

JAPAN INTERNATIONAL COOPERATION AGENCY (JICA)

**HANOI PEOPLE'S COMMITTEE
SOCIALIST REPUBLIC OF VIET NAM**

**MASTER PLAN
OF
INDUSTRIAL DEVELOPMENT
IN
THE HANOI AREA**

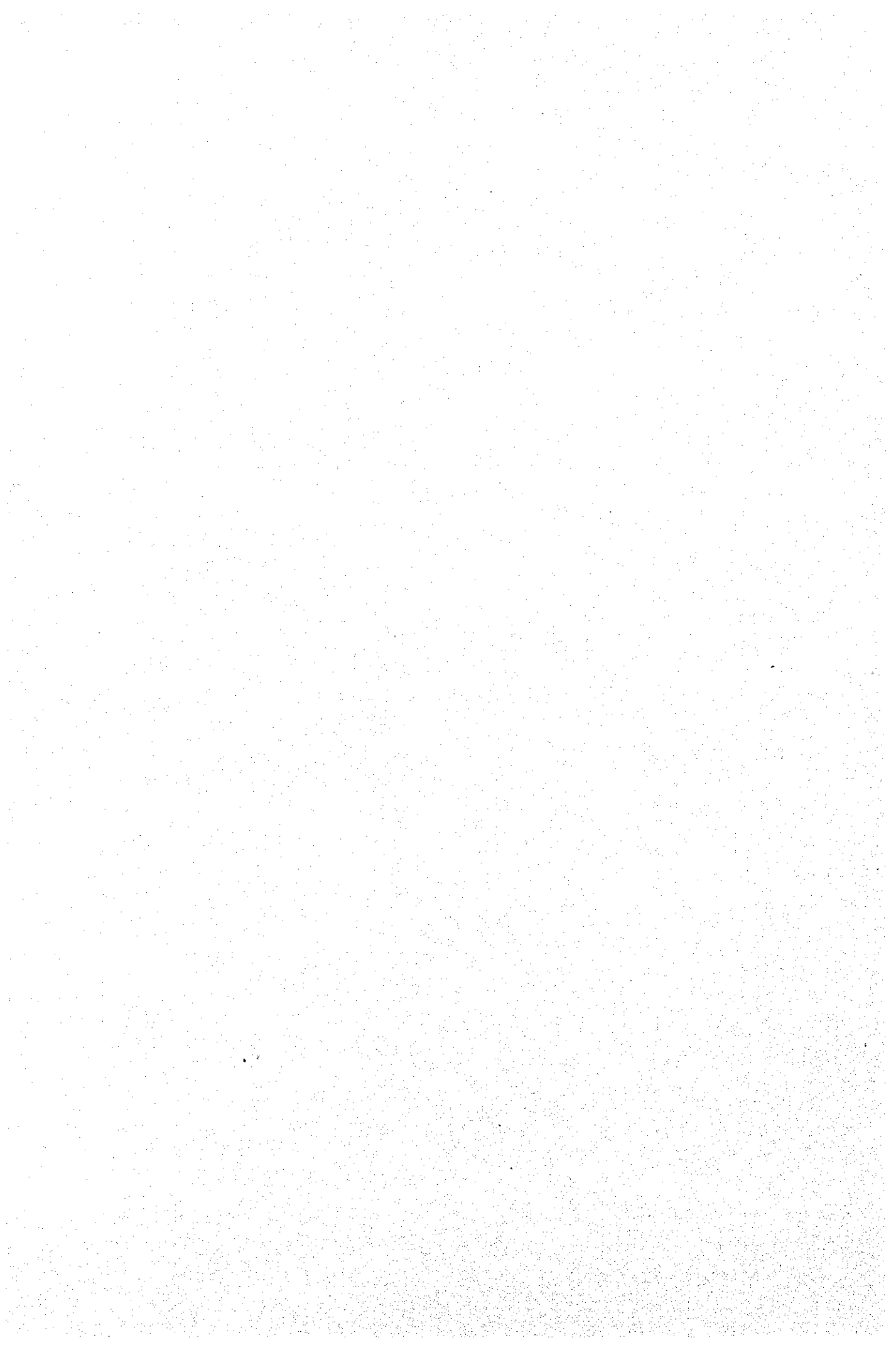
FINAL REPORT

Executive Summary

November 1995

**NIPPON KOEI CO., LTD.
TECHNO CONSULTANTS, INC.
PACIFIC CONSULTANTS INTERNATIONAL**

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Acronyms

BIDV	Bank for Investment and Development of Vietnam
BOI	Board of Investment
EVN	Electricity of Vietnam
GDMCA	General Department for Management of State Capital and Assets for State Enterprises
HPC	Hanoi People's Committee
HPT	Hanoi Posts and Telecoms
INCOMBANK	Industrial and Commercial Bank of Vietnam
JICA	Japan International Cooperation Agency
MHI	Ministry of Heavy Industry
MLI	Ministry of Light Industry
MOC	Ministry of Construction
MOF	Ministry of Finance
MOSTE	Ministry of Science, Technology and Environment
SBVN	State Bank of Vietnam
SCCI	State Committee for Cooperation and Investment
SPC	State Planning Committee
UPI/HUPI	Urban Planning Institute of HPC
VCCI	Vietnam Chamber of Commerce and Industry

Exchange Rate
US\$1 = VD11,000
in June 1995

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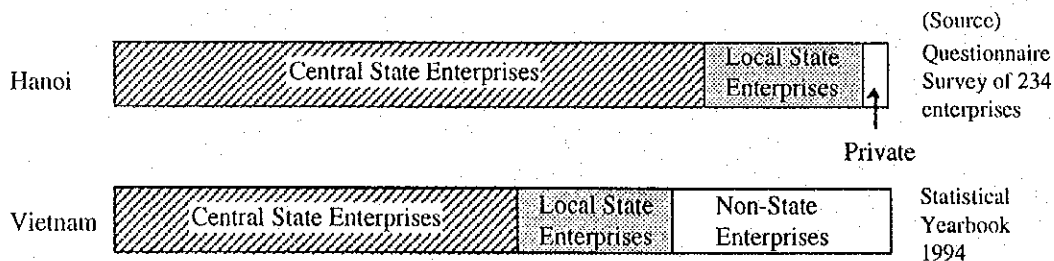
Background of the Study

01 *Background:* The Government of the Socialist Republic of Vietnam has been promoting a shift to the market-oriented economy, and efforts are being made to modernize industrial and other economic activities under the new economic system. In order to modernize the existing industries in the Hanoi area and to accelerate industrial development particularly through foreign investments and technologies, the Government of Vietnam and Hanoi People's Committee (HPC) requested the Japan International Cooperation Agency (JICA) to work out a master plan of industrial development in the Hanoi area. The Study on the master plan has been conducted by the JICA Study Team, jointly with the counterpart experts under the coordination and supervision of the Steering Committee formed for this Study by the Government of Vietnam. The Study was initiated in August 1994, and the final discussion on the draft final report was made in September 1995 (refer to Chapter I).

Characteristics of Existing Industries

02 *Large Proportion of State Enterprises:* In the Hanoi area, there are reportedly about 14,700 industrial enterprises, including 144 central state enterprises, 105 local state (HPC) enterprises, and 132 private enterprises and small-scale household enterprises and cooperatives. Central state enterprises in the Hanoi area account for 28% of the total number of central state enterprises in Vietnam, while private enterprises represent only 4% of all private industrial enterprises in the country. Thus, the Hanoi area is characterized by the salient fact that central state enterprises are proportionally large in number and private enterprises are still undeveloped.

Gross Output by Types of Industry



Since central state enterprises are independently managed by respective ministries or state organizations, little coordination has been secured among the enterprises. There is no ministry in charge of administration and policy making in the industrial sector (refer to Chapter 2.1 and Appendix-A).

03 *Limited Employment and Production:* A questionnaire survey conducted by the Study Team revealed that 234 enterprises (central state, local state and private) in the Hanoi area are employing about 82,000 workers, or about 350 workers per enterprise. They are mostly employed by central and local state enterprises. The survey also revealed that the sales of 234 enterprises amount to 3,377 billion dongs, or about 14.6 billion dongs per enterprise, or about 41 million dongs per employee.

	Central State Enterprise	Local State Enterprise	Average
Hanoi	16.7	9.7	14.6
Vietnam	20.3	2.7	7.2

04 *Low Productivity:* Productivity in the industrial sector, in terms of net product (sales minus materials) per employee, has been analyzed as summarized below.

Industrial Category	In Hanoi (A)	In Japan (B)	(A)/(B)
Metal/machinery	9	1,859	1/207
Electric	18	746	1/ 41
Electronic	53	827	1/ 16
Textile	10	1,444	1/144
Garment	7	460	1/ 66
Chemical	20	1,572	1/ 79

As seen in the above table, the net product per employee of the existing industries in Hanoi is quite low. The net product per employee of the machinery industry, for instance, is about 1/200 of Japan, 1/70 of Korea and 1/10 of China (refer to Chapter 4.1).

05 *Industrial Structure:* The industrial structure in the Hanoi area is characterized by a relatively high proportion of the fabricated metal/machinery industry. Composition of the manufacturing industry in Hanoi and Vietnam, as well as in Thailand, has been compared as tabulated below.

Industrial Structure by Category

ISIC	Category	Hanoi Area	Vietnam	Thailand (%)
31	Food/beverage/tobacco	26.4	49.2	22.4
32	Textile/apparel/leather	18.8	13.1	29.0
33	Wood/wood products	1.5	4.7	4.0
34	Paper/paper products	3.6	3.7	2.6
35	Chemicals	15.9	11.2	11.0
36	Non-metallic mineral	5.3	1.6	4.6
37	Basic metal	0.1	3.3	1.1
38	Fabricated metal/machinery	28.0	9.9	17.9
39	Others	0.4	3.2	7.4
	Total	100.0	100.0	100.0

It is pointed out that modernization of the fabricated metal/machinery industry is of prime significance for the development of the manufacturing sector in Hanoi (refer to Chapter 2.2).

06 *Accelerated Foreign Investment:* Direct foreign investments in the Hanoi area have increased since 1993. By the end of 1994, a total of 178 foreign projects with a total invested capital of 2.5 billion US\$ were licensed in Hanoi, which accounted for about 17% of the total number of licensed projects and about 23% of the total invested capital in Vietnam. Foreign investments in the manufacturing sector in Hanoi (63 licensed projects) amounted to about 560 million US\$. The Government is making efforts to further promote direct foreign investments in the Hanoi area (refer to Chapter 2.1 and Appendix-C).

Direct Foreign Investment (DFI)

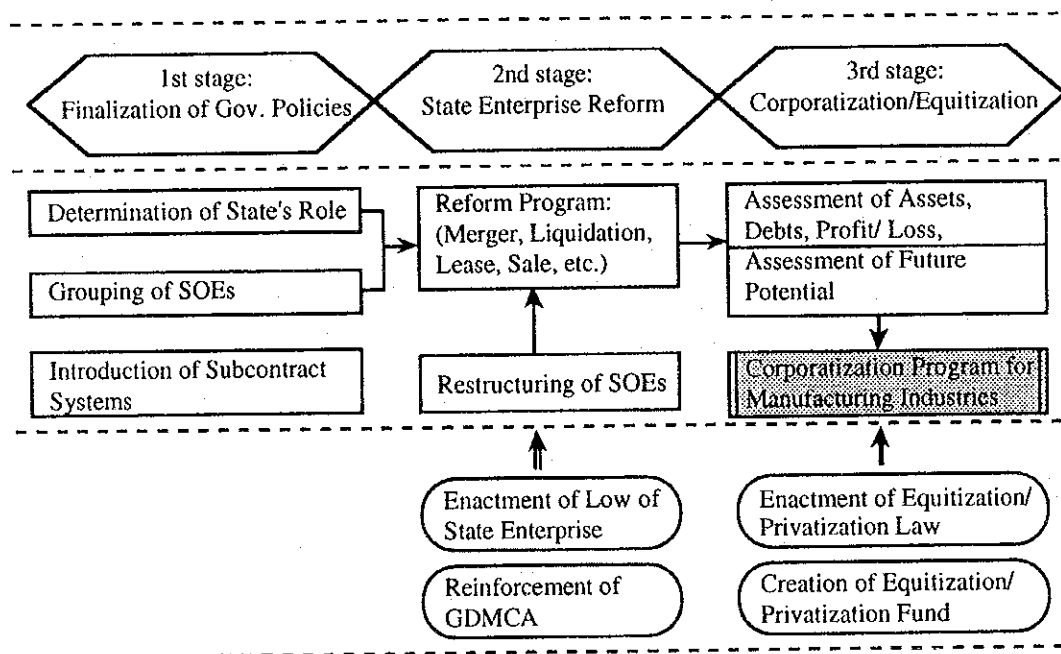
	Number of DFI		Invested Capital (Million US\$)	
	Total	Manufacturing	Total	Manufacturing
Hanoi	178	63	2,516	561
Vietnam	1,028	599	10,901	4,193

Macroscopic Issues Inherent to Industrial Development

07 *State Enterprise Reform:* Central and local state enterprises form a large part of existing industries in Hanoi, as pointed out above, and their modernization is closely related to the national policy for state enterprise reform through equitization/privatization. The Government is now promoting a pilot program for equitization. Of the 21 model cases, 3 enterprises in the south region have been equitized by the end of 1994. It is noted, however, that the speed of promotion of equitization/privatization is slow, and a number of difficulties have been encountered in the process of equitization of the model enterprises. It is suggestible that the Government set up a more clear and determined policy for equitization/privatization, including a possible enactment of a "Law of Equitization/Privatization" and creation of an "Equitization/Privatization

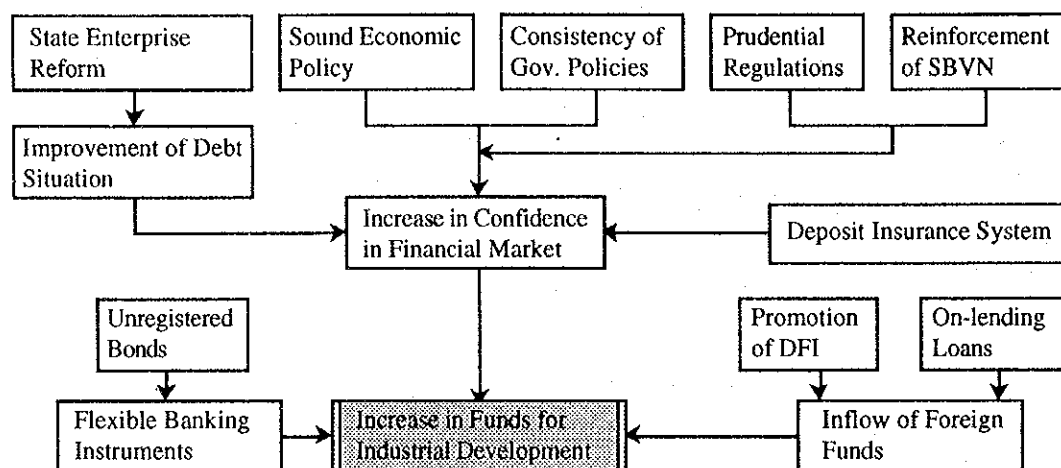
Fund". Reinforcement of the recently formed General Department for Management of State Capital and Assets of State Enterprises (GDMCA) is also recommendable (refer to Chapter 3.2 and Appendix-B).

Corporatization/Equitization of State Enterprises (SOEs)



08 *Financial Reform:* Since the existing industries have difficulties in securing finance for modernization and the private local savings are not circulated into the official financial markets, it is required to promote financial reforms for accelerated industrial development in Hanoi, as well as in Vietnam as a whole. It is suggestible, first, to enhance confidence in the banking systems through (i) consistent government policy; (ii) reinforcement of supervisory function of the State Bank of Vietnam; (iii) introduction of a bank deposit insurance system; and (iv) rectification of the interest rate structure. Issuance of unregistered bonds would also be effective. Further shortage in financial resources might possibly be met by on-lending loans from external financial agencies. Moreover, a unified interest rate should be applied to all industrial and economic activities, by abolishing the privileged interest rates applied to state enterprises and by removing the differentiation between deposit interest rates (refer to Chapter 3.3).

Increase in Funds for Industrial Development



09 *Tax Reform:* Tax reform is also required for modernization of the existing industries and for accelerated industrial development. Among others, the current turn-over tax should be changed to the value-added tax (VAT). Otherwise, restructuring of the existing industries through promotion of a divided work system and subcontract system will not be realizable. The Government announced in June 1995 that the depreciation charge previously imposed on state enterprises was abolished and state enterprises are now allowed to retain depreciation amount in each enterprise. It is suggestible that the Government further amend the current capital tax on state enterprises, so that equal business footings between state enterprises and private enterprises are established. Efforts should also be made to introduce modern accounting systems and to enhance tax collection capability in order to improve the environment for accelerated industrial development (refer to Chapter 3.3).

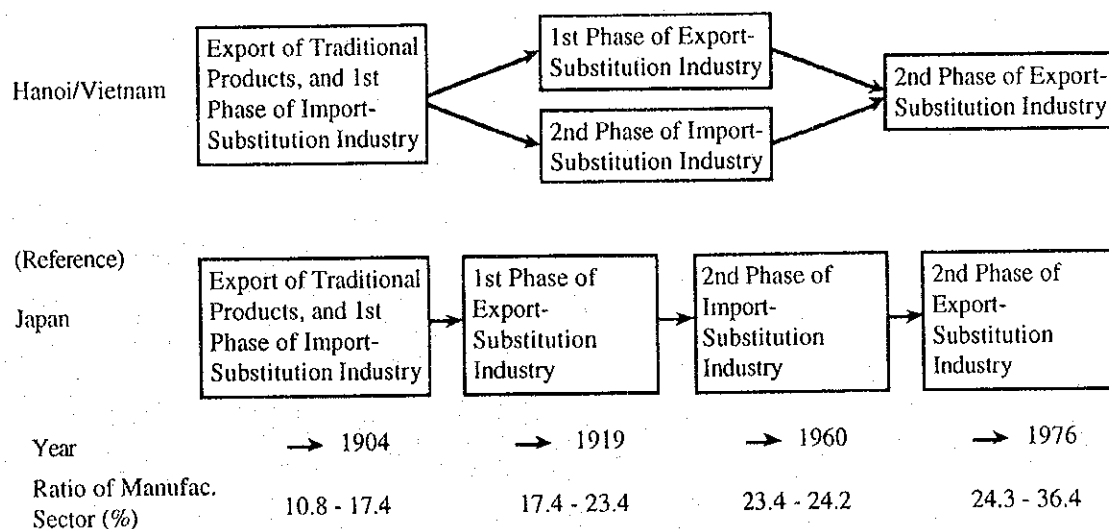
10 *Administrative Reform:* A further administrative and institutional reform is desirable for industrial modernization, because it is observed that a unified policy is lacking and that policy making and enterprise management are mixed in the current administration. With the aim of making an integrated policy for industrial development, it is desirable that ministries and committees be streamlined, and that a central ministry be organized which is responsible for the formulation of a unified policy for the development and modernization in the industrial sector. In this sense, it is appulsive that re-organization of the existing ministries into a new Ministry of Industry is being studied by the Government. Formation of a new "Board of Investment" would also be suggestible to promote foreign and domestic investments in the industrial sector (refer to Chapter 3.4).

11 *Investment Promotion:* Increase in direct foreign investments in Vietnam has been notable in recent years. A total of 10.9 billion US\$ have been invested by the end of 1994, of which about 38% have been invested

in the industrial sector. In the Hanoi area, foreign direct investments in the industrial sector are still limited to 560 million US\$, as pointed out above, and further promotion of foreign investments is required, particularly to accelerate the development of the manufacturing sector. Various constraints for promotion of investments have been noted by foreign investors, including (i) lack of one-stop-services; (ii) difficulty in getting acquainted with local partners; (iii) low level of enterprise management by local partners; (iv) difficulty and complexity in acquiring land use right and compensation; (v) limitation in participation in equitization of state enterprises, etc. The Government, particularly the State Committee for Cooperation and Investment (SCCI), is recommended to remove these constraints and to further promote foreign investments in the manufacturing sector. Promotion of investments in the Hanoi area is of prime significance for regionally balanced industrial development in Vietnam (refer to Chapter 3.5 and Appendix-C).

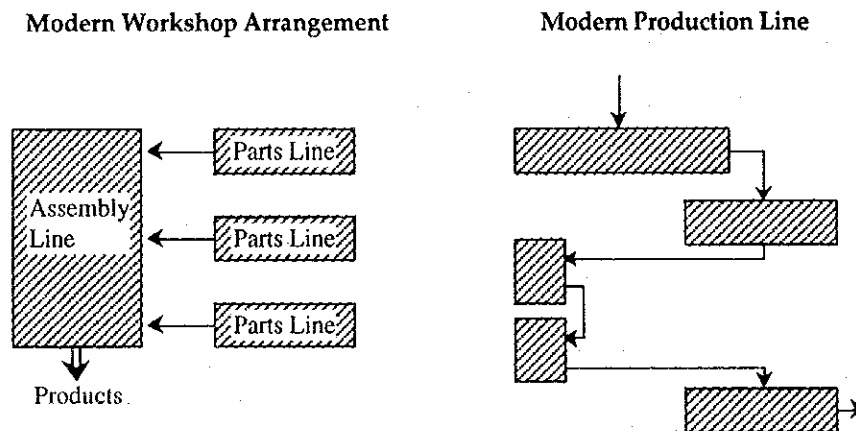
12 *Industry and Trade Promotion:* Vietnam joined ASEAN in July 1995, and trade and industrial relations with ASEAN countries will have to be enhanced. Vietnam's trade should be further liberalized. From the viewpoint of industrial development policy, it is advisable that customs duties on materials required for processing be substantially lowered, except for customs rates on motor vehicles. It is also suggestible that financial arrangements for industrial exports and export insurance schemes be studied for trade promotion and industrial development. In any way, industrial and trade development in Hanoi and Vietnam will have to be guided to ward the development of "export-substitution industries" in parallel with "import-substitution industries", as illustrated below. In this case, import-substitution industries should enhance their competitiveness while competing with export-substitution industries in the domestic market.

Industrial Development Process



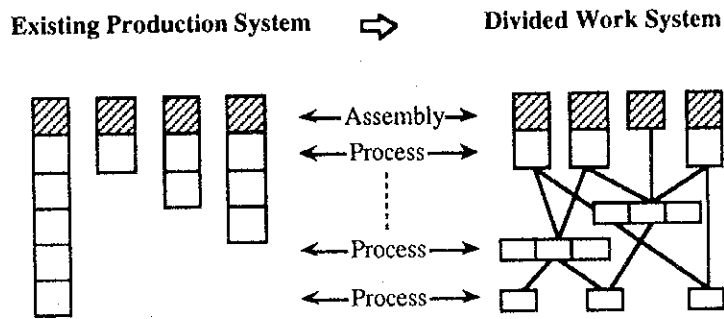
Microscopic Issues Inherent to Industrial Development

13 *Prerequisite for Industrial Modernization:* Through inspections and interviews of 80 existing factories in the Hanoi area, it has been observed that the discipline of workers and workmanship remain much to be improved, that the production lines are obsolete, and that the operating rate of production facilities is quite low. For instance, the operating rate of equipment available in the machinery and metalworking industries is found to be as low as 20%. Most of the factories are not cleanly maintained; many machine tools are used even without removing cut-out chips and dust, and many pieces of rejected materials are abandoned around the machines. Modernization of industries should first start with the re-arrangement of production lines and re-education of workers to maintain the workshops clean and orderly.



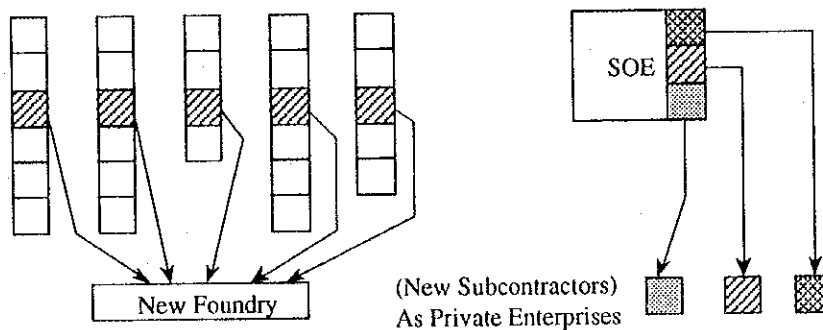
In this context, the Study Team recommends to introduce the 5S Initiative successfully developed in Japan. Without improvement in working conditions, modernization of industries will not be attainable, and foreign investors will find themselves reluctant to extend cooperation for modernization through direct investments and technology transfer (refer to Chapter 4.1 and Appendix-D).

14 *Introduction of Divided Work and Subcontract Systems:* Industries in the Hanoi area have all their necessary process workshops within their factories independently, and no divided work system and subcontract system has been developed at all. This is one of the reasons why the operating rate of available equipment and facilities is quite low, why specific technologies in each process have not been enhanced, and why quality of products has not been maintained. For modernization of the existing industries in the Hanoi area, it is strongly recommended to introduce a divided work system and a subcontract system.



For instance, foundries available in a dozen of factories should desirably be merged to form one or two specialized foundries. It is suggestible that seldom used equipment in the factories be disposed of or sold out so that specialized companies or ventures are formed using these equipment, facilities and workers in such fields as mechanical press, small lathe, grinder, etc. Regulations and systems should be modified so that managers of factories are allowed to dispose of unnecessary equipment and sell them out to individuals intending to form new businesses as subcontractors. Privatization of state enterprises should be programed through restructuring (refer to Chapter 4.2).

Promotion of Divided Work and Subcontract System



15 *Promotion of Subcontract Works and Supporting Industries:* Establishment and promotion of new businesses as subcontractors is of paramount importance when foreign assemblers come to invest in and around the Hanoi area. At present, the automobile industry and home electronic industry in Hanoi depend on foreign manufacturers for parts supply, and a system of complete knock down (CKD) is commonly adopted. Local industries should be developed to serve as supporting industries for such assemblers. Such local industries must be enterprises specializing in a process, like foundry, mechanical press, etc. In this context, it is desirable that a number of small workshops existing or to be formed through restructuring of state enterprises, be merged to jointly incorporate a supporting industry as a private enterprise.

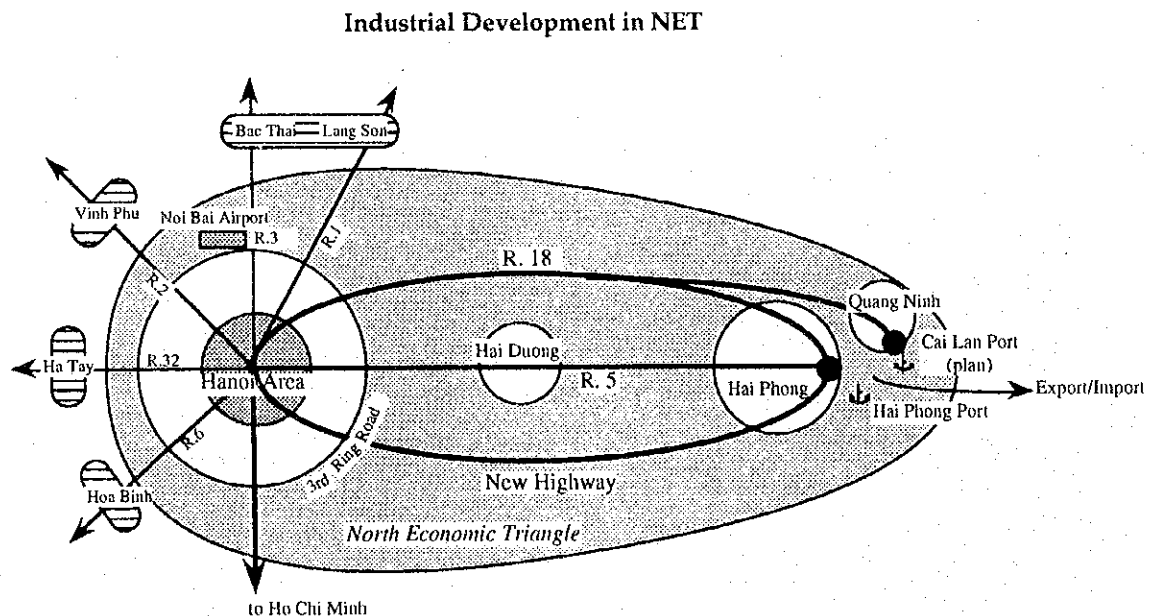
16 *Training in Industrial Management:* Lack of training in industrial enterprise management is an obstacle in promoting modernization of the existing industries, because managers of factories and enterprises are not

familiar yet with enterprise management in the market-oriented economy. Training in industrial management will cover such fields as production control, quality control, inventory control, industrial accounting, and marketing strategy and planning. It is desirable that an industrial enterprise management training course be set up with foreign technical assistance in securing advisors and lecturers (refer to Chapter 4.3).

17 *Environmental Protection:* Environmental impacts of the existing industries have been gradually recognized with the expansion of industrial activities in Hanoi, because the industries are not equipped with waste water and solid waste treatment facilities. Although laws and regulations on environmental protection have been promulgated, monitoring and analysis of all kinds of industrial wastes have not been operative by local environmental authorities, mainly because of the lack of facilities, instruments and staff for monitoring. It is suggestible that the master plan formulated for sewerage improvement in Hanoi be implemented at the earliest, and that the local environmental authority be granted with necessary equipment and staff for monitoring (refer to Chapter 4.4).

Direction of Industrial Development in the Hanoi Area

18 *Regional Framework:* Industrial development in the Hanoi area is planned and programed within the framework of national policy for industrial development towards the year 2010, as well as within the framework of industrial development in the North Economic Triangle (NET) which encompasses Hanoi, Hai Phong, Hai Hung and Quang Ninh provinces.



In the light of resources, transportation facilities and conditions for industrial location, it has been provisionally planned that the Hanoi area, Sub-region along Routes No.5 and No.18, and Hai Phong-Cai Lan Sub-region would embrace such categories of industries as illustrated in Figure-01. In brief, the Hai Phong-Cai Lan sub-region is desirable for basic metal industry, non-metallic industry and chemical industry, while the sub-region along the Routes No.5 and No.18 would be developed for non-metallic industry, metalworking industries, fabricated metal industry and food-processing industry (refer to Chapter 5.1 and Appendix-E).

19 *Desirable Types of Industry:* The desirable types of industry to be located in the Hanoi area are "high processing" and "urban" type industries. The high processing type industries will include (i) machinery/metalworking industry; (ii) various supporting industries; and (iii) high technology industry. In the machinery/metalworking industry, a particular attention should be paid to the development of foundries and machine tools, because they have historical and technical background, as well as potential for development of both domestic and international markets (markets in ASEAN where foundries are still undeveloped and in Japan where imports are increasing). Development of the supporting industries primarily for foreign assemblers should also be promoted in the Hanoi area, because they are coming to invest in and around Hanoi, as pointed out before. Development of the high technology industry should also be promoted, both for production of hardware and for development of software. It is proposed that the development and location of these industries be programed as illustrated in the following diagram:

Strategic Development of Industries in the Hanoi Area

	1995 - 2000	2000 - 2005	2005 - 2010
Machinery/metalworking industry	→		
Supporting industry	□□□□	→	
High technology industry	□□□□□□□□	→	
Urban type industry	→		□□□□□□□□
Labor intensive industry	→		□□□□

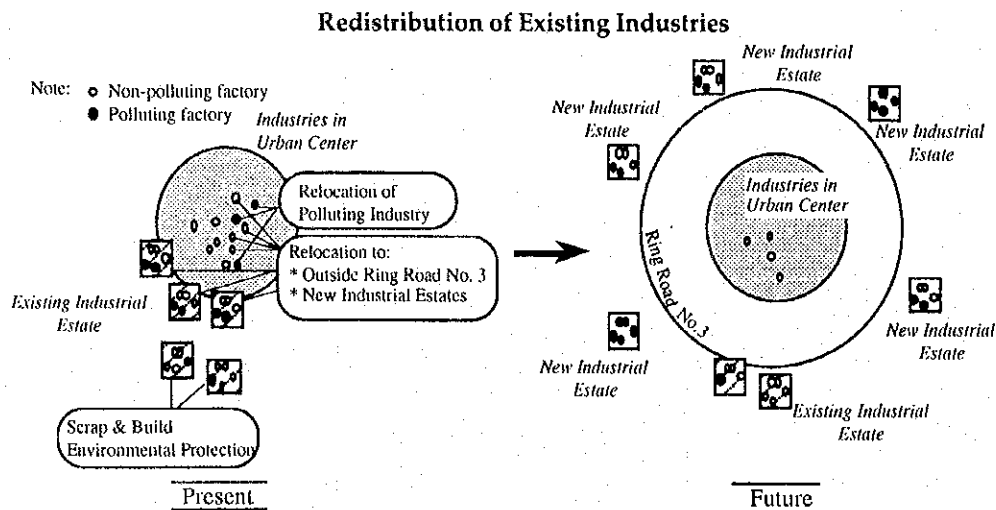
20 *Focus on Modernization of Existing Industries:* In renovating and modernizing the existing industries, it is preferable to pay attention specifically to the following 4 industrial sub-sectors: (i) machinery/metalworking industry; (ii) electric/electronic industry; (iii) textile/apparel industry; and (iv) chemical industry, because these categories account for 72% of total employment and 63% of total sales of all the industries in the Hanoi area.

Modernization of Existing Industries

	Current Status (%)	
	Employment	Sales
Machinery/Metalworking	19.4	14.3
Electric/Electronic	6.1	13.7
Textile/Apparel	38.1	18.8
Chemical	8.6	15.9
Other Industries	27.8	37.3

Industries in these sub-sectors should be analyzed, and constraints to their development be clearly defined. A master plan level study on these industries has been conducted, as it is explained in the subsequent section (Para. 23 to 27). Further study at a feasibility level should be conducted for specific industries, like in the case of "foundry industry", as recommended in this Study (refer to Chapter 5.2).

21 *Redistribution of Existing Industries:* About a half of the existing industries in Hanoi, or about 155 enterprises, are located in 9 industrial areas (totaling about 380 ha.) developed by HPC in the 1960s and 1970s. All of these industrial areas are not equipped with waste water and solid waste treatment facilities as noted before. More than 17 factories in these industrial areas have environmental problems and it is recommended to relocate them in other areas outside the urban center. Among the 9 industrial areas, 5 areas located inside the Ring Road No.3 (totaling about 240 ha.) should desirably be moved to areas outside the Ring Road No.3. In the event that the relocation of these 5 areas is impracticable in a short term, proper treatment of industrial waste should be implemented in the respective areas. A schematic layout of the current and proposed distribution of industrial area in and around Hanoi is shown in Figure-02 (refer to Chapter 5.3).



22 *Development of Industrial Estates:* Since the existing industrial areas have little space for expansion while the number of foreign investment projects in the manufacturing sector in the Hanoi area is expected to increase, it is proposed to develop several industrial estates towards the years 2000 and 2010. HPC has planned to develop 5 industrial estates and EPZ with a total area of about 1,600 ha. They include: (i) Soc Son EPZ promoted by a Malaysian group of investor; (ii) Thang Long North industrial estate; (iii) Thang Long South industrial estate; (iv) expansion of Dong Anh industrial estate; and (v) Gia Lam industrial estate. These industrial estates and EPZ have been incorporated in the land use zoning plan prepared by HPC. It is also envisaged that industrial estates will be further developed along the Routes No.5 and No.18 when transportation and other infrastructure are improved in these areas in the medium and long terms. A master plan for industrial estate development has been prepared by referring to the HPC plans, as it is explained in Para. 28 to 32.

Development Strategies for Selected Industries

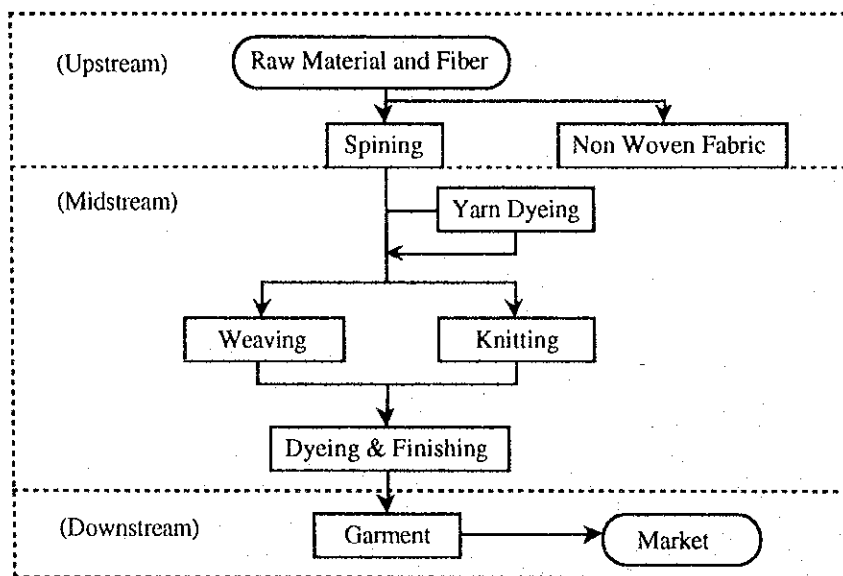
23 *Modernization of Machinery/Metalworking Industry:* The machinery and metalworking industry is the most traditional and significant industry in Hanoi, with more than 60 enterprises operating in this category. It employs about 14,000 workers, and produces about 350 billion dongs. In general, the machinery industry is suffering from difficulties in adjusting itself to the market changes from the production goods to consumer goods. Processing technologies remain much to be improved, and dozens of recommendations have been presented through this Study for each process, including casting, stamping, plating and plate cutting, welding, painting and surface treatment, heat treatment, etc., as well as for introduction of numerical control and assembling. External technical cooperation would be desirable to implement the proposed modernization of processing technologies. In the event that the working conditions and discipline are improved and processing technologies are gradually enhanced, it is expectable that the productivity of the machinery and metalworking industry would double or triple by the year 2000, and further increase more than 5 times in a decade up to the year 2010 (refer to Chapter 6.1 and Appendix-F).

24 *Modernization of Electric/Electronic Industry:* The number of electric and electronic industries has been increasing in the Hanoi area (27 factories have been inspected in the course of this Study). Production of 9 electric enterprises amounts to about 1,180 billion dongs, and that of 18 electronic enterprises amounts to 515 billion dongs. However, the sales of electric and electronic industries in Hanoi (employing more than 6,000 workers) are comparatively small, being equivalent only to the production of one company with 300 employees in Japan. One of the notable constraints in the electric industry is the weakness in design and production. This is demonstrated by the fact that the weight of motors and

transformers manufactured in Hanoi is 1.6 to 1.7 times heavier than those sold in international markets. As for the electronic industry, a gradual increase in locally made parts is an important target, and it is suggested to start with the production of universally applicable electronic components, like small transformers, registers, condensers, etc., and then proceed to the production of plastic circuit boards (PCB) and parts insert. It is expectable that the productivity of the electric and electronic industry will nearly double by 2000. In longer terms, development of computer hardware and software should be pursued to meet the increasing demand (refer to Chapter 6.2).

25 *Modernization of Textile/Garment Industry:* The textile and garment industry provides the largest job opportunities, with least amount of investments. Employment in this sub-sector has increased rapidly, reaching 24,000 workers in 1994. This sub-sector contributed an amount of 300 billion dong to exports, or about 64% of total exports of the manufacturing industries in the Hanoi area. Since domestic production of raw materials (cotton and silk) is limited, the majority of raw materials are imported. It is evaluated that the textile and garment industry in Hanoi imports materials of good quality from abroad, but they are spoiled through the midstream processes and become final products of low quality. It is required to improve the dyeing and finishing processes, including sizing, reaching, dyeing, singeing, scouring, printing, mercerizing, etc.

Process Flow of Textile / Garment Industry



The midstream and downstream processes of the textile industry must respond quickly to fashions/modes in the domestic and world markets. It is therefore suggested to set up and promote a "converter" business in Hanoi, which will identify and create new fashions, provide market information, procure various kinds of fabrics, and act as interface among

fabric producing factories, garment fabrics, and selling firms. Since the textile and garment industry cannot depend only on low cost labors in a longer term, it is necessary to work out measures to increase value added in the process of production (refer to Chapter 6.3).

26 *Modernization of Chemical Industry:* The chemical industry in Hanoi consists of manufacturers of fertilizer, paints, soap and detergents, medicines, pure chemicals, rubber products, plastic products, and so on. Over 40 chemical enterprises are operating in the Hanoi area, with about 5,600 workers. With respect to fertilizer manufacturing, one factory in Hanoi is producing fused magnesium phosphate (FMP) with a P_2O_5 content as low as 15-16%. Judging from the supply and demand situation in Vietnam, it is proposed to set up new plants for phosphate fertilizer in the northern region and nitrogen fertilizer in the southern region. The phosphate fertilizer production proposed for the northern region will produce triple super phosphate (TSP) or a combination of diammonium phosphate (DAP) and monoammonium phosphate (MAP). The existing fertilizer factory in Hanoi should be closed down after the new factories satisfy the domestic demand (refer to Chapter 6.4).

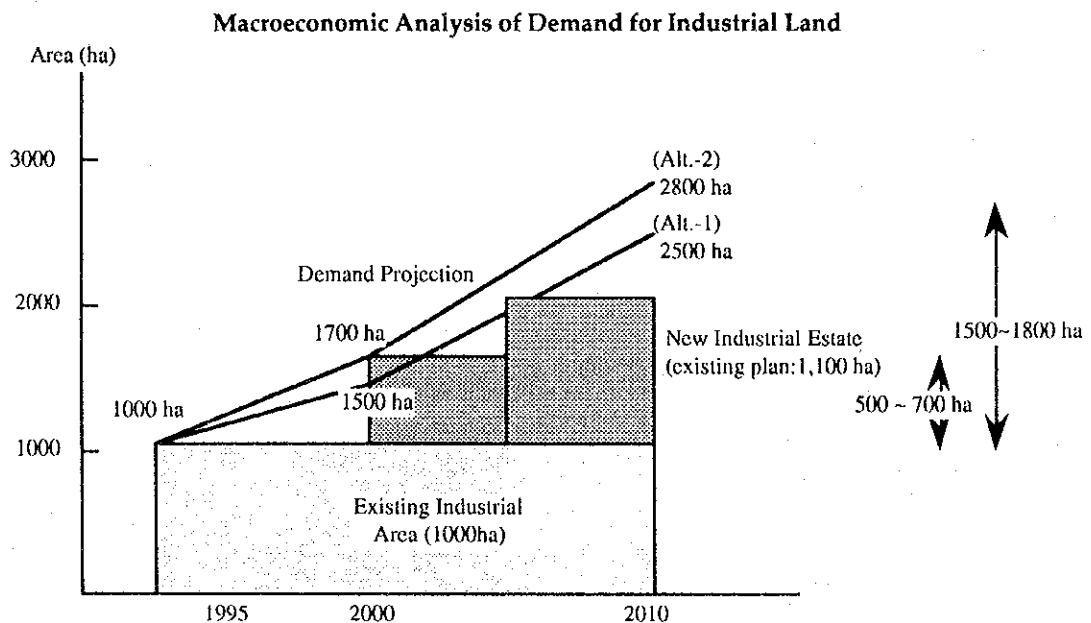
27 *Modernization of Other Chemical Industries:* Paints and varnishes are produced by two state enterprises in Hanoi, but they have a lot of technical and managerial difficulties. Excess workers should be reduced by shifting them to field painting or shop painting works, and advanced technologies should be introduced for anti-fungus paints and automobile paints. Regarding synthetic detergent and soap manufacturing, it is suggestible that the existing enterprises expand the production of beauty soap, shampoo, kitchen detergent, and other new products. Automatic weighing and packing systems should also be introduced. Medicine and pure chemicals have not been well developed in Hanoi, though it is conceivable that the herb industry is promising. One rubber tire manufacturing enterprise is operating in Hanoi. Production of bicycle tire and tube appears to be less promising, while production of automobile tire will require complete modernization of production lines. Industrial belts will be one of the promising products for rubber industry in Hanoi. The plastic industry should be advanced through introduction of plastic parts of high electric insulation by compression molding, so that it would be possible to supply plastic parts under subcontract with assemblers of electric and electronic assemblers (refer to Chapter 6.4 and Appendix-F).

Master Plan for Industrial Estate Development

28 *Investment Demand for Industrial Estates:* A master plan for industrial estate development has been formulated and proposed, as it is necessary to develop the lands for location of various types of industries in the Hanoi area, as previously explained in Para. 22. Potential demand for investments in the alternative industrial estate sites has been examined first. Through the questionnaire and interview surveys, it has been

evaluated that around 16 Vietnamese enterprises are interested in locating their factories in the proposed industrial estates. They would invest in the new factories in the form of joint ventures with foreign investors. The questionnaire and interview surveys in Japan, NIEs (South Korea, Hong Kong, Taiwan and Singapore) and ASEAN (Malaysia and Thailand) have indicated that a total of about 400 enterprises are interested in establishing their factories in the proposed industrial estates in the Hanoi area. It is estimated that the factory area required by these potential investors is around 600 ha in total (refer to Chapter 7.1 and Appendix-G).

29 *Demand for Industrial Land:* The result of questionnaire and interview surveys has been checked through macroeconomic analysis of the demand for industrial estates up to the years 2000 and 2010. On the basis of the annual growth rate of the industrial sector envisaged by the State Planning Committee (SPC), it has been estimated that the net area of industrial lands required in the Hanoi area will be 500-700 ha by the year 2000, and 1,500-1,800 ha by 2010, as illustrated below.



Judging from the results of questionnaire survey, interview survey and macro-economic analysis, it is proposed that around 600 ha of industrial estates be developed by the year 2000, and around 1,000 ha be developed additionally during the period from 2000 to 2010.

30 *Alternative Industrial Estate Sites:* Alternative sites for construction of industrial estates have been identified through discussions between HPC and the Study Team. In addition to the Soc Son EPZ under construction, 4 alternative industrial estate sites have been selected as tabulated below.

Alternative Industrial Estate Sites

	Alternative Site	Gross Area	Net Area	Assoc. Functions
1.	Thang Long North site	280	197	Cargo dist. center, Residential area
2.	Thang Long South site	220	164	-
3.	Dong Anh site	92	68	-
4.	Gia Lam site	438	277	Cargo dist. center
	Total	1,030	706	

Conceptual plans for development of these alternative industrial estate sites have been formulated, including desirable categories of industries to be located, land use plan, internal and external infrastructure. At the same time, an initial environmental examination for each alternative site has been conducted (refer to Chapter 7.2).

31 *Desirable Categories of Industries:* At each alternative industrial estate site, it is desirable that different categories of industries be strategically promoted for location. It is proposed at this stage that the following categories of industries are promoted for location of each site:




Categories of Industries for Promotion

Thang Long North	Thang Long South	Don Anh	Gia Lam
Electronic parts	Science institute	Metalworking ind.	Metal products
Electric parts	Data processing	Foundry industry	Electric parts
Electric machinery	Software company	Machine tools	Electric machinery
Transportation parts	Design company	Machinery industry	Transportation parts
Precision machinery	Precision machinery		Pharmaceuticals
	Printing/publication		Plastic products

32 *Schedule for Industrial Estate Development:* Four alternative industrial estate sites have been preliminarily evaluated to work out a program for implementation of the industrial estates, mainly from the viewpoints of investors' preference, easiness of development, development costs, and environmental impacts. As a result, it is proposed that the Thang Long North site and Gia Lam site be developed first for completion before the year 2000, followed by the Thang Long South site and Dong Anh site. The proposed schedule for implementation of the industrial estates is illustrated below (refer to Chapter 7.3).

Proposed Industrial Estate Development Schedule

Year	1995	2000	2005	2010	
1 Thang Long North IE	1st phase (150 ha)(50 ha)				
2 Thang Long South IE			(160 ha)		
3 Dong Anh IE		(70 ha)			
4 Gia Lam IE	1st phase (200 ha)(100 ha)				
5 Soc Son EPZ	1st phase (100 ha)		(200 ha)		
6 Taiwan IE	(40 ha)				
7 Daewoo IE	(55 ha)				
8 Other IE (R.18/R.5)			(150 ha)	(340 ha)	
Total Area (ha)	(55 ha)	(640 ha)	(500 ha)	(500 ha)	Total:1,700 ha

-  New industrial estate studied in the JICA Master Plan
-  Existing industrial estate
-  Conceivable new industrial estate along R.18 and R.5

33 *Management of Industrial Estates:* The Regulations on Industrial Zones, promulgated in December 1994, stipulate that a Management Board of Industrial Zones will be organized to promote investments, issue permits, approve land rent and service charges, and control service activities in the zones. A large-scale inter-provincial industrial zone can be managed by the centrally controlled system as provided for in the Regulations. However, for operation and management of a smaller scale industrial estate, like the one planned in this Study, it is desirable that the local government takes more initiatives, functions, and responsibilities. It is therefore suggestible that a clear definition be first made between the industrial zones and industrial estates, and that the functions between the central and local governments be more clearly defined. It is acceptable that the proposed industrial estates will be constructed and operated by a joint venture company to be formed by foreign investors and local state enterprises (refer to Chapter 7.4).

Feasibility of Selected Industrial Estates

34 *Outline of Selected Industrial Estates:* Through formulation of the master plan for industrial estate development in the Hanoi area, it is proposed to implement the Thang Long North industrial estate and Gia Lam industrial estate by the year 2000. To evaluate economic feasibility and financial viability, a preliminary design of the internal and external

facilities for each estate has been prepared. The land use plans proposed for the Thang Long North and Gia Lam estates are shown in Figure-04 and Figure-05. Basic configurations of each estate are summarized below (refer to Chapter 8.1 and 8.2).

Basic Configurations of Selected Industrial Estates

	Thang Long North	Gia Lam
Industrial Estate:		
Net factory lot	197 ha.	277 ha.
Nos. of factory lots	50-110 lots	90-190 lots
Employment	40,000 workers	60,000 workers
Water demand	33,000 m ³ /day	46,000 m ³ /day
Sewerage facilities	33,000 m ³ /day	46,000 m ³ /day
Power demand	72 MW	125 MW
Telephone lines	5,300 lines	1,300 lines
Cargo Distribution Center:	50 ha.	90 ha.
Residential Area:		
Gross area	50 ha.	-
Houses	2,000 households	-
Population	10,000 approx.	-

35 *Preliminary Environmental Impact Assessment:* A preliminary environmental impact assessment has been conducted at the selected industrial estate sites. In the Thang Long North site, the land is currently used as paddy fields, but farmers are willing to stop farming. It will be acceptable for them that the land is shifted to industrial use, as far as they can continue living in the nearby villages (5 communes). Some of the communes have experience in land acquisition and compensation at the time of construction of the highway to Noi Bai Airport. An analysis of water and sediments in the Thang Long North site showed that they are not polluted. Various suggestions have been presented for mitigation of the environmental impacts which will eventually be caused by land filling and road construction, as well as waste water treatment and solid waste disposal during the construction and operation of the industrial estate. The Thang Long North site has been assessed as having no negative environmental impacts that would decisively impede the construction of the industrial estate. In Gia Lam, on the other hand, the land is used as paddy fields and water and sediments are slightly polluted. Since the Gia Lam estate is located close to urban communities, more attention should be paid to environmental protection during the construction stage. Location of air pollution industries should not be allowed in Gia Lam, because it is located in the wind direction to Hanoi city. For both the Thang Long North and Gia Lam estates, it is required to limit the changes in landscape and ecosystem only to the proposed area of construction and to protect the surrounding areas (refer to Chapter 8.3 and Appendix-I).

36 *Construction Schedule and Costs:* Construction works for the Thang Long North industrial estate will be scheduled stagewise: the first stage (210 ha) would be implemented in 1997-98 and the second stage (70 ha) in

1999-2000. Likewise, the Gia Lam industrial estate is proposed to be constructed in two stages: the first stage (290 ha) in 1997-98 and the second stage (148 ha) in 1999-2000. The cost of construction of the proposed industrial estates has been preliminarily estimated as summarized below (refer to Chapter 8.4).

		(US\$ million)		
		Thang Long N.	Gia Lam	Total
1.	Industrial Estate	54.7	92.5	147.2
2.	External Facilities	34.5	136.7	171.2
3.	Cargo Distribution Center	14.5	13.8	28.3
4.	Residential Area	24.6	-	24.6
Total		128.3	243.0	371.3

It is noted that the external facilities of the Gia Lam estate include the Ring Road No.3 (between Routes No.1 and No.5) and the flyover inter-change on Route No.5.

37 *Financial Viability:* Financial viability of the Thang Long North and Gia Lam industrial estates has been evaluated from the viewpoint of the industrial estate developer (joint venture company to develop internal facilities of the estate) and from the viewpoint of HPC (organization to implement external facilities). On the assumptions that the land rental fees follow the state guidelines and that the sales price of estate lots to investors is 60 US\$/m² at current prices (for reference, it is 45-70 US\$/m² in Thailand, 60-80 US\$/m² in Indonesia, and 70-90 US\$/m² in China), the financial internal rate of return (FIRR) of the Thang Long North estate has been calculated to be 17.2% for the estate developer. FIRR of external facilities to be constructed by HPC has been calculated to be 4.5%. This implies that the development of the Thang Long North industrial estate is financially viable for the developer, and that a loan on concessional terms or other financial arrangements is required for HPC to implement the external facilities. In the same way, FIRR of the Gia Lam estate has been calculated to be 12.2% for the estate developer, while FIRR of external facilities to be constructed by HPC would be 3.7% (refer to Chapter 8.5).

38 *Economic Feasibility:* Economic feasibility of the the Thang Long North industrial estate has been evaluated from the viewpoint of national/regional economy, by comparing the "with project" (industrial estate production) and "without project" (agricultural production) conditions. On the basis of available data and information, it is estimated that the agricultural production will be 585,000 US\$/year, while the industrial net production from the estate factory lots will be 366 million US\$/year in 2010. Based on these assumptions, the economic internal rate of return (EIRR) of the Thang Long North industrial estate has been calculated to be 39.4%. This demonstrates that the development of an industrial estate at the Thang Long North site is economically justifiable (refer to Chapter 8.6).

39 *Capital Investment and Turn-over:* It is preliminarily estimated that the Thang Long North industrial estate will get capital investments of more than 800 million US\$. The annual value added at the industrial estate will amount to 366 million US\$, and the annual turn-over will amount to about 900 million US\$. On the assumption that about 10% of value added is collected in the form of various taxes, the tax revenues of the Government would amount to 37 million US\$. In the event that about 30% of annual turn-over is exported, the annual foreign exchange earning would be around 270 million US\$. These preliminary figures should be evaluated in further detail when the investments in the estate become foreseeable.

Proposed Programs for Industrial Development in the Hanoi Area

40 *Short-term Program:* A number of suggestions and recommendations have been presented through this Study for the development of the industrial sector and modernization of industries in the Hanoi area. On the basis of these suggestions and recommendations, it is proposed that a short-term development program for 1995-2000 will incorporate the following targets (refer to Chapter 9.1):

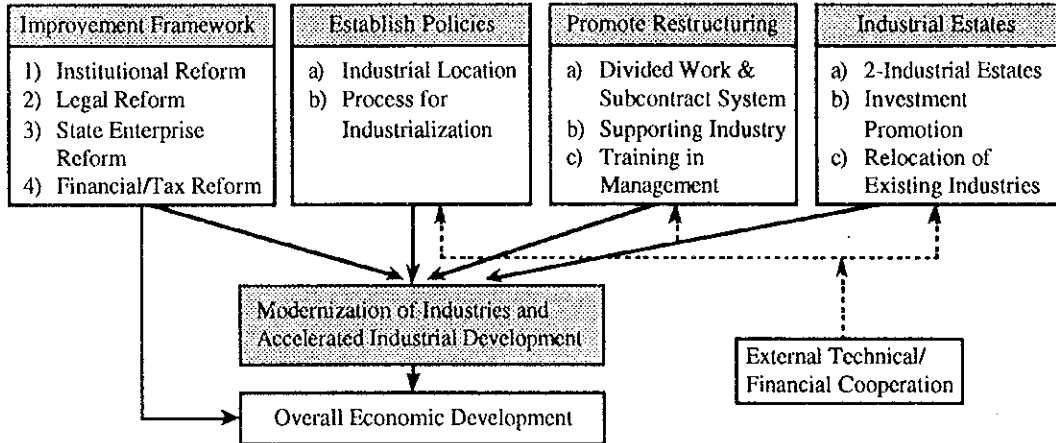
Targets of Short-term Program

	[Unit]	[1994 Level]	[Target for 2000]
Industrial Productivity	10 ⁶ Dong/Pers.	10 - 50	20 - 150
Foreign Investments	10 ⁶ US\$	560	1,500
Employment	Person	82,000	200,000

To attain such targets, it is advisable that

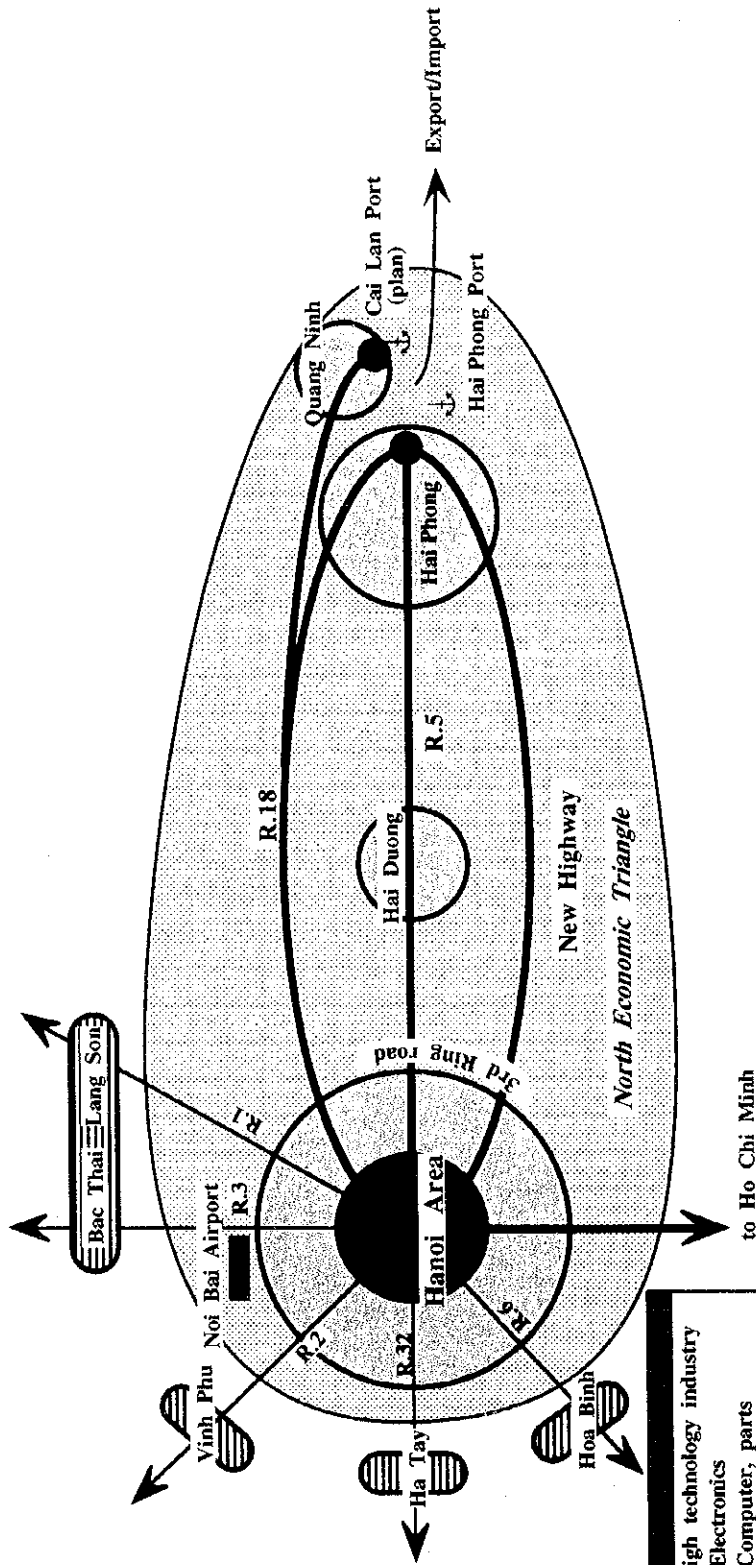
- (i) administrative and legal reforms be further promoted;
- (ii) equitization/privatization be promoted and accelerated;
- (iii) financial systems be reinforced;
- (iv) restructuring of industries be promoted through introduction of the divided work system and subcontract system;
- (v) training in industrial enterprise management be promoted;
- (vi) productivity of respective categories of industries be enhanced;
- (vii) industrial estates be developed at the Thang Long North and Gia Lam sites; and
- (viii) foreign investments be further promoted in the manufacturing sector.

Short-term Program for Accelerated Industrial Development



41 *Medium- and Long-term Programs:* A medium- and long-term development program for 2000-2010 has also been proposed through this Study. The program envisages to (i) further improve frameworks for industrial development in Hanoi through institutional and legal reforms, as well as through further promotion of privatization and reinforcement of financing systems; (ii) further strengthen policies for accelerated industrial development; and (iii) further promote modernization of industries and industrial estates development. To implement the medium- and long-term programs, as well as short-term programs, it is prerequisite that the ministries and other governmental organizations concerned will assume the respective responsibilities assigned to them, following the suggestions and recommendations presented in this Study (For reference purpose, an organization and responsibility matrix is shown in Figure-06). These suggestions and recommendations could be followed by mobilizing the internal resources. In some cases, external assistance, both technical and financial, could be sought for the earliest implementation of the programs suggested and recommended in this Study (refer to Chapter 9.2 and 9.3).

FIGURES



- High technology industry
 - Electronics
 - Computer, parts
 - Computer software
 - Telecomm. equipment
 - Pharmaceutics
 - Precision machinery
 - Urban type industry
 - Printing, publication
 - Metalworking industry
 - Foundry
 - Machine tools
 - Fabricated metal industry
 - Motorcycle
 - Industrial machinery
 - Home electric appliances
- Textile industry
- Spinning, weaving, dyeing
- Other industry
- Plastic products

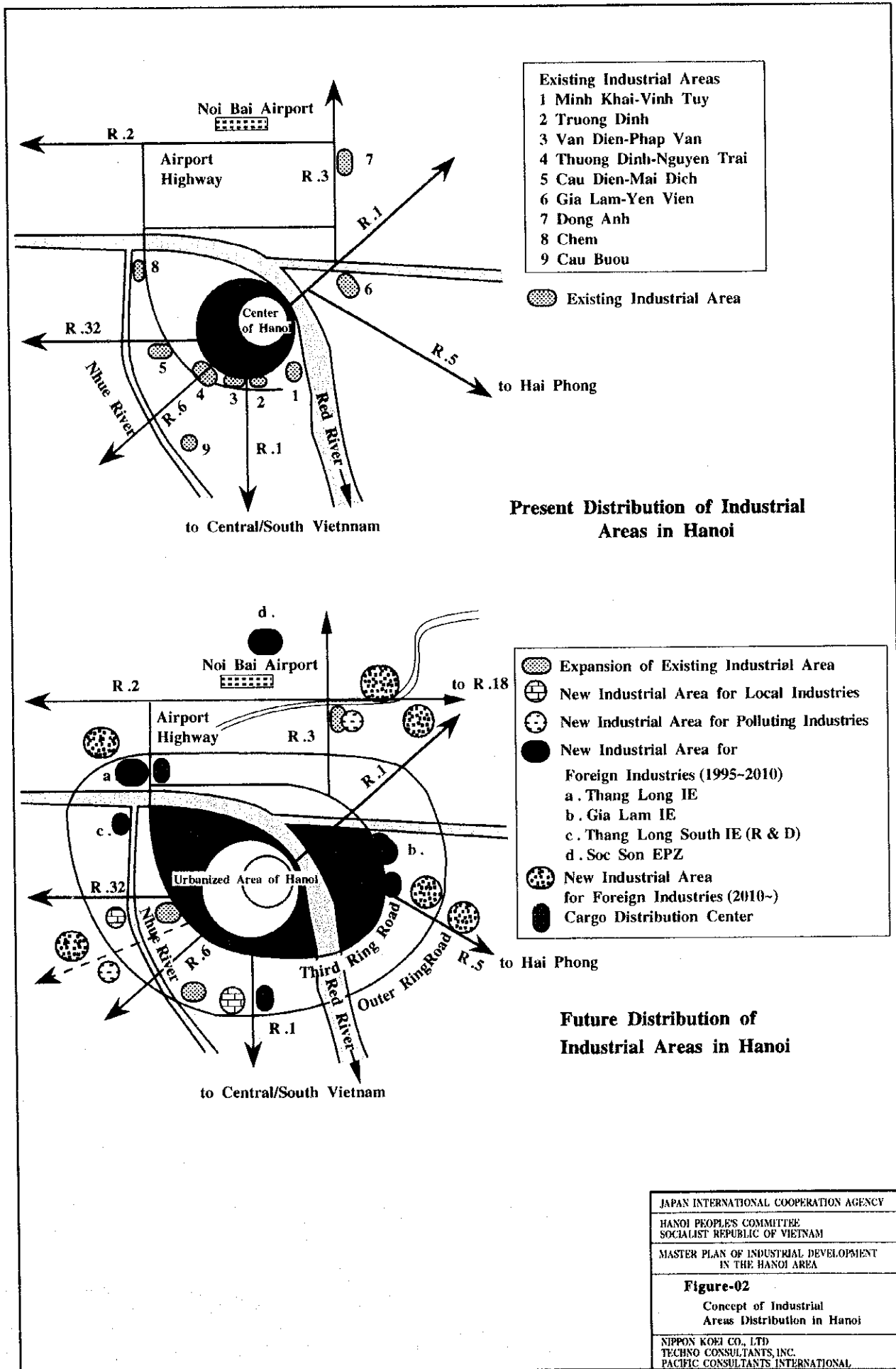
- Non-metallic industry
 - Brick, tile, glass
- Chemical industry
 - Fertilizer
- Metalworking industry
 - Pumps, casting steel
 - Fabricated metal ind.
 - Automobile
- Food processing industry
- Other light industry

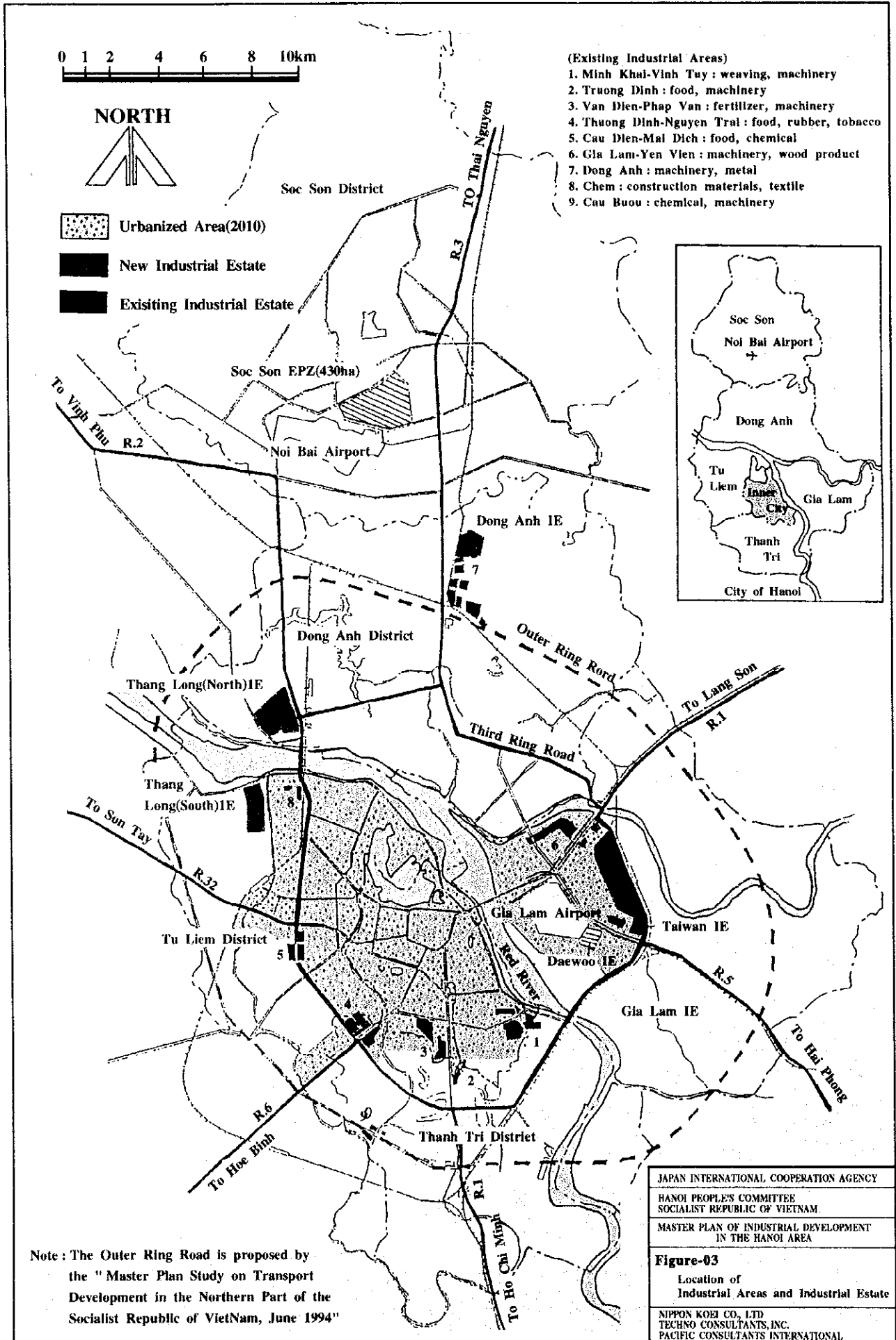
- Basic metal industry
 - Steel product
 - Shipbuilding, repair
- Non-metallic industry
 - Cement
- Chemical industry
 - Fertilizer
 - Oil refinery
 - Chemical products
- Local material type ind.
- Sea food processing

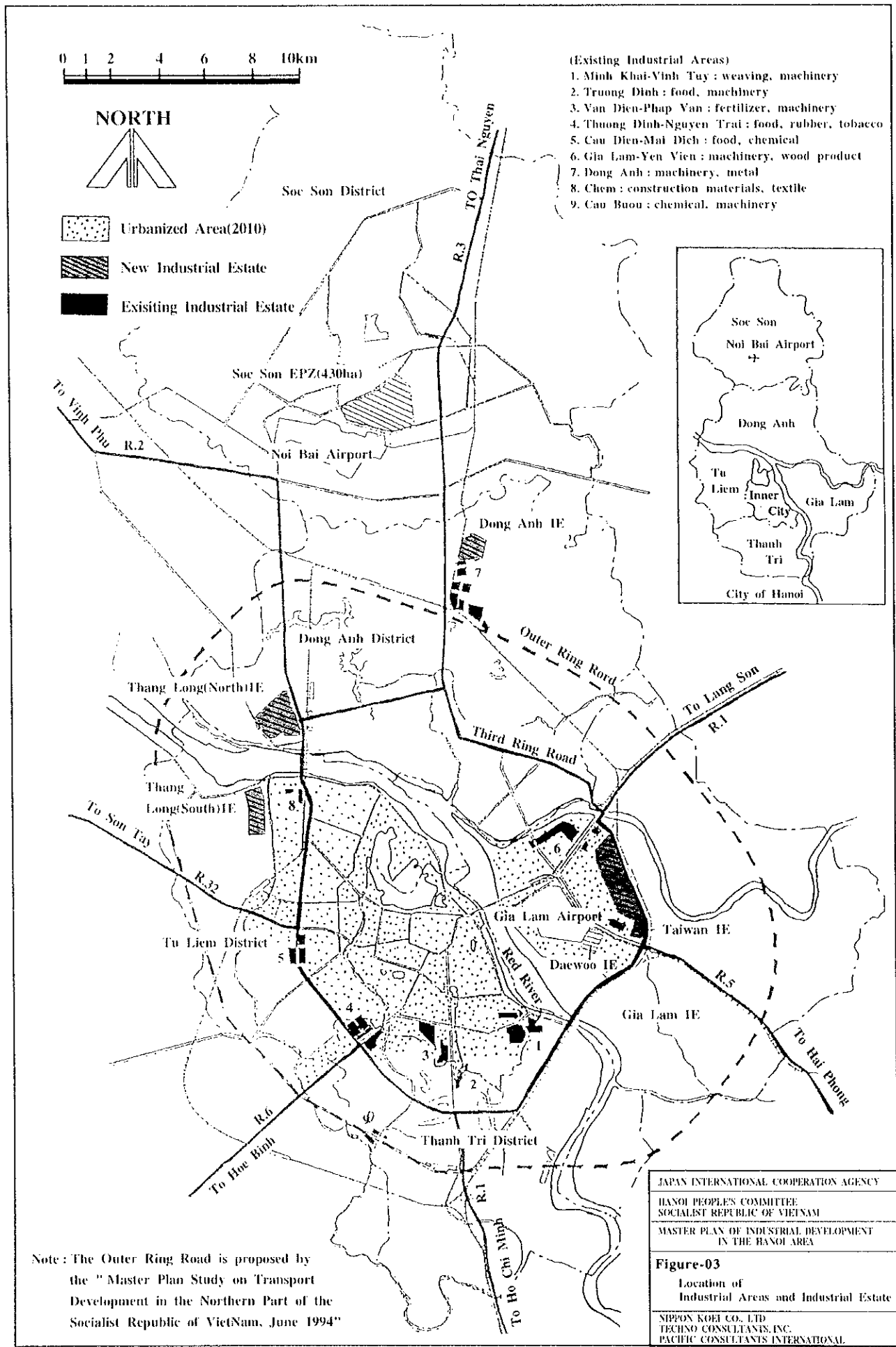
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 HANOI PEOPLE'S COMMITTEE
 SOCIALIST REPUBLIC OF VIETNAM
 MASTER PLAN OF INDUSTRIAL DEVELOPMENT
 IN THE HANOI AREA

Figure-01
 Industrial Location in the North
 Economic Triangle

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to Noi Bai Airport

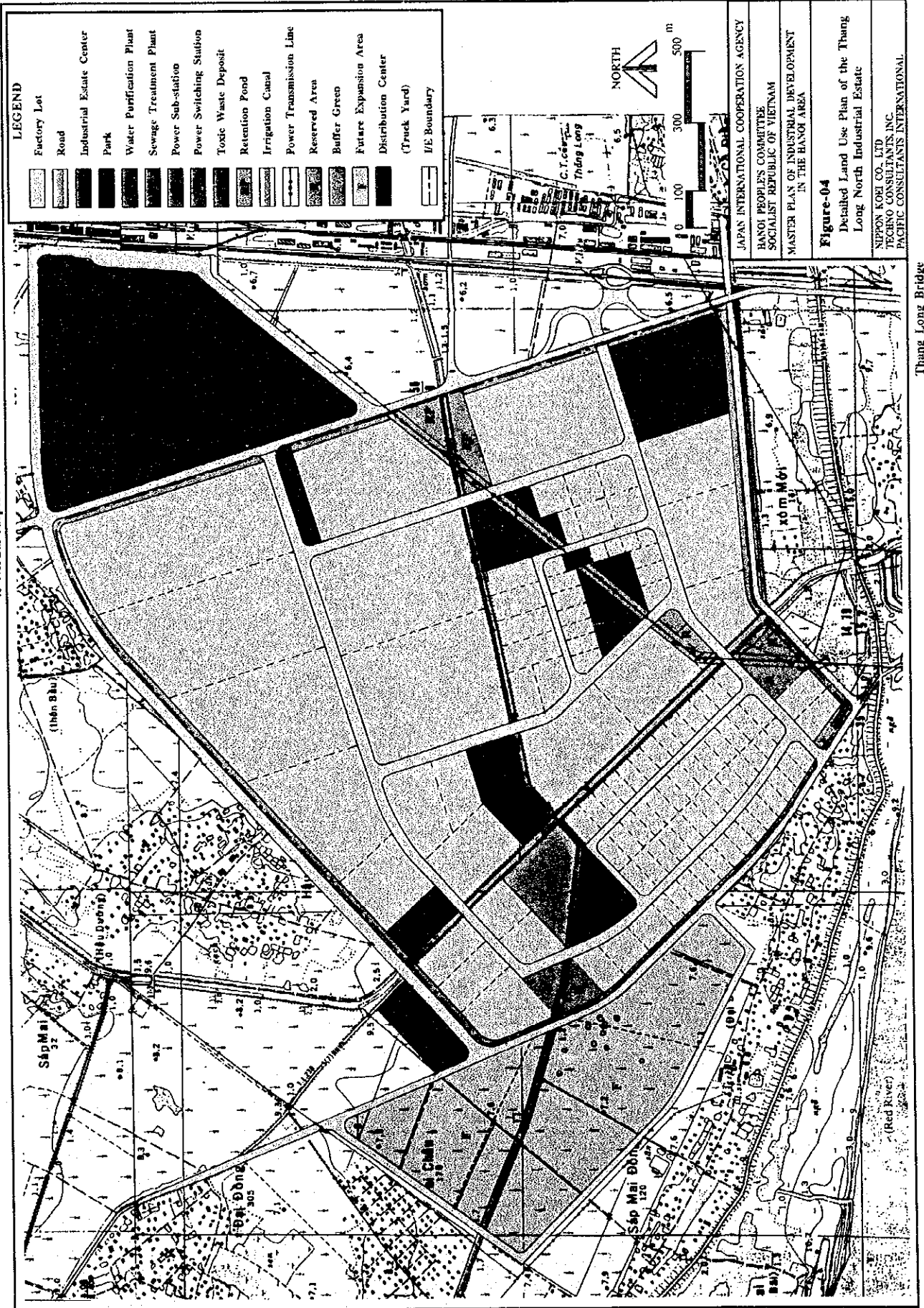


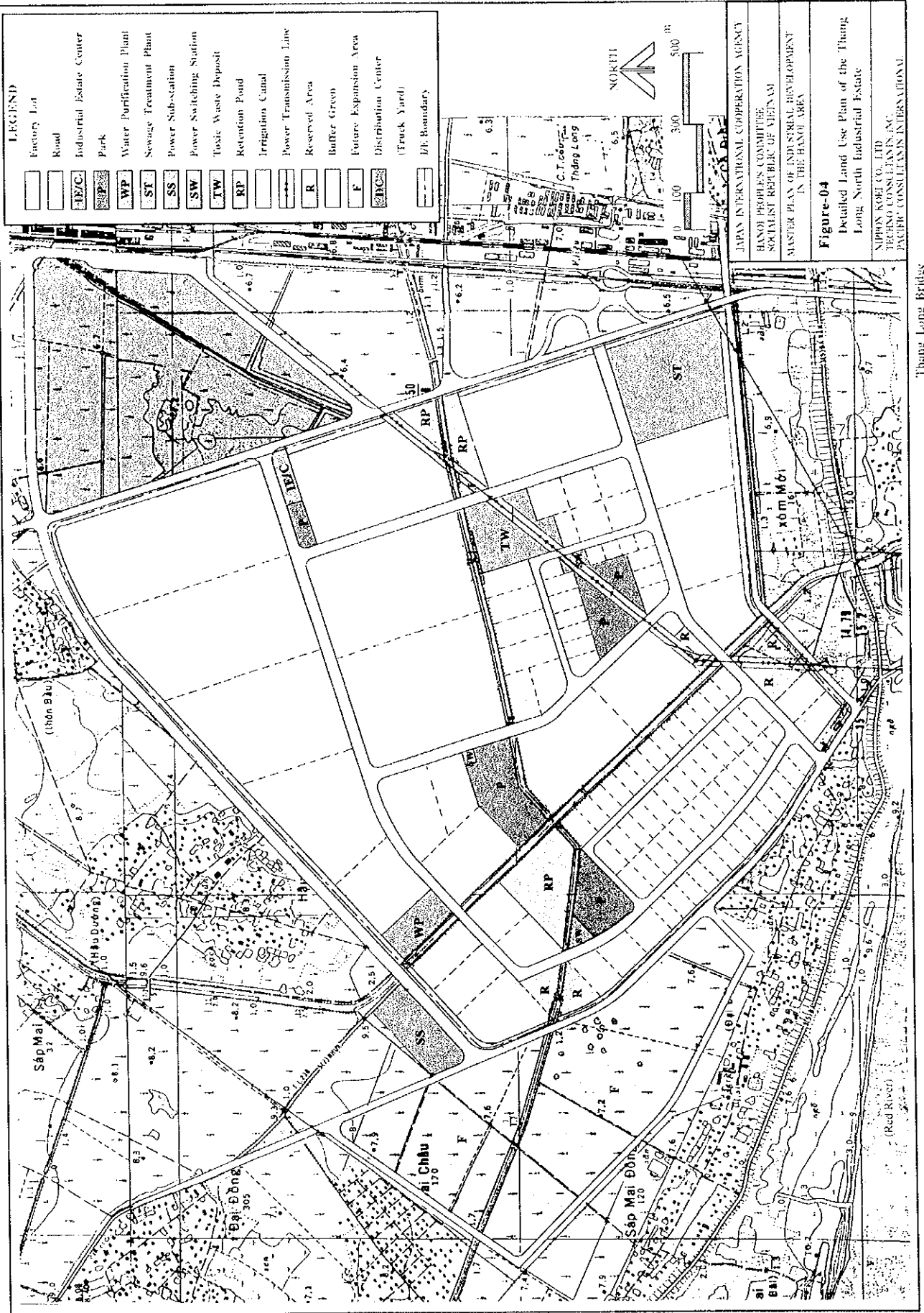
Figure-04

Detailed Land Use Plan of the Thung Long North Industrial Estate

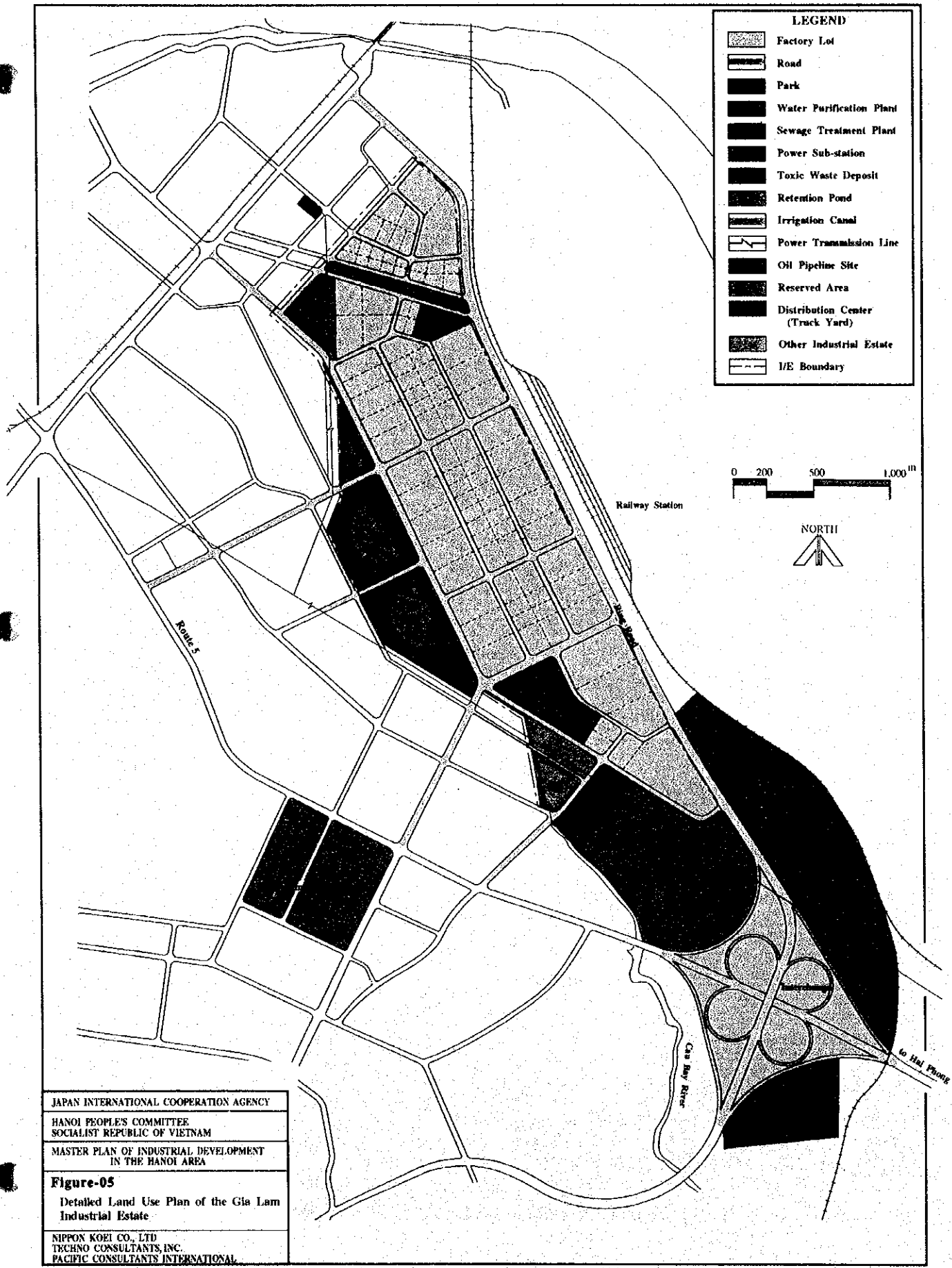
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Thung Long Bridge

to Noi Bai Airport



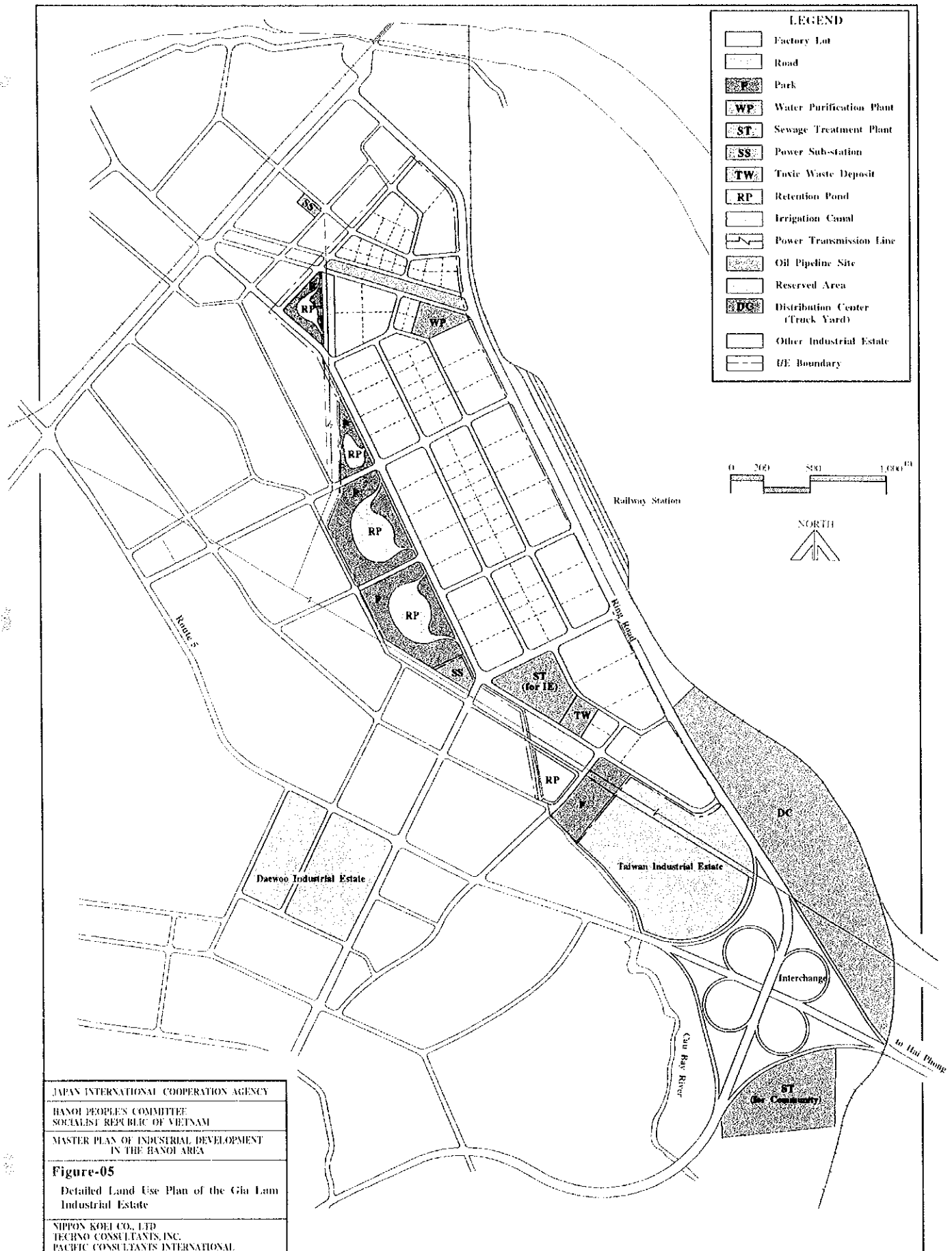
Thang Long Bridge



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 IN THE HANOI AREA

Figure-05
 Detailed Land Use Plan of the Gia Lam
 Industrial Estate

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 SOCIALIST REPUBLIC OF VIETNAM
 MASTER PLAN OF INDUSTRIAL DEVELOPMENT
 IN THE HANOI AREA

Figure-05
 Detailed Land Use Plan of the Gia Lam
 Industrial Estate

SIPPON KOEI CO., LTD
 TECHNO CONSULTANTS, INC.
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Figure-06 Proposed Program and Responsibility Matrix (1/2)

(A) Short-Term Program

Organization		Gov. off.	SPC	SCCI	MOF	GDMCA	SBVN	MHI	MLI	MOSTE	HPC
Proposed Program											
1. Improvement of Frameworks											
1.1 Institutional Reforms:											
- Establishment of MOI		⊙						○	○		
- Reinforcement of GDMCA					○	⊙					
- Establishment of BOI			○	⊙							
- Industrial statistics		⊙	○					○	○		○
- Exchange of information		⊙	○	○	○	○	○	○	○	○	○
- Publication of data/information		⊙	○		○		○	○	○	○	○
1.2 Legal Reforms:											
- Modern accounting standards					⊙	○					
- Introduction of VAT			○		⊙		○				
- Other tax reforms			○		⊙		○				
- Mortgage Law		○	○		⊙		○				
- Privatization Law		○	○		⊙						
- Amendment of Company Law		○	⊙	○							
- Amend. of Foreign Invest. Law			○	⊙							
1.3 Equitization/Privatization:											
- Promotion of equitization			○		⊙	○		○	○		○
- Privatization thru restructuring			○		○	○		⊙	⊙		○
- Privatization fund			○		⊙	○	○	○	○		○
1.4 Financing System Reinforcement:											
- Circulation of domestic savings			○		⊙		○				
- Dollar account/unregistered bonds			○		○		⊙				
- On-lending (2-step) loan			○		⊙		○				
- Tax collection system improv.			○		⊙		○				
- Liberalization of bank interests			○		⊙		○				
2. Establishment of Policies											
2.1 Industrialization Policies:											
- Nationwide industrial location		○	⊙					○		○	
- Industrialization and trade policy		○	⊙					○	○		
2.2 Renovation/Restructuring:											
- Divided work & subcontract systems			○	○	○			⊙	⊙		○
- Supporting industries			○	○	○			⊙	⊙		○
- Industrial management training			○	○	○			⊙	⊙	○	○
- Job information network		○	○	○				○	○		○
3. Modernization of Industries											
3.1 Productivity Improvement:											
- Doubling of productivity								⊙	⊙		⊙
- Processing tech. improvement								⊙	⊙	○	⊙
- Foreign technology/marketing				○				⊙	⊙		⊙
3.2 Industrial estates:											
- Thang Long North IE				○							○
- Gia Lam IE				○							○
- Foreign investment promotion				⊙				○	○		○
- Relocation of existing industries								○	○	⊙	○

Note: ⊙ Prime responsibility
○ Co-responsibility

Figure-06 Proposed Program and Responsibility Matrix (2/2)

(B) Medium and Long-Term Program

Organization \ Proposed Program	Gov. off.	SPC	SCCI	MOF	GDMCA	SBVN	MHI	MLI	MOSTE	HPC
1. Improvement of Frameworks										
1.1 Institutional reforms, including reforms for privatization		○		⊙	○					
1.2 Legal reforms, including tax reforms, auditing system		○		⊙		○				
1.3 Promotion of privatization, including foreign capital participation		○	○	⊙			○	○		○
1.4 Reinforcement of financing, including bank savings, trade promotion		○		⊙		○				
2. Policies for Accelerated Development										
2.1 Promotion of industrialization (export-oriented industries)		○					⊙	⊙	○	○
2.2 Modernization of management, including divided work, subcontract systems and supporting industries			○				⊙	⊙		⊙
3. Modernization of Industries										
3.1 Further productivity improv., including technology/marketing							⊙	⊙		⊙
3.2 Industrial estates development			○				○	○	○	⊙



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