means of achieving regional development objectives knowing the people's wishes and requirements. The forth dimension relates to the physical environment which covers land use and its re-use, physical distribution and transportation patterns, and the spatial arrangements within a region including urban areas of cultural, housing, and other public facilities. The last but not least important dimension relates to the global or the regional (where a nation is geopolitically grouped such as the Greater Mekong Subregion) social and economic circumstances which greatly affect the regional development in question, which is particularly important in recent years when economic activities move across borders and market is increasingly integrated and liberalized on a global or a regional basis. The Regional Development Plan for the Central Region takes into account all these dimensions of planning horizon, attempting to speed up the social and economic development of the Region, thus alleviating the increasing disparities with the advanced North and the South Regions.

3.1.2 Goals and Objectives

Data and statistics indicates that there is a growing economic disparity between the North and the South in the country. What the country would be if the Central Region is left under-developed remaining as an economically isolated area. Probably the gap would become even wider, thus jeopardizing the economic unification of the country. Therefore, the Central Region must achieve accelerated socio-economic growth assuming a role of uniting the North and the South. In this context, the socio-economic development of the Central Region is of the national importance and significance, and as such, it should be a strategic and, at a greater extent, political subject as well.

A master plan study for regional development is a series of studying process to translate regional development goals down to strategic development projects and programs, taking into consideration the development potentials and constraints inherent to a target region. And this studying process normally takes the form of formulating development goals and objectives, strategies and scenarios, sectoral plans, and projects and programs. The formulation of the

goals and objectives to be achieved by the socio-economic development in the Central Region is an important studying process for subsequent master plan studies.

Goal 1

Functional integration of the Central Region by achieving reasonable assignment of development functions among provinces and by strengthening inter-provincial linkages as well as the linkages between urban and rural areas so that the Central Region should achieve an accelerated socio-economic growth as a whole.

Objectives

- To improve the regional road network to form a solid "ladder pattern" which consists Highway No.1 running along the coastal area and Highway No. 14 running through the mountainous area together with feeder roads linking these two spines such as Highways No. 9, 49, 14B, 24.
- To integrate two regional nucleus cities, which are Da Nang and Hue, to assume the central functions for the entire development of the Central Region, which requires a strong linkage between the two cities supported by a new aterial road with tunnels through Hai Van Pass and advanced telecommunication systems as well.
- To adopt the land use plan which designates the corridor between Da Nang and Quang Ngai as the industry oriented use, the corridor between Dong Ha and Hue as the commerce and trade oriented use, and the corridor between Da Nang and Hue as the mixed use.

Goal 2

Creation of a new international trade corridor linking the Central Region to the neighboring inland countries such as southern Laos, north-eastern Thailand, and northern Cambodia, and to make the Central Region to function as a transshipment hub and a processing trade center in the Asia-Pacific Region.

Objectives

- To improve Highway No. 9 and Highway No. 1 that link the inland countries to a deep-sea port to be newly developed in the Central Region, so that the Greater Mekong Subregion (GMS) can have a new access to a sea port open to the Pacific Ocean.
- To create multiple free trade zones (FTZs) along the corridor, e.g. the one adjacent to the new sea port in the Central Region and the others in Savannakhet, Laos and in Mukudahan, Thailand, and to make these FTZs operationally linked one another so that they can form an international Free Trade Corridor.
- To build institutional, operational, and managerial systems that enable the international FTZs linkage, establishing, if necessary, an operation and management agency jointly organized by the countries involved.

Goal 3

Acceleration of the regional economic growth by reshaping the existing industrial structure placing much more emphasis on the manufacturing sector, whilst attempting to enhance the agricultural sector productivity, thus achieving a reasonable balance between the sectors which

will in turn lead to a balanced development between rural and urban areas in the Central Region.

Objectives

- To create an integrated industrial zone along the coast between Da Nang and Dung Quat with the intent of inducing import-substituting and export-oriented industries of both foreign and local origins having international competitiveness in real terms.
- To foster tourism industry in the Hue-Da Nang corridor making the best use of its natural, historical, and cultural endowments, with the intent of making the Central Region not only as an international tourist destination but as the heart of the country attracting the visit of the whole nation.
- To enhance the agricultural sector productivity particularly in highland areas by providing the areas with reasonable access to markets and social services, and helping ethnic minorities to diverse and manage their industrial/cash crops production.

Goal 4

Augmentation of the existing institutional and administrative systems in the Central Region to foster the transitional economy towards market-oriented mechanisms in general, and in particular, in relation to the effective and efficient implementation of the development projects and programs in the Central Region.

Objectives

- To strengthen the provincial governments capabilities of implementing and managing the projects and programs throughout their whole cycles from planning to operation/maintenance, underlining improvement in assuming the functions of coordinating with the central government and inter-provincial, inter-agency coordination as well.
- To create attractive investment circumstances to induce both foreign direct investment (FDI) and local investment to come in various sectors in the Central Region, placing particular emphasis on the private-sector participation in infrastructure development thus saving the public-sector spending in so far as practical.
- To formulate reasonable financing mechanisms with the Central Government taking into consideration the share of responsibilities between the central and provincial governments, also paying due attention to the regulations and guidelines of multi-lateral and bi-lateral aid agencies in the case of introducing their financial assistance.

Goal 5

Reinstating the Central Region from the disaster-prone to safer and more environmentally sustainable region, thus coping with the adverse natural conditions as compared to the North and the South Regions.

Objectives

- To properly manage the entire river basins of the flood-prone rivers flowing in the Central Region, giving priority consideration to the Huong River, taking into consideration the reforestation of its water sheds, construction of multi-purposed