

JAPAN INTERNATIONAL COOPERATION AGENCY (JICA)

DEVELOPMENT STRATEGY INSTITUTE
MINISTRY OF PLANNING AND INVESTMENT
THE SOCIALIST REPUBLIC OF VIETNAM

**THE STUDY
ON
THE HOA LAC AND XUAN MAI AREAS
URBAN DEVELOPMENT PROJECT
IN
THE SOCIALIST REPUBLIC OF VIETNAM
PHASE - 1**

**EXECUTIVE SUMMARY
(VOLUME - 1)**

MARCH 1999

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The following foreign exchange rates are applied on this study report;
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(October 1998)

PREFACE

In response to a request from the Government of the Socialist Republic of Vietnam, the Government of Japan decided to conduct "the Study on the Hoa Lac and Xuan Mai Areas Urban Development Project in the Socialist Republic of Vietnam (Phase-1)" and entrusted the study on the Japan International Cooperation Agency (hereinafter referred JICA).

JICA selected and dispatched a study team headed by Mr. Itaru Mae of Pacific Consultants International and consist of Japan Industrial Location Center and Nippon Koei Co., Ltd. to the Socialist Republic of Vietnam three times between December 1997 and March 1999.

The team held discussions with the officials concerned of the Government of the Socialist Republic of Vietnam and conducted field surveys at the study area. Upon returning to Japan, the team conducted further studies and prepared this final report.

I hope that this report will continue to the promotion of this project and to the enhancement of friendly relationship between our two countries.

Finally, I wish to express my sincere appreciation to the officials concerned of the Government of Socialist Republic of Vietnam for their close cooperation extended to the team.



March 1999
Kimio FUJITA
President
Japan International Cooperation Agency

Mr. Kimio FUJITA
President
Japan International Cooperation Agency
Tokyo, Japan

March 1999

Letter of Transmittal

Dear Mr. Fujita,

We are pleased to formally submit herewith the final report of "The Study on the Hoa Lac and Xuan Mai Areas Urban Development Project in the Socialist Republic of Vietnam."

This report compiles the results of the Study which was undertaken in the Socialist Republic of Vietnam from December 1997 through March 1999 by the Study Team, organized jointly by Pacific Consultants International, Japan Industrial Location Center, and Nippon Koei Co., Ltd. under the contract with the JICA.

This study is a national project aiming at the establishment of the "New Research and Education Town" in the Hoa Lac and Xuan Mai Area with 500,000 population. The New Town is planned to: 1) become a center of the human resource development, 2) lead the high-tech industry, 3) share urban functions with Hanoi, and 4) absorb increasing population of Hanoi. The economic crisis, which hit many Asian countries, including Vietnam, has forced the economic development of Vietnam to slow down. In order to be flexibly able to respond to such changing situations, this report proposes the phased development plan for every five years. We hope that the report will contribute to the future urban development of the New Town.

Finally, we would like to express our gratitude to all the officials of your agency, the JICA Advisory Committee, the Embassy of Japan in Vietnam, as well as the Ministry of Foreign Affairs. We also would like to send our appreciation to the Development Strategy Institute of Ministry of Planning and Investment, and related Ministries and Agencies for their cooperation with us during the course of the study.

Very truly yours,



Itaru MAE
Team Leader
The Study on the Hoa Lac and Xuan Mai Areas
Urban Development Project
in Vietnam

Foreword

A dire economic situation gripping many Asian countries is now rippling over the other parts of the world including Japan. And while the Study for the Hoa Lac and Xuan Mai Areas Urban Development Project is in progress by the "Japan International Cooperation Agency (JICA)" since its commencement in December 1997, it is even becoming more serious at the turn towards the 21st century.

In effect, the situation can be ascribed to many factors and reasons, but one thing to be learnt from the bitter experience is that the developing world needs to reorient its development path towards a more "endogenous direction". Many Asian countries have adopted to date a development path, which is overly dependent upon foreign capital resources and imported technologies, but without internalizing them properly. The endogenous development path implies to place more emphasis on domestic capital formation, exploitation of domestic market, utilization of domestic resources, human resource development, institutional building, promotion of science and technology, and so on.

The Hoa Lac and Xuan Mai Areas Urban Development is, in fact, responsive to these needs in that it will build a national center in the country for human resource development as well as the promotion of science and technology. The former is to realize the relocation and expansion of the Vietnam National University (VNU), and the latter is to develop the Hoa Lac High-tech Park (HHTP) in the Hoa Lac Area. Taking these principal objectives into consideration, the development is of truly national importance and significance, and hence, it should be regarded and treated as a "national project".

Given the difficult fiscal situation of the Government however, the development will face formidable challenges in light of the massive investment required for its implementation. As a solution to reconcile its necessity as a national project to the tight fiscal situation of the Government, an "Action Plan", which is, in fact, of the initial cost minimizing alternative, was proposed as a consequence of the Study. The Action Plan includes only core facilities of VNU, HHTP, and supporting urban infrastructure at a considerably reduced scale and cost.

As a matter of fact, in the circumstances where the Lang-Hoa Lac Highway linking the Hanoi Central Area and the Hoa Lac Area will be open for use very shortly, the Vietnam side is highly desirous to commence the development as early as possible. Towards this end, the continuous technical and financial assistance of the Japanese Government seems to be mandatory to put the development onto a right implementation track.

It will be more than a happy moment, if the JICA Master Plan can be of substantial help for the initiation of this highly strategic and important project. Also, the effective and efficient cooperation extended over the study period by the Vietnam side to the JICA Study Team is very much appreciated at the occasion of ending the Study.

March 1999, in Tokyo

Members' List of the Study on the Hoa Lac and Xuan Mai Areas Urban Development Project in the Socialist Republic of Vietnam (Phase-I)

Administrative Body of JICA

1. Mr. Takao KAIBARA Director, First Development Study Division, Social Development Study Department
2. Ms Eri HONDA Deputy Director, First Development Study Division, Social Development Study Department
3. Mr. Tomoyuki KOSAWA First Development Study Division, Social Development Study Department

JICA Advisory Committee Members

1. Dr. Yoji TAKAHASHI Chair Person/Tokyo University of Mercantile Marine
2. Mr. Shinichi ONO Japan Regional Development Corporation
3. Mr. Shigeyoshi HOSODA Ministry of Education
4. Mr. Hideaki HOSHINA JICA Development Specialist
5. Mr. Takeyoshi FURUKI National Land Agency
6. Mr. Yasuhisa TAINAKA National Land Agency

JICA Study Team Members

1. Mr. Itaru MAE Team Leader, Regional Planner
2. Mr. Hisashi MATSUDA Regional Promotion/Industrial Location Planner
3. Mr. Hideo TOMIYASU Urban Development Planner (1)
4. Mr. Takemasa SATO Urban Development Planner (2)
5. Mr. Takuo YOSHIDA Living Environment Planner
6. Mr. Masahiro IKEGAMI University Relocation/Educational Institutional Planner
7. Mr. Yasuhiro NAKAJIMA Architect
8. Mr. Naruhiro FUJITA Human Resource Expert
9. Mr. Hisashi IKEWADA Agricultural Expert
10. Mr. Seiichi Aoki Industrial Promotion Planner
11. Mr. Shigenori OGI Land Use Planner

- | | |
|--------------------------|---|
| 12. Mr. Jong-Hyup JUNG | Transport Expert |
| 13. Mr. Hideki YAMAZAKI | Water Supply Expert |
| 14. Mr. Yasuhiko KATO | Rain Water and Sewerage Expert |
| 15. Mr. Kazuhiko KATO | Power System and Telecommunication Expert |
| 16. Mr. Kaneo ITO | Economic, Social and Financial Analyst (1) |
| 17. Mr. Masatoshi KANEKO | Economic, Social and Financial Analyst (2) |
| 18. Mr. Shinsuke SATO | Environmental Specialist |
| 19. Mr. Hideaki YAMAKAWA | Urban Institutional and Administration Specialist |
| 20. Mr. Sotaro WATANABE | Urban Facility Specialist |
| 21. Ms Miki YOSHINO | Coordinator |

Steering Committee Members

- | | |
|-------------------------|--|
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| 2. Dr. Nguyen Duc Chinh | Deputy Director, Vietnam National University, Hanoi |
| 3. Mr. Nguyen Hong Son | Deputy Director, Dept. of Planning, Ministry of Culture and Sports |
| 4. Mr. Do Trong Hung | Director, General Dept., Ministry of Labour, Invalid and Social Affairs |
| 5. Mr. Dao Duc Chung | Deputy Director, Dept. of Planning and Finance, Ministry of Education and Training |
| 6. Mr. Dao Duc Vinh | Expert, Dept. of Planning and Architecture Management, Ministry of Construction |
| 7. Mr. Thai Ba Minh | Deputy Director, Dept. of Technology and Product Quality Control, Ministry of Industry |
| 8. Mr. Tran Ba Nghiep | Deputy Director, Dept. of Planning and Investment, Ministry of Transportation |
| 9. Mr. Tran Tiep De | Deputy Director, Dept. of Planning, Ministry of Agriculture and Rural Development |

- | | |
|---------------------------|---|
| 10. Mr. To Anh Tuan | Deputy of the Chief Architect of the City, Hanoi People's Committee |
| 11. Mr. Le Ngoc Binh | Director, Dept. of Planning and Investment, Ha Tay People's Committee |
| 12. Dr. Nguyen Quang Thai | Vice President, Development Strategy Institute, Ministry of Planning and Investment |

Counterpart Members

- | | |
|--------------------------|--|
| 1. Dr. Nguyen Quang Thai | Vice President, Development Strategy Institute, Ministry of Planning and Investment |
| 2. Dr. Ho Quang Minh | Deputy Director, Dept. of Foreign Economic Relation, Ministry of Planning and Investment |
| 3. Mr. Pham Kim Cung | Director, Dept. of General Education, Ministry of Planning and Investment |
| 4. Prof. Nguyen Ba An | Deputy Director, Dept. of Regional Planning, Development Strategy Institute, Ministry of Planning and Investment |
| 5. Mr. Dinh Cong Ton | Economist, Regional Planner, Dept. of Regional Planning, Development Strategy Institute, Ministry of Planning and Investment |
| 6. Dr. Nguyen Duc Chinh | Vice President, Vietnam National University, Hanoi |
| 7. Dr. Vu Ngoc Tu | Director, Dept. of International Relation, Vietnam National University, Hanoi |
| 8. Mr. Truong Gia Binh | President and CEO, The Corporation for Financing and Promoting Technology, Ministry of Science, Technology and Environment |
| 9. Dr. Ta Ngoc Ha | Vice Director, High-tech Park Bureau, Ministry of Science, Technology and Environment |
| 10. Dr. Le Hong Ke | Director, National Institute for Urban and Rural Planning, Ministry of Construction |
| 11. Mr. Nguyen Nhu Khue | Architect, National Institute for Urban and Rural Planning, Ministry of Construction |
| 12. Mr. Dao Duc Chung | Deputy Director, Dept. of Planning and Finance, Ministry of |

Education and Training

13. Mr. Nguyen Hong Son
Deputy Director, Dept. of Planning, Ministry of Culture and Sports

14. Mr. Thai Ba Minh
Deputy Director, Dept. of Technology and Product Quality Control, Ministry of Industry

15. Dr. Doan Thi Phin
Deputy Director, Transport Development and Strategy Institute, Ministry of Transportation

16. Ms Do Thi Hanh
Ministry of Transportation

17. Mr. Tran Tiep De
Deputy Director, Dept. of Planning, Ministry of Agriculture and Rural Development

18. Mr. Tran Nhat Hau
Ministry of Agriculture and Rural Development

19. Mr. Do Trong Hung
Director, General Dept., Ministry of Labour, Invalid and Social Affairs

20. Mr. To Anh Tuan
Deputy of the Chief Architect of the City, Hanoi People's Committee

21. Mr. Nguyen Ngoc Can
Hanoi People's Committee

22. Mr. Chu Manh Hop
Chief of Planning Division, Dept. of Planning and Investment, Ha Tay People's Committee

OUTLINE OF THE STUDY

Background of the Study

A dire economic situation faced by many Asian countries is also gripping Vietnam. Foreign direct investment has sharply dropped, and the economic growth rate has to be adjusted downward recently. As is the case of many Asian countries, Vietnam has also pursued a liberalized economic development path under the "Doi Moi (renovation)" policy, which is overly dependent on foreign capital resources and imported technologies, but without internalizing them properly. As a consequence, the country's economic fundamentals have not been augmented sufficiently, which led to a cause of the economic crisis.

In light of the situation, the Government is reconsidering the importance of pursuing a more endogenous development path, placing more emphasis on domestic capital formation, exploitation of domestic market, utilization of domestic resources, human resource development, institutional building, promotion of science and technology, and so on. Amongst these, human resource development and promotion of science and technology are deemed important in the 21st century where intelligent value becomes even more essential in the information-oriented network society. The proposed Hoa Lac and Xuan Mai Urban Development Project is indeed responsive to these needs which Vietnam should challenge at the turn towards the 21st century.

Development Subjects

Taking into consideration the subject for Vietnam to participate in the competitive global market in the 21st century, as well as the subject for the Hanoi Metropolitan Area (HMA) to cope with future urban problems in a proactive manner, the following are the principal objectives to be achieved by the Project.

- To become the national center for human resource development and the development of science and technology;
- To assume the lead in nurturing the country's high-tech industry;
- To share urban functions with HMA; and
- To absorb part of the HMA's increasing urban population.

Major Development Components

The Project has the principal objective of building a "New Research and Education Town" with about 500,000 population in the Hoa Lac Area, which includes the following major urban functions.

- The Vietnam National University (VNU) will be relocated to the New Town, and at the same time, VNU will be expanded to a multi-disciplinary and comprehensive university, including, among other faculties and universities, the newly established Faculties of Technology, Economics, and Law.
- By developing the Hoa Lac High-Tech Park (HHTP), the functions of research and development (R&D) and training of high-level engineers and researchers will be developed by keeping close linkage with VNU and industrial locators.
- Part of the important urban functions such as international exchange, cultural exchange, recreation, and so on will be shared with HMA.
- As a pioneering large-scale urban development in Vietnam, the Project will build the New Town that is harmonized with the surrounding environment as a "Garden City" and free from urban environmental issues as a "Ecological City".
- As to the infrastructure development, water will be supplied from the Da River, electricity will be transmitted from the Hoa Binh Dam, high-order telecommunication network will be provided, and adequate sewerage treatment plants and solid waste management will be provided properly. The road network in the New Town will form a grid pattern compatible with the site conditions, and appropriate public transportation systems will be introduced such as a bus system in the short

to medium term and a mass transit system in the long term.

Development Frame

The Hoa Lac and Xuan Mai Urban Development is planned to be a core of the Corridor 21 Development which covers the areas of Son Tay, Hoa Lac, Xuan Mai, and Mieu Mon, located along the National Road 21A (NR21A). Its implementation will follow the “Basic Framework” which is on a phased basis, having the target year of 2020. Apart from the Basic Framework, an “Action Plan” is proposed for immediate implementation, which is in fact an initial-cost minimizing alternative but accords basically with the Phase-1A development of the Basic Framework.

Basic Framework

Phase Year	Hoa Lac New Town			Xuan Mai Town		
	Phase-1A 2005	Phase-1B 2010	Phase-2 2020	Phase-1A 2005	Phase-1B 2010	Phase-2 2020
Population (person)	135,000	205,000	400,000	35,000	55,000	100,000
Development Area (ha)	1,080	1,870	3,570	110	190	610
Housing Units	10,300	10,300	30,300	1,750	1,750	7,900

Note: The Hoa Lac New Town is a new development to be built entirely, whereas the Xuan Mai Town is an expansion type to expand and integrate the existing urban areas and communities.

Implementation Plan

Taking into consideration the national strategic importance and significance of the Project, the Hoa Lac and Xuan Mai Area is to be legislated as a “Special Economic Zone (SEZ)”. The SEZ concept is to enable the “concentrated allocation of economic resources”, “introduction of new approaches and systems”, and “provision of preferential treatment”, so that an attractive environment for investment will be created to encourage the private sector participation in the Project.

In order to ensure the effective and efficient implementation of the Project, the “National Steering Committee” will be established at the Central Government level, to make important policy making and coordination among central agencies, local governments, and related organizations. At the implementation level, a zone authority, which is tentatively named as the “Corridor 21 Development Authority (C-21DA)” will be established to centrally and collectively manage the whole implementation of the Project. The C21DA will be authorized for decision making as far as the implementation of the Project is concerned.

In addition, new approaches and systems are recommended by the Study, such as the introduction of special account system, issuance of housing bond, land use right trust system, adoption of urban planning tax, inducement of private sector participation for Private Finance Initiative (PFI), and so on.

Action Plan

Taking seriously into consideration the tight fiscal situation of the Government, the Action Plan is proposed as the fast-track approach of the Phase-1A implementation of the Basic Framework. The Action Plan will include only core facilities such as the newly establishing “Faculty of Technology (FOT)” associated with the “Research Institute of Science and Technology (RIST)” for VNU, the “National Center for High-Tech Research and Training (NCHRT)” and the multi-purposed “Hoa Lac High-Tech Center (HHTC)” for HHTP, a small scale neighborhood unit along with minimum urban center facilities to accommodate about 3,500 residents, and the minimum required supporting infrastructure.

Investment Cost

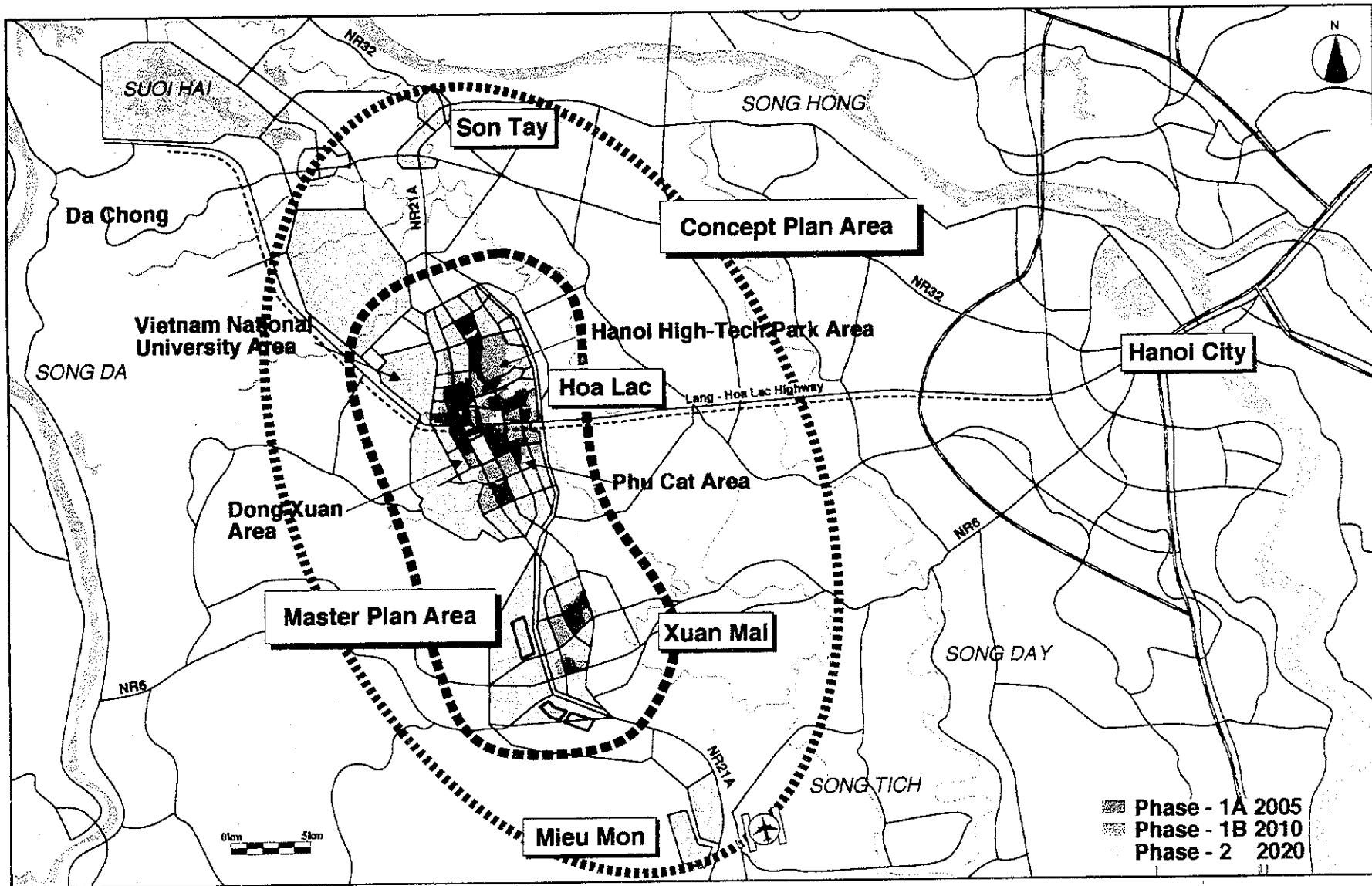
Based on the Basic Framework, preliminary estimation was made for the investment amount, which resulted in US\$ 1.87 billion in Phase-1A (2005), US\$ 2.87 billion in Phase-1B (2010), and US\$ 2.04 billion in Phase-2 (2020). The total investment cost amounts to US\$ 6.78 billion by 2020, based on the 1998 price at the exchange rate of US\$ 1 equivalent to Vietnamese Dong 13,900. The implementation cost for the Action Plan was estimated as US\$ 82 million.

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PART 1:
CONCEPT PLAN
FOR
THE CORRIDOR 21 DEVELOPMENT





The Study Area

PART 1: CONCEPT PLAN FOR THE CORRIDOR 21 DEVELOPMENT

1.1 GOALS AND OBJECTIVES OF THE CORRIDOR 21 DEVELOPMENT

● The Corridor 21 Development

The JICA Study comprises the formulation of the **Concept Plan (C/P)** and the **Master Plan (M/P)**. The Concept Plan addresses regional development issues covering the areas of Son Tay, Hoa Lac, Xuan Mai, and Mieu Mon along the National Road 21A (NR21A), hereinafter called "**the Corridor 21 Development (The Development)**". Whereas, the Master Plan covers specifically the urban development of the Hoa Lac and Xuan Mai areas, which are hereinafter referred to as "**the Hoa Lac and Xuan Mai Urban Development.**"

● Overview on the Current Situation of Vietnam

Vietnam will face, at the turn of the 21st century, formidable social and economic challenges. Serious urban problems caused by an increasing urban population will be the single most crucial internal issue. The other externally important issue will be how Vietnam can cope with fiercely competitive market conditions liberalized on a global basis. Vietnam needs to make more "**endogenous development efforts**" with regard to the latter, in order to augment her economic capacity and fundamentals. Relevant examples in this context are strengthening of capital formation, mobilization of domestic funds, institution building, human resource development, promotion of science and technology, and so on. The Corridor 21 Development will be in a position to respond to these issues and it should, therefore, be of the national importance and significance, and hence, regarded as a "**national project.**"

● The Corridor 21 Development Goals

The principal goals of the Corridor 21 Development are conceived as follows:

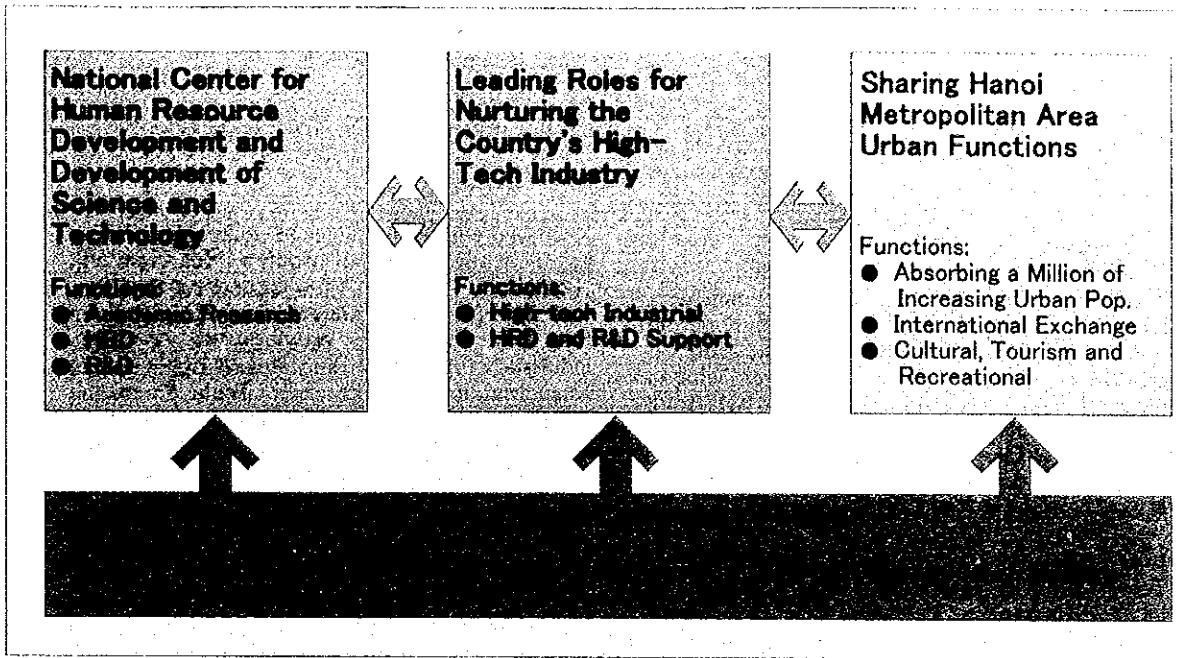
1. To become the national center for human resource development and the development of science and technology;
2. To assume the lead in nurturing the country's high-tech industry;
3. To share urban functions with the Hanoi Metropolitan Area (HMA); and
4. To absorb part of HMA's increasing urban population.

● Principal Objectives of the Corridor 21 Development

1. The Hoa Lac and Xuan Mai Urban Development includes the relocation of the Vietnam National University (VNU) to the Hoa

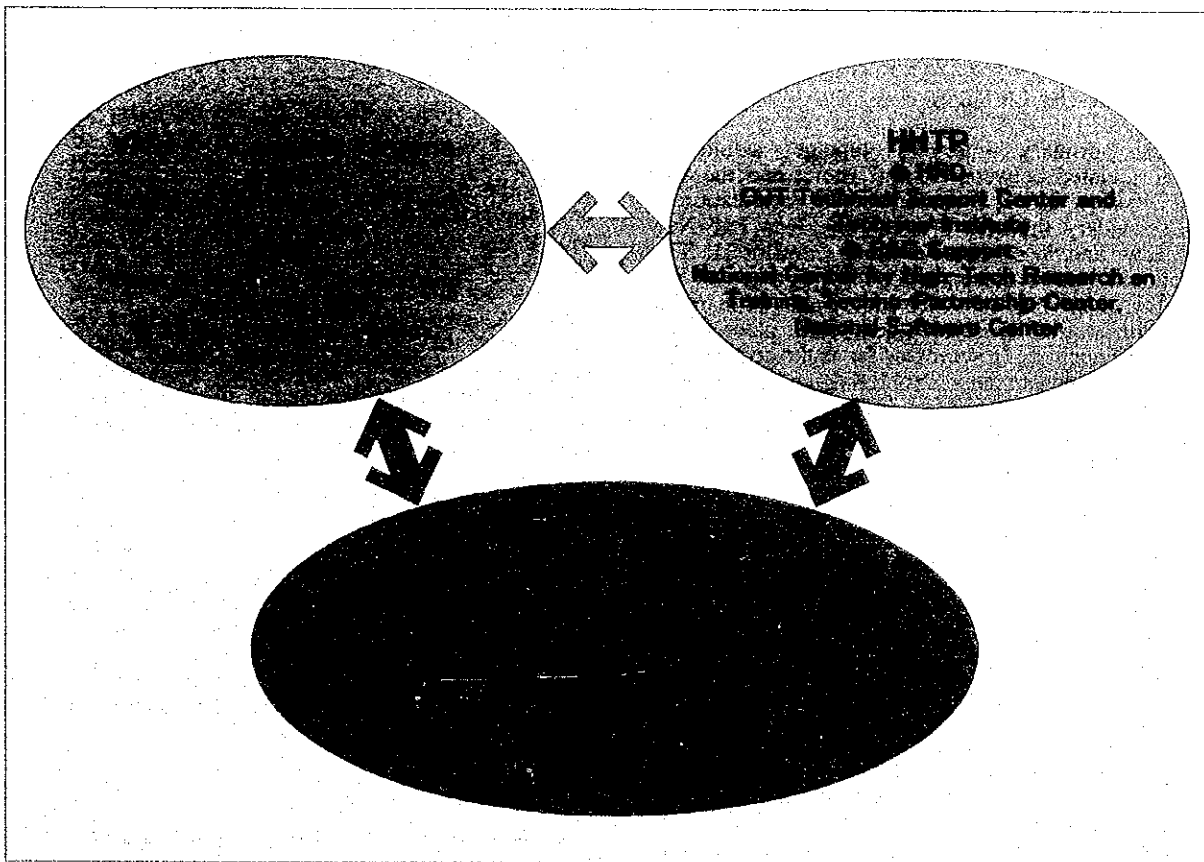
Lac Area in order to reorganize and integrate over the short-term its existing affiliated universities into a comprehensive university, and then integrate over the medium to long-term non-affiliated universities. The VNU relocation is expected to respond to the country's increasing need for higher education as well as the development of science and technology. Priority consideration will be given to strengthening the fields of science and technology in the process of reorganization and integration, aiming at the establishment of a triad linkage among universities, enterprises, and public/private research and development (R&D) institutions.

2. The Hoa Lac and Xuan Mai Urban Development also includes the Hoa Lac High-Tech Park (HHTP) development, which shall take a central role of internalizing and advancing high level technology, thus nurturing the high-tech industries in the country.
3. The Corridor 21 Development will also, in addition to the central functions for HRD and harnessing high-tech industries, share important HMA urban functions, such as cultural exchange and recreation (in the Dong Mo area), international exchange (in the Urban Center in Hoa Lac), and so on. In the future, it will absorb partly the sharply increasing HMA urban population, and more importantly, assume a role of "receptacles" to provide resettlement needs resulting from the urban renewal and redevelopment in the Central Hanoi area.
4. The Corridor 21 Development, in general, and the Hoa Lac and Xuan Mai Urban Development, in particular, is a pioneering project in the context of promoting nation-wide housing development, in order to improve the aggravating living environment of the people, thus contributing to enhancing the national economy and welfare. New policies and institutions will be introduced to encourage people and enable them to purchase or lease affordable housing of reasonable quality. Examples in this context are the issuance of a "Housing Development Bond" and establishment of the "Housing Development Corporation."
5. A belt-shaped zone along the NR21A should be designated as an urban development zone, in order for the Corridor 21 Development to flexibly respond to future changes, and any development activities outside the zone should be controlled strictly from the aspect of environmental conservation. The concept is to create a "**garden city**" in which convenient urban life and a natural environment can coexist.



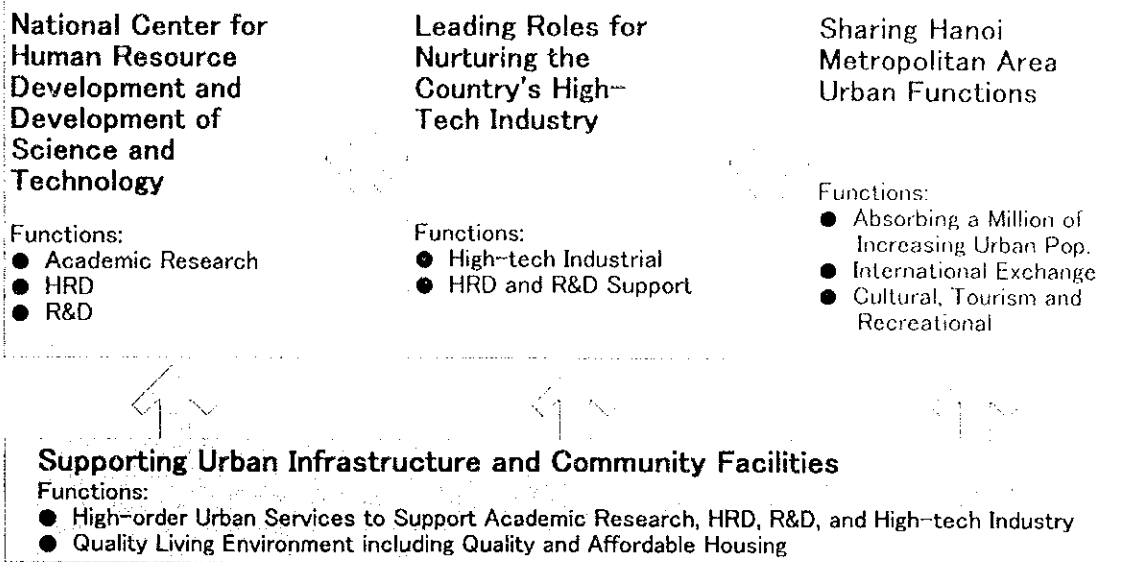
Source: JICA Study Team

Composition of the Urban Functions



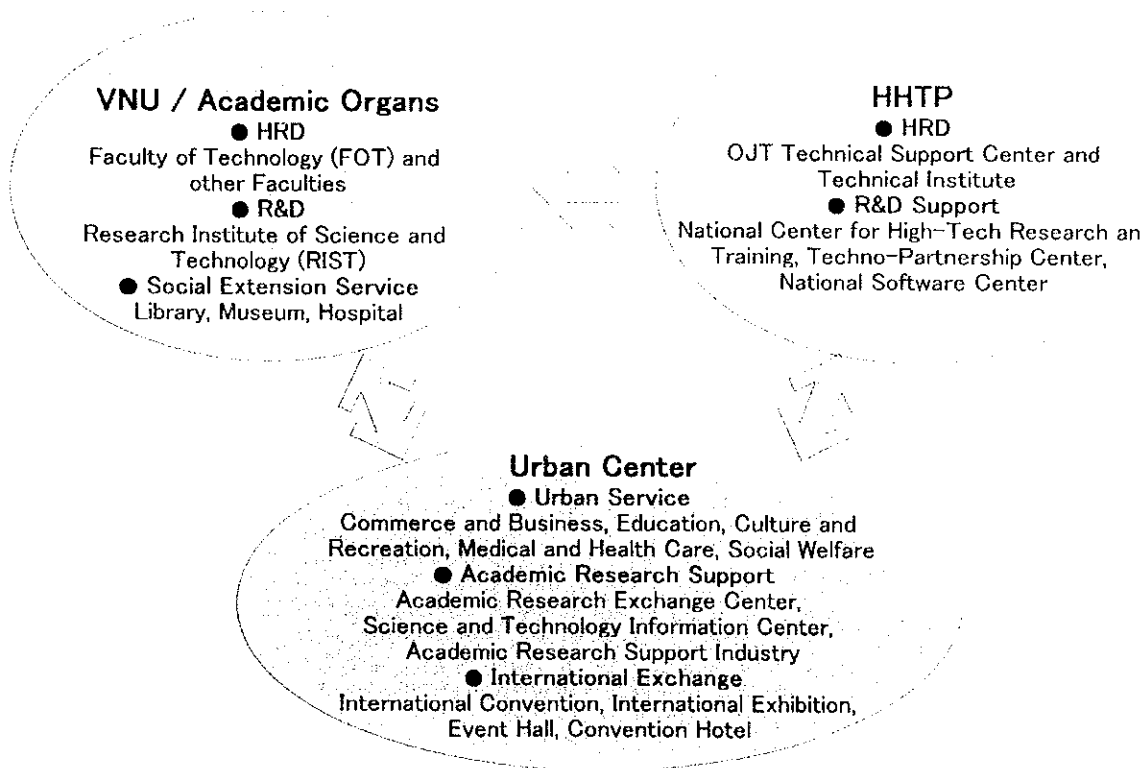
Source: JICA Study Team

Inter-Relation of Nucleus Urban Function



Source: JICA Study Team

Composition of the Urban Functions



Source: JICA Study Team

Inter-Relation of Nucleus Urban Function

The Corridor 21 Development

1.2 FUNCTIONAL SETTING OF THE DISTRICTS ALONG THE CORRIDOR 21

● Geography

The Area of the Corridor 21 Development is located along both sides of NR21A extending from Son Tay in the north to Mieu Mon in the south. It is bordered in the north by the Red River Delta, in the south by the Tuy Lai Lake (My Duc - Ha Tay), in the east by the Tich Gian River, and in the west by Ba Vi and Vien Nam Mountains.

● Self-contained Hoa Lac Town

It may be stated safely that the proposed Hoa Lac Town will have, particularly in the early phase of its development, rather self-contained characteristics with two principal functions provided by VNU and HHTP. But in the later phase, it will share various urban functions with HMA, thus growing as a multi-functional satellite town. It should be noted that the self-contained characteristics do not imply an "isolated town," but rather hold strong linkages with Central Hanoi for supporting its economic activities.

● Inter-city Linkages

The primary inter-city linkage would be formulated between Central Hanoi and the Hoa Lac New Town, followed by the formulation of secondary linkages between the Hoa Lac New Town and the other towns along Corridor 21. This implies that development effects rippling over Son Tay, Xuan Mai, and Mieu Mon would be marginal until substantial developments take place in the Hoa Lac area. However, as far as the construction sector is concerned, a strong linkage between Hoa Lac, Xuan Mai, and Mieu Mon will be established through the Hoa Lac and Xuan Mai Urban Development.

● Son Tay

Son Tay is characterized predominantly as the tourist service center along the corridor, due to its endowment with tourism resources, such as cultural heritages, and resort areas, such as Suoi Hai Lake and Dong Mo Lake, and Ba Vi Mountain. Son Tay is conveniently accessible from Hanoi via NR32, Lang-Hoa Lac Highway and NR21A, and the Red River cruise. Tourism-related services and industries will be located in Son Tay, including hotels and restaurants, souvenir shops, cottage industries for handicrafts, and so on. Son Tay will also be a center for marketing perishable foods, such as vegetables, fruits, fishes, and meats, as well as agri-processed products. Associated with the development of Hoa Lac, some educational and R&D functions may spill over to Son Tay, due to its proximity to Hoa Lac. Son Tay's future urban development will be of the expansion type centering around and harmonizing with the

existing urban structure and communities.

● Xuan Mai

Xuan Mai will be the center for trade and industry, as well as for physical distribution. Xuan Mai will also assume important national defense functions with the relocation of some military facilities from Hoa Lac. Due to its proximity to Hoa Lac, industrial developments may already ripple over to Xuan Mai in the short-term. Trade processing industries will be induced to locate in Xuan Mai, due to its convenient accessibility via NR6 and NR21 to peripheral and inland areas. The Hoa Lac and Xuan Mai Urban Development will generate massive construction needs, including production of construction materials and equipment. Xuan Mai, associated with Mieu Mon, will be the center of construction industries supporting the Urban Development. Xuan Mai will remain as a regional center for education and training with the existence of schools, colleges, and vocational training facilities. Future urban development of Xuan Mai will be of the expansion type centering around and harmonizing with the existing urban structure and communities.

● Mieu Mon

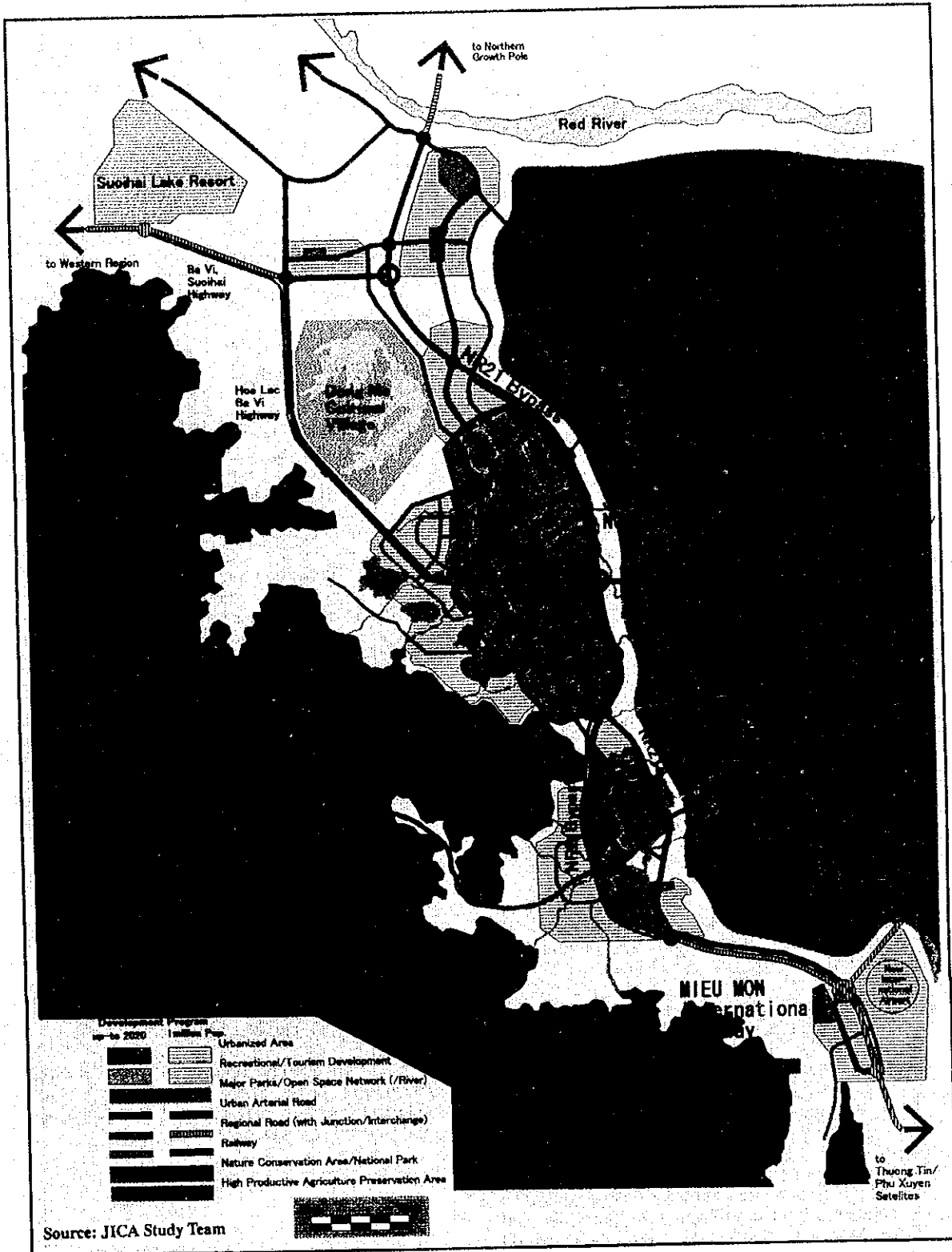
The master plan prepared by the Ministry of Construction (MOC) indicates the possibility of developing a new Mieu Mon International Airport within the planning period (2020). Enormous development potentials will be created in Mieu Mon if this is realized, such as various passenger services, high-tech industries, off-shore business center, tourism and convention, and so on. However, given the only small possibility of developing the airport before 2020, potential industries will be dominated by construction industries, including production of construction materials and equipment, as is the case for Xuan Mai.

Pre-cast concrete products for use of various construction purposes are considered to have high potential in the field of production, taking advantage of the existing pre-cast concrete factories and easily available concrete aggregates from nearby quarries. Although it depends on the future technological development, pre-cast concrete systems for housing construction will be in massive need, even for the Hoa Lac and Xuan Mai Urban Development.

● Dong Mo

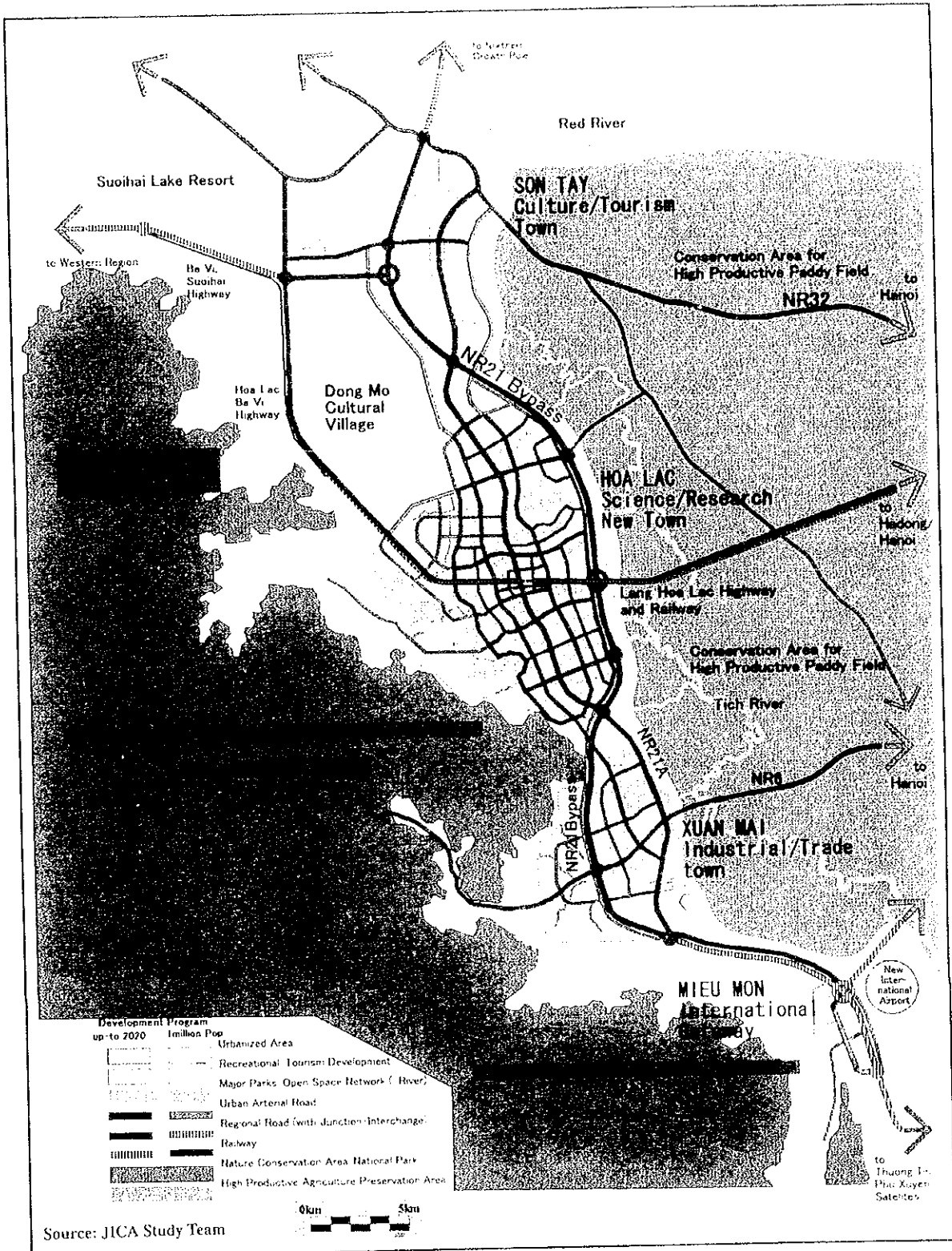
Dong Mo will be of the primary recreational area of HMA, where a cultural village project is planned at the Dong Mo Lake side to attract not only Hanoi citizens but also international tourists as well. Dong Mo can assume complementary roles with Hoa Lac New Town in terms of inducing potential residents and investors.

The Corridor 21 Development

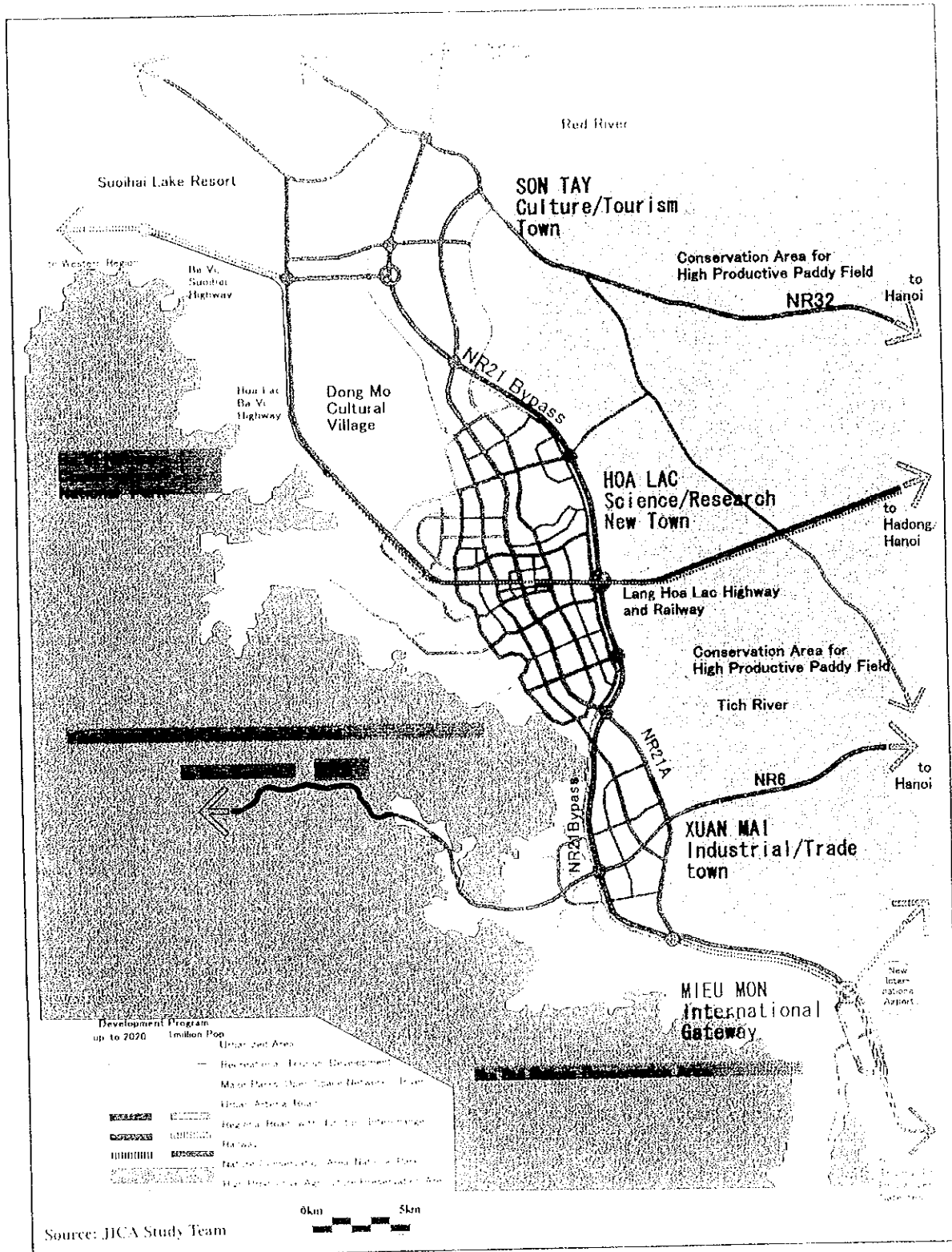


Spatial Framework of the Corridor 21 Development

The Corridor 21 Development



Spatial Framework of the Corridor 21 Development



Spatial Framework of the Corridor 21 Development

The Corridor 21 Development

1.3 SOCIO-ECONOMIC FRAMEWORK FOR THE CORRIDOR 21 DEVELOPMENT

● Urban Population

The recent population growth has decreased from its 1992 peak rate of 2.4%, whereas the urban population has increased rather sharply, due mainly to the reduced absorptive capacity of the rural agricultural sector. The following are the future population size forecasts at the national level for the Red River Delta and HMA. They are based on the National Institute for Urban and Rural Planning (NIURP) forecasts.

Level	Unit: thousand		
	Phase-1A	Phase-1B	Phase-2
National	80,560	93,326	103,951
Growth Rate (%)	1.72	1.38	1.0
R.R. Delta	19,334	22,398	24,948
Urban	4,447	6,495	8,732
Urban Ratio (%)	23	29	35
HMA	2,410	3,521	4,733

Source: JICA Study Team

Notes: RRD means Red River Delta.

● Accommodation of Increasing Urban Population of HMA

The above table shows that HMA's urban population would be in the order of some 4.5 million people. Central Hanoi may reasonably accommodate about 2.5 million people according to MOC's estimation, and the rest need to be accommodated outside Central Hanoi.

1. The Central Area surrounded by Ring Road No. 3 and divided by the Red River remains a high-populated urbanized area with predominant service sector functions in the south of the River, and mixed service and productive functions in the north of the River;
2. Outside Ring Road No. 3, rich paddy and farm land spreads over, which will likely remain as the productive farm land by limiting and controlling future land-use change; and
3. Outside the farmland, the areas not suitable for farming will be used for urban development by sharing the future urban functions of HMA, such as the Corridor 21.

● Population Framework

It is assumed, taking into consideration the inter-city linkages as discussed in section 1.2, that a marginal impact or ripple effects would be generated in the areas of Son Tay, Xuan Mai, and Mieu Mon, until substantial developments would take place visibly in Hoa Lac by the year 2005. On this basis, the annual population increase in the three areas would be in the neighborhood of 2 to

3% by the year 2005, and thereafter, influenced by the emerging Hoa Lac development, the population would grow at rather higher rates of around 3 to 4%. The population framework of the Hoa Lac New Town is estimated based on the number of population residing in Hoa Lac and Xuan Mai, and the working population for VNU, HHTP, as well as other manufacturing, construction and service sectors.

Employment	Unit: Persons		
	Phase-1A	Phase-1B	Phase-2
VNU	7,100	9,900	14,700
HHTP	9,000	15,000	25,000
Manufacturing	12,000	24,000	60,000
Construction	12,000	19,400	32,900
Services	10,000	18,000	45,000
Existing (1996)	31,600	31,600	31,600
Commuters			22,000
Total	81,700	117,900	231,200

Source: JICA Study Team

Notes: The working population for VNU and HHTP who commute from Hanoi or outside Hoa Lac and Xuan Mai, is assumed as 30% by 2005, thereafter reducing to 20% by 2010 and 10% by 2020. It is also assumed that the population residing in Hoa Lac but working in Hanoi will account for 10% of the total by 2020.

● Economic Framework

Taking into consideration the future population and per capita Gross Regional Domestic Product (GRDP) growth, the economic framework of the Corridor 21 Development is estimated on the basis of the following scenarios:

1. The country's future economic growth rate will be somewhat stagnant up to the year 2000, but it will regain momentum thereafter keeping higher growth rates.
2. The Corridor 21 Development will achieve accelerated economic growth by 2020 and catch up with HMA in terms of per capita GRDP, by virtue of the massive investment for the Hoa Lac and Xuan Mai Urban Development and the resulting ripple effects on the regional economy.
3. Until the development in Phase-1A are completed by 2005, the Hoa Lac and Xuan Mai Urban Development will have a marginal socio-economic impact or ripple effects on Son Tay, Xuan Mai, and Mieu Mon.
4. The Corridor 21 Development will proceed with its growth phase after the year 2010, and industrial locators in HHTP and Phu Cat Area will start full-fledged operations.

The Corridor 21 Development

Population Framework by the JICA Study Team

Name of District	Unit: person			
	Present (1996)	Phase-1A (2005)	Phase-1B (2010)	Phase-2 (2020)
1. Son Tay	40,000	50,000	60,000	90,000
2. Hoa Lac	44,000	135,000	205,000	400,000
3. Xuan Mai	35,000	45,000	55,000	100,000
4. Mieu Mon	1,000	1,500	2,000	4,000
Total Population	120,000	231,500	322,000	594,000

Source: JICA Study Team

Population Framework by Vietnamese MOC (Excluding Military Force)

Name of District	Unit: person			
	Present (1996)	Phase-1A (2005)	Phase-1B (2010)	Phase-2 (2020)
1. Son Tay	40,000	60,000	80,000	100,000
2. Hoa Lac	44,000	150,000	420,000	670,000
3. Xuan Mai	35,000	60,000	90,000	170,000
4. Mieu Mon	1,000	5,000	10,000	30,000
5. Reservation		10,000	20,000	30,000
Total Population	120,000	285,000	620,000	1,000,000

Source: Ministry of Construction (MOC)

Economic Framework

GRDP and Per-capita GRDP

Level	GRDP (VND billion)			GRDP (US\$ million)		
	2005	2010	2020	2005	2010	2020
National	520,043	764,114	1,893,459	37,413	54,972	136,220
R.R. Delta	94,170	138,018	339,929	6,774	9,929	24,455
HMA	38,211	57,629	151,654	2,748	4,145	10,910
Corridor 21	2,608	5,185	26,949	187	373	1,938

Level	Per-capita GRDP (VND thousand)			Per-capita GRDP (US\$)		
	2005	2010	2020	2005	2010	2020
National	5,967	8,187	18,215	429	588	1,310
R.R. Delta	6,198	8,482	18,756	445	619	1,349
HMA	15,855	16,367	32,042	1,140	1,177	2,305
Corridor 21	9,513	13,094	33,644	684	942	2,420

Source: JICA Study Team

Note: R. R. Delta means Red River Delta.
HMA Means Hanoi Metropolitan Area.

GDP and its Share by Sector

Item	Unit: billion VND								
	National			HMA			Corridor 21		
	2005	2010	2020	2005	2010	2020	2005	2010	2020
Primary	104,009	126,079	208,280	1,188	1,982	531	287	461	134
Secondary	195,016	305,646	823,665	15,338	25,933	69,230	1,134	2,309	13,340
Tertiary	221,018	332,390	861,524	21,685	29,714	81,893	1,187	2,415	13,475
Primary (%)	20.0	16.5	11.0	3.1	3.4	0.4	11.0	8.9	0.5
Secondary (%)	37.5	40.0	43.5	40.2	45.0	45.6	43.5	44.5	49.5
Tertiary (%)	42.5	43.5	45.5	56.7	51.6	54.0	45.5	46.6	50.0

Source: JICA Study Team

Note: HMA means Hanoi Metropolitan Area.

The Corridor 21 Development

1.4 LONG-TERM SCENARIO FOR THE CORRIDOR 21 DEVELOPMENT

● Overall Development Scenario

The Corridor 21 Development (The Development) is to be regarded as a strategic national or flagship project in the context of challenging serious urban issues and fiercely competitive market circumstances in the 21st century. The consensus to that end is a prerequisite to place the development onto the right implementation track. The following are, among the other issues, mandatory requirements for its successful initiation and implementation:

1. Steady initiation and implementation of the first phase development of VNU and HHTP as a strategic starter of the whole Corridor 21 Development;
2. Creation of an attractive and convenient urban space of international standards, thus inducing more people, visitors, and investors to come in; and
3. Establishment of an well-orchestrated implementation machinery, which is supported by creative and pioneering institutions, in order to ensure balanced, sustainable, and cost-effective development.

● Phase-1 (2000 – 2010)

The first phase, which is referred to as the “**initiation phase**,” is to commence strategically the principal functions, such as VNU and HHTP in Hoa Lac. During this phase, VNU will lay its campus foundations by relocating and integrating its affiliated universities plus establishing a few departments, including the Faculty of Technology. HHTP will also lay its foundations during this phase by developing diverse functions, such as research and training, technology exchange, software park, high-tech park, service center, business and commerce, and so on. The Corridor 21 Development will be rather limited to the development in Hoa Lac during this phase.

The initiation phase is of the “**self-contained development**” principally focusing on the introduction of selected urban functions and facilities in Hoa Lac. Hence, a strong linkage with Central Hanoi may not be mandatory during this phase.

Basic infrastructure, such as arterial roads, water, sewerage and sanitation, solid waste, electricity, telecommunications, and so on need to be developed to support the first phase development. Also, an attractive and compact Urban Center will be created partly, which will be the core of the whole Corridor 21 Development.

● Phase-2 (2010 – 2020)

The second phase, which is referred to as the “**growing phase**,” is to achieve the development momentum toward the creation of a substantive satellite town with more diverse urban functions and more settlement of people, particularly in the Hoa Lac and Xuan Mai Area.

This phase may take up to the year 2020, when the urban structure of the Corridor 21 will have been completed substantially. With direct ripple effects from Hoa Lac, Xuan Mai will share diverse urban and productive functions, among which trade processing and distribution will be dominant. Xuan Mai and Mieu Mon will strengthen their linkages, particularly in the construction sector. Son Tay will play an important role of responding to the increasing demand for tourism, recreation, and leisure, not only for Hanoi citizens, but also for international tourists.

VNU, HHTP, and Phu Cat Industrial Estate will enter into substantial operations, accompanied by thriving service industries, such as international exchange, sports and leisure, civic services, commerce and business, local administration, medical care and social welfare, and so on.

As the Corridor 21 Development grows as a substantive satellite town, its linkage with Central Hanoi will need to be strengthened, which may require a mass railway transit (MRT) in this phase. Conversely, it may also be said that further growth of the Corridor 21 Development would be dominated by the provision of the MRT.

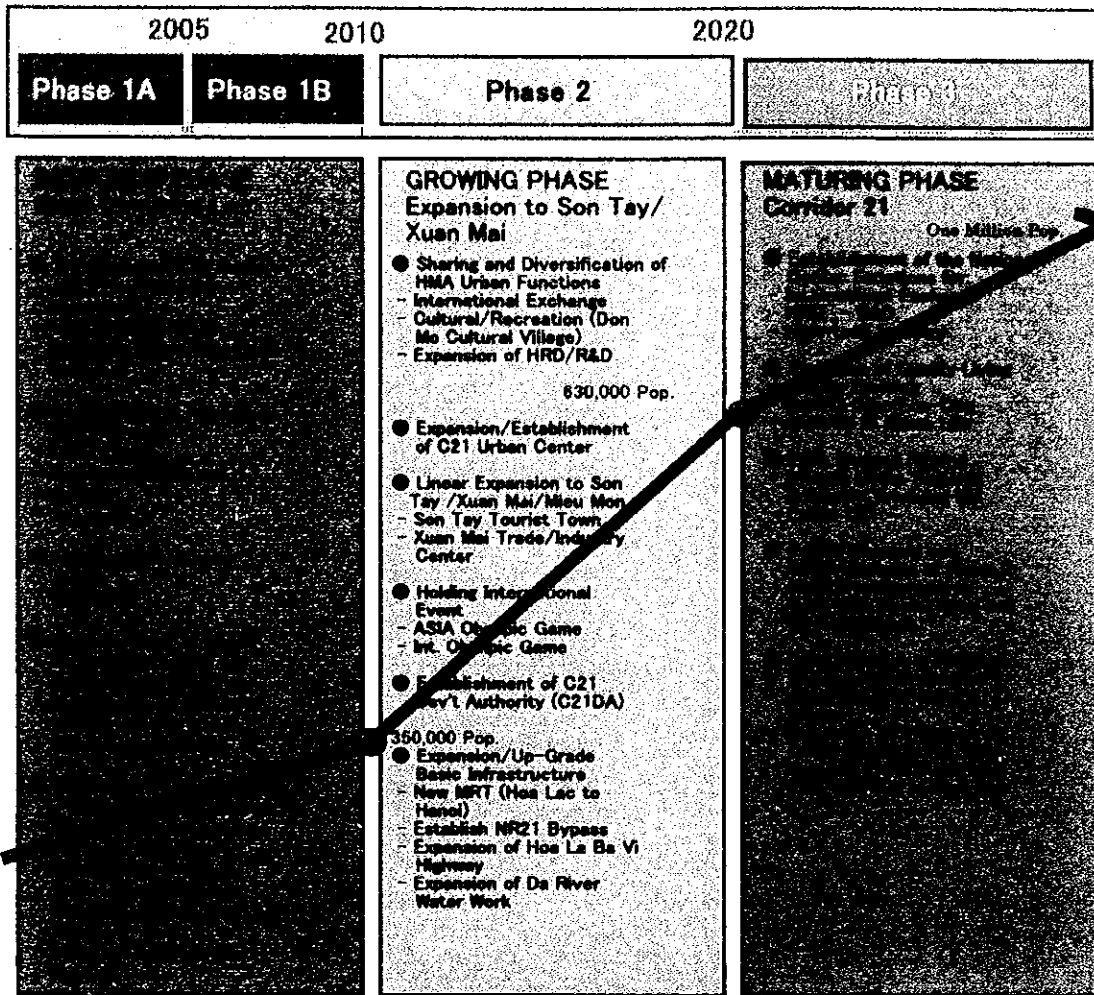
Another key issue to the development in this phase is how to formulate successfully a housing market where different levels of housing will be made available, considering their affordability to potential purchasers.

● Phase-3 (after 2020)

The third phase, which is referred to as the “**maturing phase**,” is the phase during which development will mature toward a multi-functional satellite town with diverse urban functions, as well as a quality residential function absorbing the spillover population of HMA.

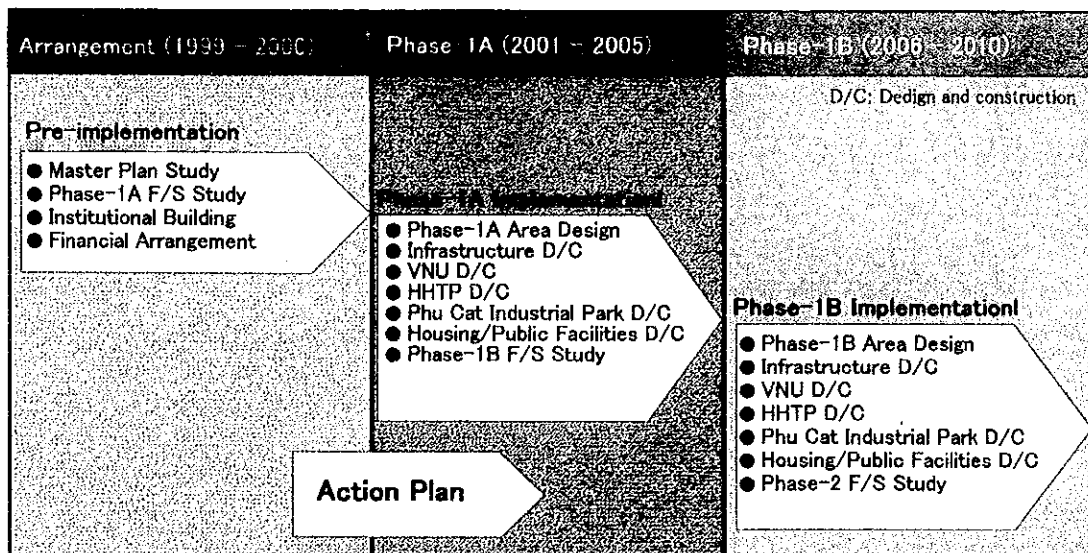
Earlier developments will be partly renewed and redeveloped in this phase, in order to meet changing demands, and the living environment will thereby become more comfortable and convenient for the people to live in, work in, and enjoy. The Corridor 21 Development will have been a world-famous “**eco-science city**,” where many foreigners will gather for different purposes. Although the timing is not foreseeable, the Corridor 21 Development will approach the level of a one-million-satellite town, having a more balanced and quality urban space to absorb different categories of people.

The Corridor 21 Development



Source: JICA Study Team

Long-Term Development Scenario for Corridor 21



Source: JICA Study Team

Note: In view of the tight fiscal situation of the Government, the Action Plan, which is an initial-investment-minimizing alternative, is proposed for immediate implementation. The Action Plan should be construed as "fast-track development" of Phase-1A.

Short-Term Strategic Development Schedule

The Corridor 21 Development

2005	2010	2020
Phase 1	Phase 2	
<p>INITIATION PHASE Start from Hoa Lac</p> <ul style="list-style-type: none"> ● Introduction of Strategic and Principal Urban Functions <ul style="list-style-type: none"> - VNU for HRD/S&R - HHTP for R&D/High-tech Industry ● Formulation of Attractive Urban Center <ul style="list-style-type: none"> - Civic Center - Commercial/Business - Culture - Amusement ● Holding International Event <ul style="list-style-type: none"> - SEAGAME ● Establishment of Legal, Organizational and Institutional Measures <ul style="list-style-type: none"> - Designation of SEZ/or UDZ(urban dev't zone) - Development Bodies ● Provision of Basic Internal / External Infrastructure <ul style="list-style-type: none"> - Da River Water Resource / Transmission Dev't - Electric Power Supply - Telecommunication - Widening of Lang Hoa Lac/ NR21A - Introduce Express Bus System 	<p>GROWING PHASE Expansion to Son Tay/ Xuan Mai</p> <ul style="list-style-type: none"> ● Sharing and Diversification of HMA Urban Functions <ul style="list-style-type: none"> - International Exchange - Cultural/Recreation (Don Mo Cultural Village) - Expansion of HRD/R&D <li style="text-align: center;">630,000 Pop. ● Expansion/Establishment of C21 Urban Center ● Linear Expansion to Son Tay /Xuan Mai/Mieu Mon <ul style="list-style-type: none"> - Son Tay Tourist Town - Xuan Mai Trade/Industry Center ● Holding International Event <ul style="list-style-type: none"> - ASIA Olympic Game - Int. Olympic Game ● Establishment of C21 Dev't Authority (C21DA) <li style="text-align: center;">350,000 Pop ● Expansion/Up-Grade Basic Infrastructure <ul style="list-style-type: none"> - New MRT (Hoa Lac to Hanoi) - Establish NR21 Bypass - Expansion of Hoa La Ba Vi Highway - Expansion of Da River Water Work 	<p>MATURING PHASE Corridor 21 One Million Pop</p> <ul style="list-style-type: none"> ● Establishment of the National Center Functions for: <ul style="list-style-type: none"> - International Exchange - HRD, - R&D, - High-tech Industry ● Provision of Quality Living Quality Housing Garden City/Eco-City <ul style="list-style-type: none"> - Amenity of Urban Life ● Fully Fledged Rippling Effects to the Regional Economy, Involving the Entire C21 ● Partial Renewal and Redevelopment of Phase 1 and 2 Development to Cope with Social Need and Circumstances ● Establishment of Regional Transportation Network <ul style="list-style-type: none"> - Mieu Mon International Airport - Expansion of 21 Bypass to Outer Ring Road of HMA - New LRT (NR21A) to Link from Son Tay to Mieu Mon

Source: JICA Study Team

Long-Term Development Scenario for Corridor 21

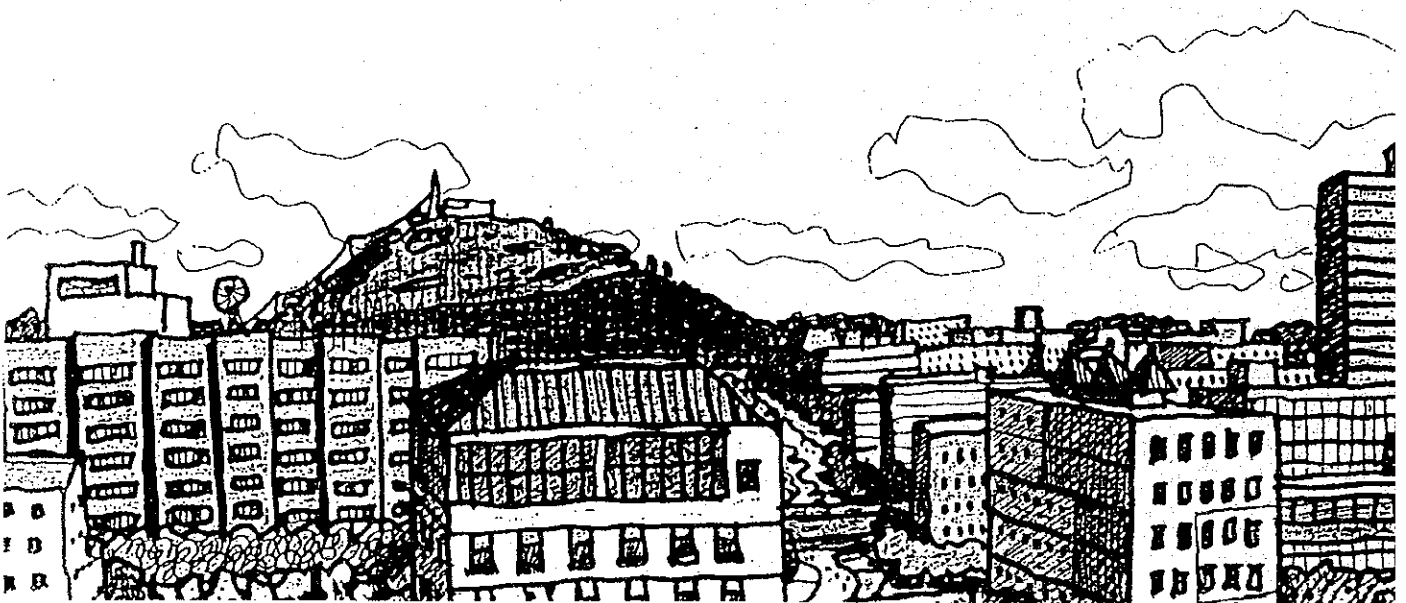
Arrangement (1999 - 2000)	Phase-1A (2001 - 2005)	
<p>Pre-implementation</p> <ul style="list-style-type: none"> ● Master Plan Study ● Phase-1A F/S Study ● Institutional Building ● Financial Arrangement 	<p>Phase-1A Implementation</p> <ul style="list-style-type: none"> ● Phase-1A Area Design ● Infrastructure D/C ● VNU D/C ● HHTP D/C ● Phu Cat Industrial Park D/C ● Housing/Public Facilities D/C ● Phase-1B F/S Study 	<p style="text-align: center;">D/C: Design and construction</p> <p>Phase-1B Implementation</p> <ul style="list-style-type: none"> ● Phase-1B Area Design ● Infrastructure D/C ● VNU D/C ● HHTP D/C ● Phu Cat Industrial Park D/C ● Housing/Public Facilities D/C ● Phase-2 F/S Study
Action Plan		

Source: JICA Study Team

Note: In view of the tight fiscal situation of the Government, the Action Plan, which is an initial-investment-minimizing alternative, is proposed for immediate implementation. The Action Plan should be construed as "fast-track development" of Phase-1A.

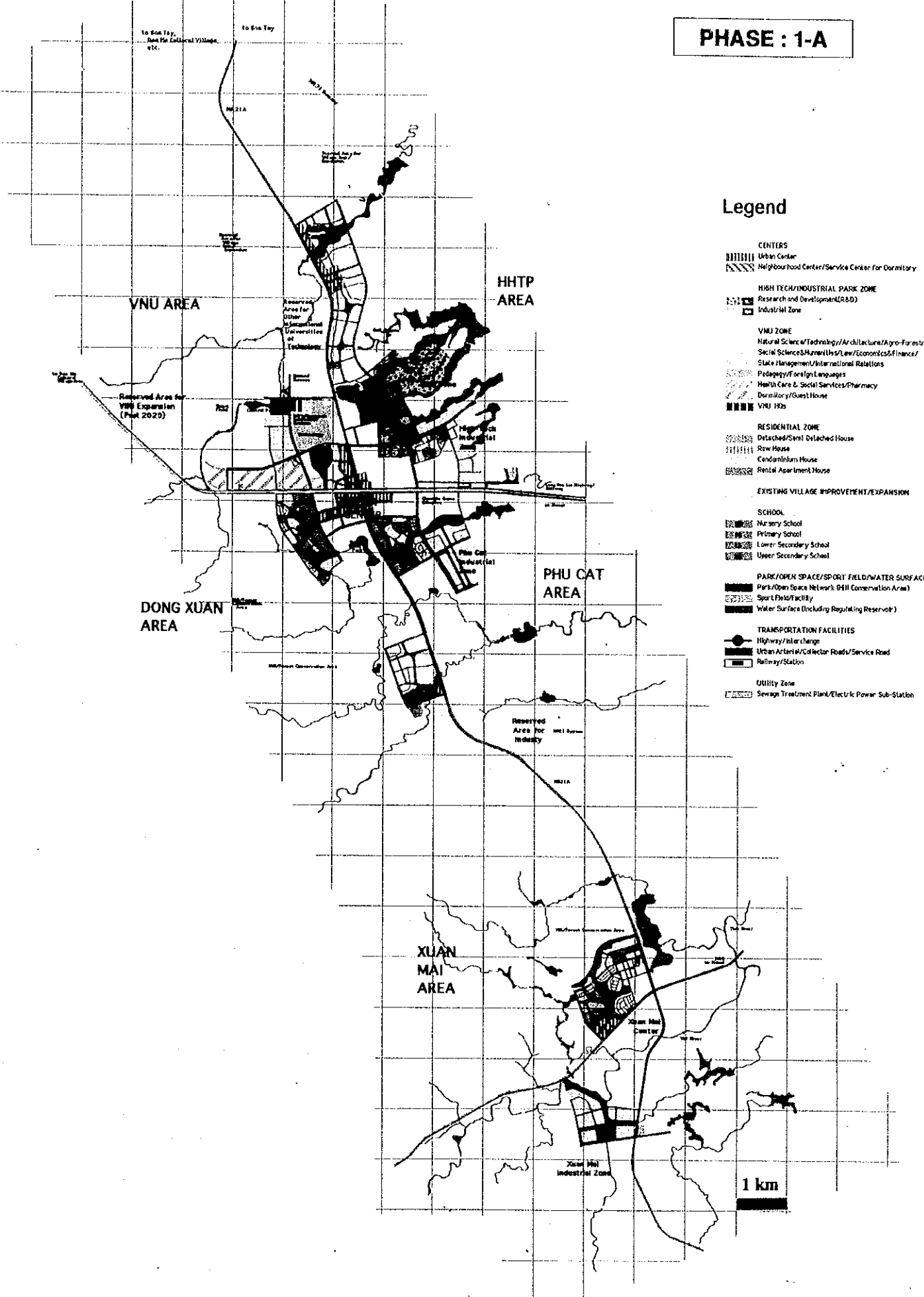
Short-Term Strategic Development Schedule

PART 2:
MASTER PLAN
FOR
THE HOA LAC AND XUAN MAI
URBAN DEVELOPMENT



HOA LAC AND XUAN MAI URBAN DEVELOPMENT MASTER PLAN

PHASE : 1-A



Legend

- CENTERS**
 - Urban Center
 - Neighbourhood Center/Service Center for Dormitory
- HIGH TECH/INDUSTRIAL PARK ZONE**
 - Research and Development (R&D)
 - Industrial Zone
- VNU ZONE**
 - Natural Science/Technology/Architecture/Agro-Forestry
 - Social Science/Humanities/Law/Economics/Finance/
 - State Management/International Relations
 - Pedagogy/Foreign Languages
 - Health Care & Social Services/Pharmacy
 - Dormitory/Guest House
 - VNU Hubs
- RESIDENTIAL ZONE**
 - Detached/Semi Detached House
 - Row House
 - Condominium House
 - Rental Apartment House
- EXISTING VILLAGE IMPROVEMENT/EXPANSION**
- SCHOOL**
 - Nursery School
 - Primary School
 - Lower Secondary School
 - Upper Secondary School
- PARK/OPEN SPACE/SPORT FIELD/WATER SURFACE**
 - Park/Open Space Network (Phil Conservation Area)
 - Sport Field/Facility
 - Water Surface (Including Regulating Reservoir)
- TRANSPORTATION FACILITIES**
 - Highway/Interchange
 - Urban Arterial/Collector Road/Service Road
 - Railway/Station
- UTILITY ZONE**
 - Sewage Treatment Plant/Electric Power Sub-Station

**PART 2: MASTER PLAN FOR THE
HOA LAC AND XUAN
MAI URBAN
DEVELOPMENT**

**2.1 MAJOR DEVELOPMENT PROJECT -
VNU RELOCATION**

● **The Necessity for the VNU Relocation**

The survey conducted by JICA Study revealed that the reinforcement of higher education in the country is indispensable to produce qualified researchers and engineers for R&D as well as competent managers for modernization of its economy and society. The capacities of Vietnamese universities are mostly inadequate to absorb an increasing number of students. In addition, their facilities are inadequately equipped and mostly obsolete. Universities and students tend to concentrate excessively in Hanoi, but the land availability for improving the environment for education and research activities is limited. Under the circumstances, the VNU relocation is a strategic project to cope with these issues and constraints.

● **Government Policy on the VNU Relocation**

The Prime Minister's decision approving the concept plan of the National University, which was issued on January 26, 1998, outlines the policies as follows

VNU is a center for education, training, and scientific research of multiple sectors, as well as an inter-sector operational linkage among universities, research institutes, and experiment units, ensuring the integration between training and scientific research, and technology transfer. Also, VNU is a cultural center assuming the role of solidifying science and cultural interchange in higher education in Vietnam.

According to the policies, VNU is expected to assume the functions of a) education, research and other related activities, and b) science and cultural interchange in higher education in Vietnam.

● **Major Issues for VNU Relocation**

1. **Recruitment of Students and Teaching Staff:**

One of the crucial issues is how to recruit talented teaching staff and researchers as well as students for the relocated VNU. Certain incentives need to be provided in order to attract them, including premium salaries for teaching staff. Particularly, the training of teaching staff should be started prior to the VNU relocation.

2. **Integration and Expansion of VNU:**

VNU will grow by integrating in future not only already affiliated universities, but also non-affiliated universities. However, if resentment were expected from affiliated

universities due to apprehensions of losing their identities and initiatives, such sentiment would be more serious for non-affiliated universities. Flexible arrangements should be made in the organizational and institutional structure, in order to encourage affiliated as well as non-affiliated universities to join in. The conceivable options are to allow, a) complete affiliation with VNU, thus to be a part of VNU, or b) location in the campus of the relocated VNU, keeping a cooperative relationship with VNU, but remaining independent.

3. **Reinforcement of Linkage with HHTP:**

VNU has a great potential to improve the R&D function by establishing the Faculty of Technology (FOT) which may cover the fields of informatics, electronics, telecommunication, bio-technology, mechatronics, new materials, new energy, and environmental technology. Together with FOT, a Research Institute of Science and Technology (RIST) will be established. The RIST will be used openly by outside universities and research institutes. FOT in association with RIST will have strong linkage with HHTP in the fields of research and training, as well as staff exchange and accrediting students.

● **Campus Design**

The following are the basic concepts for the campus design:

1. Phased development in harmony with changing socio-economic and environmental circumstances;
2. Creation of a distinctive, attractive, and environment-friendly atmosphere, suitable for the education of young talented students; and
3. FOT and RIST will be located in proximity of the R&D institutes of HHTP to facilitate their functional linkages.

● **Phased Development**

1. By 2005: the relocation of the affiliated universities will be implemented. Priority should be placed on the relocation and reorganization of the University of Natural Sciences, and the establishment of FOT and RIST. The faculty of Law and the Faculty of Economics & Finance will be established by reorganizing the University of Social Sciences and Humanities.
2. By 2010: The scope of fields focused in VNU relocation area will be diversified by adding new fields, medical treatment and social welfare, environmental protection, architectural work, and the development of international relations.
3. By 2020: The organizations and facilities in

The Corridor 21 Development

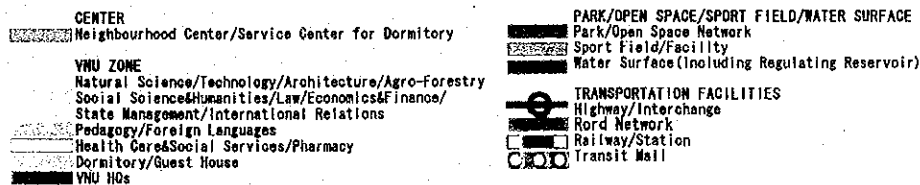
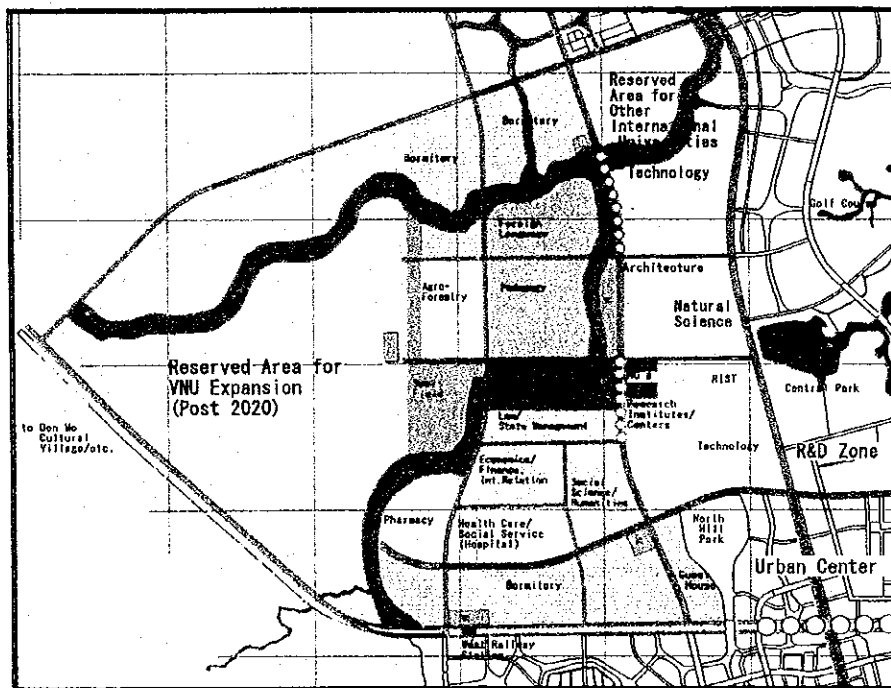
the VNU relocation area will grow and be diversified in accordance with the expansion of the scope of their activities. In this phase, a complex of universities and institutes will appear in the VNU relocation area.

Constitution of Faculties and Number of Students

- Notes:
1. Shadowed parts represent the current affiliated universities.
 2. Student numbers of General Education are assigned to individual faculties.
 3. Faculty of Technology will be established by reorganizing the University of Natural Science.
 4. Faculty of Law and Faculty of Economics and Finance will be established by reorganizing the University of Social Science and Humanities

Field	Phase-1A	Phase-1B	Phase-2
Natural Science	6,000	6,000	7,000
S.S. & Humanities	6,000	6,000	6,000
Pedagogy	9,000	9,000	10,000
F. Language	4,000	6,000	7,000
Technology	2,000	3,000	8,000
Law	1,500	2,000	3,000
Economics	1,500	2,000	3,000
Agro-forestry		1,000	4,000
Pharmacy		1,000	3,000
Architecture		1,000	2,000
State Management		1,000	2,000
Health Care/Social Services		1,000	2,000
International Relations		1,000	3,000
Total	30,000	40,000	60,000

Source: JICA Study Team



Source: JICA Study Team

Spatial Framework for VNU Campus

The Corridor 21 Development

2.2 MAJOR DEVELOPMENT PROJECT- HOA LAC HIGH-TECH PARK (HHTP)

● **Government Policy on the HHTP Development**

The Prime Minister approved the HHTP Development in October 1998, with the following comments on the development, which presents the policy of the Government:

“Dire experiences of economic crisis seriously gripping other Asian countries indicate, that Vietnam should not completely imitate imported technology, as other countries had done to develop their national economy. Vietnam will be able to match other nations in the technological fields. Priority consideration should be given to improve human resources development, which is already recognized as one of the strengths of Vietnam, while personnel training should go hand in hand with research and development, as well as business expansion. Vietnam should become a basically industrialized country over the next 25 years and technology should be seen as a crucial factor in realizing that goal.”

● **Development Concept Formulated by the Previous JICA Study**

The JICA study for the HHTP Development conducted in 1997-1998 concluded that HHTP should be established as a self-sustained, park-wise area including the following 6 functions:

1. Research and development (R&D),
2. Urban and business,
3. Housing,
4. High-tech industry,
5. Education and training, and
6. Sports and recreation.

These functions are assigned to be located in 4 development zones; i.e. a) R&D Zone, b) High-tech Zone, c) Center Zone, and d) High-grade Residential Zone.

The JICA study established the framework for the HHTP Development as follows:

1. Phase-1 (-2005) - Start-up
Area: 796 ha
2. Phase-2 (2006-2010) - Promotion of import and transfer of technology
Area: 317 ha
3. Phase-3 (2011-2020) - Localization hub of high-tech in Vietnam
Area: 537 ha

Recommended also in the JICA study is the establishment of a Software Center in the R&D Zone, where the following 4 centers will be established to provide common services for the

tenanted companies:

1. Techno-partnership Center,
2. Park Center Intelligent Building,
3. OJT (On the Job Training) Technical Support Center, and
4. Technical Institute.

● **Review and Revision made by MOSTE**

A review of the JICA Study by the Ministry of Science, Technology and Environment (MOSTE) resulted in the revision of the following 2 points:

1. Phase 1 was subdivided into Stage-I with the target year of 2003, and a development area of some 200 hectares; and
2. The Software Park was separated from the R&D Zone to form an independent zone.

● **Major Issues for the HHTP Development**

The HHTP Development is in fact, with the Government's approval of its first stage implementation, running ahead among the functions to be introduced in Hoa Lac. The situation entails a big advantage in that it could engine the whole development, while a disadvantage could be its lack of sense of creating an integrated and united new satellite town. As envisioned by the Study, it is important to create an integrated and united satellite town, which is based on a comprehensive development plan.

A “compact development” is essential for a cost-efficient development, a more functional and convenient development for users, and a flexible development coping appropriately with the future changing circumstances. A compact development can minimize the infrastructure cost, and create an attractive and convenient space from the beginning, thus inducing more people and investors to join in.

● **Coordination of the Human Resource Development (HRD) Program by MOSTE**

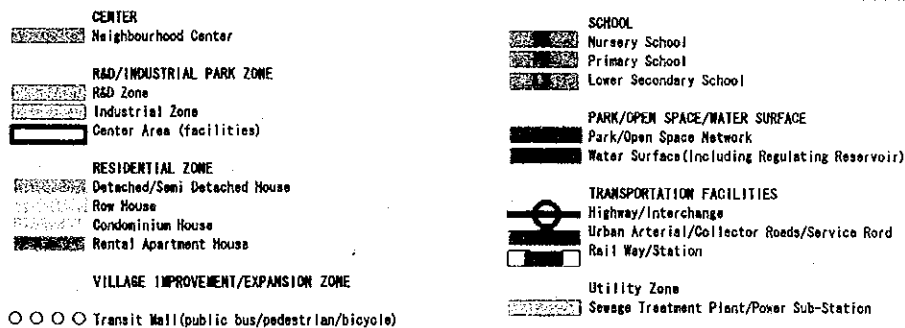
MOSTE is planning to implement a program for upgrading the existing training and research institutes in Hanoi by improving training programs and materials, renovating and expanding laboratory equipment, and training lecturers and researchers through domestic and foreign training. A new training and research institution, which is tentatively named the “National Center for High-tech Research and Training (NCHRT),” will be established in the HHTP area, in order to consummate the program. The MOSTE plan needs to be coordinated with the existing plan for the HHTP Development. The NCHRT may share part or whole of the 4 center functions of the above mentioned Software Center in the R&D Zone.

Basic Framework for the HHTP Development

Land Use	By JICA 2020		By MOSTE Stage-I --2003		Revised by the Study Team						
	Area (ha)	Workers (person)	Density (per./ha)	Area (ha)	Workers (person)	Area (ha)	Workers (person)	Area (ha)	Workers (person)	Area (ha)	Workers (person)
R&D Zone	165	5,400	33	35	1,500	60	1,800	100	3,200	170	5,400
High-tech Zone	210	25,400	120	35	4,850	50	6,100	80	9,500	130	15,100
Center Zone	48	900	19	10	200	20	300	30	550	50	900
Business Zone	81	5,400	67	16	500	10	600	20	1,500	50	3,300
Residential Zone	656	400	1	104	200	110	200	320	250	400	300
Total	1,160	37,000	32	200	7,250	250	9,000	550	15,000	800	25,000

Source: JICA Study Team

Note: The Area implies the development area, excluding the areas of Tan Xa Lake, rivers and canals, and existing communities.



Source: JICA Study Team

Spatial Framework for HHTP Development

The Corridor 21 Development

2.3 BASIC PLANNING CONCEPT

● Overall Concept

The Corridor 21 Development is a new urban development project posing as a challenge to Vietnam in the 21st century. Because of its national importance and significance, the Development should be carefully planned, taking into consideration the precedent urban developments experienced in many countries through the 20th century, while introducing new ideas and concepts to cope with changing societal needs and circumstances.

● Pioneering Urban Development to Form an Adequate Urban Environment

A new urban development should not be a mere "receptacle" of absorbing expanding population and urban functions of big cities, but it should play an important role of creating a new urban environment. In this context, the Hoa Lac and Xuan Mai Urban Development should contribute to the enhancement of the quality of life and urban environment in Vietnam. Especially, as the national center for human resource development, academic research, and advanced technology, it should attract highly educated and intelligent people to live and work there. It should be planned in this context to provide a quality urban environment in all respects, including housing, urban center, urban infrastructure, urban facilities, and so on. Also, the Development should pursue an "ecological-city" environmentally friendly with the surrounding natural environment.

● Share of the HMA Urban Functions

In addition to the national center functions for human resource development and development of science and technology, the Hoa Lac and Xuan Mai Development should also share the important HMA urban functions. International exchange, culture and recreation will be the dominant functions to be shared. International exchange will be an inseparable part of future economic growth, and the demand for culture and recreation will upsurge as per-capita incomes grow and a 5-day working system becomes popular. Hoa Lac and Xuan Mai will achieve diversity by sharing such functions, enhancing its attractiveness, and strengthening its linkage with Hanoi.

● Development Flexibility and Phased Development

The Corridor 21 Development with a one million population would require a long time span, during which socio-economic situations and people's lifestyles will be changing enormously. Many urban developments experienced in the 20th century have faced serious urban problems, due to their inflexibility toward changes. Changes reasonably foreseeable should be incorporated into the planning, whereas changes unforeseeable should be given planning flexibility. The level of quality for the development should remain unchanged, while its implementation should be

flexible for changing circumstances. Taking, for instance, the current economic crisis and resultant tough fiscal situation, the first phase implementation should be minimal in terms of its initial capital investment. This requires a compact development to ensure investment efficiency. The present vehicle ownership situation of Vietnam (three vehicles per thousand population as against 520 in Japan, 141 in Malaysia, and 67 in Thailand) cannot justify the type of roadway development from the beginning, which has the same standards as those in developed countries.

● Transit-Oriented Urban Development

Influenced by the global awareness of environmental issues, many cities are being challenged to adopt more public-transport-oriented systems. In reality, however, massive investment required for public transport and the extreme difficulties in regulating private vehicles have resulted in marginal effects, thus aggravating their traffic problems. In this context, priority consideration should be given to create a public-transport-oriented urban structure in the Hoa Lac and Xuan Mai Urban Development. Along this line, a bus transport system is proposed in the Master Plan, particularly for the initial phase of the development. Also, taking into consideration the mixed traffic causing serious congestion in the Hanoi Central Area, the roadway geometric design will segregate public buses, vehicles, and motorcycles/bicycles.

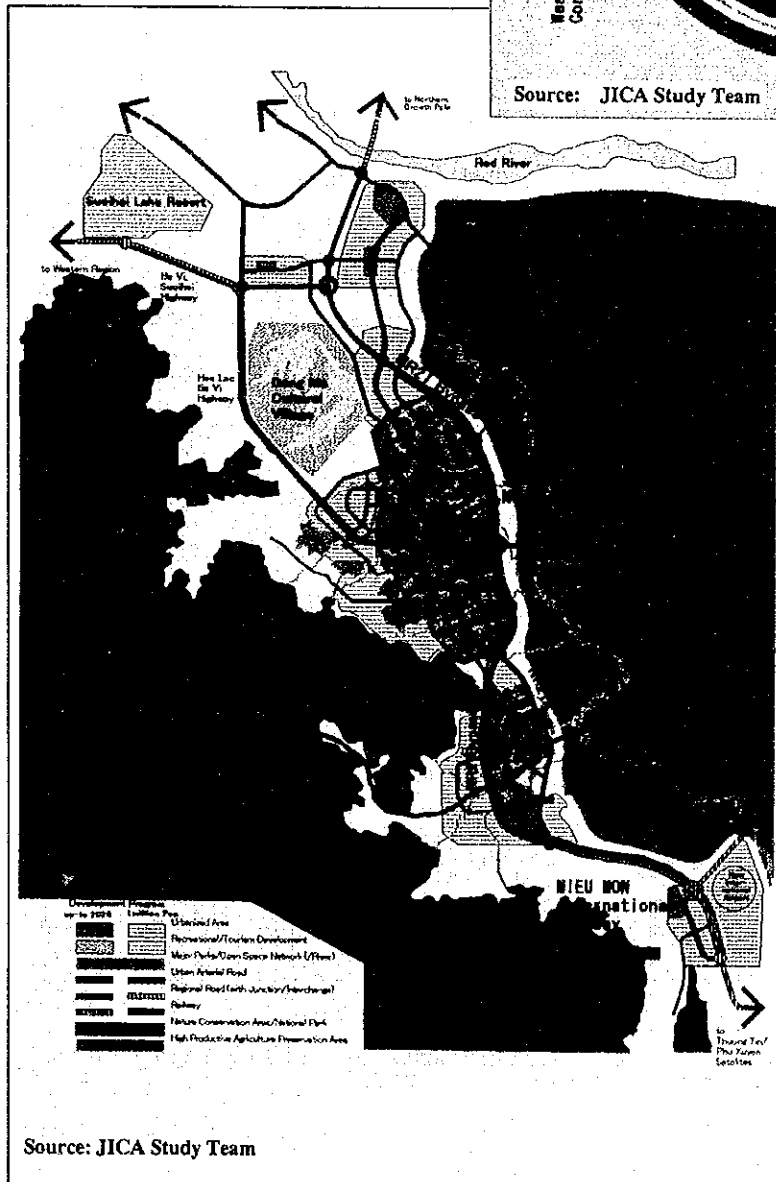
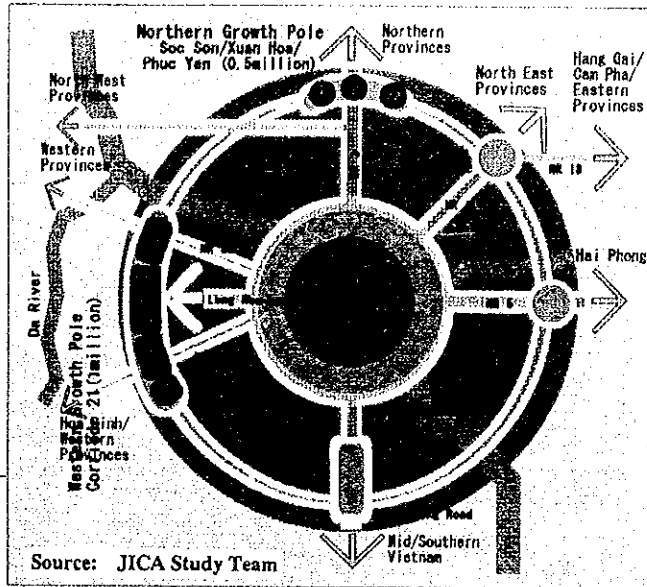
● Housing Development and Supply Scheme

The success of Corridor 21 Development will depend to a large extent on the housing development, which has to ensure a supply of housing to the people who wish to settle in the area. Presumably, the majority of the people will fall within the medium-to-low-income cluster; hence, the supply scheme should meet affordability criteria. Recommendations will be made to establish a viable housing development scheme, including a housing financing system and public housing system. It should be noted that housing sector development greatly contributes to the national and regional economic growth due to its high multiplier effects on the local resource-based industries.

● Harmonious Development with Existing Communities

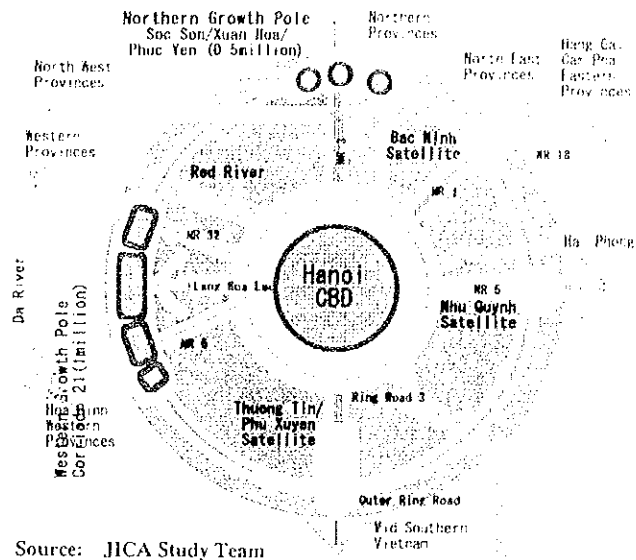
Approximately 79,000 persons live in the Hoa Lac and Xuan Mai Development Area. The development should be harmonious with the existing communities. Attempts will be made to conserve, in principle, the existing communities and already urbanized areas unless they are dispersed with smaller scale. Such conserved areas will be improved in harmony with the new development as the "Existing Village and Expansion Area".

The Corridor 21 Development



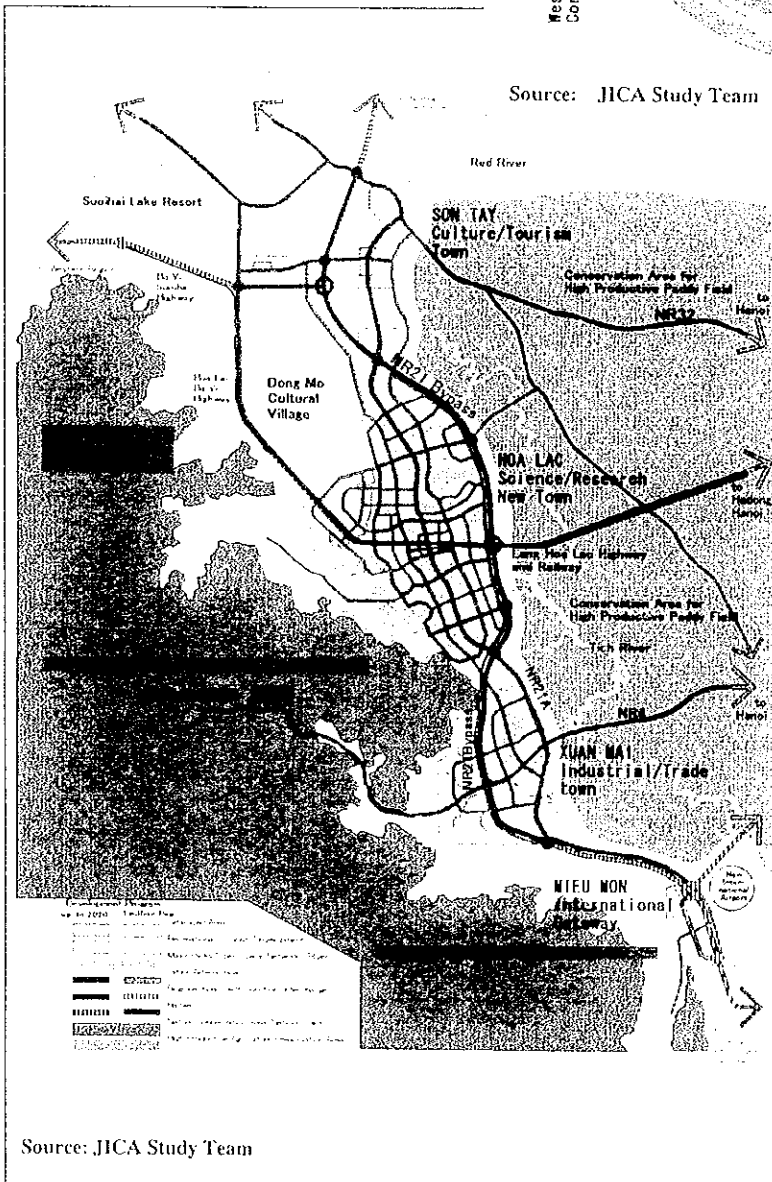
Spatial Framework of the Corridor 21 Development

The Corridor 21 Development



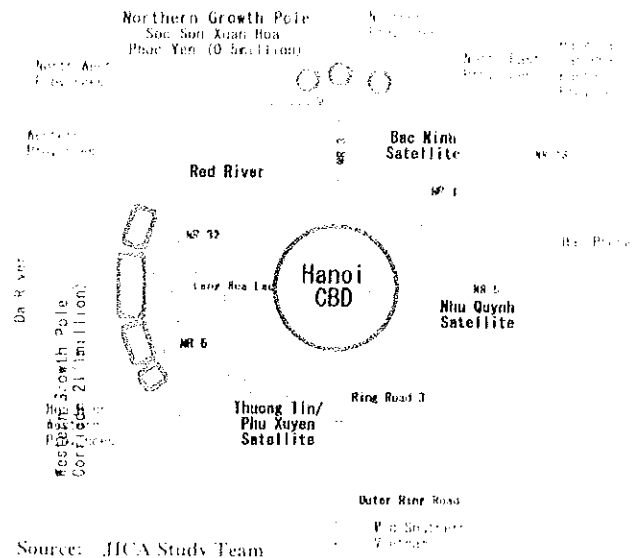
Source: JICA Study Team

Future Structure of HMA

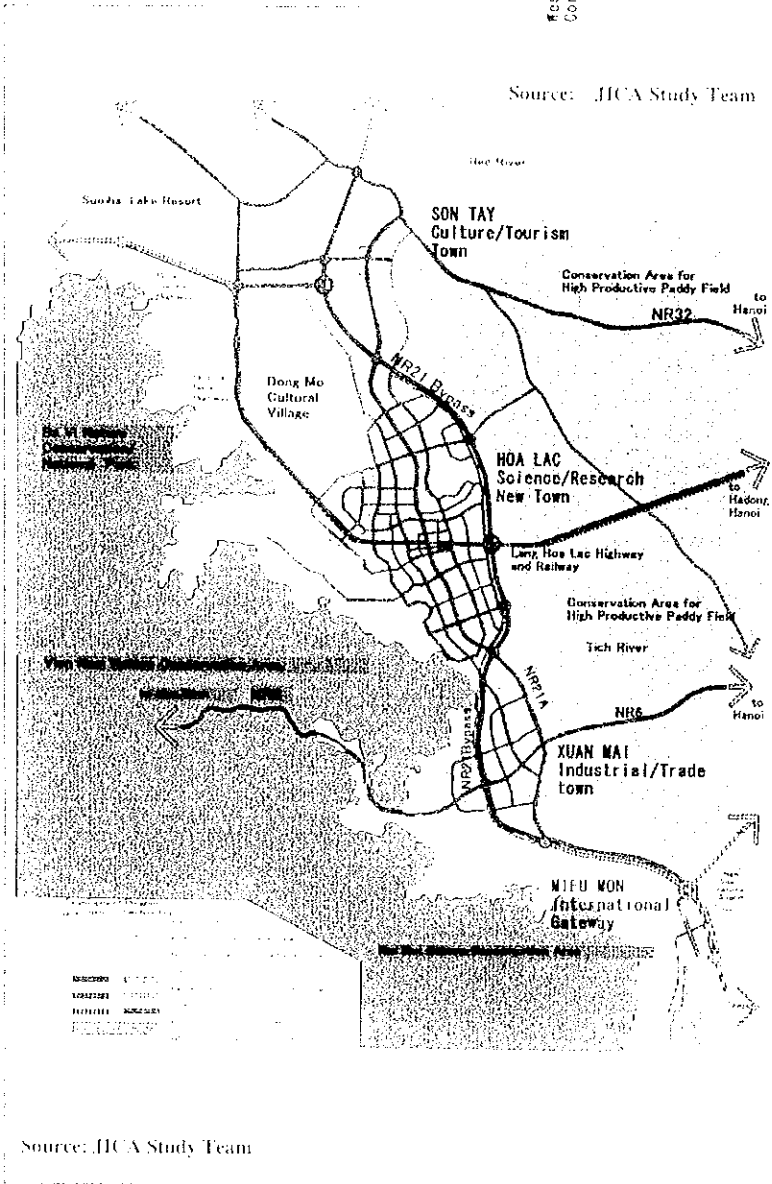


Spatial Framework of the Corridor 21 Development

The Corridor 21 Development



Source: JICA Study Team



Source: JICA Study Team

Spatial Framework of the Corridor 21 Development

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2.4 DEVELOPMENT FRAMEWORK

● Target Population

The target population is based on the estimated number of employed population by sector, assuming that the employment ratio is 50%.

Year	Unit: persons		
	Hoa Lac	Xuan Mai	Total
Phase-1A	135,000	35,000	180,000
Phase-1B	205,000	55,000	260,000
Phase-2	400,000	100,000	500,000

Source: JICA Study Team

● Planned Number of Households

The number of households is based on the target population less the number of students, assuming that a household consists of 4 family members.

Year	Unit: persons		
	Hoa Lac	Xuan Mai	Total
Phase-1A	25,750	11,250	37,500
Phase-1B	40,500	13,750	54,250
Phase-2	83,750	25,000	108,750

Source: JICA Study Team

● Urban Center Development Scheme in Hoa Lac

Zoning	Unit: ha		
	Phase-1A	Phase-1B	Phase-2
VNU	15	31	36
HHTP	5	8	40
Phu Cat	7	39	45
Dong Xuan	21	41	88
Total	47	119	209

Source: JICA Study Team

Notes: VNU: Academic and Cultural Center
HHTP: Research & International Exchange Center
Phu Cat: Recreation Center
Dong Xuan: Civic Center and Commercial Center

● Housing Development Scheme in HL&XM

The number of housing units is based on the employed population, assuming that the average employment ratio of 50% and 4-member household results in one house per 2 employed population.

Year	Unit: houses	
	Hoa Lac	Xuan Mai
Phase-1A	10,300	1,750
Phase-1B	10,300	1,750
Phase-2	30,300	7,900
Long-Term	21,900	17,500
Total	72,800	28,900

Source: JICA Study Team

● Housing Development Area

The housing development area is based on the following assumptions:

1. High Income: Detached/Semi-detached (D/SD) 30 % and row house (RH), 70 %,
2. Middle Income: Condominium Rental (CR) 100 %,
3. Low Income: Rental Apartment House (AH)

- 100 %,
4. Semi-gross Area by 2005: 400 m² for D/SD, 250 m² for RH, 100 m² for CR, and 83 m² for AH,
5. Semi-gross Area by 2010: 400 m² for D/SD, 250 m² for RH, 100 m² for CR, and 86 m² for AH, and
6. Semi-gross Area by 2020: 400 m² for D/SD, 250 m² for RH, 100 m² for CR, and 90 m² for AH.

Type	Unit: ha			
	Phase-1A	Phase-1B	Phase-2	Total
D/SD	14.4	14.4	82.4	111.2
RH	21.0	21.0	109.5	161.5
CR	36.2	36.2	152.6	225.0
AH	60.0	62.2	128.4	250.6
Total	131.6	133.8	482.9	748.3
DA	329.0	334.4	1,207.3	1,870.7
Hoa Lac	282.5	287.4	989.3	1,558.2
Xuan Mai	47.5	47.0	218.0	312.5

Source: JICA Study Team

Notes: DA: Development Area (2.5 times Semi-gross Area)

● School Development Scheme in Hoa Lac

One neighborhood unit is assumed to accommodate 7,000 residents with one nursery and one primary school, and it is assumed that one secondary school and one high school will be provided each for 2 and 4 neighborhood units.

Category	Unit: facilities		
	Phase-1A	Phase-1B	Phase-2
Nursery	7	14	36
Primary	7	14	38
Secondary	4	7	18
High	1	2	6

Source: JICA Study Team

● VNU Development Scheme in Hoa Lac

Item	Unit: persons		
	Phase-1A	Phase-1B	Phase-2
Student	30,000	40,000	60,000
Staff	7,100	9,900	14,700
Area (ha)	486	594	818

Source: JICA Study Team

● HHTP Development Scheme in Hoa Lac

Zoning	Unit: ha		
	Phase-1A	Phase-1B	Phase-2
R&D	60	100	170
High-tech Park	50	80	130
Center	20	30	50
Business	10	20	50
Housing & Others	110	320	400
Total	250	550	800

Source: JICA Study Team

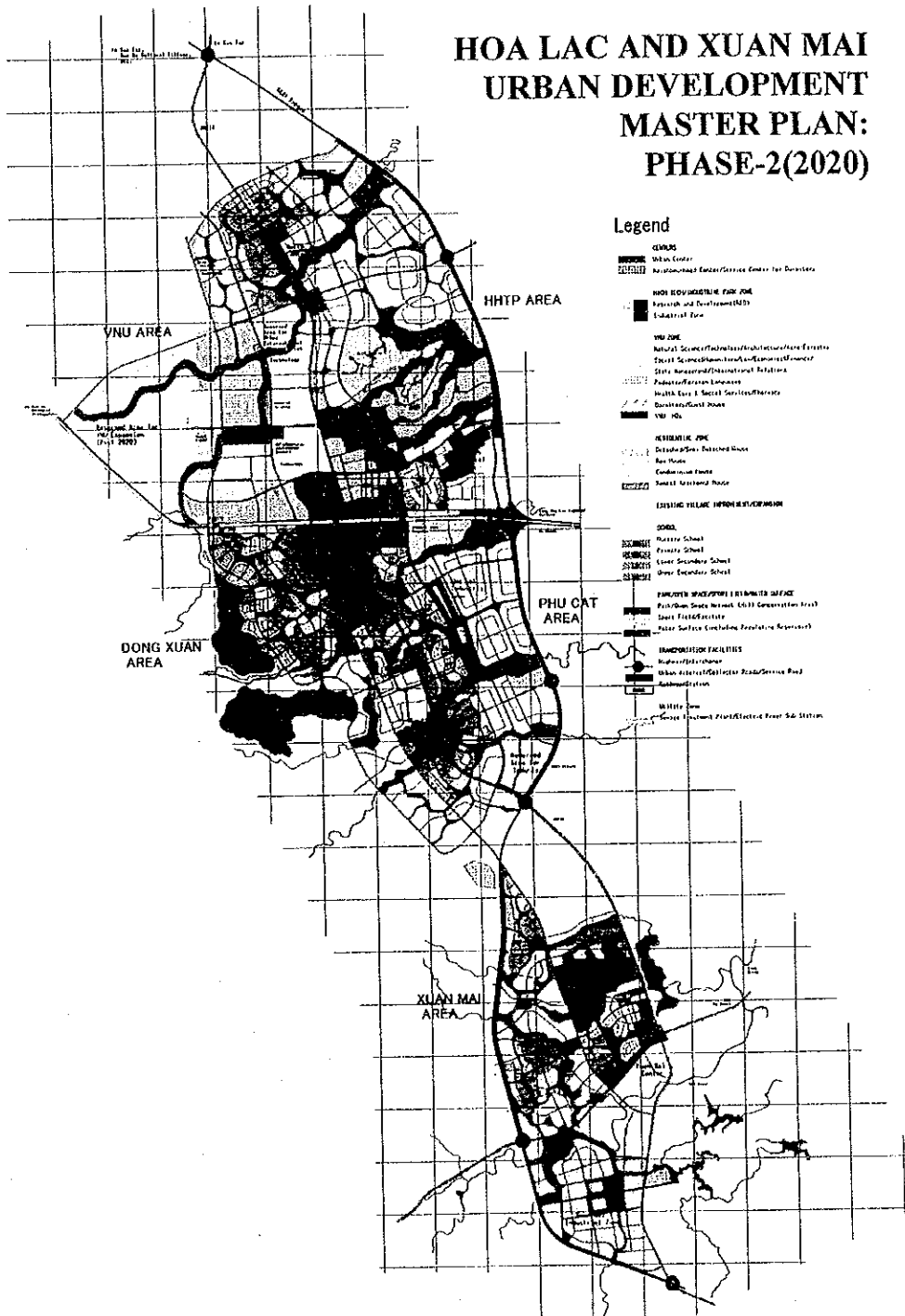
● Industrial Zone in Phu Cat and Xuan Mai

Item	Unit: Persons		
	Phase-1A	Phase-1B	Phase-2
Workers	6,000	18,000	60,000
IZ Area-1 (ha)	60	180	600
IZ Area-2 (ha)	110	260	730

Source: JICA Study Team

Notes: Industrial Zone (IZ) Area-2 includes IZ in HHTP.

HOA LAC AND XUAN MAI URBAN DEVELOPMENT MASTER PLAN: PHASE-2(2020)



Source: JICA Study Team

Hoa Lac and Xuan Mai Urban Development
Master Plan

The Corridor 21 Development

2.5 URBAN STRUCTURE AND LAND USE

● Development Area

The Master Plan Area is defined as the Hoa Lac and Xuan Mai Urban Development Area. The development areas in each phase are established depending upon the spatial requirements for infrastructure, urban space, and urban facilities, which are summarized as follows:

District	Unit: ha		
	Phase-1A	Phase-1B	Phase-2
Hoa Lac			
1. Urban Center	50	120	210
2. VNU	490	590	1,030
3. HHTP	250	550	980
4. Dong Xuan	230	370	600
5. Phu Cat	60	240	750
Sub-total	1,080	1,870	3,570
Xuan Mai	110	190	610
Total	1,190	2,060	4,180

Source: JICA Study Team

The existing agglomerated communities will be conserved in principle, thus excluded from the development areas. The areas of rivers, canals, swamps, and lowland lying below 10 meters in altitude, are excluded from the development areas.

● Conserved Communities and their Expansion Areas

Roads, water supply, and other facilities supporting the existing agglomerated communities will be improved in an appropriate way. Community people will be encouraged to participate in the improvement of their living environment. Considerations will be given to the expansion of the conserved communities to absorb low-income residents, who cannot afford to purchase or lease new housing in the development area.

● Reserved and Preserved Areas

The development area will be dominated by the future demand that could fluctuate depending upon the socio-economic situation. Further, the development will be subject to future changes of required urban functions in terms of their scale and nature. Appropriate urban space will then be reserved for such future possible changes. Rivers, canals, and their waterfront green areas will be preserved in principle firstly for urban landscape and secondly for flood control. The lowland area, particularly below 10 meters altitude, will be excluded not only to avoid inundation but also expensive landfill for development.

● Land Use Structure

The existing NR21A and the new Lang-Hoa Lac

Highway will remain as the backbone of the Hoa Lac and Xuan Mai Urban Development. However, a bypass of the NR21A is proposed to avoid heavy transit traffic entering into the Center Area. Major industrial developments in HHTP and Phu Cat will be located along the bypass, in order to enhance direct accessibility.

The basic land use structure complies with the master plan prepared by MOC, i.e. the north-east quadruple for HHTP, the north-west quadruple for VNU, the south-west quadruple for the Dong Xuan Residential Area, and the south-east quadruple for the Phu Cat Industrial Zone (although not purely for industrial development).

● Neighborhood Structure

The residential area will be structured with multiple neighborhood units. One unit constitutes one primary school zone where approximately 7,000 people will reside. The Hoa Lac and Xuan Mai Urban Development consists of the following 4 districts that cover 36 neighborhood units:

1. Hoa Lac North: 56,000 persons (8 units)
2. Hoa Lac Central: 125,000 persons (18 units)
3. Hoa Lac South: 28,000 persons (4 units)
4. Xuan Mai: 46,000 persons (6 units)

● Transportation System

The road network system of the Hoa Lac Area is of the ladder pattern with 3 north-south arterial roads, including NR21A, and 8 east-west arterial roads, including the Lang-Hoa Lac Highway. All the arterial roads will have the cross-sectional configuration for vehicle lanes, motorcycle lanes, and sidewalks. In addition, NR21A and the Lang-Hoa Lac Highway will be designed to have the right-of-way for introducing in future mass rail transit systems.

● Open Space System

In order to realize the "garden city" concept, the east of NR21 bypass and the west of the westernmost arterial road will be reserved as green areas. The green areas and open spaces will be structured to form a "green network" chiefly utilizing the existing network system of rivers and waters. The flood plains along the rivers and canals will be utilized for recreation, promenade, and sports, while the water level stands at low. Fairly large central parks will be provided in each district, which will form the nuclei of the green and open space network.

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