

**JAPAN INTERNATIONAL COOPERATION AGENCY (JICA)**

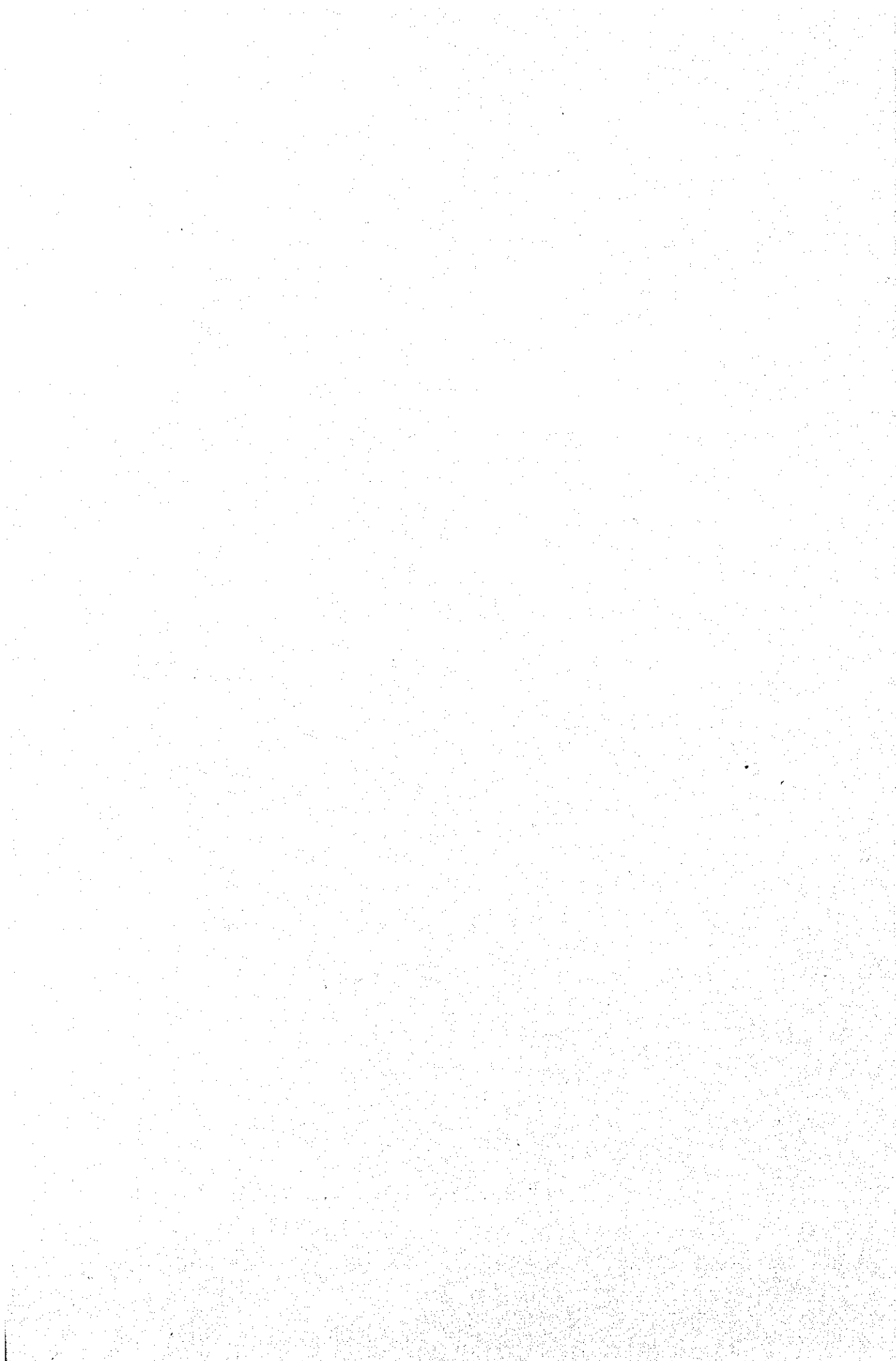
**HANOI PEOPLE'S COMMITTEE  
SOCIALIST REPUBLIC OF VIET NAM**

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

**November 1995**

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

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## Preface

In response to a request from the Government of the Social Republic of Viet Nam, the Government of Japan decided to conduct the Study on the Master Plan of Industrial Development in the Hanoi Area in the Social Republic of Viet Nam and the study was implemented by the Japan International Cooperation Agency (JICA).

JICA sent a study team headed by Mr. Hajime Koizumi of Nippon Koei Co., Ltd. and organized by Nippon Koei Co., Ltd., Techno Consultants, Inc. and Pacific Consultants International to the Social Republic of Viet Nam four times from August 1994 to October 1995.

The team held discussions with the officials concerned of the Government of the Viet Nam, and conducted related field surveys. After returning to Japan, the team conducted further studies and compiled the final results in this report.

I hope this report will contribute to the promotion of the industrial development and to the fostering of friendly relations between our two countries.

I wish to express my sincere appreciation to the officials concerned of the Government of the Viet Nam for their close cooperation throughout the study.

November, 1995



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Kimio Fujita

President

Japan International Cooperation Agency

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**Master Plan of Industrial Development in the Hanoi Area**  
**(Final Report)**

**Table of Contents (Main Report)**

	<u>Page</u>
I. INTRODUCTION .....	1
1.1 Background and Objectives of the Study .....	1
1.2 Scope of the Study .....	1
1.3 Execution of the Study .....	2
1.4 Reports .....	3
II. CHARACTERISTICS OF INDUSTRIES IN THE HANOI AREA .....	5
2.1 Industrial Establishment, Employment and Gross Output .....	5
2.2 Industrial Structure .....	10
2.3 Industrial Development in Hanoi and North Economic Triangle .....	12
III. MACROSCOPIC ISSUES INHERENT TO INDUSTRIAL DEVELOPMENT. ....	15
3.1 Renovation Toward Market-Oriented Economy .....	15
3.2 State Enterprise Reform .....	16
3.3 Financial and Tax Reform .....	20
3.4 Administrative Reform .....	26
3.5 Investment and Trade Promotion .....	30
IV. MICROSCOPIC ISSUES INHERENT TO INDUSTRIAL OPERATIONS .....	37
4.1 Common Constraints .....	37
4.2 Restructuring for Modernization .....	43
4.3 Data Processing and Capacity Building .....	48
4.4 Enhancement of Environmental Protection .....	50
V. DIRECTION OF INDUSTRIAL DEVELOPMENT IN THE HANOI AREA .....	53
5.1 Framework for Industrial Development .....	53
5.2 Renovation/Modernization of Existing Industries .....	57
5.3 Industrial Areas and Industrial Estates .....	60
VI. DEVELOPMENT STRATEGIES FOR SELECTED INDUSTRIES .....	65
6.1 Machinery/Metalworking Industry .....	65
6.2 Electric/Electronic Industry .....	72

	<u>Page</u>
6.3 Textile/Garment Industry.....	75
6.4 Chemical Industry.....	80
<b>VII. MASTER PLAN OF INDUSTRIAL ESTATE DEVELOPMENT .....</b>	<b>87</b>
7.1 Potential Demand for Industrial Estates.....	87
7.2 Alternative Industrial Estate Sites.....	91
7.3 Priority Sites and Development Schedule .....	99
7.4 Institutional and Financial Arrangements for Implementation.....	100
<b>VIII. FEASIBILITY OF SELECTED INDUSTRIAL ESTATES .....</b>	<b>103</b>
8.1 Implementation of the Thang Long North Industrial Estate .....	103
8.2 Implementation of the Gia Lam Industrial Estate .....	108
8.3 Preliminary Environmental Impact Assessment .....	111
8.4 Development Schedule and Estimated Cost .....	116
8.5 Financial Viability .....	117
8.6 Economic Feasibility.....	120
<b>IX. PROPOSED PROGRAMS FOR INDUSTRIAL DEVELOPMENT IN THE HANOI AREA.....</b>	<b>123</b>
9.1 Short-Term Development Program (1995 - 2000).....	123
9.2 Medium- and Long-Term Development Program (2000 - 2010) .....	126
9.3 External Cooperation.....	127

## APPENDICES

Appendix-A	OVERVIEW OF THE INDUSTRIAL SECTOR
Appendix-B	REFORMS FOR ACCELERATED INDUSTRIAL DEVELOPMENT
Appendix-C	INVESTMENT AND TRADE PROMOTION
Appendix-D	CONSTRAINTS COMMON TO EXISTING INDUSTRIES
Appendix-E	DIRECTION OF INDUSTRIAL DEVELOPMENT
Appendix-F	IMPROVEMENT OF EXISTING INDUSTRIES
Appendix-G	INVESTMENT DEMAND FOR INDUSTRIAL ESTATES
Appendix-H	MASTER PLAN FOR INDUSTRIAL ESTATES DEVELOPMENT
Appendix-I	PRE-INVESTMENT STUDY ON DEVELOPMENT OF SELECTED INDUSTRIAL ESTATES



## Table

		<u>Page</u>
Table 1.1	Participants in the Study (1/2).....	131
Table 1.1	Participants in the Study (1/2).....	132
Table 9.1	Proposed Program and Responsibility Matrix (1) .....	133
Table 9.1	Proposed Program and Responsibility Matrix (2) .....	134

## Figure

Figure 2.1	Structure of Production .....	135
Figure 2.2	Comparison of Industrial Structure.....	136
Figure 5.1	Industrial Location in North Economic Triangle.....	137
Figure 5.2	Location of Industrial Area and Industrial Estate .....	138
Figure 5.3	Concept of Industrial Area Distribution in Hanoi .....	139
Figure 8.1	Detailed Land Use Plan for the Thang Long North Industrial Estate.....	140
Figure 8.2	Detailed Land Use Plan for the Gia Lam Industrial Estate..	141

## 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 of 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

## **I. INTRODUCTION**

### **1.1 Background and Objectives of the Study**

Since the "Doi Moi" policy was adopted in 1986, the Government of the Socialist Republic of Vietnam has been promoting the shift from a centrally planned economy to the market-oriented economy. At present, Vietnam is still in a transitional period, and various efforts are being made to modernize industrial and other economic activities under the new economic system.

Most of industries in the northern region, particularly in the Hanoi area, had been developed under the old system, and their modernization under the market-oriented system has lagged behind, partly because industries in the Hanoi area have been operated predominantly as central or local state enterprises. Various constraints have been encountered in renovating their operations, technically and managerially.

On the other hand, the Government of Vietnam is promoting foreign investments, particularly in the manufacturing sector to accelerate development in the industrial sector. Promotion is made to attract more investments in the Hanoi area and the North Economic Triangle.

Against this background, the Government of Vietnam and Hanoi People's Committee (HPC) requested JICA to work out a master plan for industrial development in the Hanoi area. The terms of reference (TOR) for the Study was concluded among the State Planning Committee (SPC), HPC and JICA in March 1994.

TOR defined that the objectives of the Study are to prepare a master plan for industrial development in the Hanoi area, including formation of a conceptual plan for industrial estate development in the area.

### **1.2 Scope of the Study**

The scope of the studies to be executed by the Consultants under TOR has been defined to include the following:

- Review of the background of the Study
- Clarification of policy environment
- Review of the systems and functions of trade promotion

- Study of present conditions and future prospects of the Hanoi area
- Review of industrial production in the Hanoi area
- Identification of manufacturing sectors with high potential in the Hanoi area
- Field Study on industrial estate development with respect to the selected sites
- Investment demand survey for industrial estates
- Formulation of a master plan for industrial development in the Hanoi area
- Formulation of a conceptual plan for an industrial estate and its evaluation

It has been confirmed in TOR that the Study will be conducted in the administrative boundary of Hanoi.

The Study was originally programmed on the condition that all available data and information will be provided by the Government of Vietnam to the Consultants. However, data on financial situations of the existing enterprises have not been released, and the Consultants had to carry out the Study with some limited available of data and information.

In view of the general background of the Study, the Consultants have placed the major focus of the Study on the modernization of some selected categories of industry in the Hanoi area and on the formation of an industrial estate development plan.

### **1.3 Execution of the Study**

The Study has been executed by the consortium of Consultants retained by JICA. The consortium is composed of the following consulting firms:

Nippon Koei Co., Ltd. (Leading firm)  
 Techno Consultants, Inc.  
 Pacific Consultants International

In the Vietnamese side, the Steering Committee was formed to coordinate, review and supervise this Study. The Committee, headed by Vice-Chairman of HPC, is composed of the representatives from SPC, State Committee for Cooperation and Investment (SCCI), Ministry of Heavy Industry (MHI), Ministry of Light Industry (MLI), Ministry of Science, Technology and Environment (MOSTE), and HPC's Institutes and Departments. Several meetings between the Committee and the Consultants were held. The Consultants also had meetings for in-depth discussions with the member organizations of the Committee. Further, a team of counterpart

experts was assigned to jointly work with the Consultants for the execution of the Study in Vietnam. A total of five counterparts were invited by JICA to Japan for training, and they partially took part in the Study at the Consultants' Headquarters. The participants in this Study from the consortium of Consultants, members of the Steering Committee and the counterpart experts, are listed in Table 1.1.

The Study was initiated in August 1994 and completed in October 1995. In the course of the Study, a total of 113 days were spent in Vietnam for field surveys, discussions and exchange of opinions.

#### **1.4 Reports**

In the course of the Study, the Consultants submitted the following reports to HPC and the Steering Committee:

Inception Report	:	August 1994
Progress Report-1	:	September 1994
Progress Report-2	:	January 1995
Interim Report	:	May 1995
Progress Report-3	:	June 1995
Draft Final Report	:	September 1995
Final Report	:	November 1995

In addition to the above reports, two Working Papers have been compiled and submitted separately. They are

Working Paper-1	:	Digest of Enterprises visited by the Study Team
Working Paper-2	:	Results of the Questionnaire Survey on Existing Enterprises

The Final Report of the Study consists of two (2) volumes. Volume-1 presents an executive summary of the Study. The main text and appendices are presented in Volume-2, describing all the results of the Study and recommendations.



## II. CHARACTERISTICS OF INDUSTRIES IN THE HANOI AREA

The industrial activities in the Hanoi area are briefly reviewed in the framework of national industrial development, as well as in relation to the sectoral development in the North Economic Triangle which encompasses Hanoi, Hai Phong and Quang Ninh. Since statistical data are limitedly available, in-depth studies on industrial activities in the area, region and country have been rather difficult. An attempt, however, has been made to characterize the industrial activities in the Hanoi area in terms of regional and national settings, as far as practicable.

### 2.1 Industrial Establishment, Employment and Gross Output

The number of enterprises and workers in the industrial sector, as well as the magnitude of gross output of the sector, has been reviewed to aptly characterize industrial activities in the Hanoi area (refer to Appendix-A.1 to A.3).

#### 1) Establishment of Industrial Enterprises

It is reported that there are 463,500 industrial enterprises in Vietnam, of which 522 are central state enterprises, 1,508 local state enterprises, 3,322 private enterprises, 5,287 cooperatives, and 452,860 household enterprises. Central state enterprises are relatively large in scale, and they are operated by various ministries and state organizations. On the other hand, household enterprises are quite small in scale and their activities have not been statistically investigated in detail.

It is reported that in the Hanoi area, there were about 14,700 industrial enterprises in 1993, including 144 central state enterprises, 105 local state (HPC) enterprises, and 132 private enterprises. The number of industrial enterprises in the Hanoi area compared with those in the North Economic Triangle and Vietnam is as tabulated below.

Number of Industrial Enterprises					
	Central	Local	Private	Coop.	Household
Hanoi Area	144	105	132	841	13,497
North Economic Triangle	192	239	222	1,395	46,909
Hochiminh Area	131	242	528	560	23,508
South Economic Triangle	159	280	808	602	28,655
Vietnam	522	1,508	3,322	5,287	452,866

Source: Statistical Yearbook

As observed in the above table, the Hanoi area is characterized by the salient fact that central state enterprises are proportionally large in number and private enterprises are still undeveloped. The Hanoi area embraces 28% of the total number of central state enterprises but only 4% of that of private industrial enterprises in Vietnam. This implies that the most important factor for industrial development in the Hanoi area is to activate the state enterprises by applying various measures for their modernization.

Central state enterprises in the Hanoi area are operated by various ministries and organizations, including MLI (25 enterprises), MHI (17 enterprises), Ministry of Transportation (16 enterprises), Ministry of Defense (16 enterprises), Ministry of Agriculture and Foodstuffs (10 enterprises), and Ministry of Construction (9 enterprises). About two thirds of the central state enterprises had been established before 1979. It is notable that 22 central state enterprises have been recently incorporated in or after 1990.

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 for the industrial sector.

## 2) Employment in Industrial Sector:

Vietnam has a population of about 72.5 million as of 1994, of which 14.1 million people live in the Red River Delta or the North Economic Triangle (approx. 19.4%) and 2.19 million reside in the Hanoi area (approx. 3%). The economically active population (EAP) is reported to be 32.7 million, and about 10.8% of EPA is employed by the industrial sector (about 3.5 million). This implies that each enterprise employs 7.6 workers on a national average (inclusive of household enterprises).

Basic data on unemployment are quite limited, but it is reported that about 4.3% of EAP is unemployed in Vietnam. Presumably, the rate of under-employment is much higher in urban areas.

The questionnaire survey conducted by the Study Team clarified that 234 industrial enterprises in the Hanoi area are employing about 82,000 workers. Employment in the Hanoi area is classified per type of enterprise as follows:



### Industrial Employment in the Hanoi Area

Type of Enterprise	No. of Enterprises	No. of Workers	No. of Workers per Enterprise
Central State	154	57,503	373
Local State (HPC)	70	22,635	323
Private	10	1,828	183
Total	234	81,966	350

By category, the textile/apparel industry employs about 31,200 workers or 38.1% of the total number of industrial workers, while the fabricated metal/machinery industry employs about 20,800 workers (25.0%). Other industrial categories with a high rate of employment are food/beverage industry (11.7%) and chemical industry (8.6%). These 4 categories of industry account for 83% of the total number of employees of the industrial sector in the Hanoi area.

It is noted that the proportion of female employees in the industrial sector in Vietnam is relatively high. According to the questionnaire survey result, more than 40% of all industrial enterprises incorporated in the Hanoi area employ over 50% of female workers. This characteristic should be duly noted in planning regional industrial development.

### 3) Foreign Investments

Since the "Doi Moi" policy was adopted in 1986, the Government has promoted foreign direct investments into Vietnam. By the end of 1994, a total of 1,028 investment projects have been licensed and operated in Vietnam, with a gross invested capital of US\$10.9 billion. Investments in the manufacturing industry are most notable, with 599 projects (58%) and US\$4.2 billion (39%) in invested capital.

Foreign investment in the Hanoi area and the North Economic Triangle has been lagged, if compared with investment in the South Economic Triangle. However, since 1993, investments in the Hanoi area have accelerated, reaching 178 projects by the end of 1994.

### Foreign Direct Investments

	No. of Licenced Projects		Invested Capital (million US\$)	
	Total	Manufac. Sector	Total	Manufac. Sector
Hanoi Area	178	63	2,516	561
North Economic Triangle	235	89	3,524	1,102
Hochiminh Area	384	240	3,396	999
South Economic Triangle	521	338	4,644	1,921
Vietnam	1,028	599	10,901	4,193

Source: SCCI

#### 4) Gross Industrial Output

According to the questionnaire survey result, sales of 234 surveyed enterprises amounted to 3,377 billion dongs in 1993 (an average of 14.4 billion dongs per enterprise). Sales of the fabricated meal/machinery industry were the largest with 945 billion dongs (28% of the total sales), followed by food/beverage industry with 893 billion dongs (26%), textile industry with 634 billion dongs (19%), and chemical industry with 537 billion dongs (16%). Nearly 90% of the total sales of industries in the Hanoi area are produced by these 4 industrial categories.

The sales per employee in the Hanoi area is substantially low: 41 million dongs on an average. It is relatively high in the food/beverage industry (93 million dongs per employee) and chemical industry (76 million dongs), but it is quite low in the textile industry (32 million dongs) and apparel industry (12 million dongs per employee). This implies that labor productivity in the Hanoi area is substantially low in every category of industries.

Statistical data have not been made available on the sales or gross output of industries in the North Economic Triangle. However, the gross output of local enterprises (local state and non-state enterprises) by provinces is published in the statistical yearbook. The gross output of local enterprises (exclusive of central state enterprises) in 1992 was as follows:

**Gross Output of Local Enterprises**

	Local State	Non-state	Total (%)
Hanoi Area	221.6	167.7	389.3 (4.3)
North Economic Triangle	371.9	352.7	724.6 (8.1)
Hochiminh Area	1,003.4	1,562.9	2,566.3 (28.6)
South Economic Triangle	1,194.8	1,813.5	3,008.3 (33.6)
Vietnam (Total)	3,624.2	5,338.0	8,962.2 (100.0)

Note: Amounts are in billion dongs at 1989 constant prices.

Source: Statistical Yearbook

The above table indicates that the local state and non-state enterprises in the Hanoi area have lagged far behind, and that the development of non-state or private enterprises is to be strategically encouraged in the Hanoi area.

## 5) Gross Domestic Product

Statistical data on gross domestic product (GDP) are available on a national level. GDP of the industrial sector in Vietnam was 29,371 billion dong (approx. US\$2,670 million) in 1993, and 37,535 billion dong (approx. US\$3,410 million) in 1994 at current prices, which accounted for 22.0% of total GDP of the country. The sector attained an average annual growth rate of 13.4% during the period from 1990 to 1993. GDP of the manufacturing sector (exclusive of electricity, fuel and construction) amounted to 14,185 billion dong, showing an average annual growth rate of 11% in the past four years.

The growth rate of the industrial or manufacturing sector has been much higher than the other sectors of the national economy. SPC expects that the industrial sector will account for 25-26% of total GDP in the year 2000. It is noted, however, that contribution of the industrial sector is still at the level of a couple of decades ago in the Southeast and East Asian countries, as shown in the table below (refer also to Figure 2.1 attached).

**Contribution of the Industrial Sector**

	Vietnam 1993-2000	China 1970-1992	Korea 1970-1992	Thailand 1970-1992	Philippines 1970-1992	Indonesia 1970-1992
Agriculture	37 26-30	n.a	27 26 8	26 12	30 22	45 19
Industry	21 25-26	n.a	34 29 45	25 39	32 33	19 40
Services	42 44-49	n.a	38 45 47	49 49	38 45	36 41

Source: Vietnam: SPC

Other countries: World Bank, World Development Report, 1994

SPC predicts that the industrial sector will represent 33 - 37% of total GDP in the year 2010. This prediction appears to be reasonable, but it would be possible to expect a higher rate of contribution by the industrial sector in view of the potential for growth in this sector.

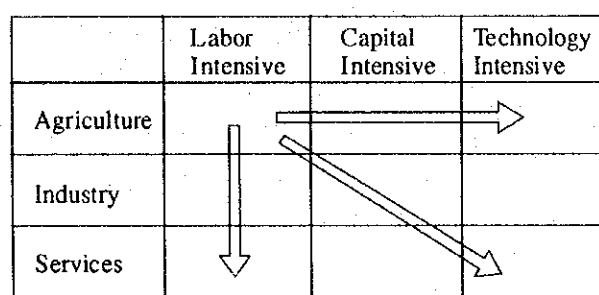
Judging from the low rate of employment in the manufacturing sector in the Hanoi area, contribution of the sector to the regional economy appears to be still relatively small, though statistical data in this respect are unavailable. Since the Hanoi area embraces a large urban population and urban area, manufacturing industries should be encouraged more and more to establish and invest in the Hanoi area.

## 2.2 Industrial Structure

The structure of industries in the Hanoi area and in Vietnam has been reviewed on the basis of production by category of industry, in order to formulate strategies for industrial development in the Hanoi area.

### 1) Structure by Sector

A general trend for sectoral development will be applicable in Vietnam and in the Hanoi area. Generally, the development is attained through a shift from the agricultural sector to the industrial and service sectors, and from the labor intensive sector to the capital and technology intensive sectors, as illustrated below.



The agriculture sector is the most important economic sector in Vietnam and it should not be despised in every respect. However, in and around the urban centers, like the Hanoi area, the development of the industrial sector is of greater significance and it is proposed to accelerate the industrial sector in a more strategical manner.

### 2) Structure of Manufacturing

The composition of the manufacturing industry in the Hanoi area and in Vietnam has been estimated as summarized below.

Structure of Manufacturing Industry

ISIC	Category	Hanoi Area	Vietnam
			(%)
31	Food/beverage/tobacco	26.4	49.2
32	Textile/apparel/leather	18.8	13.1
33	Wood/wood products	1.5	4.7
34	Paper/paper products	3.6	3.7
35	Chemicals	15.9	11.2
36	Non-metallic mineral	5.3	1.6
37	Basic metal	0.1	3.4
38	Fabricated metal/machinery	28.0	9.9
39	Other manufacturing industry	0.4	3.2
	Total	100.0	100.0

Source: Statistical Yearbook

The above table clearly shows that the fabricated metal industry (ISIC 38, which includes fabricated metal, machinery, electrical machinery, transportation equipment and other equipment) represents a much higher rate in the Hanoi area. The chemical industry (fertilizer, detergent, rubber and plastic manufacturing) and non-metallic industry (like brick manufacturing) are also concentrated in and around Hanoi city. On the other hand, the food/beverage industry is proportionally less concentrated in the Study area. Likewise, the paper product industry, including printing and publishing, is less developed in spite of the fact that Hanoi is the capital and administrative center of the country.

In this context, modernization of the fabricated metal/machinery industry is of primary significance for the development of the industrial sector in the Hanoi area. It is recommendable that high-processing type industry like fabricated metal/machinery and urban type industry like printing and publishing be promoted further in and around the capital.

For reference purposes, the industrial structures of Vietnam and other Asian countries are compared below (refer also to Figure 2.2 attached).

		Industrial Structures in Asia				
		(%)				
		Vietnam	China	Indonesia	Philippines	Thailand
31	Food/beverage	49.2	13.4	23.1	47.4	22.4
32	Textile/apparel	13.1	16.8	19.7	10.3	29.0
33	Wood products	4.7	1.1	10.9	3.4	4.0
34	Paper, printing	3.7	3.3	4.8	2.1	2.6
35	Chemicals	11.2	20.1	17.2	19.1	11.0
36	Non-metallic	1.6	5.4	3.3	3.3	4.6
37	Basic metal	3.4	10.7	5.9	2.6	1.1
38	Fabricated metal	9.9	27.5	14.4	8.2	17.9
39	Others	3.2	1.7	0.7	3.6	7.4
Total		100.0	100.0	100.0	100.0	100.0

### 3) Strategic Structuring of Industry

Industries in less developed countries or regions are dependent more on the "local material type" industries like food, beverage and leather industry, as well as wood and wood product industry. As the economy develops, "basic material type" industries like chemical industry, non-metallic mineral industry and basic metal industry are developed. When the economy develops further, "high processing type" industries like fabricated metal and machinery industry will be developed. "Urban type" industries like paper, printing and publishing will also be developed in and around the major

municipal centers. In Figure 2.2, the "local material type" industry, "basic material type" industry, "high processing type" industry and "urban type" industry are shown to develop in a clockwise direction as the economy develops.

In the event that this direction is applied to the Hanoi area, it is desirable that the "high processing type" industry be further developed and that the "urban type" industry be developed more in and around Hanoi city. This will contribute to a more balanced industrial development from the viewpoint of production structure. In this sense, too, it is of primary significance that modernization and further development of the fabricated metal/machinery industry be promoted in the Hanoi area.

In terms of trade promotion and industrial development, as discussed in Chapter 3.5 and Chapter 5.1, it is suggestible that Vietnam and the Hanoi area promote "import substitution industry" and "export-oriented industry" at the same time or in parallel, despite the fact that NIEs and ASEAN countries in general have first promoted import substitution industries and subsequently export-oriented industries.

### **2.3 Industrial Development in Hanoi and the North Economic Triangle**

Industrial development in the Hanoi area should be planned in the policy framework of industrial development in the North Economic Triangle which incorporates Hanoi, Hai Phong and Quang Ninh provinces (refer to Appendix-A.2).

#### **1) Industrial Policy for the North Economic Triangle**

The North Economic Triangle is endowed with natural resources, such as iron ore, coal, phosphate and limestone, and it has potential to develop basic industries. Economic infrastructure like electric power and transportation, is being developed or planned to be developed in this region. The North Economic Triangle has locational advantages for investments in the industrial sector, because (i) Hanoi is the center of administration, information, scientific research and education; (ii) economic infrastructure is being improved by the State; (iii) there exist sizable markets in the urban centers; and (iv) both human and natural resources are available.

SPC envisages that the North Economic Triangle will be developed under the following strategies over the short and medium terms:

- To upgrade and expand the production capacity of existing factories, paying a particular attention to machinery, spinning, plastic products, food processing and other medium-scale light industries;
- To diversify the product mix of the above categories of industry and export the products;
- To build new factories for export-oriented light industries, such as apparel, footwear, and leather through joint ventures;
- To develop a machinery industry for the domestic market and exports

In longer terms, SPC expects that the development strategies for this region be further promoted focusing on the following objectives:

- To construct new machinery factories and establish the electronic industry;
- To establish a new export-oriented light industry including highgrade garment industry;
- To construct new factories for the production of steel, cement, coal-based fertilizer, spinning, and food processing industries.

The development strategies set by SPC are generally in line with the suggestions presented by the Study Team. It is noted, however, that SPC has neither a nationwide industrial location policy, nor integrated regional economic development plans for each region.

- ☐ In this context, it is strongly recommended to work out a master plan for nationwide industrial location, which will serve as a guideline for well balanced industrial development in each region of the country. This master plan will be worked out through collaboration between SPC and a foreign technical cooperation agency.

## 2) Basic Policy for Industrial Development in the Hanoi Area

The direction of industrial development in the Hanoi area will be further discussed in detail in Chapter V. However, in the light of the regional industrial development policy set up for the North Economic Triangle as noted in the foregoing section, the basic policy for industrial development in the Hanoi area is briefly discussed in this section.

On the basis of a review of the industrial structure in the Hanoi area and in Vietnam as a whole, as well as in view of the regional industrial development strategies envisaged by SPC, the Study Team provisionally proposes that the industrial

modernization and development in the Hanoi area will be mainly focused on the following types of industries:

- High processing type industry, including manufacturing of machinery, equipment and metalworking industry;
- High technology type industry, including electronics, computer and parts, home electric appliances;
- Research and development type industry, including computer software;
- Urban type industry, including printing and publishing;
- Other type industry that may possibly be developed as supporting industries for the above

Studies in the subsequent Chapters have been made keeping these background and basic policies in mind.



### **III. MACROSCOPIC ISSUES INHERENT TO INDUSTRIAL DEVELOPMENT**

In Chapter II, general characteristics and settings of industrial activities in the Hanoi area have been briefly reviewed. In this Chapter, policies and environments inherent to industrial development will be reviewed to work out strategies for institutional and financial renovation which will be required for the accelerated development and modernization of the industrial sector. A review will also be made on investment promotion and trade promotion which are closely related to industrial activities in the Hanoi area, as well as in Vietnam as a whole.

#### **3.1 Renovation toward Market-Oriented Economy**

Since the "Doi Moi" policy was adopted in 1986, a great number of reforms, including legal and institutional, have been introduced, creating economic stability and a basis for steady growth of the economy. Vietnam's economy is stepping into a new stage of renovation to attain an accelerated growth of economy, including growth in the industrial sector (refer to Appendix-B.1 and B.2).

##### **1) Lessons Provided for New Stage of Renovation**

Economic performance in the High Performing Asian Economies has been a great achievement since the 1970s. In brief, the super economic performance has been achieved through (i) macroeconomic stability and confidence in government policies; (ii) industrial development serving as traction power for economic growth; (iii) availability of educated human resources; (iv) higher savings and increasing capital resources; (v) introduction of foreign investments and advanced technologies; (vi) export-oriented policy; and so forth.

In the last two decades, the High Performing Asian Economies adopted various measures to accelerate industrial development and establish a favorable industrial structure. These measures include, but are not limited to: (i) strenuous efforts to improve the basic economic infrastructure; (ii) application of favorable long-term financing for specific industries to be fostered; (iii) provision of various incentive measures, including application of accelerated depreciation of specific capital investments, in industries to be promoted; (iv) permission of preferential interest rates to specific subjects; (v) application of foreign trade insurance to specific exports; and (vi) provision of subsidies to specific areas of research and development (R&D).

These policies and measures are not totally applicable for the development of the industrial sector in Vietnam, but lessons and experiences accumulated in the High Performing Asian Economics should be referred to in formulating strategies for industrial development in the Hanoi area and in Vietnam as a whole (refer to Appendix-B.1)

## 2) Reform/Renovation toward Market-Oriented Economy

Appreciable achievements have been attained under the "Doi Moi" systems in past years. To move into the new stage of "Doi Moi", however, more constraints and problems should be overcome to modernize the industrial and economic activities. For instance:

- Measures to increase income sources should be further promoted. In order to increase income sources, diversification of industrial structure will be required.
- An effective banking system to convert savings/income into investment capital should be strongly promoted.
- Effective measures to increase job opportunities should be taken in the industrial sector to absorb current surplus man-power, as well as to absorb surplus employees made available through modernization of state enterprises.
- Efficient policy directions and management systems should be established for industrial development, including institutional and administrative reforms, export promotion strategy, technology transfer, etc.
- Social conflicts and illegal activities should be prevented, including eradication of smuggling, corruption, etc.

To attain accelerated development in the industrial sector in the new stage of "Doi Moi", the common targets for renovation as noted above should be basically followed.

### 3.2 State Enterprise Reform

As noted in Chapter II, a large proportion of industries in the Hanoi area are state enterprises. Reform and renovation of state enterprises are, therefore, a great concern for the modernization of industries in the Hanoi area, as well as in Vietnam as a whole (refer to Appendix-B.3).

## 1) Current Situation and Settings for State Enterprise Reform

In the Hanoi area, there are 154 central state enterprises according to the result of the questionnaire survey conducted in the course of this Study (it was reported to be 144 enterprises as of 1993 in the Statistical Yearbook), which accounted for 28% of all the central state enterprises in Vietnam. Over 70% of gross output of industries in the Hanoi area was produced by central and local state enterprises.

In Vietnam, there were about 12,000 central and local state enterprises with about 2.1 million workers before the initiation of the re-registration process in Nov. 1991. The number of state enterprises in the industrial sector was about 2,030 in total (520 central state enterprises and 1,510 local state enterprises), employing about 706,000 workers in 1993. 20% of central state enterprises and 60% of local state enterprises are reportedly operating in the red, creating a financial burden to the State. State enterprises are largely dependent on financing by state-owned commercial banks: 92% of credits to state enterprises were provided by state-owned commercial banks as of the end of 1993. More than 90% of loans extended by the two state-owned commercial banks (BIDV and Vietcombank) are for state enterprises.

Since 1988, efforts have been made to reform state enterprises. It was first agreed that operating subsidies to state enterprises be eliminated, that the enterprise autonomy be expanded, and that state enterprises be exposed to market forces in a competitive environment, including equal tax treatment for state and private enterprises. In 1991, re-registration of state enterprises was initiated under the responsibility of SPC. The criteria of qualification for re-registration were: (i) existence of demand for their products; (ii) ability to preserve capital; (iii) ability to repay their debts; (iv) no adverse environmental impact; and (v) clarity of ownership of their assets, including land use rights.

Through the re-registration in 1991-93, inefficient and chronic loss-making state enterprises (2,000 enterprises in total) were liquidated, poorly performing state enterprises were merged (3,000 enterprises), and the remaining 6,050 enterprises were re-registered (1,860 central state enterprises and 4,190 local state enterprises), except for about 1,000 enterprises which were yet to go through the re-registration process. Re-registration of unions and corporations was also scheduled to be executed in 1993-94. It is also notable that a National Debt Resolution Committee was set up in March 1991.

## 2) Equitization/Privatization Program

At present, state enterprises are tentatively categorized into the following groups:

- Category-1: Non-equitization (Full government control)
- Category-2: Minor-equitization (Government control)
- Category-3: Equitization (Autonomous)

It is envisaged that the capital share of the Government in Category-3 should be less than 50%, and full autonomy should be extended to the enterprises. It is suggested that this provisional categorization will be finalized as early as possible, by demarcating strategic sectors and non-strategic sectors.

For state enterprise reform 2 approaches are conceived: (i) to reform the state enterprises by modernization and rationalization; and (ii) to privatize the state enterprises. For the reform of the manufacturing sector, it is recommendable that priority be accorded to the equitization/privatization of central and local state enterprises.

The pilot equitization program initiated by SPC in April 1993 with the cooperation of the World Bank has not made satisfactory progress to date. Out of the 21 state enterprises selected for the pilot program, only 3 enterprises in Hochiminh city have completed the equitization process as of June 1995.

To promote equitization/privatization of state enterprises in the industrial sector, it is recommended that actions and measures be taken on the following issues (refer to Appendix-B.3, Para. 3):

- (a) Clear determination of the Government on the privatization policy, including enactment of the "Equitization/Privatization Law";
- (b) Creation and enhancement of "equitization/privatization funds", and "venture capital funds", including possible introduction of foreign capital into equitization of state enterprises, as well as enhancement of investments in the equitized enterprises;
- (c) Evaluation and clearance of non-performing assets and debts through the National Debt Resolution Committee (formed in 1991);

- (d) Reinforcement of the "General Department for Management of State Capital and Assets of State Enterprises" recently established under MOF;
- (e) Establishment of an employment promotion system, including early retirement allowance, establishment of a job offer/hunting information network and job placing offices, etc.;
- (f) Provision of adequate and clear information on the financial status of enterprises (transparency of information), and adoption of modern accounting standards by state enterprises;
- (g) Separation of ownership and management of state enterprises, and determination of the degree of state involvement; and
- (h) Provisional approval of single-ownership companies, by amending the Company Law.

In any case, it is suggested to carry out an in-depth study of the problems and obstacles encountered in the course of the pilot equitization program, and to work out specific countermeasures in legal, institutional, financial and other aspects.

The Government has an intention to form a "General Company" for each of dozen industries, including steel, rubber, paper, textile/garment, food processing, etc. Although the intention of the Government is understandable, the formation of monopoly in each industrial sub-sector will lay restraints on free competition among enterprises which is pre-requisite for the market-oriented economies. It is recommended that this issue be further studied before creating the general companies.

### 3) Privatization through Restructuring of Industries

It appears that SPC and the World Bank are promoting the pilot equitization program under macroscopic frameworks and approaches. Through factory inspections in the course of this Study, however, the Study Team had the impression that the microscopic approaches are equally important for restructuring industries, particularly for the privatization of manufacturing enterprises.

As it is pointed out in Chapter 4.1, industries in the Hanoi area have problems with low productivity and a low operating rate of production facilities. For instance, the operating rate of equipment and facilities in machinery and metalworking industries is as low as 20% or less in most workshops. With such a low rate of production, these

industries can hardly be privatized without some restructuring. For privatization through restructuring, it is suggestible to introduce a divided work system or subcontract system so that under-utilized equipment and facilities will be disposed of or sold out to private companies to be newly organized as venture businesses.

- In this context, it is recommended that further studies be executed separately to work out a model of privatization through restructuring of industries. It is proposed that a model case study be taken up for establishment of one or two foundry industries in the Hanoi area, as noted in Chapter 4.2. Such a study might be executed with technical assistance under a foreign cooperation program.

### **3.3 Financial and Tax Reform**

To attain accelerated development in the industrial sector, improvement of financial and tax systems is indispensable. These systems have been briefly reviewed in relation to the industrial development in the Hanoi area (refer to Appendix-B.4 and B.5).

#### **1) Banking Systems and Reform**

The State Bank of Vietnam (SBVN) is expected to function as the Central Bank of Vietnam. SBVN ceased direct lending to the productive sector in 1991 and terminated direct financing of the State budget in 1992. Besides, the following 4 state-owned commercial banks have been incorporated:

- Bank for Investment and Development of Vietnam (BIDV), incorporated in 1957 for financing medium- and long-term credits
- Bank for Foreign Trade of Vietnam (Vietcombank), incorporated in 1963 for banking operations in foreign trade and foreign exchange
- Vietnam Agricultural Bank (Agribank), incorporated in 1987 for banking operations in the agriculture, forestry and fisheries sector
- Industrial and Commercial Bank of Vietnam (Incombank) incorporated in 1990 for banking operations in the industrial, trade and service sectors.

Total assets of the state-owned commercial banks amounted to 35,150 billion dongs in 1993 (the assets of Incombank totaled 8,284 billion dongs). The average capital/assets ratio was 5.5% (the ratio of Incombank was 4.7%). Average profitability of these banks was 16% (Incombank: 13%).

Prudential regulations have been stipulated by SBVN in such a manner that (i) loans to a single customer should not exceed 10% of equity capital and reserve of the bank, (ii) loans to insiders and related parties should not exceed 5% of equity capital, (iii) equity participation should not exceed 10% of the customer's equity capital, and (iv) capital/assets ratio should be more than 5%.

- ☐ It is suggestible, however, that the prudential regulations include two additional provisions: (i) adoption of international banking accounting standards; and (ii) specific guidelines concerning loan classification and methods for provisioning for possible losses from overdue accounts.

Assessment and comparison of the financial performance of the banks in Vietnam cannot really be made until international banking accounting standards are adopted.

## 2) Other Financial Reform

Unification and devaluation of the exchange rate have been applied since 1986. The exchange rate of the dong has been fairly stable since 1991, and the stability of the exchange rate will certainly contribute to the performance of industrial activities and the national economy.

The interest rate policy was also reformed in 1989-1993, including introduction of maximum and minimum interest rates set up by the type of loans. Recent positive interest rates are a significant result of the interest rate reform. However, the interest rate structure is still distorted in view of the fact that (i) deposit interest rates for economic units are lower than those for households; (ii) lending interest rates for fixed capital loans (long-term loans) are lower than those for working capital loans (short-term loans); and (iii) if certain conditions are met, preferential interest rates (1/2 ~ 1/3 of normal market rates) are applicable to state enterprise projects.

- ☐ It is, therefore, recommended that the differentiation between deposit interest rates be removed. It is further recommended that privileged interest loans to state enterprises be abolished so that a unified interest rate can be applied to all industrial and economic activities.

Mortgages of land use rights have been legalized with the enactment of the Land Law in 1993. However, the creation of mortgages of land use rights by state enterprises requires government approvals and they are not easily obtainable.

### 3) Increase in Available Funds

About two thirds of credits were provided to state enterprises in 1993. Long-term lendings have been limited to state enterprises, and credits to the private sector have been extended virtually through short-term lendings. Private industrial enterprises are therefore suffering from a severe shortage of funds, both in the short term and long term. Since private industrial enterprises have insufficient mortgages for borrowing, it is suggestible to set up a "guarantee scheme" to provide financial assistance to private industrial enterprises.

Bank savings mobilization is inadequate and below its potential. According to a research by SPC and UNIDO in 1994, "Gold and US Dollar Currency" kept by the people represented about 48% of total financial assets held by the people. Thus, significant amounts of private savings are not circulated in the official financial markets. This is mainly attributable to a lack of confidence in the banking systems among the people in Vietnam.

- ☐ To enhance confidence in the banking systems, it is strongly recommended that (i) consistency of government policies be maintained; (ii) the supervisory function of SBVN over commercial banks be reinforced in order to secure their rational operation; (iii) a bank deposit insurance system be established in order to reduce the risk of depositors; and (iv) the interest rate structure be rectified.

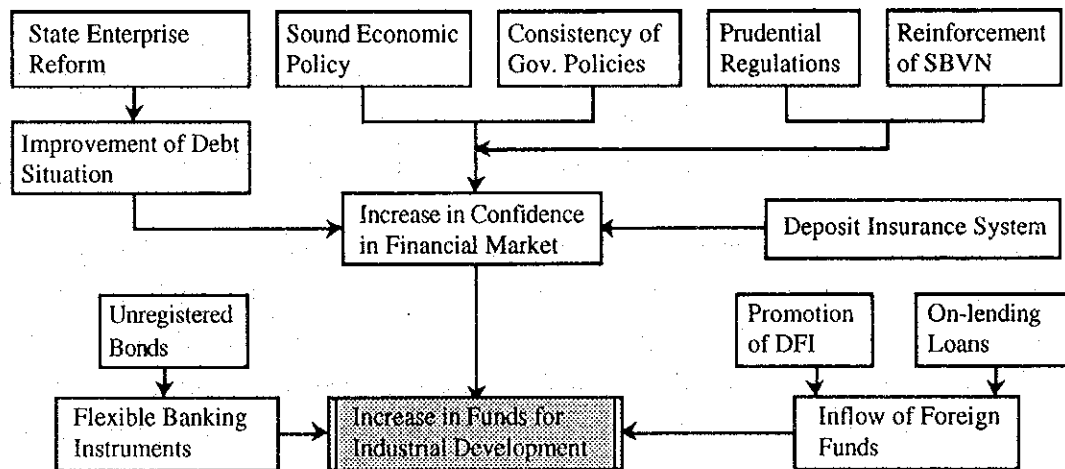
At the same time, it is suggestible to apply more flexible banking instruments to mobilize the privately reserved assets to the official financial markets (banking systems).

- ☐ It is recommended, in this context, that issuance of registered bond be admitted as a realistic policy to mobilize the privately kept fund to the official markets.

The following diagram illustrates the measures to be taken for increase in funds for industrial development:



### Increase in Funds for Industrial Development



#### 4) Institutional Financing to Promote Privatization

As noted in Section 3.2, state enterprise reform is a prerequisite for the modernization of the industrial sector, and financial management is required for such a reform. It is therefore suggested that an policy-based finance scheme be worked out to promote equitization/privatization of state industrial enterprises and to accelerate the development of industries in the private sector.

- ☐ It is recommended, therefore, that an in-depth study be conducted on the establishment of a "privatization fund" and "venture capital fund" in order to extend policy-based financing for investments in the privatized enterprises and small venture capitals for industries in the private sector. These funds are provisional in nature, and they may be abolished once their objectives are met.
- ☐ It is recommended at the same time that a public guarantee scheme be organized by the Government for the private sector, since most of private industries have insufficient mortgages to obtain funds from the financing institutions.

#### 5) On-lending (2-step) Loans

Bank savings mobilization, though it is to be promoted by the Government, will take time, and is insufficient to meet the requirements for industrialization and modernization of industries. It is therefore necessary to acquire funds from foreign

financing institutions and to lend them to industrial enterprises through a state-owned commercial bank. This financing system is called on-lending loans or 2-step loans.

- ☐ In this context, it is recommended to request international financing agencies, on a bilateral or multi-lateral basis, to provide funds for on-lending (2-step) loans for modernization of the industrial sector.

It is provisionally planned that such on-lending (2-step) loans will be utilized for (i) modernization of the management of enterprises, including establishment of accounting standards and computerization; (ii) acceleration of state enterprise reform and privatization; (iii) promotion of small and medium scale industries under private initiatives; (iv) relocation of factories in the industrial estates; and (v) promotion of environmental protection facilities. It is proposed that on-lending (2-step) loans will be financed externally, starting with a pilot scheme, and canalized through Incombank. When the pilot operation turns out to be successful and the bank is trained in the management of loans, external loans may be expanded to a reasonable amount to meet the requirements for industrial modernization and development.

#### 6) Tax Reform

There are 9 taxes applicable in Vietnam: (i) profit tax; (ii) special consumption tax; (iii) resource tax; (iv) income tax; (v) turnover tax; (vi) property tax; (vii) custom duties; (viii) land use right transfer tax; and (ix) tax on agricultural land use. In addition, there are 75 fees and charges imposed on various transactions. Among these taxes and levies, the profit tax, income tax, turnover tax, capital tax on state enterprises, and depreciation charges to state enterprises are particularly important and should be taken into account in formulating a plan for industrial modernization.

The profit tax is imposed on taxable incomes of both state and private enterprises. The tax rates are differentiated among the sectors: 25% for heavy industries, 35% for light industries, and 45% for service industries. A special tax rate is also applied to small enterprises.

- ☐ It is recommendable, in this context, that the profit tax rates be unified among all the sectors. In the event that some tax incentives are needed for the promotion of some specific sectors, it is recommended to apply other systems, like accelerated depreciation, investment tax rebate and other tax concession measures.

The turnover tax is irrational. It is imposed on all products sold in Vietnam, except for (i) agricultural products subject to agricultural tax; (ii) products subject to special consumption tax; and (iii) products to be exported. Differentiated rates of turnover tax are applied: 0% - 10% for the low tax sector like mining, metalworking, cement production, etc.; 30% - 40% for the high tax sector like shipping, lottery, etc.; and 1% - 6% for other sectors. When a subcontracted product is delivered, a turnover tax is imposed on the product value, and it elevates the assemblers' purchase price of the subcontracted product and the selling price of the final product. The turnover tax is a great obstacle for modernization of industries in Vietnam.

- ☐ It is strongly recommended that the turnover tax be abolished and replaced by the value added tax (VAT). VAT was introduced on an experimental basis in 1993, but its application was quite limited. It is repeatedly recommended that the VAT system be introduced to its full extent. This is indispensable if industries are to be modernized through the introduction of a divided work system and subcontract system, which are further discussed in Chapter 4.2.
- ☐ For the introduction of VAT, it is prerequisite to modernize the accounting standards, and to maintain proper recording of books. A system of certified public accountant (CPA) will also be required. It is recommended that an in-depth study be made on how to introduce VAT in Vietnam.

The capital tax is charged on the capital of state enterprises. The rate of capital tax ranges from 4.8% to 6% per annum. This rate is much lower than the market interest rates as previously noted.

- ☐ It is therefore recommendable that the capital tax on state enterprises be lifted so as to establish an equal business footing between state enterprises and private enterprises.

The depreciation charge was another contribution from state enterprises to the government revenues. The depreciation amount of fixed assets of state enterprises, computed in line with the government guidelines, is paid to the Government. However, in June 1995, the Government abolished the depreciation charge, and each state enterprise was allowed to retain the depreciation amount. This decision is applause from the viewpoint of modernization of manufacturing industries.

In addition, the accounting standards, including cost accounting standards, should be modernized. The modern accounting standards are indispensable tools for modernizing the management of industrial enterprises, both state and private.

Further, the collection systems of taxes and fees are complicated. For instance, 9 taxes are generally collected by the Central Government (actually the Ministry of Finance). However, the profit tax on non-central-state enterprises and private enterprises, as well as the resources tax (except for crude oil), are collected by the provinces. Tax collectors located in the provinces directly belong to the General Department of Taxes of the Ministry of Finance. Tax revenues collected by the Central Government for the provinces are subsequently distributed to the provincial governments, who in turn distribute them to the districts. The profit tax accounts for 1.9% of total revenue of Central Government, personal income tax for 0.6%, and turnover tax for 2.8%. The share of these major taxes is extremely lower than it should be.

- o It is recommended, in this context, that the tax collection capability of the Ministry of Finance be reinforced, by means of increasing the number of tax collectors, improving administration of tax offices, and strictly executing the tax laws and regulations.

### **3.4 Administrative Reform**

Reform of the administrative systems is one of the major issues for the renovation of economic and industrial development. The economic managerial systems and administrative procedures in Vietnam have been improved and renovated gradually in recent years. However, there is still much to be improved for accelerated economic and industrial development (refer to Appendix-B.6).

#### **1) Major Constraints**

A number of measures have been taken by the Government to improve efficiency and administrative ability in the direction of making it more consistent with the economic development and renovation. However, there still remain confusion and restrictions in the exercise of laws and regulations, as well as in the administration and coordination of the functions of public services. From the viewpoint of industrial development, some of the major constraints of the public administration are cited below.

(a) Lack of a unified policy for industrial development

The central state industrial enterprises in the Hanoi area are multi-fold. As noted in Chapter 2.1, they are operated and managed by a number of ministries and organizations, in addition to MHI and MLI. Factories and enterprises are operated independently without coordination among them and without an integrated policy for their modernization. It appears that a unified policy for industrial development has not been established even between MHI and MLI.

(b) Separated roles for policy making and management

Almost all the ministries have their own state enterprises which they manage. Policy making contradictory to the management of state enterprises is difficult and ineffective. It is therefore desirable to separate these two distinct roles when reforming the administration.

(c) Lack of efficient and integrated services

Ministries and agencies are operating independently with minimum coordination among them, which results in a lack of efficient and integrated services for investors and enterprises in the industrial and other sectors. Duplication of managerial control is also observed in central and local governments.

(d) Closed form of administration

Data and information required for industrial and other business operations are not necessarily disclosed, and administrative procedures are rather nontransparent. Exchange of information even among the ministries and agencies is insufficient.

Improvement of these constraints will require much more efforts and time, but measures should be taken to improve them step by step.

2) Direction toward Improvement

The Government is studying to enact the Law of Administrative Reform, in order to establish a more efficient administration system. It is desirable that reform of the administration systems incorporate such specific suggestions as proposed herein, particularly for modernization of the industrial sector.

- (a) Streamlining of ministries and committees, with the aim of making an integrated policy for industrial development

As pointed out above, ministries are engaged in policy-making and management of state enterprises at the same time. It is desirable that ministries/committees concentrate on policy-making, and be released from the management of state enterprises. At the same time, it is desirable that ministries be re-organized to form a central ministry responsible for the formulation of a unified policy for the development and modernization of the industrial sector.

- ☐ In this context, it is recommendable to study the possibility of integrating MHI and MLI to form a new Ministry of Industry (MOI). A study on the possibility to further integrate the function of trade, currently under the Ministry of Trade and Tourism, might be recommendable at the same time. (It is said that an integration of MHI, MLI and Ministry of Energy is being planned, and it would be discussed officially in October 1995).

In the event that MOI or the Ministry of Industry and Energy is organized, unified policy-making for the restructuring and modernization of the industrial sector will be more practical and more efficient.

- (b) Establishment of the "General Department for Management of State Capital and Assets of State Enterprises"

Ministries and local governments are operating and managing state enterprises. As reform of state enterprises progresses, state enterprises will become more self-reliant, and the ministries may become more policy-oriented. In other words, separation of ownership and management will occur. Under these circumstances, establishment of a state organization for unified management of state properties and assets has been studied by the Government. This state organization is called the "General Department for Management of State Capital and Assets of State Enterprises (GDMCA)".

GDMCA was established under the Ministry of Finance in May 1995. This decision is applause, since it would contribute to the promotion of privatization in the industrial sector. Some additional measures should be taken to accelerate privatization in the industrial sector.

- ☐ It is recommended that an additional study be conducted on the establishment of a high level committee for privatization which should

be responsible for evaluating the value of assets and debts of state enterprises, preparing plans for selling out state assets, and preparing programs for merger, liquidation, joint venture or equitization of state enterprises.

(c) Establishment of a "Board of Investment"

As discussed in Section 4.3, SCCI is responsible for handling foreign investments and it has been successful in attracting a certain level of foreign investments to Vietnam. However, it is pointed out that procedures for getting investment licenses are complicated and time-consuming, and that SCCI is not responsible for domestic investments.

- ☐ It is therefore recommended that a study be made on the possibility of setting up a Board of Investment (BOI), which will serve as a sole agency for handling both foreign and domestic investments, providing one-stop-services to the investors.

The proposed BOI will be responsible for (i) evaluation and approval of foreign and domestic investments; (ii) promotion of joint foreign/local investments and subcontracts by foreign investors to local enterprises; (iii) promotion of policy, legal framework and standards for investment promotion; (iv) determination of investment incentives; (v) release of data and information with regard to investment and marketing; (vi) approval of the land use rights in consultation with the concerned local authorities; and so forth. BOI may be evolved by expanding the responsibility of SCCI.

(d) Establishment of a "Vietnam External Trade Organization"

Vietnam joined ASEAN in July 1995, and the external trade will become more significant in the future. Trade is directly related to industrial development.

- ☐ It is recommendable, in this context, to set up a special semi-governmental organization, provisionally called the "Vietnam External Trade Organization (VETRO)". Alternatively, VCCI should be reinforced toward this direction.

### 3.5 Investment and Trade Promotion

Investment promotion and trade promotion are closely related to the development and modernization of the industrial sector, and a brief review and study has been made on the investment climate, constraints for investments, and measures to be taken for the promotion of investments and trade (refer to Appendix-C).

#### 1) Investment Climate and Achievement

Promotion of foreign investments was initiated in the 1960s in Thailand, Indonesia, the Philippines and Malaysia, and in 1978 in China. The investment climate of Vietnam has been compared with these Asian countries, particularly China, Thailand and Indonesia where investments are booming (refer to Appendix-C.1 for details).

Privileges and incentives granted for investments in Vietnam are by no means inferior to incentives offered in other countries. Besides, tax incentives for foreign investors in Vietnam are superior to other countries. In general, Vietnam has (i) a better quality and lower wage labor force; (ii) abundant natural resources; and (iii) potential domestic markets. On the other hand, Vietnam has the disadvantages of lacking experience and less efficient management services. These disadvantages can be overcome in any way.

The accumulated number of licensed projects under direct foreign investments reached 1,028 (exclusive of cancelled investments), with a total invested capital of US\$10.9 billion as of the end of 1994. Investments in the Hanoi area have increased, particularly in 1993-1994. The accumulated number of licensed investments in the Hanoi area reached 178 by the end of 1994 (invested capital of US\$2.5 billion), consisting of 145 investments in the form of joint ventures, 19 100% foreign investments, and 14 business contracts. Of this total number of investments, 63 were investments in the manufacturing sector in and around Hanoi (invested capital US\$560 million).

SCCI is the sole office to issue licenses for all forms of investments, as defined under the Law on Foreign Investment. SCCI is expected to coordinate with such organizations as SPC, the sponsoring ministry, MOSTE, SBVN, and local government authorities. In the past, a number of investors have claimed that SCCI procedures in approving the licenses are time-consuming, and the World Bank is extending advisory services to streamline foreign investment approval procedures.



## 2) Major Constraints in Foreign Investment Promotion

Although SCCI has performed remarkably well and accumulated experience in licensing foreign investments, there still remains much to be improved for more efficient management and further promotion of foreign investments. Some of the major constraints and the proposed countermeasures are discussed below.

### (a) Need for One-Stop-Services

A number of investors have stated that licensing is still rather time-consuming and procedures are not so transparent. It is understood that coordination among the authorities concerned is a time-consuming procedure.

- ☐ To improve the efficiency of licensing procedures, it is recommended that an organization offering one-stop-services be established. As proposed in Section 3.4, it is suggestible to study the possibility of establishing BOI by expanding the functions and responsibilities of SCCI.

### (b) Constraints in Acquisition of Land Use Right

Many foreign investors point out that the acquisition of land use right is problematic, and that prices of land and compensation to former inhabitants are unreasonably high. This is particularly true for foreigners and foreign investors.

- ☐ It is recommended that a reasonable mechanism be set up for land acquisition, compensation and rent, particularly for industrial development in and around the urban areas.

### (c) Difficulty in Getting Acquainted with Desirable Local Partners

For foreign investors, it is rather difficult to locate appropriate local partners. On the other hand, local factories are not ready to launch new businesses. Many potential foreign investors who visited factories to find possible partners, found that the working environment was extremely poor, as pointed out in Chapter 4.3, and they have a bad impression on the discipline in operation and management.

- ☐ It is therefore recommended that SCCI, or eventually BOI, be in a position to introduce appropriate local partners or suppliers of parts, and advise the existing factories to improve their discipline and environment to a standard acceptable to potential foreign investors.

(d) Clarity and Consistency in Regulations

New laws and regulations are not always clear or consistent with other legal frameworks. Frequent changes and amendments in laws, regulations, circulars and ordinances applicable to foreign investments have been a great concern for foreign investors.

- ☐ It is recommended that the laws, regulations, circulars and other ordinances be promulgated in a form consistent with other legal frameworks, be publicly notified, and remain unchanged for a reasonable length of years.

(e) Participation in Equitization of State Enterprises

At present, foreign investors are not allowed to hold shares of equitized state enterprises, though reforms of state enterprises will require large capital investments for renovation. Introduction of advanced foreign technologies will also be required.

- ☐ It is desirable that foreign investments be allowed to hold shares in equitized/privatized of state enterprises to a certain limit, as it is discussed in Section 3.2.

(f) Institutional Framework to Promote Technology Transfer

Local industries are in need of advanced technologies to modernize their factory operations, but they have limited access to foreign investors who are in a position to extend advanced technologies.

- ☐ It is recommended that an institution be set up to act as a mediator for technology transfer. It is also recommended that additional incentives be given to those foreign enterprises who actively conduct technology transfer to the Vietnamese enterprises, by amending the Foreign Investment Law and its regulations.

Through the questionnaire survey with potential investors in Japan, many other suggestions have been presented for further promotion of investments, particularly in the Hanoi area and in the North Economic Triangle (refer to Appendix-C.1, Para 5) and 6) for further details).

It is additionally noted that the development of industrial estates will play a significant role for the promotion of foreign investments in the manufacturing sector. It is because the industrial estates will be equipped with necessary infrastructure, and they will offer facilities and services required for operation of the factories. (A plan for industrial estate development is presented in Chapter VII and VIII.)

### 3) Promotion of Domestic Investments

The Law of Internal Investment Encouragement was promulgated in June 1994. The law defines activities for promotion, measures for encouragement, financial support, privileges, tax incentives, etc. for domestic investment. Yet it is uncertain how these measures will be practically applied to promote domestic investments. Detailed provisions for the implementation of this Law should be prepared as soon as possible.

In fact, promotion of domestic investments is closely related to the privatization programs of state enterprises. The most serious concern is how the funds or loans are to be made available to domestic investments and to acquire shares in privatization programs. As noted in Section 3.3, state-owned commercial banks are in short of funds, and effective measures are not taken to attract the return of private savings to the official financial markets.

- ☐ In this context, too, it is recommended that holding of dollar bank accounts be allowed and unregistered bonds be issued to mobilize privately reserved local assets, and that foreign funds be made available through on-lending (2-step) loans, as noted in Section 3.3.

Financial support for the promotion of domestic investments is also required when domestic investors join foreign investors, and when they search for foreign advanced technologies.

- ☐ Since the requirements for financial support for domestic investors in the industrial sector will rapidly increase in the future, it is recommended that the state-owned commercial banks make their utmost efforts to obtain internal and external funds for investments through domestic investors.

Such a financial support is particularly needed for the modernization of the industrial sector in the Hanoi area. Funds are less available in the North Economic Triangle than in the South Economic Triangle.

- ☐ It is recommended that the proposed on-lending (2-step) loans, extended by external financial sources, be directed primarily to the investments in the Hanoi area or in the North Economic Triangle at the initial stage of their operations.

Reinvestment in the domestic market by joint venture companies should also be encouraged, by amending a part of the Foreign Investment Law. Likewise, foreign companies who extend advanced technologies to domestic investors should be encouraged by some extra preferences or incentives, because advanced technologies are desperately needed for renovation of the industrial sector.

#### 4) Trade Promotion

Trade policy is closely related to industrial development policy. It is generally recognized that the industrial development policy of Vietnam is strategically oriented to an "import substitution policy" and an "export-oriented policy" at the same time. At present, due to prevailing smuggling, Vietnamese domestic products are competing with smuggled goods. In other words, Vietnam has to compete in both foreign market and domestic market. "Import substitution" is, in this respect, the same as "export promotion" in Vietnam.

Import and export control in Vietnam has been significantly relaxed in recent years. It appears that Vietnam is moving in the right direction in its trade policy in line with the liberalization of its economy.

Foreign trade certificates were previously required for export of products and import of materials. For manufacturers, however, this requirement has been recently abolished. Likewise, export permits which had been required for the export of all products, have been abolished since July 1994, except for the export of crude oil, rice and wood products which are subject to export quota and control. On the other hand, import permits are still required, and they are obtained at the local departments of the Ministry of Trade located in 6 major cities, except for 15 products which are subject to import quota and approval at the central office of the Ministry of Trade.

The tariff code was formerly managed by the Ministry of Finance. Custom duties are classified in 28 categories, ranging from 0% to 200%. The average rate is

approximately 12%. For instance, custom rates range from 35% to 50% for consumer products and 30% for steel for construction. An escalated custom rate system is adopted for motor vehicles. In Vietnam, a duty drawback and exemption system is actually working, and it is contributing to export promotion. Industries located in export processing zones (EPZ) are utilizing this drawback and exemption system.

- ☐ From the viewpoint of industrial development policy, it is advisable that custom duties on materials required for processing be substantially lowered. (The accelerated custom rates on motor vehicles should however be maintained, because motor vehicles are not easy to smuggle and automobile industry should be a key industry as an assembler of industrial products to be promoted for production in the country.)
- ☐ It is recommended further that tax concession measures, such as investment tax credits or tax concessions for overseas market development costs, be provided to qualified exporters. It is also advisable that financial arrangements for export and export insurance schemes be studied for further trade promotion.

It should be reminded that turnover tax rate should be unified and significantly reduced to relatively low rate. Say 5%, until introduction of VAT, as turnover tax increase costs of Vietnamese products and deteriorate competitiveness thereof against foreign products not only in the international market but also in the domestic market of Vietnam.

In addition, the institutional framework for trade promotion should be reinforced gradually, including the establishment of a government-supported organization, like VETRO, as proposed in Section 3.4.

As Vietnam joined ASEAN in July 1995, further efforts in liberalization of trade policy and in promotion of trade with ASEAN would be required in the future. It is reminded that trade policy and trade promotion are closely related to the renovation/modernization of the manufacturing industries in Vietnam.



## IV. MICROSCOPIC ISSUES INHERENT TO INDUSTRIAL OPERATIONS

Strategic plans for industrial development cannot merely be worked out through macroeconomic analysis and macroscopic approaches. In the course of the Study, the JICA Team conducted a questionnaire survey of the existing industries in the Hanoi area (291 enterprises listed by HPC and the Ministries), and obtained filled-out questionnaire forms from 234 enterprises. The Team also visited 80 industries, to inspect their factories and interview their managers. Through this survey and inspections, major constraints of the existing industries have been identified more clearly, and strategic approaches to overcome these constraints have been discussed in a more concrete manner.

### 4.1 Common Constraints

Industries in the Hanoi area, as well as industries in the country as a whole, are in a period transitional to the market-oriented economy. All the industries are in search of ways and manners to adjust their activities and operations to the new systems. Through the survey and inspections, major constraints involved in the existing industries in the Hanoi area during the transitional period have been clarified, and they are briefly summarized below (refer to Appendix-D).

#### 1) Low Productivity

The net production per employee demonstrates the labor productivity of an enterprise. Through the filled-out questionnaire, the net production per employee has been calculated by categories of industry, as summarized below (refer to Appendix-D.3).

**Net Production per Employee**

		(million dong)		
Category	(ISIC Code)	In Hanoi (A)	In Japan (B)	(A)/(B)
Metal/Machinery	(37, 38 excl. electric)	9	1,859	1/207
Electric	(3831, 3833, 3839)	18	746	1/ 41
Electronic	(3825, 3832, 3851)	53	827	1/ 16
Textile	(3211, 3213, 3214)	10	1,444	1/144
Garment	(322)	7	460	1/ 66
Chemical	(35)	20	1,572	1/ 79

Note: Net production per employee in Japan is indicated by an average of small and medium scale industries.

It is generally true that Vietnamese workers are diligent and hard working. However, the above table clearly indicates that the labor productivity in the Hanoi area is still at an extremely low level. The difference in labor productivity is not explicable simply by the difference in workers' skillfulness or in production facilities. It is noted that excessive workers are one of the reasons of the low labor productivity. This fact should be recognized in elaborating the strategies for improvement of industrial productivity in the Hanoi area.

## 2) Low Operating Rate of Production Facilities

Factory managers claim that their production equipment and facilities are old and inefficient. In fact, most of equipment and facilities were installed in the 1960s and 1970s. However, it has been observed that the equipment and facilities have not been well maintained, and a large number of equipment are left unrepaired or unmaintained, and covered with dust, in the production areas. Such equipment and facilities will become serviceable if they are repaired and well maintained.

Through the inspection of machinery and metalworking factories, for instance, the operating rate of production equipment and facilities available in such factories has been observed to be as low as 20% or less in most of the workshops. This implies that the available equipment and facilities can be utilized in more efficient ways if they are repaired and well maintained and if the production systems are modernized.

The low operating rate of equipment and facilities is also attributable to the fact that every factory has all the required workshops for their processing within its own factory and a divided work system has not been developed in the Hanoi area. Equipment and facilities in some workshops are seldom utilized. Without developing a divided work system, improvement of the low operating rate of equipment and facilities available in the factories will not be attainable.

## 3) Lack of Discipline of Workers

Factory inspections have also revealed that the factory workers are far less disciplined in production and maintenance of workshops. With a few exceptions, most of the factories in the Hanoi area are not cleanly maintained. For instance, workers are not accustomed to cleaning their machines by themselves or by any sweeper, and many machine tools are used even without removing cut-out chips and dust. Many pieces of rejected materials are abandoned around the machines. Measurement instruments such as calipers and micrometers are badly treated. In many cases products are directly placed on dirty floors without any rest.



Such work habits and lack of discipline are mainly attributable to the systems applied in the former period of centrally controlled economy. However, factory managers should be responsible for this, because the lack of discipline of the workers is one of the major factors resulting in low productivity of industrial activities.

#### 4) Difficulty in Adjusting to Changes in the Market

Factories in the Hanoi area had been developed more for manufacturing production goods and less for manufacturing consumer goods. However, the recent policy of the Government for development of the industrial sector puts more emphasis on the production of consumer goods than production goods. It has been widely noted that the manufacturers of production goods in the Hanoi area have not adjusted themselves yet to this change. In a number of factories in the process of adjustment, many equipment and facilities have become useless and have been abandoned in the factories, since the expansion of consumer goods production inevitably requires changes in the manufacturing process and facilities.

Further, with domestic markets open to foreign products, customers in the Hanoi area have changed their preference in getting consumer goods in the markets. New consumer goods production will inevitably require new production technologies and management. To accelerate industrial activities under the market-oriented economy, it is a prerequisite that each factory shall adopt new products to cope with changes in the markets, develop automation in production technology, re-arrange their facilities and re-educate workers to meet the requirements of the changing markets.

#### 5) Weakness in Design and Production

Products manufactured in the Hanoi area are in many cases outmoded. Particularly, their design is far behind the times, not only by appearances but also by technical specifications. For instance, the JICA Team measured electric products by weight. A motor produced in the Hanoi area is 1.7 times heavier than a motor sold in an advanced country. In the case of transformers, the weight is 1.6 times heavier than a transformer marketed in the world. This weight difference is attributable to the difference in design, as well as materials and the manufacturing process.

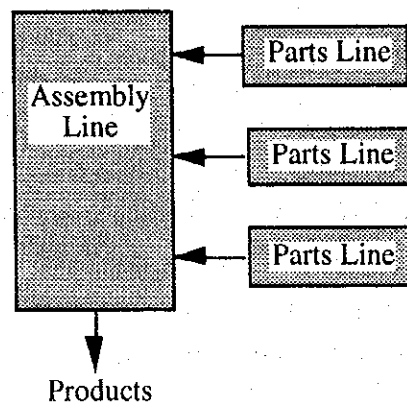
Industries in the Hanoi area are still close-minded. They do not disclose financial statements, though they have a great number of things to consult. Although they recognize the need to introduce modern design, they are reluctant to pay design fees or royalties. As in the case of the weight of electric products as noted above, a small

consultation may certainly lead to a great improvement in design and production technology, which will result in heightening productivity and marketability.

#### 6) Weakness in Production Control

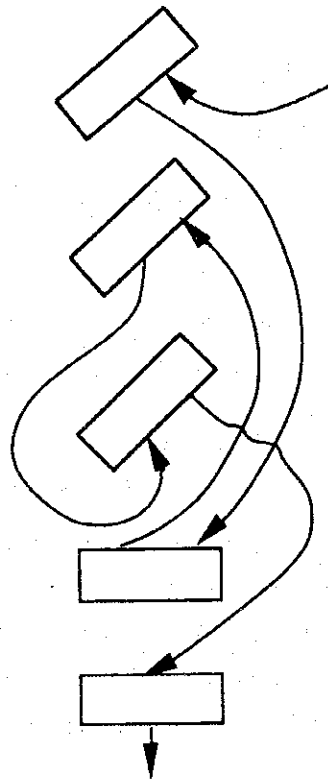
The arrangement of workshops and machines is not organized in line with production flows in the factories in the Hanoi area. Factories are organized as a congregation of specialized workshops. Specialized workshops are scattered in a rather spacious factory compound, regardless of production procedures. This system has an advantage in developing specialized techniques for each workshop. However, it has a larger disadvantage in transportation, and a lack of responsibility taken by each workshop for their completed products, because workers pay less attention to the consequence of quality they produced. A modern workshop is arranged in such a manner as illustrated below.

**Concept of a Modern Workshop Arrangement**

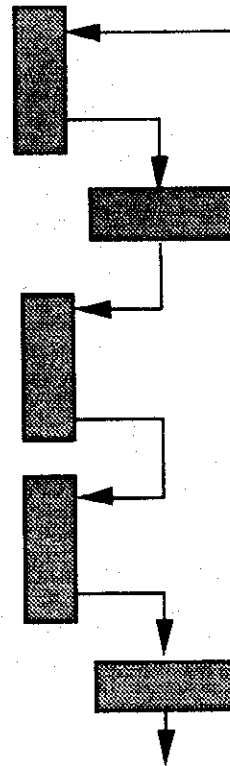


Likewise, production lines are not arranged in accordance with the production procedures. It has been noted further that unnecessary production machines or seldom used machines are placed in the factories, disturbing the production flows. Differences in the specialized work line of the existing factories and the modern production line are illustrated on next page for reference (refer to Appendix-D.4, Para 3).

**Specialized Work Line**  
(a)



**Modern Production Line**  
(b)

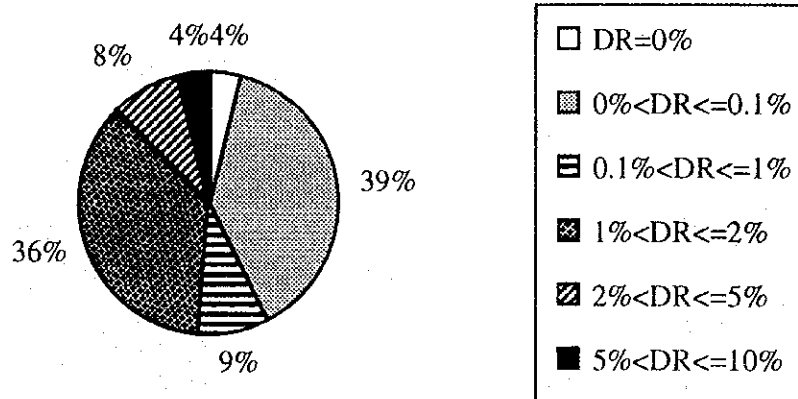


Factories in the Hanoi area have not adopted "production scheduling". A production schedule is made using a Gant chart or PERT, and the machine load and man-power load are checked by load scheduling. Production schedule will greatly improve productivity in manufacturing industries in the Hanoi area.

#### 7) Lack of Quality Control

The quality level of products manufactured in the Hanoi area is quite low if compared with international standards. For instance, the fault ratio of machine industry during process has been reported to be more than 1.0% in more than 60% of factories inquired by questionnaire survey. Nearly 40% of factories surveyed by questionnaire replied that their fault ratio was zero and the claim ratio by customers was zero. This implies that the managers have little concern about the fault ratio or claim ratio because 0% ratio is impracticable (refer to Appendix-D.4, Para. 4).

### Defect Ratio during a Process in Machine Industry



Defects of 1% are far higher than the internationally acceptable standards. High levels of defects and defaults have persisted in the Hanoi area, mainly because every process of workshops has been maintained in the industry, without developing a divided work system, and the managers have paid less attention to the quality of products in each workshop, as well as to the quality of the final products of the factory, under the centrally controlled economy. Statistical quality control should be introduced to improve quality of products to be manufactured for domestic markets and for exports.

#### 8) Lack of Industrial Test Laboratory

Through inspections of the existing factories in the Hanoi area, it has been observed that few factories are equipped with test facilities or laboratory for their materials and products. Without test facilities, it is practicably impossible to enhance quality control.

- In this context, it is recommended to set up an industrial test laboratory in the existing industrial area in Hanoi, as well as in the industrial estates proposed in this master plan.

For reference, the test facilities will include (i) material component analyser; (ii) universal testing machine for material strength; (iii) impact test machine; (iv) hardness tester; (v) microscope for metals; (vi) precision projector for shape and dimension measurement; (vii) mold sand testing equipment; (viii) X-ray equipment; (ix) ultrasonic testing equipment; (x) magnetic testing equipment, etc.

## 4.2 Restructuring for Modernization

To accelerate industrial development in the Hanoi area, it is required to renovate and restructure the enterprises to make them more operative and competitive in a market-oriented economy. Restructuring for modernization is particularly required for the central and local state enterprises. Some suggestions and recommendations formulated through the factory inspection and questionnaire survey are presented to serve as basic strategies in elaborating measures for the modernization of industries in the Hanoi area.

### 1) Study and Research for Restructuring of Enterprises

As noted in Section 4.1, the industries in the Hanoi area have difficulties caused by (i) small market demand; (ii) unadjustability to the changes in markets; (iii) excess or improper facilities; (iv) excess employment; and (v) lack of modern technologies. To conquer these difficulties, each enterprise should be inspected for possible renovation and restructuring. For factory renovation planning, all the facilities, management, production technology, production and quality control should be checked properly by the management (refer to Appendix-D.1).

- ☐ For renovation and restructuring of enterprises, it is recommendable that the following steps be taken.

Step-1: Research the market and decide an adequate product mix and quantity of products.

Step-2: Decide facilities and the number of employees adequate for the decided production.

Step-3: Study the utilization of excess employees and facilities.

Step-4: Introduce new facilities for new products.

Consultation with external experts is also suggestible. It is indispensable, in this case, that all the financial statements should be presented for analysis by these experts.

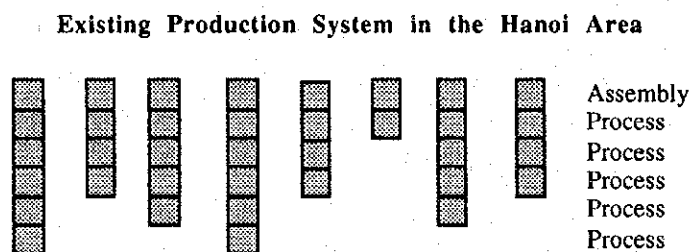
Among the existing industries in the Hanoi area, a number of enterprises strongly desire to introduce new products and/or new technologies.

- ☐ For the introduction of new technologies and/or new products, it is recommended to study the possibility of the following:

- (a) To establish new companies as joint ventures with foreign private enterprises;
- (b) To establish new Vietnamese private venture companies by introducing foreign technologies and loans through state banks;
- (c) To establish new foreign capital companies by extending concessions of separated parts of the enterprises; and
- (d) To establish small specialized private companies using excess workers and excess facilities and by extending concessions to them.

## 2) Introduction of Divided Work Systems

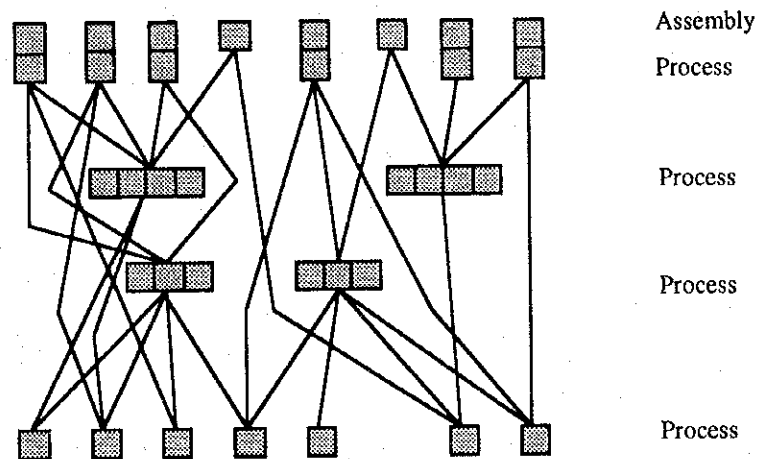
It is quite peculiar that the production systems in the Hanoi area hardly depend on subcontracts, and each factory has its own workshops for whole processes independently, as illustrated below (refer to Appendix-D.1, Para. 2).



The existing production systems are inefficient, because the production scale of each workshop is too small, and its operation becomes intermittent. Further, each enterprise has a principal work, and most attention of the management is paid to such a principal work while least attention is paid to minor workshops with respect to their production control and technological development. It is also difficult to offer such a workshop for the use of other enterprises.

In advanced countries, divided work systems are developed, and a great number of subcontractors are developed for specialized jobs in the manufacturing processes, as illustrated below.

### Divided Work Systems



Restructuring of the existing industries through the introduction of divided work systems is feasible, as far as the taxation system is improved. In the first step, the enterprises are separated by specialization, and then specialized workshops should merge into a private company of an adequate scale. The profit-making part of the divided work will be more easily expanded, and any loss-making areas can improve their production scale, change their products, and/or join new businesses as subcontractors under the newly organized divided work systems.

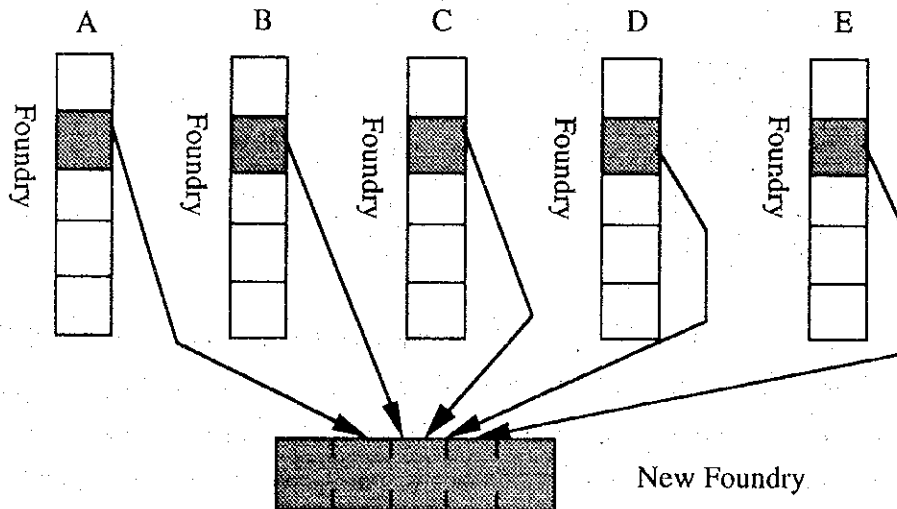
- It is noted, in this context, that a bottleneck in introducing the divided work systems is the turnover tax system currently applied in Vietnam. From the viewpoint of industrial renovation in Vietnam, it is strongly recommended that the turnover tax system be changed to a value-added tax (VAT) or other tax system. It is no exaggeration to say that, without changes in the tax system, restructuring of industries for modernization will not be attainable.

A typical case of separation and merger under the divided work system is conceived for the foundries of metalworking industry. In the Hanoi area, a dozen of enterprises of machine and electric industries have their own foundries of one or two cupola(s) with a capacity of 1.0 ton. They also have electric arc furnaces (1.5 tons in capacity) for steel casting. These facilities are only used intermittently, and their operation rates are quite low. One of the factories has a new foundry which is not utilized because of changes in their products. The technical levels of these foundries are different, but they have a lot of room for technical improvement.

- As far as an improvement in the tax system is foreseeable, it is recommended that a detailed Study be made on the formation of one or two new foundries under the divided work system, as illustrated below. The

new foundries should take workers and jobs from the mother enterprise, and they should be operated as private enterprises. Such a Study will be executed with technical assistance under a foreign cooperation program.

#### Establishment of New Foundry under Divided Work System



### 3) Disposal of Unnecessary Facilities and Creation of New Businesses

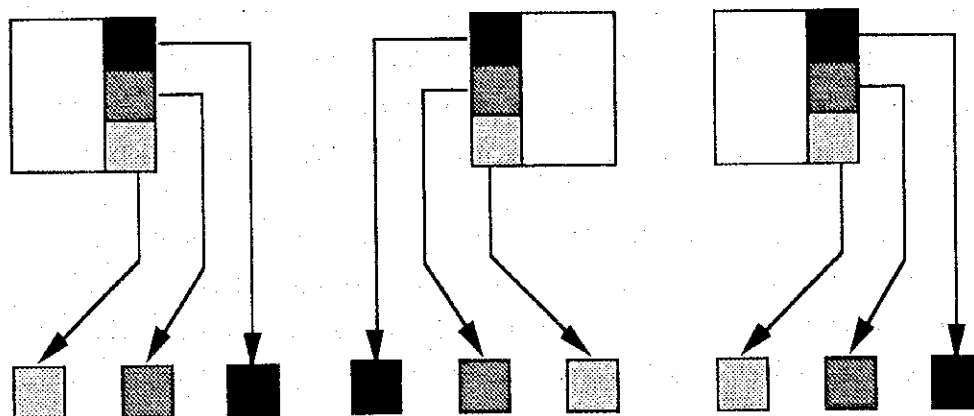
As noted in Section 4.1, the operation rate of the existing equipment is quite low, less than 20% in the machinery and metalworking industry. Many equipment and tools are abandoned without repair and maintenance. The unoperated machines occupy large areas of the factory and they are disturbing production activities to a considerable extent. Managers are not allowed to remove these machines and equipment, because they are state properties. In the event that managers are allowed to dispose of unnecessary equipment or sell them out to individuals intending to form new business, operation efficiency of the existing factories will be improved, and creation of venture businesses as private enterprises will be encouraged to a great extent (refer to Appendix-D.2, Para. 3).

- In this context, it is recommended that the regulations of fixed assets management for the central and local state enterprises be modified in order to enable each factory to dispose of fixed assets in an easier way. This will contribute largely to more efficient operation of the existing factories, as well as to the development of joint venture businesses or new subcontractors as private enterprises. An example of the establishment of subcontractors using unoperated machines is illustrated on next page.



## Disposal of Unoperated Machines and Creation of New Businesses

### (State Enterprises)



### (New Subcontractors)

A number of enterprises need to reduce employees, while they have a number of unoperated facilities/machines. It is suggestible, therefore, that a worker or a group of workers who accept early retirement, be entitled to buy the unoperated facilities/machines and establish a new specialized factory, though small as it might be, as a subcontractor to the mother enterprise and other assembling enterprises. An example is the mechanical press, which is inefficiently and uneconomically equipped in some factories. With assemblers newly invested in the Hanoi area in electronic and motorcycle industries, the requirement for such pressing works will increase substantially. Other examples are foreseeable in lathes, grinders, drills, etc. which may possibly be segregated to form venture businesses on a private initiative.

- ☐ As it is implicitly explained, privatization of enterprises should not be studied merely from a macroeconomic point of view, as some measures for privatization are proposed more practically from a microscopic analysis of enterprise operations. It is recommended that privatization be promoted through disposal of unnecessary or inefficient facilities, as well as through introduction of divided work systems.

It is hoped that GDMCA newly established in May 1995 would Study seriously on the disposal of unnecessary facilities of the existing state enterprises and on the promotion of divided work system and subcontract system for the modernization of industries.

#### 4) Development of Subcontractors for Assembly Industry:

The automobile industry and home electronic industry in the Hanoi area depend on foreign manufacturers for parts supply, and a system of complete knock-down (CKD) is commonly adopted. In fact, introduction of more assemblers is needed in such fields as electronics, motorcycle and automobile. It should be noted, at the same time, that local supporting industries for such assemblers should be developed.

As prevailing in the automobile industry and home electronic industry around the world, an assembler and its subcontractors form a pyramid of enterprises, with an assembler having several parts suppliers and each parts supplier having several specialized subcontractors and Sub-subcontractors. They are well coordinated with each other. Unfortunately, subcontractors are not developed as supporting industries in the Hanoi area (refer to Appendix-D.1, Para. 6).

- ☐ It is noted that there are a number of small workshops in the Hanoi area, which might potentially be expanded as supporting industries. Several small specialized workshops are recommended to jointly incorporate a supporting industry as a private enterprise. For the Government, it is recommended to encourage the incorporation of such supporting industries.
- ☐ In this context, too, the prevailing turnover tax system is a bottleneck in encouraging the incorporation of supporting industries. It is recommended again that the turnover tax system be modified so as to encourage supporting industries in the Hanoi area, as well as in Vietnam as a whole.

#### 4.3 Data Processing and Capacity Building

It has been commonly noted that basic data and information necessary for study on industrial development are limitedly available. Further, it is frequently pointed out that training of managers and workers is of paramount importance for the modernization of industries. These points are briefly discussed below.

##### 1) Publication of Basic Data and Information

It is quite common in Vietnam that basic data and information are not published, nor compiled in an adequate form in the ministries or agencies concerned. Sometimes, the disclosed data are not actual data, but they are production targets or manipulated records. It is further noted that most of data processing has not been computerized yet.

Industrial statistics have not been properly compiled, nor published, and this impedes adequate analysis and planning for the development of industries in Vietnam. It is therefore suggestible that utmost efforts be made to improve the system of compilation of basic data, to process them by computers, and to publish them for the best use of all parties interested in the development of the industrial sector.

- ☐ It is recommended, in this context, that a group of experts be retained, either on a bilateral or multi-lateral technical cooperation basis, for the compilation, processing and publishing of industrial statistics when the new Ministry of Industry is formed as noted in Section 3.4, Para. 2).

## 2) Capacity Building and Training

It is pointed out that training of workers is crucially needed for the modernization of industrial operations. Proposals have been worked out for implementation of vocational and technical training. However, experiences in developing countries indicate that vocational and technical education sponsored by the Government initiative has a limited effect on the accelerated development of industries when no adequate jobs can be found upon completion of the training or education. Vocational training would be more effectively carried out by the enterprises themselves.

For the industrial development in the Hanoi area, training programs will be more effectively executed if they are planned for the training in enterprise management, because industries are not familiar yet with the enterprise management in a market-oriented economy (refer to Appendix-D.5).

- ☐ It is therefore recommended to set up an Industrial Enterprise Management Training Center (IEM TRAC) in Hanoi, with foreign technical assistance. The center will be organized by a Vietnamese principal, in collaboration with foreign advisors.

In the proposed IEM TRAC, it is envisaged that training will be provided on (i) production control; (ii) quality control; (iii) cost control; (iv) procurement control; (v) inventory control; (vi) industrial accounting; (vii) marketing strategy and planning; (viii) new product development strategy and planning; (ix) intellectual property rights; (x) environmental control, etc. Some other specific subjects may also be trained in IEM TRAC. It would be possible to utilize the existing buildings or institutes for this purpose.

#### 4.4 Enhancement of Environmental Protection

Concerns about environmental pollution have been increasingly recognized with the promulgation of regulations, such as the Law of Environmental Protection, Government Degree on Environmental Protection, Environmental Standards, etc. Further enhancement of environmental protection is required to improve and protect not only the natural environment, but also the internal environment of the factories (refer to Appendix-D.7).

##### 1) Working Environment

The inspection of 80 factories by the Study Team has revealed that the working conditions inside the factories are miserable, with a few exceptions, as noted in Section 4.1. (3). Unnecessary machines, parts and materials are left randomly, cut-off chips and dust are left on machines and working floors, and rejected pieces and materials are abandoned around machines and on floors. Ventilation is inadequate, and workshops are generally dark and uncomfortable. Least attention is paid to the working environment in the factories.

- ☐ Environmental protection should be initiated with the arrangement of working conditions in the factories, making them much more clean and comfortable. In this context, it is recommended that factory managers learn from Japan in promoting the 5S Initiative (see details in Appendix-D.4, Para. 2).

In the Hanoi area, the rate of employed female workers is relatively high, accounting for more than 50% of the total number of employees in more than one third of state enterprises. Improvement of the working environment is particularly important from the viewpoint of Women in Development (WID).

##### 2) Environmental Problems Caused by Industry

Major environmental problems caused by industries in the Hanoi area are pollution of surface water and groundwater, air pollution, disposal of hazardous wastes, and soil pollution. All factories in the Hanoi area lack waste water and solid waste treatment facilities. Untreated waste water is discharged into channels, rivers and lakes. Only 23 factories have a contract with the Urban Environmental Company (URENCO) for solid waste disposal. Although laws and regulations have been enacted, monitoring and analysis of all kinds of industrial wastes have not been

operative by local environmental authorities, mainly because of a lack of facilities, instruments and staff for monitoring.

- ☐ It is recommended that the local environmental authorities obtain internal and/or external assistance in getting facilities and instruments for environmental monitoring. Otherwise, laws and regulations on environmental protection will not be effective.

Particular attention is paid to surface water and groundwater pollution. Waste water is discharged untreated, and many factories are located in the upper reaches of rivers and channels. Groundwater pollution has already occurred in the southern part of the city. Pollution of lower aquifers is possible if discharge of all kinds of untreated waste water and other wastes continues.

- ☐ A master plan for drainage and sewerage improvement in the Hanoi area has already been elaborated by HPC and JICA, and financial cooperation for drainage improvement has been committed by Japan. It is recommended that the implementation of sewerage improvement works be undertaken without any delay.

Fortunately, the scale of industries in the Hanoi area is not so large as to cause insoluble problems by industrial contamination at the moment. Further, it is noted that each enterprise is financially incapable of bearing the environmental protection costs, because of the small scale of industrial operations. However, as industries grow, the total volume of pollutants may exceed limits of hazard if no countermeasures are properly taken by the industries.

- ☐ In this context, too, it is recommended that the specialized workshops of several factories be reorganized and/or merged to form a sizable enterprise able to bear the environmental costs by itself, or collectively located to share a common environmental treatment facility.

The development of industrial estates as proposed in this Study is also effective in collectively locating the industries and collectively enhancing environmental protection. Recently, the Hanoi city authority has been suggesting its local state enterprises to relocate their factories to the outskirts of the city. The proposed plan of industrial estates will greatly facilitate the promotion of collective factory relocation.



## **V. DIRECTION OF INDUSTRIAL DEVELOPMENT IN THE HANOI AREA**

On the basis of the existing situations of industries in the Hanoi area as briefly reviewed in Chapter II, as well as in the light of the macroscopic and microscopic review in Chapters III and IV, the basic direction of industrial development to be taken in the Hanoi area is discussed herein.

### **5.1 Framework for Industrial Development**

The national policy for industrial development, as well as the regional settings and prospects for the development of industries in the North Economic Triangle, has been briefly reviewed (refer to Appendix-E.1).

#### **1) Overview of National Industrial Development Policy**

The industrial sector has been a focal sector of the economic reforms effected since 1986. Basic policies currently applied for the national development in the industrial sector have several strategies worked out for development as follows:

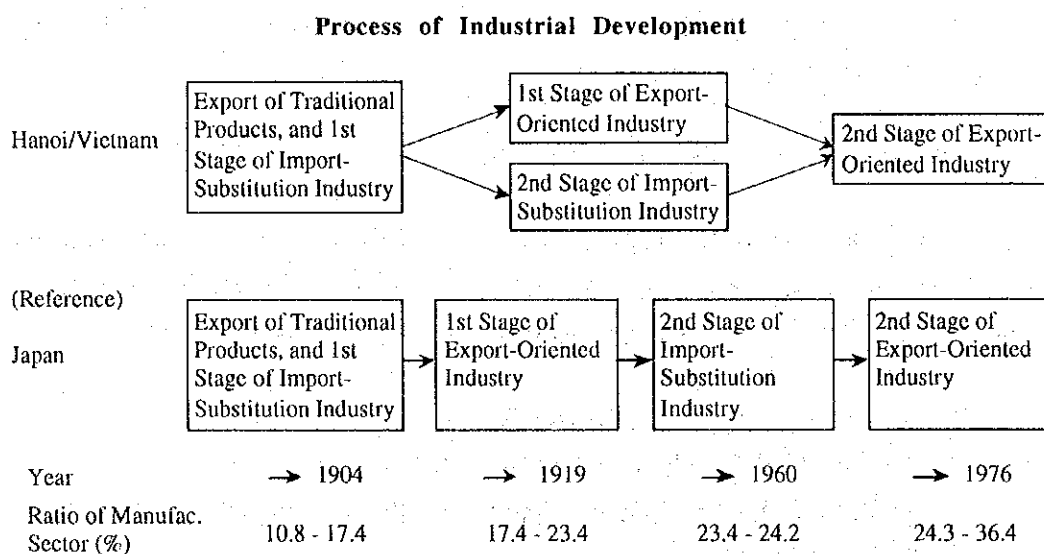
- To accord priority to the development of light industries
- To promote the production of essential consumer goods
- To promote the production of exportable goods by means of joint ventures with foreign enterprises
- To promote processing industries on the basis of products in the primary sector
- To promote the exploitation of minerals, oil and gas, and development of refineries and petroleum and gas based chemical industries

Under these basic policies and strategies, priority has been accorded to the development of the following categories of industry:

- Basic metal industry
- Fabricated metal industry, including machinery and electric/ electronic industry
- Light and processing industry
- Cement and construction material industry
- Petroleum and gas based chemical industry, including fertilizer industry

It is noted, in this respect, that the distribution and strategic location of these categories of industry by region and province have not been explicitly formulated. As recommended in Chapter 2.3, it is necessary to work out a master plan for nation-wide industrial location to serve as a guideline for well balanced industrial development in each region of the country.

It is additionally pointed out that Vietnam should promote "import substitution industry" and "export-oriented industry" at the same time or in parallel, as noted in Section 2.2 and 3.5. This strategy is implicitly expressed in the National Development Plan up to 2010. The following diagram illustrates the process of industrial development in Hanoi/Vietnam, in comparison with the process experienced in Japan:



The direction of industrial development in the Hanoi area will be worked out in the framework of a national industrial development policy and strategies as introduced above, as well as by a first-hand study on industrial location by region and by category of industry.

## 2) Industrial Development in the North Economic Triangle

Industrial development strategies in the Hanoi area should be formulated in the framework of regional industrial development strategies in the North Economic Triangle. As briefly reviewed in Chapter 2.3, the North Economic Triangle will be developed according to the following strategies: (i) to expand production capacity and diversify the production mix of existing industries; (ii) to develop machinery and electronic industry; (iii) to build new export-oriented industries; and (iv) to develop new factories for steel, cement, coal-based fertilizers, food processing industry, etc. (refer to Appendix-E.2).



In the North Economic Triangle, various economic and social infrastructure development projects have been planned and their implementation is being promoted particularly in the development of the transportation sector. These infrastructure projects include:

- Improvement of Hai Phong port (implementation stage)
- Development of Cai Lan port (study completed recently)
- Improvement of Highway Route No.5 (implementation stage)
- Improvement of Highway Route No.18 (study initiated recently)
- Improvement of urban transport in Hanoi (study initiated recently)
- Improvement of urban water supply in Hanoi (implementation stage)
- Improvement of drainage and sewage in Hanoi (study completed)

The implementation of these infrastructure projects is of paramount importance for the industrial development in the North Economic Triangle and the Hanoi area. It is advised that these projects be completed as quickly as possible.

Through a brief review of the industrial location in the region, it is provisionally proposed that the North Economic Triangle be divided into 3 sub-regions: (i) Hai Phong - Cai Lan twin port sub-region; (ii) sub-region along Routes No.5 and No.18; and (iii) Hanoi sub-region. To work out a strategic plan for industrial location in the Hanoi area, the location of industries in these three sub-regions has been provisionally planned as summarized below (refer also to Figure 5.1).

Hanoi Area	Sub-region along Rt No. 5 and No. 18	Hai Phong-Cai Lan Sub-region
High technology industry	Non-metallic industry	Basic metal industry
Electronics	Brick, tile, glass	Steel product
Computer, parts	Chemical industry	Shipbuilding, repair
Computer software	Fertilizers	Non-metallic industry
Telecomm. equipment	Metalworking industry	Cement
Pharmaceutics	Pumps, casting steel	Chemical industry
Urban type industry	Fabricated metal industry	Fertilizers
Printing, publication	Automobiles	Oil refineries
Metalworking industry	Food-processing industry	Chemical products
Foundries	Other light industry	Local material type ind.
Machine tools		Seafood processing
Fabricated metal industry		
Motorcycles		
Industrial machinery		
Precision machinery		
Home electric appliances		
Textile industry		
Spinning, weaving, dyeing		
Apparel/garment		
Other industry		
Plastic products		

### 3) Industrial Development in the Hanoi Area

The industrial categories recommendable to be located in the Hanoi area have been screened as explained above, and the basic policy for development has been previously discussed in Section 2.3. On the basis of these studies, the direction of industrial development in the Hanoi area is proposed as summarized below.

- (a) Machinery/metalworking industry should be developed as the most fundamental industry in Hanoi. The machinery and fabricated metal industry accounted for 28% of total manufacturing output in 1993, and it is planned that this category of industry would contribute more than 30% of industrial output toward the year 2000. Contribution of this industry would be further enhanced toward the year 2010.
- (b) Among various sub-categories of the machinery/metalworking industry, particular attention should be paid to the development of "foundries" and "machine tools" in Hanoi. Foundries have a comparative advantage and potential for development, and have been evaluated to be most promising for domestic markets and exports to ASEAN countries and Japan. Machine tools have also potential for development, once they are developed with the numerical control devices.
- (c) Supporting industries for the fabricated metal industry should be developed in and around Hanoi, because a number of foreign investments are expectable in such fields as automobile, motorcycle, home electric appliances, and telecommunications equipment. Special attention should be paid to the creation of a favorable environment to enhance the sub-contract work system. Development of supporting industries would be a focal point for industrial development in Hanoi toward the year 2010.
- (d) High technology industry should be gradually developed in Hanoi, by promoting foreign investments and inviting foreign technologies in this field. It will start with electronic parts manufacturing, and it would proceed to the computer-related industries, both hardware and software, toward the year 2010. Research and development type industry should also be promoted toward the year 2010.
- (e) Urban type industry, including printing and publication, should be further promoted in Hanoi, as the center of information, administration, education and culture, as well as the center of business of all kinds.

- (f) Food-processing industry, non-metallic industry and chemical industry, which are currently representing about 48% of production in the Hanoi area, are not always suggestible to be located in Hanoi. It would be preferable to locate them in the sub-region along the Routes No. 5 and No. 18.
- (g) Industries to absorb unemployed, under-employed and surplus work force in and around the Hanoi area, should be developed in Hanoi, because creation of employment opportunities is crucial. Such industries will include electronic parts manufacturing, textile and garment industry. These industries are planned to be promoted toward the year 2000.

In brief, the industries in the Hanoi area are proposed to be developed as illustrated below.

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

## 5.2 Renovation/Modernization of Existing Industries

In the Hanoi area, nearly 300 industrial enterprises are operating, with nearly 100,000 workers. As pointed out in Chapter 4.1, productivity of the existing enterprises is extremely low, and much effort is needed to renovate and modernize the existing industries.

### 1) Selected Industries for Strategic Renovation

Employment, sales and production per employee of the existing industries in the Hanoi area in 1993 are tabulated below.

### Scale of Existing Industries

ISIC	Category	Employment	Sales (billion dong)	Prod/Emp (million dong)
31	Food, beverage	9,573 (3)	893 (2)	93
32	Textile, apparel	31,212 (1)	634 (3)	20
33	Wood products	3,330	51	15
34	Paper products	3,585	122	34
35	Chemicals	7,059 (4)	537 (4)	76
36	Non-metallic	5,239 (5)	179 (5)	25
37	Basic metal	104	2	52
38	Fabricated metal/machinery	20,829 (2)	945 (1)	45
39	Others	1,035	14	14
Total		81,966	3,377	41

From the viewpoint of sales and number of employees, the fabricated metal/machinery industry is the most important category of the existing industries in the Hanoi area. Further, out of the 154 central state enterprises surveyed in the Hanoi area, 58 enterprises belong to the fabricated metal/machinery industry, which incorporates (i) machinery and metalworking industry and (ii) electric/electronic industry. As noted in the Section 5.1, fabricated metal/machinery industry has been classified as the most promising type of industry to be strategically located in the Hanoi area. Therefore, machinery/metalworking industry and electric/electronic industries should be accorded "first priority" in the program for renovation and modernization of industries in the Hanoi area.

Textile/apparel industry is the largest employer and has the third largest sales, while its production per capita is among the lowest. Renovation of textile/apparel industry should therefore be accorded priority in the program of modernization of existing industries in the Hanoi area.

Chemical industry in the Hanoi area is relatively large, both in employment and sales. Besides, it is mainly located in the inner city of Hanoi and is liable to produce environmental pollution. Renovation of chemical industry is therefore accorded priority in the program of modernization of industries in the Hanoi area.

Consequently, renovation and modernization of the existing industries are proposed to be studied and implemented, placing priority on the following 4 categories of industry:

### Modernization of Existing Industries

		Current Status (%)	
		Employment	Sales
Modernization	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

The above 4 categories employ 72% of the total number of workers and account for 63% of total sales amount of all the industries in the Hanoi area. Consequently, a further study on the renovation strategies of the existing industries in the Hanoi area will be made based on these 4 selected categories, as discussed in Chapter VI. Renovation of other categories is to be studied separately project by project.

#### 2) Restructuring of Existing Industries

As pointed out in Chapter 4.2, existing industries in the Hanoi area have some defects in their structure. All the industrial enterprises have their own process workshops of all kinds within the enterprises, and a divided work system or a subcontract system has not been developed.

Once the turnover tax is replaced by VAT, as recommended in Chapter 3.3, and preferably when the administration reform is realized to adopt a unified and integrated industrial policy, the proposed divided work system and subcontract system should inevitably be developed. This is particularly important for the development of fabricated metal industry, including machinery/metalworking industry and electric/electronic industry.

Under such circumstances, it is proposed that the study on the renovation of machinery, metalworking, electric and electronic industries in the Hanoi area will focus on restructuring the production processes and workshops through the divided work system and/or subcontract system. A model study on modernization of foundries, as recommended in Section 4.2, will be a spearhead of the proposed study on the renovation through restructuring.

It is additionally noted that improvement of the working environment and production control should be pursued by all the existing industries in the Hanoi area, as

noted in Chapters 4.2 and 4.3. Renovation of the existing industries should start with a campaign for improvement of the working environment in all the enterprises in the Hanoi area.

### 5.3 Industrial Areas and Industrial Estates

Desirably, industries are located collectively. The existing industrial areas in Hanoi are briefly reviewed, and basic strategies for their redistribution have been studied as summarized herein (refer to Appendix-E.3).

#### 1) Existing Industrial Areas

In the Hanoi area, there are 9 major industrial areas developed in the 1960s and 1970s, which are scattered on the fringe of the inner city as shown in Figure 5.2. An outline of these industrial areas is summarized below.

**Existing Industrial Areas**

Industrial Area	Number of Enterprises	Factory Area (ha)	Employment	Area for Expansion
1. Minh Khai - Vinh Tuy	38	81	15,910	X
2. Truong Dinh - Giap Bat	13	32	3,760	X
3. Van Dien - Phap Van	14	39	5,900	X
4. Thong Dinh - Nguyen Trai	29	76	17,270	X
5. Cau Dien - Mai Dich	8	27	1,950	30 ha
6. Gia Lam - Yen Vien	21	38	10,230	30 ha
7. Dong Anh	22	68	8,280	90 ha
8. Chem	5	14	2,310	X
9. Cau Buou	5	4	1,390	
Total	(155)	(379)	(67,000)	

These industrial areas are not properly equipped with facilities for environmental protection, and have problems of mixed land use in the vicinity, as well as inconvenient transportation and infrastructure. Urban sprawl is progressing in these areas. HPC has been studying the rehabilitation and development of these industrial areas under its plan for development up to year 2010.

As noted in the above table, 5 industrial areas have no room for expansion, and the remaining 4 areas have limited area for further development.

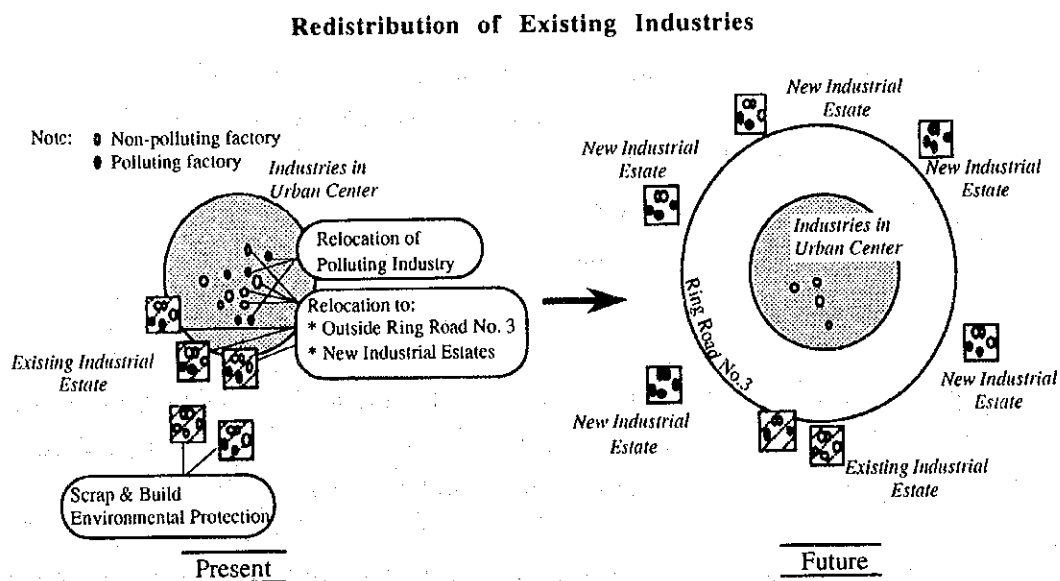
#### 2) Basic Strategies for Redistribution

The HPC master plan envisages that the existing industrial areas should be rehabilitated and redistributed through the relocation of polluting factories and the

development of new industrial estates equipped with appropriate facilities for environmental protection and infrastructure. Basically, the following principles are adopted for the rehabilitation of existing industrial areas and the development of new industrial estates (refer to Appendix - E.3):

- To avoid mixed land use
- To locate polluting industries in areas isolated from the urban center
- To attain effective distribution of industrial land use
- To facilitate the transportation of materials and products

By applying these principles, it is proposed that the industrial areas and factories in Hanoi be redistributed as illustrated below.



(a) Relocation of polluting industries

Seventeen polluting industries in the existing industrial areas have been identified by HPC and MOSTE, and are proposed to be relocated in other areas. The Study Team suggests that 6 out of 17 industries be relocated outside of the city center in a short term, and the remaining 11 industries be relocated in a longer term.

(b) Relocation of existing industries from the inner city area

Five industrial areas located inside the Ring Road No.3 (totaling about 240 ha) should desirably be relocated in the areas outside the Ring Road No.3. In the

event that relocation is extremely difficult, proper treatment of industrial waste should be implemented collectively by the existing factories themselves.

A strategic concept for relocation of the existing factories in the industrial areas is shown in Figure 5.3.

### 3) Development of New Industrial Estates

New industrial estates are proposed to be developed in the areas outside the Ring Road No. 3. HPC has planned to develop the following industrial estates (IE) and EPZ in and around the Hanoi area:

Soc Son EPZ	430 ha	(to be developed by a Malaysian investor)
Gia Lam IE	580 ha	(partially developed by Korean (80 ha) and Taiwanese (60 ha) investors)
Thang Long North IE	280 ha	
Thang Long South IE	220 ha	
Dong Anh IE	92 ha	
	<hr/> 1,602 ha	

These IE and EPZ have been incorporated in the land use zoning prepared by HPC. On the basis of HPC's basic plan for industrial estates development, a master plan has been worked out by the Study Team, as discussed in Chapter VII.

In longer terms, the industrial estates can be developed further outside Hanoi city, along the planned highway Route 5 and Route 18. Requirements for such an expansion will also be envisaged in the formulation of a master plan, in accordance with the demand for investments for the industrial estates.

Development of the new industrial estates is urgently needed, since foreign investments in the manufacturing sector are expected to rapidly increase in the Hanoi toward the year 2000. It is desirable that the industrial estates be developed one by one in accordance with the master plan proposed in Chapter VII.



#### 4) Industrial Land Use and Agricultural Land Use

In the planning of new industrial estates, an argument has been made on whether or not the present agricultural lands should be converted into industrial lands. In fact, the 5 industrial estates and EPZ planned by HPC and studied by JICA are currently used for paddy fields.

It is well understood that agriculture in the Red River Delta, including the outskirts of Hanoi, is of vital significance for the economic development of the region and the country as a whole. It is noted, however, that lands are required if and when industries are developed, particularly in the areas close to the urban centers. Some lands will have to be designated for industrial use.

Just for reference purpose, the economic returns of land use for agriculture and industry are compared by referring to the case of development of the Thang Long North IE site, as summarized below.

	Agricultural Land Use (A)	Industrial Land Use (B)	(A) / (B)
Employment	4,000 prs	40,000 prs	1/10
Annual turnover	\$0.585 million	\$915 million	1/1,560



## **VI. DEVELOPMENT STRATEGIES FOR SELECTED INDUSTRIES**

In Chapter IV, common constraints of existing industries in the Hanoi area have been clarified, and some suggestions for restructuring industrial operations for their modernization have been discussed. In Chapter V, Section 5.2, renovation of the existing industries has been discussed, and four categories of greater importance have been selected for further study: (i) machinery/metalworking industry; (ii) electric/electronic industry; (iii) textile/apparel industry; and (iv) chemical industry. In this Chapter, a further insight into the selected categories of industry will be given to formulate strategic approaches for their improvement and modernization.

### **6.1 Machinery/Metalworking Industry**

The Hanoi area has traditionally been a center of machinery and metalworking industry in Vietnam. More than 60 enterprises of this industrial category are operating in the Hanoi area, manufacturing various kinds of machines and equipment (refer to Appendix-F.1).

#### **1) Current Situations and Constraints**

Machine industries are primarily operated by central and local state enterprises. They include 17 manufacturers of fabricated metal products, 20 manufacturers of industrial machinery and office use facilities, and 20 manufacturers of transport equipment. Most of them are small in production scale and employ from 100 to 500 workers. Total production of the machinery industry in the Hanoi area amounted to about 350 billion dongs in 1993, with employment of approximately 14,000 workers.

Machine industries have been traditionally developed as production goods manufacturers, and they are suffering from difficulties in adjusting themselves to the market changes from the production goods to consumer goods. Several consumer goods machinery industries have been developed, including automobile industry, motorcycle, bicycle industry, etc. Sales of both production goods and consumer goods have increased since 1991, but profits have notably decreased from 1989 to 1992 though they recovered slightly in 1993 (refer to Appendix-F.1, Para. 1).

Iron production in Vietnam is limited to 270,000 tons/year, while its demand was reportedly around 800,000 tons/year in 1994. This demand for steel in Vietnam

corresponds to about 11 kg/year per capita. This volume is low if compared with 74 kg/year in Thailand and 26 kg/year in Indonesia. For further reference, per capita demand for steel is 506 kg/year in Korea and 802 kg/year in Japan. There is an iron plant with a furnace capacity of only 40,000 tons/year in Thai Nguyen, about 80 km north of Hanoi. Consequently, most materials for the machine industry in the Hanoi area are imported.

The machinery industry in the Hanoi area has difficulties and constraints in its operations in various aspects (refer to Appendix-F.1, Para. 2). The major constraints are:

- (a) Low productivity, with a per capita production of only 9 million dong, or 1/200 of Japan, 1/70 of Korea and 1/10 of China, as noted in Chapter 4.1.(1);
- (b) Low operating rate of equipment and facilities, which is estimated to be less than 20%, demonstrating a mismatch between production and facilities;
- (c) Abandoned and unused machines and materials being left in the factories, disrupting the smooth flow of production;
- (d) Inefficient machine arrangements and inferior working conditions affecting productivity and quality of products; random arrangement of several workshops in a factory adversely affecting its productivity;
- (e) Absence of a divided work system or a subcontract system resulting in inefficient production in every factory;
- (f) Difficulties in forming unified policies for development of machinery industry, because of differentiated administration by MHI, Ministry of Transportation, Ministry of Forestry, Ministry of Water Resources, etc.

These constraints should be resolved to promote the machinery and metalworking industry in the Hanoi area.

## 2) Proposed Improvements of Machinery Industry

Practical approaches to the improvement and modernization of the machinery industry in the Hanoi area have been studied in line with each process of machinery industry (refer to Appendix-F.1, Para. 3).

a) Casting

Almost all machinery factories in the Hanoi area have their own foundries. Most foundries are producing good castings. If compared with foundries in other Asian countries, foundries in the Hanoi area have advantages in skills and costs. For modernization of casting as an exportable industry, the following measures are proposed:

- ☐ The foundries of a dozen factories should merge to form one or two private companies specializing in foundry work for the Hanoi area, as suggested in Chapter 4.2.(2). Mechanization of the processing shall be introduced in this new foundry to attain better quality of products and higher efficiency in production. By such a merge and mechanization, the foundry production and technologies will be developed to internationally competitive standards.
- ☐ A larger size electric arc furnace should be introduced by making use of the locally available steel scraps. Further, steel rolling facilities should be established in order to locally supply steel materials.
- ☐ As noted in Chapter 4.2.(2), a detailed study on the modernization of foundries in the Hanoi area should be carried out, with technical assistance under a foreign cooperation program.

b) Steel Metal Stamping

Small mechanical presses for stamping are used in the Hanoi area. However, none enterprise specializes in sheet metal stamping work. Mechanical press machines are obsolete, lowering productivity of the machinery industry in the Hanoi area.

- ☐ The introduction of a transfer press line is recommendable for steel metal stamping. It is also suggestible to set up one or two private stamping enterprises equipped with transfer press line, for mass production of large pieces such as bodies of automobiles, doors, refrigerators, washing machines, etc.
- ☐ Existing mechanical presses will remain serviceable for production of small pieces in small quantity. It is recommended that the mechanical presses of the existing factories be sold to small private ventures for production of small pieces such as cans, washers, and small brackets.

c) Dies and Molds

Steel metal stamping requires dies and molds. Small dies and molds can be manufactured in the Hanoi area. Dies and molds are made of extremely hard metal, and by electric spark cutting. Design and manufacturing of dies and molds will require special know-how. A national institute in Hanoi has already initiated an experimental workshop for die and mold making.

- ☐ It is recommended to set up a private and independent company specializing in die and mold making. It is because the marketable volume of die and mold work is small but it requires a high level of specialized know-how. It is desirable that the experimental workshop of the national institute be incorporated into a private enterprise specializing in die and mold manufacturing.

d) Plating and Plate Cutting

Several plating shops are attached to machine factories, but they are too small in scale to be equipped with preventive facilities against environmental hazards. Steel plates are cut manually by gas torch.

- ☐ It is recommended that the existing small plating shops be merged into one or two private companies specializing in plating. With such a merge, environmental protection through water treatment would become practicable.
- ☐ For steel plate cutting, it is recommended to introduce plasma cutting. Plasma cutting is applicable not only for steel but also for stainless steel and other materials.

e) Welding Fabrication

While casting is developed, welding is not so well utilized yet by industries in the Hanoi area. Welding fabrication is free from blow holes, and much lighter in weight. CO<sub>2</sub> welding is being pioneered by a company in the Hanoi area, but it is still not prevailing. Inert gas welding has not been introduced yet in Vietnam.

- ☐ For the welding of stainless steel, aluminum, titanium and other non-ferrous metals, it is recommended to introduce inert gas welding such as MIG and

TIG. Such methods require argon gas, which is a by-product of oxygen production.

The introduction of modern welding technology will substantially improve productivity in the manufacturing process, and at the same time will save raw materials to a considerable extent.

f) Painting and Surface Treatment

The process of pre-treatment of metal surfaces is largely neglected by painting shops in the Hanoi area, as it is difficult for small painting shops to accomplish. It is also noted that painting will cause environmental hazards with toxic solvents.

- ☐ It is therefore recommended that the existing machine industries segregate their small painting shops, and these small shops merge into one or two painting shops of a sizable scale which are capable of installing environmental protection devices. The merged shops should be equipped with facilities for pre-treatment for environmental protection.

Surface treatment is a weak point of industries in the Hanoi area. Electric plating is limitedly used by bicycle part makers and lock makers in Hanoi. No protection film forming nor anode oxidation is applied.

- ☐ To enhance the quality of machine products, it is recommended to introduce modern technologies for surface treatment, including protection film forming for metals and anode oxidation for aluminum and its alloy. Chances are available for setting up some surface treatment shops as private enterprises.

g) Heat Treatment:

Cast parts and welded fabrications are annealed in a furnace to relieve stress inside the material. Large pieces are treated by stress-relieving heat treatment. For the case hardening, nitrogen case hardenings are getting more popular. For surface hardening, steel selection is important. It is recommendable to set up a specialized enterprise for case hardening.

#### h) Assembling

Automobile industry, motorcycle industry, home electronic industry, etc. are assemblers, and a number of supporting industries should be organized. Foreign assemblers are coming to invest in these industries in the Hanoi area, starting with CKD at the initial stage. In order to attain gradual and smooth transition from CKD to localization, supporting industries should be set up and reinforced as quickly as possible. Unless supporting industries are developed in the Hanoi area, they will lose chances to be incorporated into divided work systems of assemblers.

- ☐ In this context, too, it is recommended to develop subcontract systems in the industries in the Hanoi area. Since the existing enterprises are not adequate as members of subcontractors (it is because they have their own business, and temporary or limited subcontracts are not preferred by assemblers), independent subcontractors should be organized and developed in the divided work systems.

#### i) Numerical Control

The machine industry in the Hanoi area has not applied yet the numerical control (NC) which is an innovative invention for machine tools. NC will substantially improve the operating efficiency of machine tools.

- ☐ For machine tool makers, it is recommended to urgently introduce NC technology. The existing machine tools can be modified to NC by adding a control unit. NC will improve the skills of operators in precisely manufacturing machine elements without fault. (Further details are given in Appendix-F.1, Para. 3)(3)(b)).

### 3) Development Strategies for Machinery Industry

It is proposed that the target for improvement of the machinery and metalworking industry by the year 2000 is to double or triple the productivity of the existing industries. This target is attainable if proper measures are taken by the respective industries and state authorities concerned. To this end, the Study Team presents the following recommendations (refer to Appendix-F.1, Para. 4):

- ☐ The machinery industry should firstly improve the working environment and discipline of workers. For this purpose, it is proposed to introduce the



5S Initiative widely diffused in Japan. Managers and workers should learn lessons from this 5S Initiative. With the improvement of the working environment and discipline, more foreign investors would be attracted to invest and transfer their technologies.

- ☐ Foundries and machine tools are found to be most promising industries in the Hanoi area, as pointed out before. Special attention should be paid to the study and implementation of modernization of these industries.
- ☐ In the light of investments contemplated by the automobile and motorcycle assemblers in the Hanoi area, it is recommended to conduct a study on how to promote the establishment of supporting industries for such assemblers. In this Study, it is suggested to investigate how to segregate some workshops of the existing industries and merge them into some private enterprises as subcontractors to the assemblers. It is also advised to appraise the requirement of financial assistance for subcontractors to be incorporated on a private initiative.
- ☐ The institute for the development of production technologies should be reinforced and developed, so that it will serve as an incubator of new technologies and new businesses in the Hanoi area.
- ☐ For implementation of the various recommendations on the process improvement as noted in the foregoing section, it is recommended that MHI or an appropriate institute obtain the services of technical advisors to be despatched through foreign technical cooperation agencies.

During the period from 2000 to 2010, productivity of the machinery and metalworking industry should be further improved. It is proposed that productivity will be increased more than 5 times in this decade. This target of improvement of productivity will be attainable through promotion of the following activities:

- ☐ By introduction of the divided work and subcontract systems in machinery and metalworking industry, reorganization and privatization of the state enterprises will be promoted. For instance, manufacturers in automobile and motorcycle industries in the Hanoi area will be incorporated into the international divided work systems, and exports of machine elements could be initiated during this period.

- Financial mechanism should be further modernized so that the enhancement of productivity will create capital to be reinvested in expansion and further enhancement of productivity. For instance, adoption of NC for machine tools will open markets in the ASEAN countries where machine tools are not produced.
- Capitals in the local markets should be accumulated and canalized for investments, so that the Hanoi industries would depend less on foreign investments after the year 2010.

## 6.2 Electric/Electronic Industry

The Hanoi area has an increasing number of electric and electronic industries. Through the questionnaire survey and factory inspection, 27 electric/electronic industries have been investigated in the course of this Study (refer to Appendix-F.2).

### 1) Current Situation and Constraints

Nine electric enterprises in the Hanoi area produced 1,176 billion dongs, while 18 electronic enterprises produced 515 billion dongs in 1993. Net product per employee was 18 million dongs in the electric industry and 53 million dongs in the electronic industry. Although the productivity in these industries is relatively higher than other industries in the Hanoi area, it is 1/40 of the electric industry and 1/16 of the electronic industry in Japan. The sales of electric and electronic enterprises in the Hanoi area (with more than 6,000 employees) is equivalent to the production of one company with 300 employees in Japan (refer to Appendix-F.2, Para. 1 and 2).

During the period of 5 years from 1989 to 1993, electric industries (such as production of electric motors, transformers, home use electric fans, etc.) have slightly increased their production, but profit before tax decreased sharply in 1991. On the other hand, electronic industries like TV sets assembling by SKD or CKD have enjoyed a sharp increase in sales since 1991 while maintaining an acceptable rate of profit.

One of the notable constraints in the electric industry in the Hanoi area is weakness in design and production. This is demonstrated by the fact that the weight of a motor manufactured in Hanoi is about 1.7 times heavier than a motor sold in the international market, and that a transformer is 1.6 times heavier than others marketed in the world.

The Hanoi area has some advantages in the electric industry, if compared with the Ho Chi Minh area. In the electronic industry, however, the Ho Chi Minh area has greater advantages of a larger purchasing power than the Hanoi area. Consequently, for development of the electronic industry in the Hanoi area, electronic products should be more specifically selected to compete with products in the Ho Chi Minh area.

## 2) Proposed Improvement of Electric/Electronic Industry

Weak points in the electric/electronic industry as noted in the foregoing section should be improved first. Further, to increase local production of electronic products, enhancement of quality control is indispensable, and measures should be taken to modernize quality control and production control systems particularly in the electronic industry. In this context, several recommendations are presented for improvement of the electric/electronic industry in the Hanoi area, as follows (refer to Appendix-F.2, Para.3):

- ☐ To improve design and materials in the electric industry, it is recommended to carry out in-depth studies on the design, quality and production technologies for each electric product. Despatch of foreign experts through technical assistance agencies will be effective for such studies and technical advice. If appropriate, foreign technical licenses should be introduced to improve the design and quality of materials.
- ☐ For the electronic industry, a gradual increase in locally made parts is an important target. It is suggestible to start with the production of electronic components, which are universally used for radios, CTV, facsimile machines, personal computers, etc., including transformers of small capacity, registers, condensers, and arresters. It is recommendable that adequate technical support be sought from foreign manufacturers in starting production of such electronic components in the Hanoi area.
- ☐ Production of printed circuit boards (PCB) and parts insert will be the next step to be followed in the Hanoi area. At present, many PCB are imported to Vietnam, and PCB manufacturing appears to be promising for the Hanoi area. It is recommended first to study how to produce and how to design PCB. It is noted that an environmental impact assessment should be made before starting PCB manufacturing in order to prevent water pollution during the processing.

- ☐ Electronic software should be developed in parallel with the development of hardware. At the starting point of the electronic industry, the requirements of software is larger than the demand for hardware. Besides, large investments are not required for software development. The Hanoi area is believed to be suitable for the development of software, because highly educated and intelligent people are available in the area.

### 3) Development Strategies for Electric/Electronic Industry

It is proposed that, by the year 2000, the productivity of the electric industry will increase more than 1.6 times the level in 1993, or exceed the per capita production of over 30 million dong in 2000 at constant prices. For the electronic industry, similar enhancement in productivity is expected in view of the recent rapid increase in production in the Hanoi area. To this end, the Study Team presents additional recommendations as follows (refer to Appendix-F.2, Para. 3 and 4):

- ☐ Since the electric power companies have intention to improve power transmission and distribution systems in the Hanoi area and in the northern region, the electric industry should be prepared to meet the increasing demand for high voltage equipment such as transformers and circuit breakers. It is recommended that efforts be made not only to increase production to cope with the expansion of local demand, but also to improve design and other technologies in the manufacture of electric equipment.
- ☐ For the electronic industry the demand patterns will tend to change in future. For instance, TV sets production presently concentrates on 14-inch type, but future demand will be for larger TV of 21 inches or more. It is suggested that the electronic enterprises be well prepared for changes in market demands.
- ☐ Demand for computers might certainly expand rapidly toward the year 2000. It is recommended that development of hardware and software be pursued to meet the increasing demand for computer products.
- ☐ It is recommendable that automation and computer control of machines and equipment be developed strategically in future. To this end, it is recommendable that development of inter-face between electronic engineering and mechanical engineering be pursued through collaboration of engineers in the respective fields of engineering.

Automobile industry and other assembling industries will be developed in the Hanoi area toward the year 2010. The automobile industry, for example, will require various kinds of electric and electronic parts for assembling. Further, with an increase in per capita income, the domestic demand for home electric products will be expanded. If the divided work and subcontract systems are developed by the year 2000, the demand for electric and electronic parts might be further accelerated by assemblers. In this context, some additional recommendations are presented for further development of the electric and electronic industry, as follows:

- A subcontract system for production of electric and electronic parts will require further enhancement of production control and quality control. Technologies for production and quality control should be further developed in line with the development of the divided work and subcontract systems.
- Development of software will become more and more important in the electric and electronic industry in the Hanoi area. In this context, it is recommended that education and training be offered not only to employees in enterprises but also to students in universities and other academic circles.

### **6.3 Textile/Garment Industry**

Textile and garment industry provides the largest employment opportunities in the Hanoi area. According to the questionnaire survey, employees in this sub-sector numbered about 24,000 in 1994, which accounted for nearly 30% of the total number of employees of all manufacturing industries in the area. Textile and garment industry contributed to 300 billion dong to exports, which accounted for 48% of the total sales of this sub-sector and for 64% of total exports of the manufacturing industries in the Hanoi area (refer to Appendix-F.3).

#### **1) Current Situation and Constraints**

Textile and garment enterprises are operated by MLI (14 enterprises replied to the questionnaire survey), HPC (10 enterprises) and the private sector (2 enterprises). Net product per employee is about 10 million dong in the textile industry (about 1/140 of Japan) and 7 million dong in the garment industry (about 1/70 of Japan). The industries results from the low wages of workers.

Sales of the textile industry (ISIC 3211) and knit industry (ISIC 3213) have been increasing since 1990, while the growth rate of the garment industry (ISIC 3220) has

been less notable. Profit from sales of the central and local state enterprises, both textile and knit industries, has been decreasing since 1990. In the garment industry, profit from sales has remained at a low level in HPC enterprises and has been relatively high in MLI and private enterprises.

Domestic consumption of textiles is estimated to be around 60,000 tons a year, or about 0.8 kg per capita. This consumption rate is expected to increase in proportion to the increase in per capita GDP. TEXTIMEX expects a rather modest production increase of 650 million m/year for domestic use and 350 million m/year for exports in 1996-2000 (refer to Appendix-F.3, Para. 2).

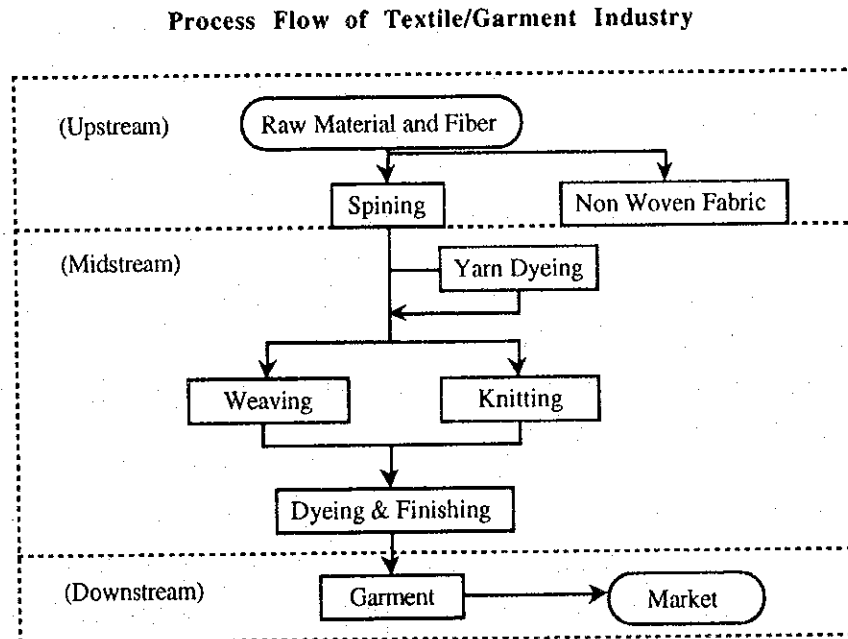
Consumption of raw material and fiber by the textile industry in the Hanoi area is estimated to be around 63,000 tons/year (32,000 tons of cotton, 28,000 tons of synthetic fiber, 1,000 tons of wool and acryl fiber, 1,200 tons of viscose rayon, 300 tons of polyester, and 500 tons of silk). On the other hand, domestic production of material is limited to only 3,000 tons of cotton and 500 tons of silk. The majority of cotton and all synthetic fibers and filaments are imported. TEXTIMEX plans to construct a polyester fiber yarn with a capacity of 40,000 tons/year by 2000, though tough competition with Chinese and Thai manufacturers is foreseeable because synthetic fibers are overproduced in the Asian markets.

Spinning equipment is generally old, and the number of operable spindles is estimated to be about 800,000-850,000. Production of yarn by the existing spindles is estimated to be about 50,000 tons/year. TEXTIMEX plans to modernize or renew the existing spindles, as well as to newly install spinning factories with a total of 300,000 spindles in the northern region. Implementation of TEXTIMEX's plan will depend on the availability of financial resources.

Weaving equipment is also old, and only 15,000 looms out of 43,000 installed looms are operable. The equipment operation rate is as low as 60-70%. Most of these looms are of shuttle type with a weaving width of 36", while modernized looms in industrialized countries have a weaving width of 48" or 52". The capacity of knitting in Vietnam is limited to 15,000 tons/year (13,600 tons/year of circular knit and 1,400 tons/year of warp knit), though the demand for knit wear is growing in the world. The operation rate of knitting equipment is estimated to be 80%. It is noted further that only 17.5% of the existing machines for dyeing and finishing are still operable, though dyeing and finishing are recognized to be important processes for increasing added values of fabrics (refer to Appendix-F.3, Para. 2).

## 2) Proposed Improvement of Textile/Garment Industry

The following diagram illustrates a process flow of textile/garment industry:



The weakest part of the textile and garment industry in the Hanoi area is in the midstream processes, particularly dyeing and finishing. The textile and garment enterprises in Hanoi import materials of good quality from abroad, but they are spoiled by the midstream processes and become cheap final products of garment industry (refer to Appendix-F.3, Para. 3).

- ☐ In order to realize a higher value added for the products, it is recommended that the textile industry in the Hanoi area improve the dyeing and finishing processes to include sizing, reaching, dyeing, singeing, scouring, printing, mercerizing, etc. Modernization of equipment and skills in these processes will be vital for the textile industry in the region.

Low productivity of the textile and garment industry is attributable to various factors. It is noted, however, that the productivity differs from one enterprise to another, depending mainly on the capacity of management of factory operations. Some factories have 50% higher productivity than the average, while others have less than 50% of the average.

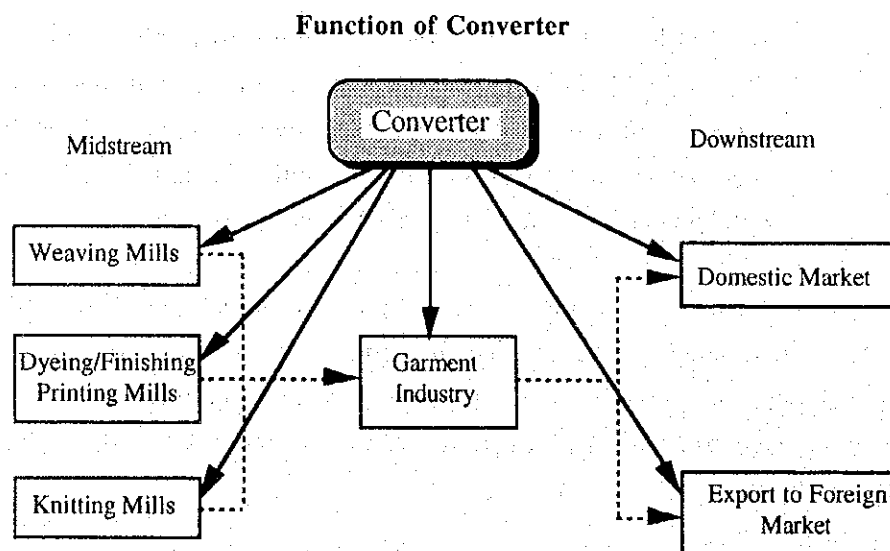
- ☐ Exchange of information on management among enterprises will be effective for improving productivity of the textile and garment industry in

the Hanoi area. It is recommended that TEXTIMEX or other associations promote such exchanges of information on management and operation of factories.

- It is also recommended that TEXTIMEX or each textile enterprise use foreign technical advisors for modernizing the management and production processes, particularly the midstream and downstream ones. Foreign advisors will be made available either through technical cooperation agencies or through private and semi-private channels.

The midstream and downstream processes of the textile industry must respond quickly to fashions/modes in the domestic and world markets. Generally, young generations change their fashion/mode frequently and rapidly, and textile and garment industry should follow such changes.

- In this context, it is recommended to set up and promote a "converter" business in the Hanoi area. The function of the "converter" is multiple, such as (i) identify and create new fashions; (ii) provide market information to manufacturers; (iii) procure various kinds of fabrics and provide them to garment factories; (iv) place orders to garment factories, indicating design, specifications and material fabrics; and (v) act as an interface among fabric producing factories, garment factories and selling firms in terms of delivery, customer services, quality control, etc. The function of the "converter" is illustrated below.





Converters will increase the value of textiles and garments by efficiently coordinating and leading the industry to meet market requirements. It is preferable that a converter is set up as a company independent from any textile or garment enterprises. It should not be managed by a state sector or department or its affiliated institute, but should be developed as a private enterprise.

### 3) Development Strategies for Textile/Garment Industry

By the year 2000, productivity of the textile and garment industry should be improved by means of strategic improvement proposed in the forgoing section. Particular attention should be paid to the improvement of the midstream and downstream processes of the industry, as well as to the improvement of the management of the enterprises (refer to Appendix-F.3, Para. 4).

Improvement of productivity of the textile and garment industry in the Hanoi area is particularly important to make it competitive with industries to be located in the Ho Chi Minh area, as well as with the direct foreign investors in this sub-sector.

- ☐ In this context, too, it is recommended that TEXTIMEX and each factory count more on foreign technical advisors for technical and management improvement of the factory operations. Such advisors might be despatched through foreign technical assistance agencies or through agreements with private or semi-private organizations.

It is expected that the garment industry in the Hanoi area will grow rapidly, since it will not require large amounts of investment and it will be possible to still count on a cheap labor force. More garments will be destined for exports in this period. It is noted, however, that as the textile and garment industry depends heavily on imported materials, an increase in locally added value will become a key factor in the development of this sub-sector.

The State is studying the possibility of organizing a "general textile company" as a step for equitization of the state enterprises. There are various opinions on this idea, but it should be reiterated that the general textile company should in no way have a negative impact on competition among the existing private textile and garment enterprises in the Hanoi area and in Vietnam as a whole, as noted in Section 3.2.

Increase in the domestic production of cotton will depend on the agricultural development level attained in the future. In the event that domestic production of cotton increases, the product will be utilized for production of coarse count yarns, and textile