JAPAN INTERNATIONAL COOPERATION AGENCY (JICA)

MINISTRY OF INDUSTRY, INDIA

INDIA

THE MASTER PLAN STUDY ON THE INDUSTRIAL MODEL TOWN

FINAL REPORT

SUMMARY

DECEMBER 1993

YACHIYO ENGINEERING CO., LTD.

in Association with

TECHNO CONSULTANTS, INC.

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CHAPTER 1 OBJECTIVES OF THE STUDY AND SCOPE OF WORK

1.1 Scope of Work

India's Ministry of Industry and Department of Industrial Development (DID) and Japan International Cooperation Agency (JICA) agreed upon the Scope of Work (S/W) for this study on August 7, 1992.

1.2 Objectives of Study

According to the S/W, the objectives of the study are:

(1) to present appropriate recommendations for further promotion of multinational foreign investment, including technology transfers.

(2) (a) to make recommendations of appropriate candidate site(s) for formulation of an Industrial Model Town (IMT) in four candidate sites at Bangalore (Bidadi and Sathnur) and Delhi (Noida and Gurgaon), and

(b) to formulate the IMT conceptual plan for the site(s) recommended and mutually agreed upon by the Study Team and representatives of authorised departments and agencies of the Indian Government.

1.3 Methodology

The study and research was accomplished in the following manner according to "Fig. 1-1 Study Implementation Flowchart".

(1) Preparatory Work in Japan: Mid October - Mid November 1992

(2) Field Survey in India (1st Stage): 23rd November - 6th December 1992

(3) Work in Japan (1st Stage): Beg. of December 1992 - End of January 1993

(4) Field Survey in India (2nd Stage): 31st January - 28th March 1993

(5) Work in Japan (2nd Stage): Beg. of May - End of June 1993

(6) Field Survey in India (3rd Stage): 4th July - 31st July 1993

(7) Work in Japan (3rd Stage): Beg. of August - Beg. of October 1993

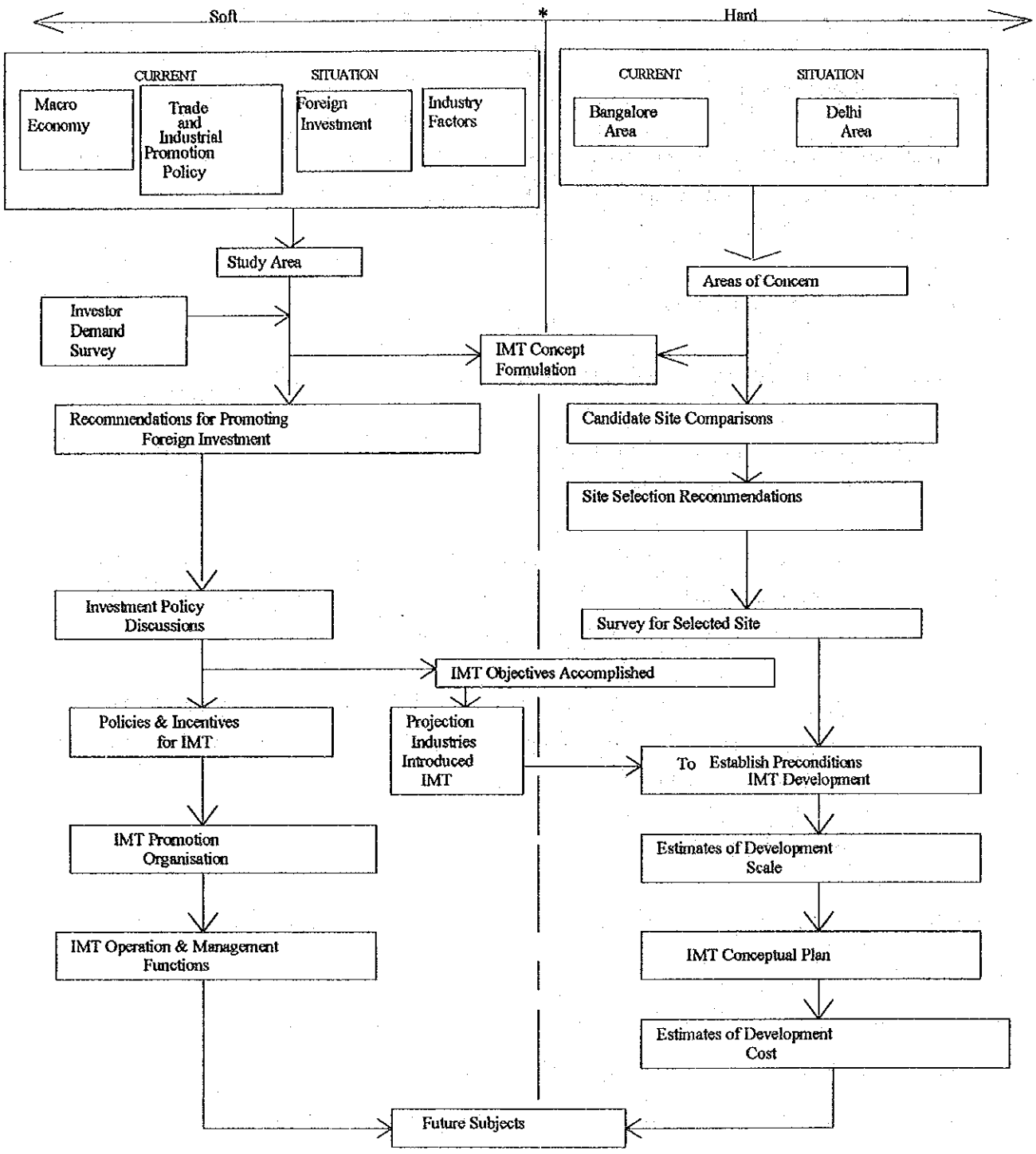


Figure 1-1 Study Implementation Flowchart

CHAPTER 2 MACRO ECONOMY OF INDIA

2.1 Annual Records and Trends

In order to study the time-bound trends of imports, domestic production, domestic consumption, and exports, and the associated relations of these factors, Table 2-1 is provided.

The items marked I, II, and III are based on the original commodity classifications given in the "Electronic Survey" 1991-92, and 1992-93, 7.2 and 7.3, and were rearranged for strategic analysis and are as follows:

Category I: Primary products - agricultural and allied products, forestry and marine products, ores and minerals, coal and petroleum oil.

Category II: Manufactured goods - intermediate and finished goods, except capital goods.

Category III: Capital goods - machinery and transport equipment, including electronic goods.

2.1.1 Import and Export Trends

(1) India's Import Structure Characteristics

India's import structure characteristics indicate that "petroleum oils and lubricants" have a very large share of India's imports, averaging 20 per cent for the last seven years; for 1990 and 1991, import shares were 25 and 27 per cent, respectively. And fluctuations in oil prices have influenced total import amounts.

The long term trends examined from 1980 to 1991, indicate the following for each category of goods.

Category I: Although the total amount substantially fluctuates year to year due to oil price fluctuations, a general downward trend was observed.

Table 2-1 Macro Economic Data

(Unit: Rs. billion for Factors 1 to 6)

Factors	*1. Imports (CIF) [2]*				*2. Domestic Production [1]*				*3. Gross Domestic Expenditure [2]*		*4. Export (FOB) [2]*				*5. Trade Balance*	*6. GDP [3]*	*7. GDP Growth Rate [3]*	*8. Population (million)*	*9. Per Capital GDP Rs. [3]*	*10. Exchange Rate per US$1.00*	*11. Foreign Exchange Reserves US$ (million)*
Items / Year (F.Y.)	I	II	III	Total	I	II	III	Total	Pvt. Final Consm.	Gross Fix Cap. Formation	I	II	III	Total							
1980	58 (52) [4]	44	18	125	504	145	51	700	981	262	25	32	6	67	-58	1224	7.2	685	1786	7.908	5850
1985	62 (49)	88	41	196 (137)	595	203	72	870	1185	365	44	56	9	108 (76)	-87	1565	4.1	763	2051	12.253	5972
1986	38 (28)	100	63	201 (134)	591	217	77	885	1411	387	45	69	9	124 (83)	-76	1632	4.3	779	2094	12.778	5924
1987	54 (40)	101	64	222 (128)	596	233	82	911	1294	412	49	96	11	156 (90)	-65	1703	4.3	795	2142	12.966	5618
1988	63 (43)	151	67	282 (162)	690	252	89	1031	1400	448	52	134	15	202 (116)	-80	1889	10.9	811	2329	14.482	4226
1989	76 (62)	192	85	354 (212)	706	270	96	1072	1412	486	63	182	24	276 (165)	-77	1995	5.6	827	2412	16.649	3368
1990	120 (108)	207	101	432 (199)	740	290	103	1133	N/A	535	87	209	28	325 (150)	-106	2097	5.2	846	2478	17.943	2236
1991	143 (131)	233	101	478 (192)	733	289	102	1124	1641	591	113	286	41	440 (178)	-38	2123	1.2	860	2468	24.474	5631

Note:
[1] Amounts are quoted at 1980-81 prices
[2] Amount quoted in current market prices.
[3] At factor cost, at 1980-81 prices.
[4] The figures in brackets show the amount of petroleum oil and lubricants imports.

Category I: Primary Product
Category II: Manufactured Goods
Category III: Capital Goods

Total ( ): Constant Price at 1980-81

Sources:

Factor 1) & 4) "Economic Survey" 1992-93, 7.1 (A) S-84
Factor 2) Same as above 1-3, S-5, Rearranged
Factor 3) United Nations, "Statistical Yearbook for Asia and the Pacific 1991; 1991 "Eighth Five Year Plan" Table 3.2 adjusted to 1980 prices level.
Factor 5) "Economic Survey" 1992-93 7.1 (A), S-84
Factor 6) Same as above 1-3, S-5
Factor 7) Same as above 1.6, S-10
Factor 8) Same as above 0.1, S-1
Factor 9) Calculated 6)/8)
Factor 10) "Economic Survey" 1992-93, 6.5, S-83
Factor 11) Same as above 6.1, S-74

Category II: A constant upward trend, with a relatively large share to about 50 per cent.

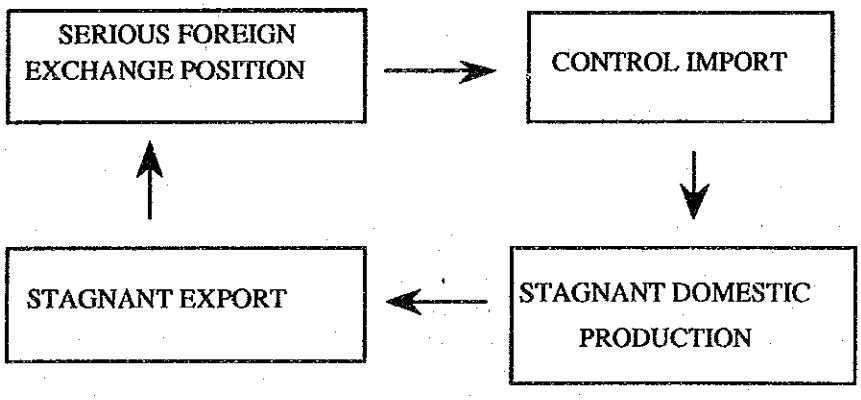
Category III: Although the component ratio remains small (about a 25 per cent average for the last seven years), a steady upward trend can be observed.

(2) India's Export Structure Characteristics

As per total exports, the rate has steadily increased for the past five years, except for the figures reported in 1990. The same trend is observed in goods for Category II and III. These goods jointly have a substantial share of component rate (about 75 per cent), consequently the trend effects total export fluctuations. It appears that this trend will further accelerate in the future based on liberalized import and export promotion policies.

2.1.2 Domestic Production Trends

Domestic production trends for Category II and III sectors is closely associated with the foreign exchange revenue position, and directly associated with imports of these goods. This linkage is observable when imports are restricted due to reduced foreign exchange reserves. Reduced imports in critical sectors will slow domestic production in Categories II and III (which are dependent on imported materials, parts and components), and subsequently exports will fall, further reducing foreign exchange earnings. This linkage and its consequent effects can be illustrated as follows:



Relationships Between Imports, Exports, and Foreign Exchange Reserves

2.2 The Eighth Five Year Plan

2.2.1 Outline of the Plan

The Indian economy had stable growth at a rate of five per cent during the Sixth and Seventh Five Year Plan periods (1980-1990). However, a draft of the Eighth Five Year Plan which was to begin in 1990, was not adopted due to unstable domestic politics, and was instead inaugurated in 1992 for the five year period lasting until 1997.

The sectors most closely related to the IMT project are manufacturing, investment from overseas, and foreign trade, and are summarized below for the planning of this project.

(1) Gross Domestic Production (GDP)

The GDP (Gross Domestic Production) target growth rate (per cent per annum) is 5.6 per cent, about 0.3 percentage points higher than the growth rate achieved during the seven year period from 1985 to 1992. However, this GDP growth rate is 0.2 percentage points lower than the Seventh Five Year Plan's (1985-89) achievement of 5.8 per cent. (Refer to Table 2-2).

Table 2-2 Macro-Parameters for the Eighth Plan (1992-97)

Rates/Ratio	Seventh Plan (1985-90)	Seven Years including Seventh Plan (1985-92)	Eighth Plan (1992-97)
1. Rate of Growth in GDP (% per annum)	5.8	5.3	5.6
2. Domestic Saving (% of GDP)	20.3	20.7	21.6
3. Investment (% of GDP)	22.7	23.1	23.2
4. Current Account Deficit (% of GDP) 1)	2.4	2.4	1.6
5. ICOR (Incremental Capital Output Rate)	3.9	4.3	4.1
6. Growth Rate in:			
Export of Goods (% per annum)	8.1 2)	8.5 3)	13.6
Import of Goods (% per annum)	10.0	7.5 3)	8.4

Source:"Eighth Five Year Plan" Volume 1, Table 3.3 Government of India, Planning Commission,July 1992.
Notes: 1) In the Seventh Plan, the interest paid on NRI deposits was not included as part of the Current Account Deficit (CAD) because the RBI released the NRI capital inflow data after accounting for the interest paid. The CAD projection for the Eighth Plan includes the interest paid on NRI deposits as an item of imports of non-factor services.
2)This is estimated the five years of the Seventh Plan period. As per D.G.C.I. & S. quantum index, the estimates are 7.6 per cent for the Plan period, and 11.6 per cent during the last four years of the Seventh Plan.
3)This only represents a six year average because 1991-92 was an abnormal year in regarding foreign trade.
4) ICOR: Incremental Capital Output Rate

(2) Amount of Investment

(a) The Plan calls for total investment of Rs. 7,980 billion (23.2 per cent of normal GDP for the Plan period), out of which investment in the public sector amounts to Rs. 3,610 billion.

(b) Public sector investment is 45.2 per cent of the total (public and private) investment, and can be compared with the Seventh Plan's achievement of 45.7 per cent, and its planned share of 47.8 per cent of total public sector investment. This decrease characterizes the basic principle of the Eighth Five Year Plan: substantial importance is placed on the private sector.

(3) Sectoral Investment

The manufacturing sector the largest sector garnering investments (Rs. 1,884 billion is planned for investment), and accounts for 23.61 per cent of total investment in the Eighth Plan. The investment distribution for the public and private sectors is 25 per cent and 75 per cent, respectively.

(4) Balance of Payments

In the Eighth Plan, the trade deficit increases to Rs. 695 billion, about 80 per cent greater than the deficit recorded in the Seventh Plan period. However, exports increased 3.8 times and imports 3.2 times over the performance during the Seventh Plan. It appears export and import activity will be significantly improved during the Eighth Plan period.

(5) Current Account

The current account deficit (CAD) is Rs. 548.6 billion, and corresponds to 1.6 per cent of GDP in the Eighth Plan.

CHAPTER 3 TRADE AND INDUSTRIAL PROMOTION POLICIES

3.1 New Industrial Policy (NIP 91)

The New Industrial Policy was announced July 24, 1991, and approved August 26, 1991, and was the central government's attempt to promote foreign investment to the country and restructure the country's industrial economy.

NIP 91 is organised into five articles and is summarised below.

1) Industrial Licensing Policy
2) Foreign Investments
3) Foreign Technology Agreements
4) Public Sector
5) Monopolies and Restrictive Trade Practices Act (MRTP)

(1) Industrial Licensing Policy:

(a) Areas where security and strategic concerns predominate will continue to be reserved for the public sector.

(b) For all industries, except core industries, licensing will be abolished. However, industries reserved for the small scale sector will continue to be under licensing.

(c) All existing registration schemes (De licensed Registration, Exempted Industries Registration, DGTD registration) will be abolished.

(d) For new projects and substantial expansion, entrepreneurs will henceforth only be required to file an information memorandum.

(e) In locations other than cities with a population of more than 1 million, industrial approval by the central government will not be required; except for industries subject to compulsory licensing.

In those cases where the location of an industry is in cities with population of more than 1 million, pollution industries will be located 25 km from the external boundary, except in prior designated industrial areas such as electrical, computer software, printing, et cetera.

(f) In projects where imported capital goods are required, automatic clearance will be given, for those cases where:

i) foreign exchange availability is ensured through foreign equity, or

ii) if the CIF value of imported capital goods is less than 25 per cent of the total value of plant and equipment, upto a maximum value of Rs. 2 crores.

In other cases, clearance from the Secretariat of Industrial Approvals (SIA) will be required. Existing units will be permitted to expand product items without additional investment. The licensing exemptions will apply to all substantial expansion of existing units.

(g) The system of Phased Manufacturing Programmes (PMP: Policy for increasing the domestic procurement rate) will not be applicable to new projects; existing projects under the PMP system will continue to be governed accordingly.

(h) The Mandatory Convertibility Clause will no longer be applicable for term loans from financial institutions for new projects.

(2) Foreign Investment

(a) Approval will be given automatically for direct foreign investment upto 51 per cent from 40 per cent foreign equity in high priority industries, for those cases where foreign equity covers foreign exchange requirements for imported capital goods.

(b) To provide access to international markets, trading companies primarily engaged in export activities will be allowed majority foreign equity holdings to 51 per cent.

(c) The payment of dividends will be monitored through the Reserve Bank of India (RBI) so as to ensure that outflow on accounts of dividend payments are balanced by export earnings over a period of time.

(d) A Special Empowered Board (SEB) will be constituted to negotiate with a number of large international firms and approve direct foreign investment in selected areas. The investment programmes of such firms will be considered free from predetermined procedures.

(e) For the importing of capital goods, where foreign exchange availability is insured through foreign equity, the import license will be given automatically.

(f) For the importing of capital goods, if the CIF of the imported capital goods is less than 25 per cent of the net total value of plant and equipment, (up to a maximum value of Rs. 20 million) an import license will be automatically granted.

(3) Foreign Technology Agreement

(a) Automatic permission for payment of royalty will be given for foreign technology agreements in high priority industries subject to:

i) upto a lumpsum payment of Rs. 10 million
ii) 5 per cent royalty for domestic sales
iii) 8 per cent royalty for exports.

In the case of ii) and iii) (royalty on sales), the total amount of payments shall be less than 8.0 per cent of sales for a 10 year period from the date of an agreement, or 7 years from commencement of production.

(b) For industries other than those, automatic permission will be given subject to the same guidelines as above if free foreign exchange is not required for payment. All other proposals will need specific approval under the general procedures in force.

(c) No permission will be necessary for the hiring of foreign technicians, foreign testing of indigenously developed technologies.

(4) Public Sector

(a) Industries related to security and strategic concerns will be operated in the public sector, but the private sector will be selectively given an opportunity in this area. However, the public sector will be permitted to enter in areas not reserved for it.

(b) Public enterprises which are chronically sick and which are unlikely to be rehabilitated, will be referred to the Board of Industries and Financial Reconstruction (BIFR).

(c) A part of the government's share holdings in the public sector will be offered to mutual funds, financial institutions, the general public, and workers in order to introduce the private sector's economic vitality into the public sector.

(d) The autonomy and authority of public sector enterprises will be expanded and management will become more professional.

(5) MRTP Act

(a) The MRTP Act will be amended to remove the threshold limits of assets in respect of MRTP companies and dominant undertakings.

(b) This eliminates the requirement of prior approval of the central government for establishment of new undertakings, mergers, amalgamations, takeovers, and the appointment of directors.

(c) The restriction of purchasing and transferring shares will be eliminated.

(d) The MRTP Commission will consolidate functions and be authorised to initiate investigations regarding monopolistic, restrictive, and unfair trade practices based on consumer complaints.

CHAPTER 4 THE FOREIGN INVESTMENT STRATEGY

4.1 Policies Amended Subsequent to the " NIP-91"

Continuing the "NIP-91" liberalisation efforts, the Government of India announced several foreign investment amendments.

(1) Foreign Exchange Regulation Act Amendments.

(a) March 1992. (The statements of Minister of Finance)

Foreign exchange on trading account were allowed partial convertibility at free market rates, i.e., 60 per cent at market rates and 40 per cent at official fixed rates.

(b) January 1993. (Presidential Ordinance)

The FERA enterprises (companies with more than 40 per cent of foreign equity) were considered equally with domestic companies and restrictions were abolished.

(c) March 1993. (Minister of Finance's statement)

Full convertibility of trading accounts at the free market rate is implemented.

(2) The New Import and Export Policy (1992-97). (Announced March 1992)

To proceed with import and export liberalisation, the government adopted a policy that abolished licenses for external trade with a few exceptions listed in the "negative list". Thus, procedures for external trade were substantially altered and simplified.

(3) The Dividend Balancing System. (Press Note No.10 (30)92-UP, June 1992)

The Dividend Balancing System was abolished except for consumer goods manufacturers.

(4) Taxation. (Minister of Finance statement; March 1993)

(a) The Auxiliary custom duty was included with the Basic duty and the maximum custom duty reduced to 85 per cent from the previous 110 per cent.

(b) Excise duties were reduced. (capital goods and equipment - 10 per cent from 11.5 to 23 per cent, automobiles - 40 per cent from 55 per cent.)

(5) Restricted industries. (The Special Committee statement of April 1993)

Motor cars, raw hides and skins, leather, and white goods (domestic refrigerators, domestic dish washing machines, programmable domestic washing machines, microwave ovens, air-conditioners) were eliminated from the List of Industries with respect to which industrial licensing will be compulsory.

4.2 The Statistical Record of Foreign Investment

4.2.1 The Foreign Investment Record

The average foreign investment total per annum for 1991 and 1992, was Rs. 22,108 million, about 12.3 times the previous five years' average. Given the foreign exchange variances for this period, adjusted total per annum increased 6.6 times over the period prior to NIP-91.

In addition to the above, the four month record for January to April 1993, indicates a substantial positive trend (about twice that of the previous year) despite the recent sluggish world economy.

4.2.2 Country-Wise Foreign Investment Record

The Unites States indicated stronger investment interest, and ranked first among foreign investment to India.

Germany ranked second during the late 1980's, but recorded only a three per cent share of total foreign investment for 1991 and 1992, and only two per cent for the first quarter of 1993.

Japanese total foreign investment to India for 1991 and 1992 represented a 15 per cent share, and ranked third after the U.S. and Switzerland. During the first quarter of 1993,

Japan ranked fourth in terms of total foreign investment to India (after the U.S., Thailand, and Switzerland).

4.2.3 General Observations Regarding International Comparisons for Investment Conditions

Regarding a country's foreign investment regulations, India provides equal level conditions compared to other Asian countries, except for higher import duty rates and higher corporate income taxes. However, at the same time, it can be said that India does not provide any special incentives to foreign investors.

In conclusion, the international comparisons of investment conditions has shown that India's specific circumstance are as follows.

(a) Foreign investors' perceptions

As for approval systems for foreign investment, India needs to adopt automatic approval procedures for foreign investment that increase from present levels of approved percent equity shares. And, to amend foreign investors' inaccurate impressions about India, positive and repeated public information campaigns about India's investment liberalization abroad would prove most effective.

(b) The domestic market

India will be considered by foreign investors as "an attractive country holding a large domestic market", and finally as "the most important country to be invested for a company's global business strategy", when India provides to the foreign investors no restrictions for India's large domestic market.

(c) India's Attributes

Geographical situations, the natural and human resources, are essential to distinguish India's specific ability to attract foreign investors. India should adopt an investment policy utilizing these specific attributes.

4.3 Foreign Investment Concerns

In fact, recent investments from abroad into India have significantly increased primarily in large scale investments for power supply and petroleum-related industries. As a result of

liberalization with the announcement of "NIP-91", however, several points still remain and are needed as amendments.

4.3.1 Psychological Issues of Foreign Investors

As previously described, India's investment climates are almost the same compared to neighboring countries. The following perceptions of foreign investors, especially Japanese investors, obstructed foreign investments increases to India.

(1) The Political Situation

Political stability is indeed the most important factor to foreign investors.

(2) Public Relations of Recent Investment Liberalization

The liberalization measures enacted after "NIP-91", were not well publicized to foreign investors. India's investment seminars were often held in Japan, but the attendants in these seminars were limited to member companies of the "India-Japan Economic Committee", and information about recent liberalization toward investments did not reach to potential Japanese investors.

(3) Foreign Investors' Impressions

Foreign investors are to visit India to investigate investments after collecting various kinds of information from possible sources. The attitude of the National Airline and related activities at the international air terminal are very important for giving the best first impressions about India.

4.3.2 Foreign Investment Policies Concerns

(1) Concerns Related to Regulations

(a) Dividend Remittances

Reconsideration of the dividend balancing system as applied to the consumer durables industries is needed.

(b) Sales Tax

Sales taxes, which are very important sources of state government revenues, includes the following areas of concern.

i) Duplication of Sales Tax

In that case that an industry procures components from an ancillary industry, sales tax on final products is to be levied on prices included procured component prices already having been levied sales taxes. This implies that sales taxes on components are taxed twice.

ii) States differ in amount of sales taxes.

The significant variation of sales tax rates between states, leads industries to seek sales offices in the lowest tax-rate states.

(c) Technology Collaboration Contracts

Technology collaboration contracts are automatically approved when a royalty is less than RS. 10 million. This amount is impractical due to the fluctuations in the foreign exchange market at present.

(d) Phased Manufacturing Programme (PMP)

In "NIP-91", the announcement was made that "the system of PMP will not be applicable to new projects; existing projects with PMP will continue to be governed accordingly". This could inhibit new foreign investors that may judge it better to postpone investment to India as latecomers as they may receive favorable treatment over former investors.

(e) Mandatory Convertibility Clause

Similar the PMP system, an announcement was made that "The Mandatory Convertibility Clause will no longer be applicable for term loans from financial institutions for new projects" that a governmental financial institute was able to convert a part of the finance to equity in a company. The same consideration should be given for the PMP system.

(2) Procedures for Various Applications

Foreign investors in India complain about application procedures and are summarized in three categories as follows:

i) Different interpretations by the government staff, cause inconveniences and troubles;

ii) Wrong decisions due to a lack of knowledge on the part of governmental staff regarding central government changes and/or amendments.

iii) Too-detailed divisions of governmental authorities which are not well-defined for applicants.

(a) The Interpretation Differences by Government Staff

There was a case reported that one government staff worker interpreted a particular commodity as not requiring an import license. However, Customs officials insisted that an import license was compulsory on the same commodity.

(b) Poor communication between central government and implementation authorities

For the remittance of royalties, the rate of withholding taxes was reduced from 30 per cent to 20 per cent based on a double taxation avoidance agreement signed between the Government of India and Japan. Nevertheless, 30 per cent was levied. And, after there was recognition of over-payments, refunds were delayed.

(c) Too Detailed Division of Government Authorities

Although India's government is trying to simplify government procedures, detailed and many government divisions still remain. The state governments are also endeavoring to simplify procedures by instituting "Single Window Service". Procedures for industrial approvals or licenses, exports, imports, and customs clearances are simplified substantially, but complicated procedures for factory construction, electricity, telephone connections, etc., still remain.

4.3.3 Issues Reported by Foreign Investors in India

Through an interview survey conducted by the study team, the following issues were reported:

(1) Issues resolved or in the process of resolution by the Indian Government

(a) Investment approval took too much time in duration. (at present: Maximum duration for final decision is six weeks through SIA.)

(b) Restrictions for capital goods imports, and for the spare parts imports by after-service companies (not final consumers), should be liberalized. (at present: Imports of these items are liberalized.)

(c) Import duties and excise duties were too high compared to other Asian countries. (At present: Government announced a reduction of imports and excise duties in April 1993.)

(d) Applications for work permits/Visas for foreign engineers takes too much time. (at present: The procedures are simplified already.)

(e) PMP obligations were still imposed on old units. (Foreign investors misunderstood, the facts remained the advantages of concessional import duties.)

(f) Sample exports for testing and quality examination to Japan were not approved. (Two companies reported these facts, but troubles were actually due the problems of negative listed items of export, and were liberalized already.)

(2) Issues to be Amended

(a) Foreign investments exceeding 51 percent of equity should be liberalized. The government does approve applications, but there is not an automatic approval system is place as yet.

(b) The following two restrictions for royalties should be eased.

i) royalties on new models of the same specification as previous ones were not approved.
ii) royalties with minimum guarantees were not approved. These restrictions have not been eased as yet.

(3) Issues to be Improved

(a) Withholding taxes on royalties and dividends were levied incorrectly.

Improvement of communication systems between the central government and implementation authorities, are earnestly expected.

(b) Board of Industrial and Financial Reconstruction (BIFR) obstructs the smooth exit of foreign investments.

The clearance of a company intending exit from India due to recent unfavorable economic situations, was not allowed according to the final decision of the BIFR.

(c) The customs clearance procedures

Customs clearance procedures are too complicated and very limited clearance by only an agent can proceed through clearance.

(d) Office maintenance

The import of electronic equipment for office use, and automobiles for office use, should be eased.

Other issues on financial structure, human resources, infrastructures and etc. are summarized in Appendix IV-II.

CHAPTER 5 INDUSTRIALISATION AND INDUSTRIAL INFRASTRUCTURE

5.1 Indian Industries: Characteristics

5.1.1 Industrial Development Trends

(1) Manufacturing: population demographics and number of persons at work.

The number of employees in the public and private sectors is estimated to be about 260 million, which corresponds to about one third of the country's population. The number employed in the public sector is about 185 million persons, and the private sector has about 75 million employed persons.(Refer to Figure 5-1)

In the public sector, 68.9 million persons are engaged in state government organisations, and 44 million are engaged in manufacturing (about 60 per cent of the number of persons engaged in the private sector). The data demonstrate a strong domestic manufacturing base.

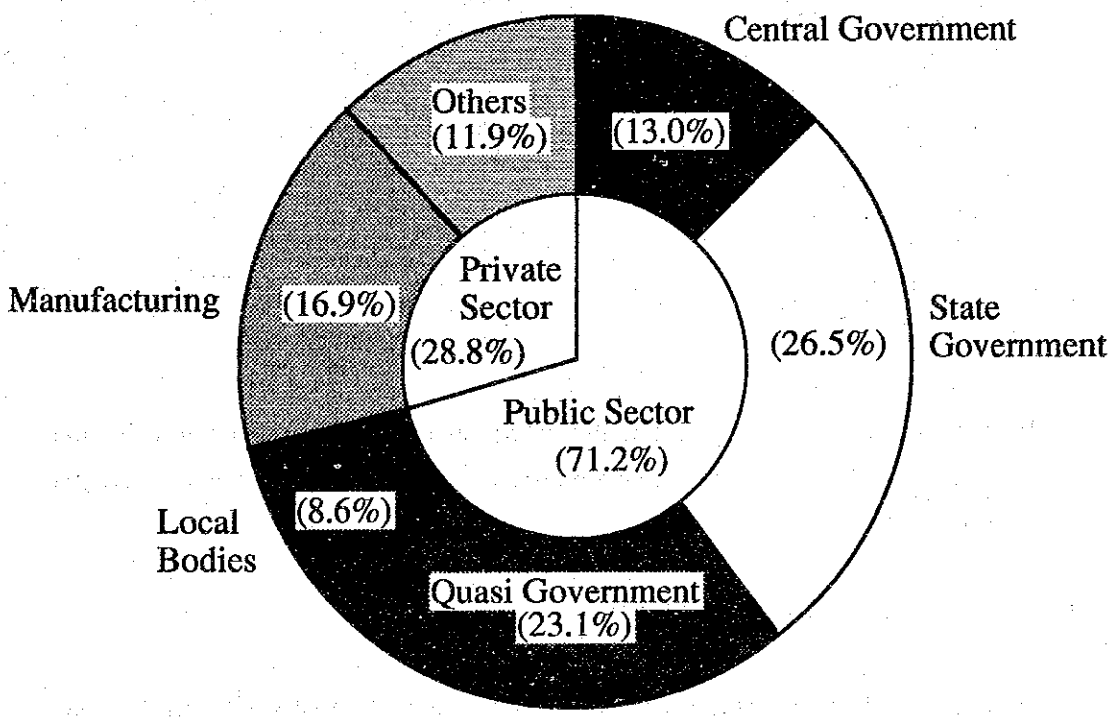


Figure 5-1 Component Ratio of Employee

(2) The Seventh Five Year Plan Performance

The average annual growth rate of the industrial sector (including mining, manufacturing, and electricity generation) during the Seventh Plan period was 8.5 per cent. Though this is marginally lower than the target of 8.7 per cent, the gains are significant compared to the 3.5 per cent growth achieved during the Sixth Plan. (Refer to Table 5-1.)

Table 5-1 Growth Rates of Index of Industrial Production (Base: 1980-81 = 100)

Code Group	Industry Group	Weight	Seventh Plan Average	1990-1991 % Growth Rate
20-21	Food Products	5.327	5.0	12.5
22	Beverage, Tobacco, Tobacco products	1.571	-1.1	1.3
23	Cotton Textiles	12.309	1.8	14.7
24	Jute, Hemp, Mesta Textiles	1.999	-0.3	4.4
25	Textile Products (incl. wearing apparel)	0.817	11.8	-32.0
26	Wood/wood products, furniture/fixtures	0.448	-2.5	12.7
27	Paper & Paper Products	3.235	6.7	9.0
28	Manufacture of Leather & Fur products	0.489	6.4	3.1
29	Manufacture Rubber, Plastic, Petroleum, Coal Products	4.000	3.6	-0.1
30	Manufacture Chemical/Chemical Products	12.513	11.7	2.7
31	Manufacture Non-metallic Minerals	2.299	6.7	1.7
32	Basic Metals & Alloy Industries	9.802	6.1	10.8
33	Metal Products & Parts	2.888	6.3	0.4
34	Machinery, Machine Tools & Parts	6.240	6.0	8.4
35	Manufacture Electrical Machinery	5.779	25.8	22.4
36	Manufacture Transport Equipment/parts	6.386	6.5	6.3
37	Miscellaneous Manufacturing Industries	0.905	23.1	-2.9
2-3	Manufacturing	77.107	8.9	9.1
1	Mining & Quarrying	11.464	5.6	4.9
4	Electricity	11.429	9.3	8.7
	Overall Index	100.000	8.5	8.5

Source: Eight Five Year Plan: 1992-97. Government of India, Planning Commission. New Delhi

Within the manufacturing sector, the electrical machinery and chemicals, and chemical products industries achieved growth rates of 25.8 per cent and 11.7 per cent, respectively.

5.1.2 Industrial Development Issues

Consolidating public sector enterprises and fostering India's small scale industries are significant issues the country's industrial policies must address.

(1) Public Sector Enterprises

The scale of public sector enterprises is about 75 per cent of all industries according to the structure of persons-at-work as described in the previous section. The industries reserved for the public sector were reduced to eight from 17 based on the NIP-91. However, a growing number of public sector enterprises are operating at a loss and are in danger of becoming economically unviable (termed sick industries by the Ministry of Industry), and face difficult reconstruction if the enterprises are to continue operations.

The objectives of nationalization for industrial sickness were to secure employment and vitalize sick industries, and thus, the central government assumed responsibility for the operations of poor performing enterprises. Consequently, the number of sick industries in the public sector continues to increase (The number of units identified as sick industries was about 2 million in 1990, with total outstanding bank loans of Rs. 93.5 billion.). The Eighth Plan proposed a major public sector reform initiative.

(2) Small Scale Industry

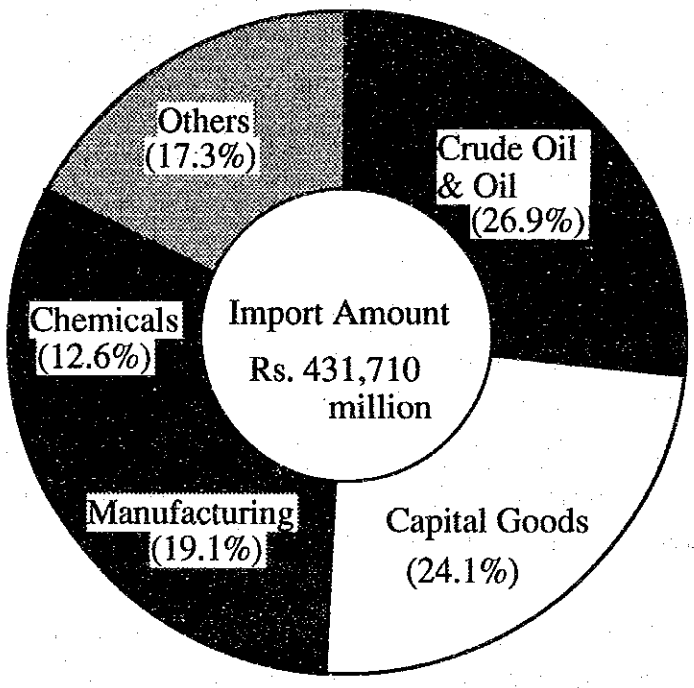
The village and small industries sector in India consists of two broad sub-sectors, viz, modern small industries and traditional industries, and are an important industrial sector that accounts for about 30 per cent of the country's total exports. The former covers small scale industries and powerlooms, and the latter covers the khadi, village industries, handlooms, sericulture, handicrafts, and the coir industry.

The Plan recognizes that the SSI sector lacks adequate technology, raw materials, marketing assistance, inequitable competition between states for investment in the form of tax concessions and other financial incentives, adverse labour laws, and the need to simplify regulations and laws governing the sector's industries.

5.2 Exports and Imports Performance

5.2.1 Import Trends

The composition of India's primary imports is illustrated in Figure 5-2. Petroleum crude oil and oil products occupy about 25 per cent of total imports, followed by capital goods (24 per cent), manufactured goods (19 per cent), and chemicals (13 per cent). Subsequently, the industrial products comprise about 60 per cent of all imports to the country.



Source: Handbook of Industrial Statistics 1992

Figure 5-2 Composition of India's Primary Imports (1990/91)

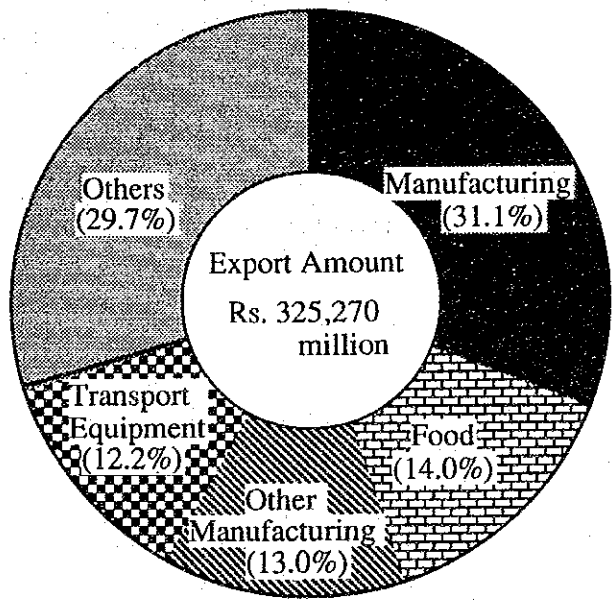
The import amounts are examined for a 10 year period and indicate that "machinery other than electrical", makes up about 10 per cent of all imports to the country. The rate of increase for each import is as follows.

Precious and semi-precious stones	:	increased 8.9 times
organic and inorganic chemicals	:	increased 6.9 times
electrical machinery, appliances	:	increased 6.1 times
scientific, professional equipment	:	increased 6.1 times
machinery other than electrical	:	increased 4.1 times

The source of imports was investigated. The Asia/Pacific region countries, especially Japan and Singapore represent about 44 per cent of total imports to India. European countries comprise about 38 per cent. Import amounts examined from individual countries revealed that the United States made up the largest share (about 10 per cent of all imports originating from the U.S.)

5.2.2 Export Trends

The composition of primary exports from India is illustrated in Figure 5-3. The Composition of Export Goods, suggests that manufactured goods comprise about 30 per cent of all exports from the country, followed by food items (14 per cent), other manufactured goods (13 per cent), and transportation equipment (12.2 per cent). Industrial products as a group has a 56 per cent share of all exports.



Source: Handbook of Industrial Statistics 1992

Figure 5-3 Composition of India's Primary Exports (1990/91)

A closer examination of export products reveals that industrial product exports are essentially made up of precious and semi-precious stones (16 per cent), leather and leather manufacturing (08 per cent), cotton yarn and fabric (06 per cent), and all others (03 per cent).

As a share of the world market's exports, India makes up about 21 per cent of the tea export market, 12 per cent of the leather and leather goods manufacturing export market, and 10 per cent of the precious and semi-precious stones export market.

Export destinations by region were examined and revealed that about 40 per cent of India's total exports are to Europe, 26 per cent to Asian countries, and 17 per cent to the North American continent. By country, the former Soviet Republics in the past were the primary purchasers of India's export products. Currently, the United States ranks first as the purchaser of Indian exports followed by Japan.

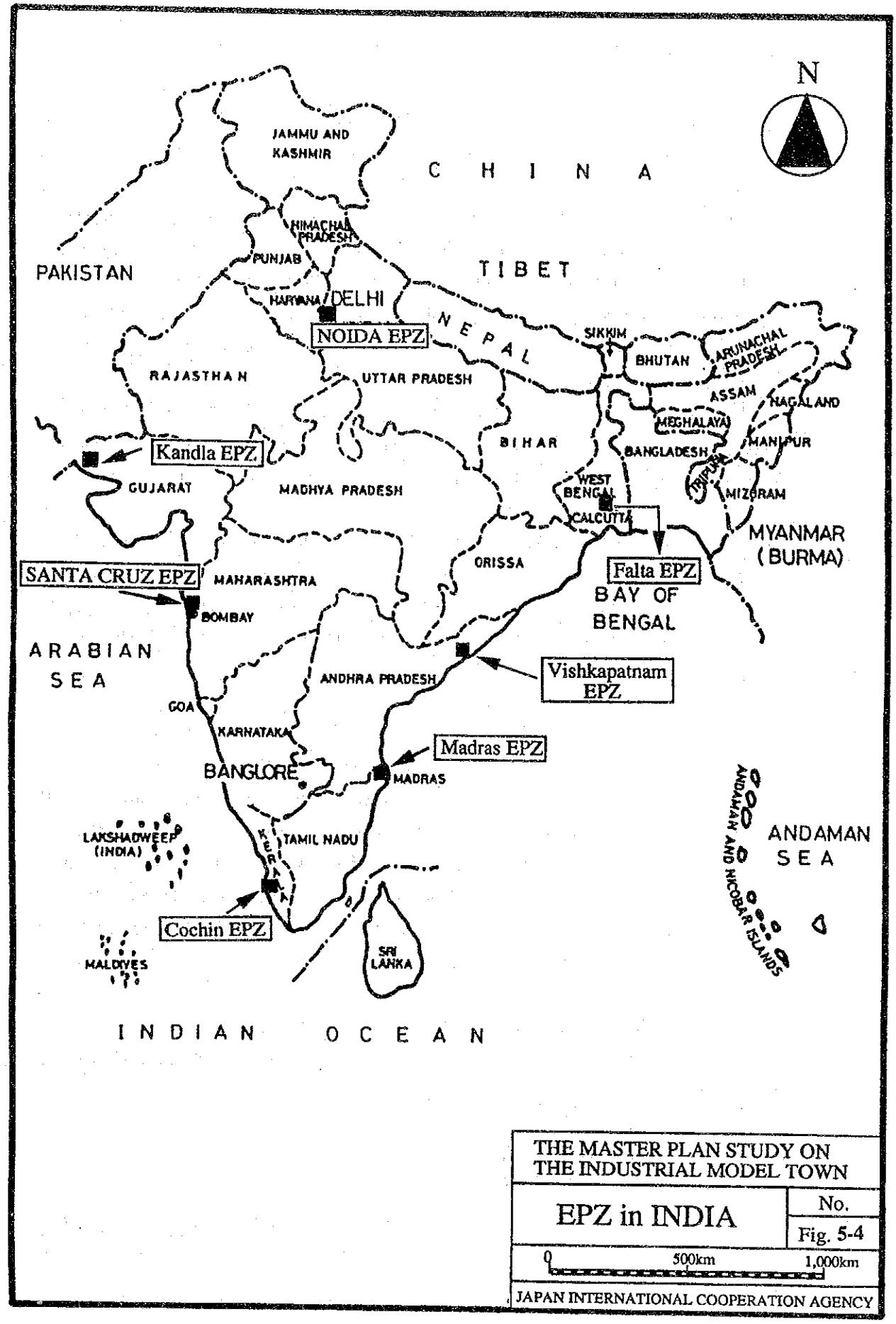
5.3 Industrial Infrastructure

5.3.1 Export Processing Zones (EPZ)

Export Processing Zones (EPZ) have emerged as effective instruments to boost exports of manufactured products, especially in developing countries. The Zones, set up as enclaves separated from the Domestic Tariff Area by physical barriers, are intended to provide an internationally competitive duty free environment for export production at low costs. This enables the products to be internationally competitive in terms of quality and pricing.

The first EPZ was established at Kandla in 1965, followed by the Santa Cruz Electronics Export Processing Zone in 1973. Four others are at FALTA , NOIDA Madras and Cochin. All these except SEEPZ, are multi-product zones where a variety of export products can be manufactured and exported. SEEPZ is the Electronics Export Processing Zone (SEEPZ) at Santacruz, Bombay.

In 1989, the government decided to set up an EPZ in Visakhpatam and began construction. Currently, the project is nearing completion.
The EPZ(s) in India are shown in Figure 5- 4.


N
JAMMU AND KASHMIR
CHINA
HIMACHAL PRADESH
PUNJAB
PAKISTAN
TIBET
HARYANA
DELHI
NOIDA EPZ
NEPAL
SIKKIM
BHUTAN
ARUNACHAL PRADESH
RAJASTHAN
UTTAR PRADESH
ASSAM
NAGALAND
MEGHALAYA
Kandla EPZ
BIHAR
BANGLADESH
MANIPUR
TRIPURA
GUJARAT
MADHYA PRADESH
WEST BENGAL
MIZORAM
CALCUTTA
MYANMAR (BURMA)
SANTA CRUZ EPZ
MAHARASHTRA
ORISSA
Falta EPZ
BAY OF BENGAL
BOMBAY
ARABIAN SEA
Vishkapatnam EPZ
ANDHRA PRADESH
GOA
KARNATAKA
Madras EPZ
BANGLORE
MADRAS
ANDAMAN AND NICOBAR ISLANDS
ANDAMAN SEA
LAKSHADWEEP (INDIA)
KERALA
TAMIL NADU
Cochin EPZ
SRI LANKA
MALDIVES
INDIAN OCEAN
THE MASTER PLAN STUDY ON THE INDUSTRIAL MODEL TOWN
EPZ in INDIA
No.
Fig. 5-4
0
500km
1,000km
JAPAN INTERNATIONAL COOPERATION AGENCY

5.3.2 Industrial Estate

Promotion of Industrial Estates was provided a stimulus by the Government of India towards the end of the first five-year plan period (1952-1957).

The objectives of the programme were: (a) to provide well-planned accommodations to small industries at suitable sites with water, electricity, transport, banks, canteen, medical offices and communication facilities; (b) to bring a number of units together and thereby facilitate establishment of common service centres, introduction of modern technology, collective purchase of raw materials and sale of finished goods, and joint publicity, thus enabling small entrepreneurs to avail of external services and counteracting to some extent the disadvantages resulting from the smallness of business sizes; and (c) to enable the entrepreneurs the availability of goods and services, so as to develop complementary and inter-dependent relations.

According to Kothari's Industrial Directory, 1990, there are 867 industrial estates state-wide that are developed and additional industrial estates planned for development. There are more industrial estates found in the states of Andhra Pradesh, Bihar, Gujarat, Madhya Pradesh, Rajasthan, Uttar Pradesh and Maharashtra.

5.3.3 Industrial Infrastructures: Issues and Constraints

EPZs were established in India to provide export stimulus to the export-oriented producers. In order to do this, EPZs provided entrepreneurs with relatively well-developed infrastructure and support services, especially tax incentives, road works, telecommunications, et cetera. Although, EPZs became identified with better infrastructure, and could offer export-oriented manufacturers benefits, EPZs did not adequately develop infrastructure to meet producers' needs and were unable to directly develop and nurture domestic industries.

Observing EPZs in India have revealed current problems that could discourage investors as well as discourage the central government's attempts to revitalize the country's domestic industries.

(1) EPZs: Effects and Consequences

EPZs contribute to the domestic economy in the form of lease payments for infrastructure requirements (gas, water, sewerage, etc.), as well as in the form of

direct employment creation and salaries to workers. However, in terms of total revenues generated, these payments have minimal impact on the country's domestic economy as foreign exchange flows out of the country in terms of import purchases and repatriation of profits.

(2) Domestic Industry Linkages

EPZ-based companies depend heavily on the importing of capital goods, raw materials, parts and other business equipment needs. EPZ companies find that a disproportionate amount of capital expenditures are linked to a company's export products. Data indicate that about 80 per cent of a product's manufacturing sales are derived from the costs associated with the import materials needed for the production process. This indicates that EPZ enterprises are not able to develop sufficient support industries relationships within the domestic marketplace.

(3) Support Services for Companies

EPZs offer beneficial incentives, but imported equipment indirectly linked to processing equipment is taxed. Sample goods and/or destroyed equipment are not allowed removal from the country without normal export procedures. Procedures such as these are complicated and time consuming activities for entrepreneurs. Essentially, EPZs are not established to offer entrepreneurs timely, beneficial incentives.

(4) Unimproved Infrastructure

Although EPZ representatives have stated that infrastructure conditions are acceptable and that power generating and water supplies are adequate, companies operating within EPZs responded that electric power shortages and water shortages are problems that companies face and must expend additional funds to provide private, independent sources to guarantee the continuity of production schedules.

Given the current conditions described above, EPZs are problematic due to India's economic conditions, geographical conditions, infrastructure conditions, etc., new measures are required to establish industrial infrastructure that are better than currently found in EPZs.

CHAPTER 6 THE IMT CONCEPT

6.1 Background and Objectives

6.1.1 The Background of the Basic Conditions Necessary to Promote Introducing Foreign Investors with Technical Transfer

(1) Macro Economy

(a) Comparison with ASEAN member Countries

A comparison with selected ASEAN member countries was accomplished to clarify the country's economic trends (refer to Table 6-1).

Table 6-1 Economic Index for India and ASEAN Member Countries

ASEAN	Population (millions)	GDP (US $Million)			GNP/capita (US$)			
		1965 (a)	1990 (b)	Growth rate (b/a)	1980	1990	Annual Growth rate 1965-1990	Annual Avg. Inflation rate (1980-1990)
Singapore	3.0	970	34,600	35.7	4,680	11,160	6.5%	1.7%
Thailand	55.8	4,390	80,170	18.3	683	1,420	4.4%	3.4%
Malaysia	17.9	3,130	42,400	13.5	1,716	2,320	4.0%	1.6%
Indonesia	178.2	5,980	107,290	17.9	470	570	4.5%	8.4%
Philippines	61.5	6,010	43,860	7.3	729	730	1.3%	14.9%
India	849.5	50,530	254,540	5.0	233	350	1.9%	7.9%

Source: The World Bank. "World Development Report. 1992"

The data and comparisons reveal that India is a large-scale economy, but has demonstrated small economic growth compared with ASEAN member countries.

(b) International Balance of Payments Deficit

The international balance of payments deficit and related macro economic trends for the last 10 years were presented in Chapter 2, and further details are given in Figure 6-1.

(2) Primary Subjects of the National Development Plans

The primary subjects of the Eighth Five Year national development plan essentially address (i) the creation of employment, and (ii) the improvement of the country's international balance of payments.

As India's middle-class grew, so did demand for quality goods that have garnered international consumer recognition. This demand increased durable goods imports at substantial costs to consumers, and the country's foreign exchange reserves. To alleviate the expenditure of foreign currency exchange and improve the country's international balance of payments, methods must be derived that lessen the country's dependence on imports from industrial countries.

In order to reduce imported goods, it is required to establish production system to produce quality products to compete with imported goods by means of effective production and strengthening of the domestic enterprises in India.

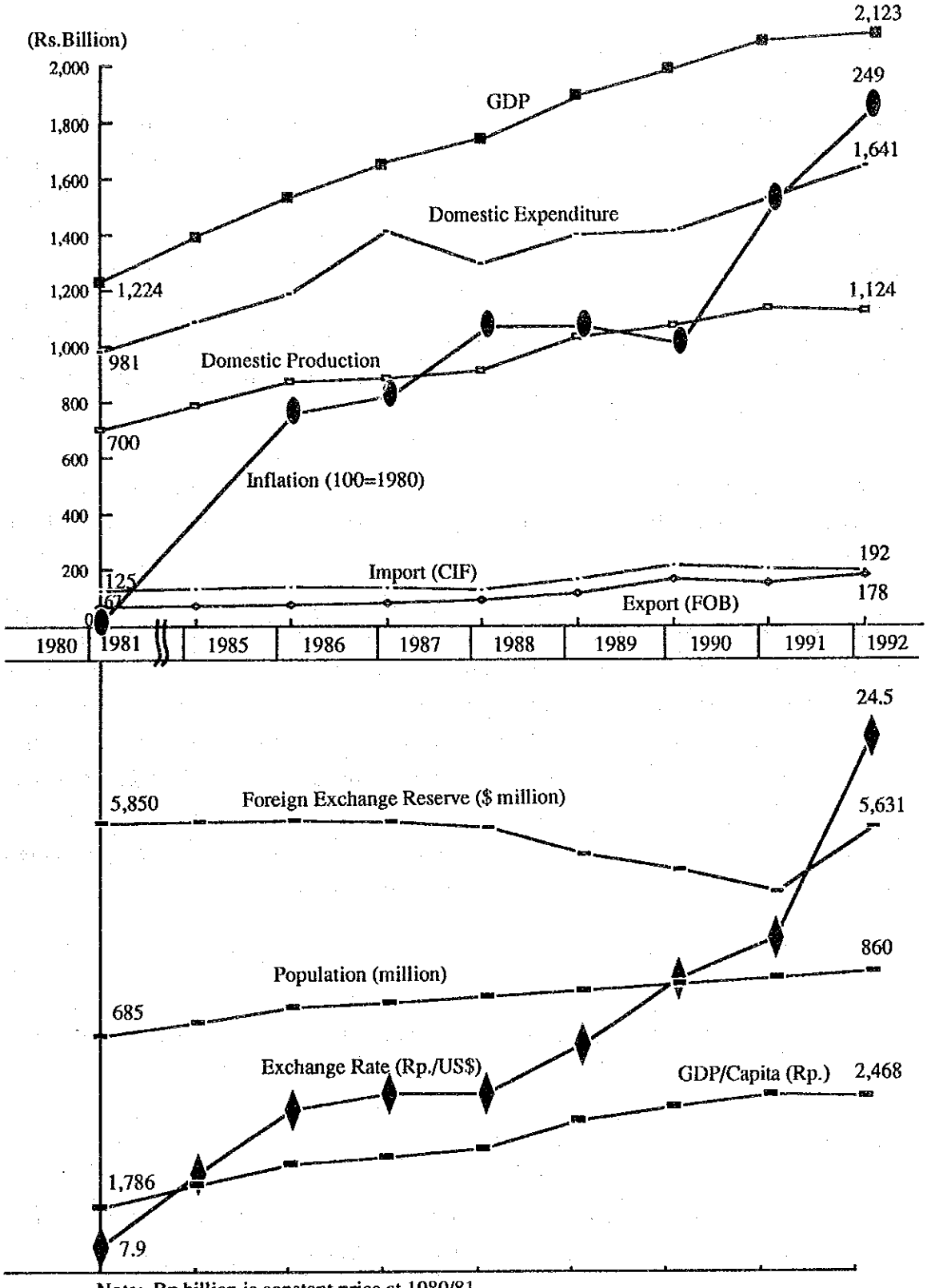
(3) The New Industrial Policy

The New Industrial Policy announced in July 1991, demonstrates the central government's shift away from prior centrally planned economic policies to a decidedly liberal, mixed market economy. This portends that industrial restructuring will be stimulated and provide improvements across industrial groups and further invigorate free market forces.

The following key topics best illustrate the government's commitment to liberalisation of the Indian economy.

(i) Promote and encourage privatization efforts instead of dependence on a centrally-planned public sector.

(ii) Promote and encourage foreign investment through the deregulation of key industrial sectors and provide substantial incentive programs to investors.



Note: Rp billion is constant price at 1980/81
refer to Table 2-1

Figure 6-1 Trends of Macro-Economy in India

6.1.2 Measures for Introducing Foreign Investment and Technology Transfers

The objectives of foreign investors will be studied, and as an example, Japanese manufacturers, are described. Figure 6-2 indicates that "scale of local market", the "a large number of labour force", and "government incentives" are primary factors effecting overseas investment decisions. From the viewpoint of the above, India is an attractive country for investors with her large economic scale of GDP, i.e., several times of five selected ASEAN member countries mentioned before and her large population as labour force. However, a cursory review reveals that Japanese investments to India are relatively small compared to other countries in Asia. Total foreign investment from Japan to Asian countries is shown in Figure 6-3.

In order to find out what factors affect small investment to India, Japanese investors cited difficulties of Japanese investors' experiences in other Asian countries are analyzed and illustrated in Figure 6-4.

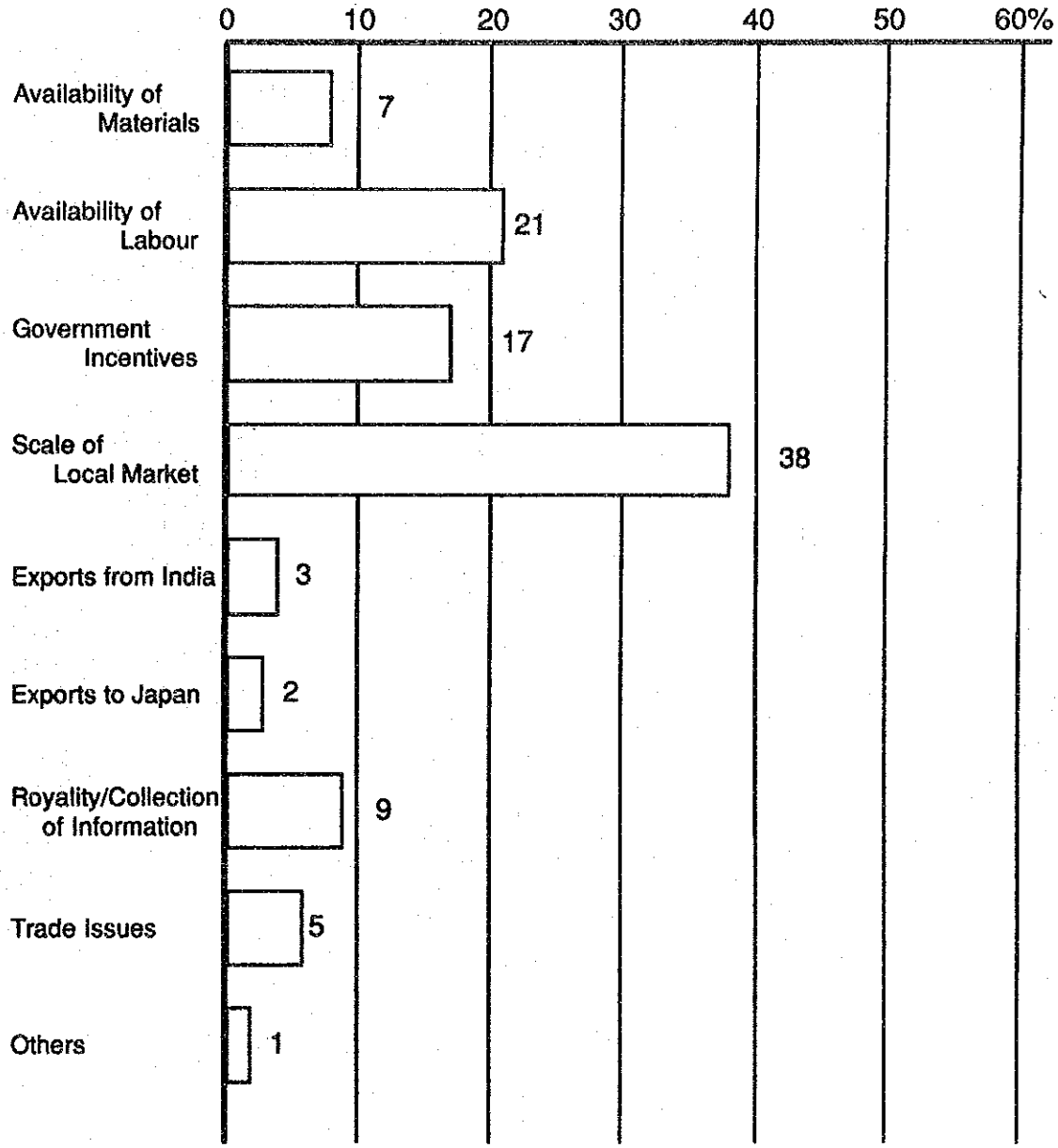
It should be noted that Japanese investors cited different problems effected investment decisions when considering ASEAN member countries or NIE countries. For example, the "rapid increase in labour costs", "labour-related problems", and "competition with other countries" were reported as significant issues effecting investments in the NIEs. "Infrastructure conditions", "foreign capital import policies", and a "shortage of support industries" were cited as problems particular to investment strategies in ASEAN member countries. From the above facts, in order to introduce foreign investment and technology transfers, "Soft Factors" and "Hard Factors" should be improved.

(1) Improvement of Soft Factors

In order to introduce foreign investors to India, soft factors, i.e., government policies and regulations, should be improved.

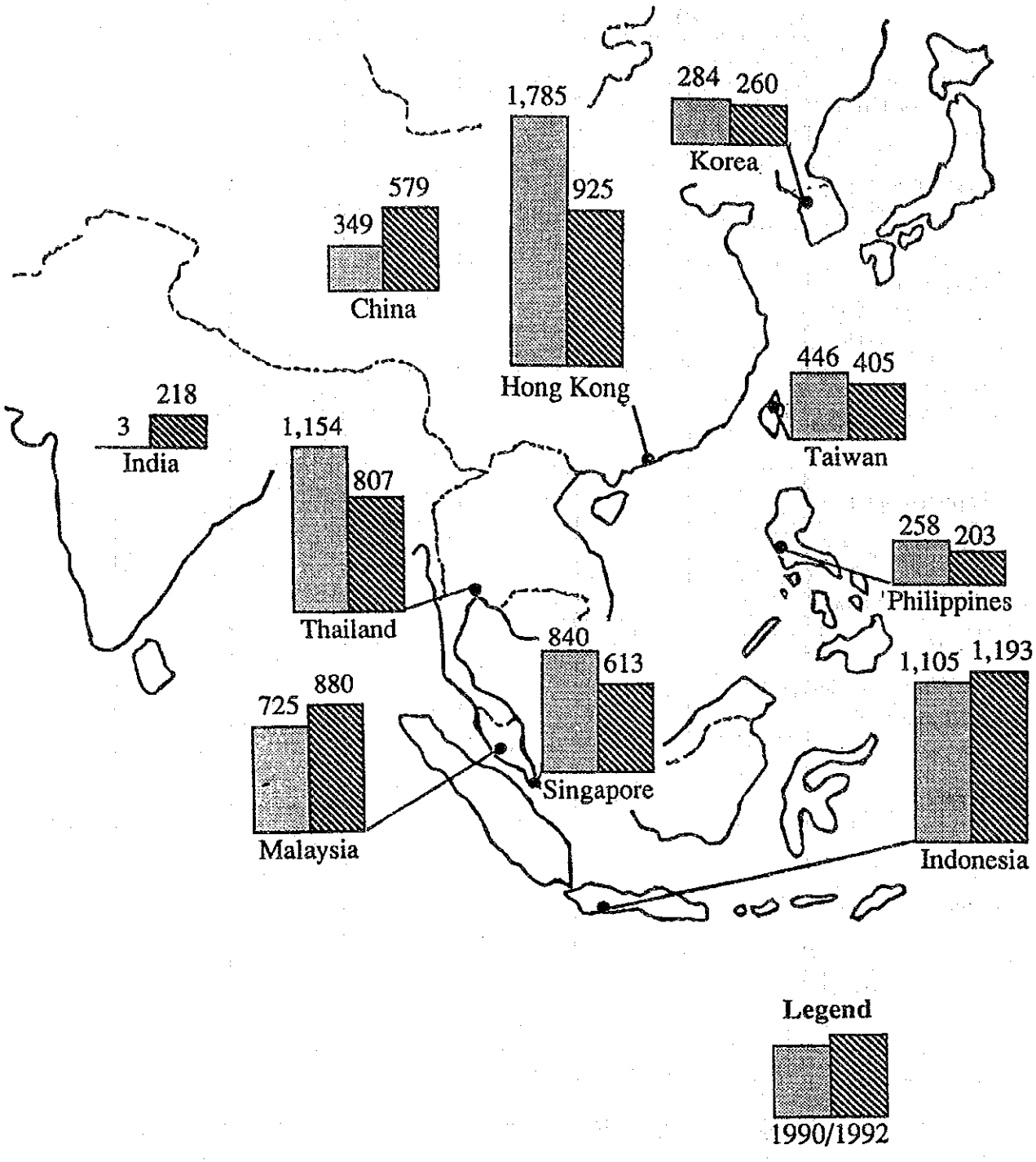
(2) Improvement of Hard Factors

Improvements in social and industrial infrastructure would require an international standard of acceptance to introduce foreign investors to India.



Note: Questionnaire survey results regarding Japanese Investor's Foreign Investment objectives.
Source: "List of Touyou-Keizai Foreign Investment Enterprises 1991-92".

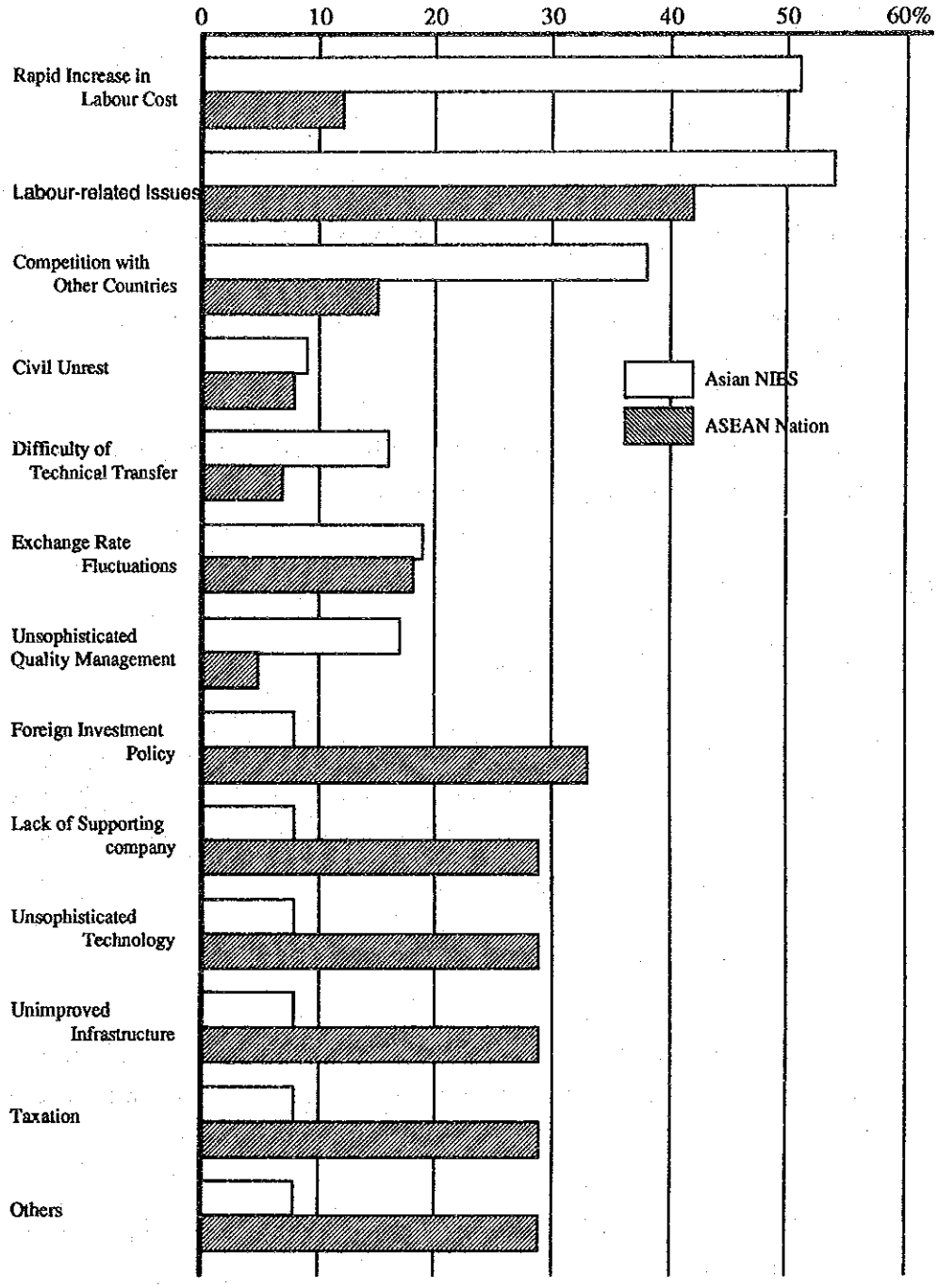
Figure 6-2 Japanese Investor's Foreign Investiment Objectives



(Unit : Million $)

(Source : Ministry of Finance)

Figure 6-3 Foreign Investment from Japan to Asian Countries



Source: White Paper on International Trade: Japan 1992.
The Ministry of International Trade and Industry.
JETRO publishers. 1992:145. Japan.

Figure 6-4 Japanese Investors Experience: Reported Difficulties

6.1.3 IMT in India: Purpose and Effects

(1) IMT: Purpose

A practical and effective means of promoting foreign investment and technology transfer is the basis of the IMT concept. The IMT should provide the following:

(a) To expand industrial production of manufactured goods for the domestic demand.

(b) To promote local industry by introducing advanced technology and management systems viz. foreign investors and foreign enterprises.

(2) Consequent Effects

(a) Support Industries Development

In order to lessen increased imports of goods, suppliers of intermediate goods and parts should be developed that can acquire the ability to produce products that meet international levels of quality and acceptance and thus, provide for effective competition in the domestic markets.

(b) International Balance of Payments: Improvements

If import substitution make progress and producers manufacture quality products, export promotion will also occur. Therefore, international balance of payments would be improved.

The IMT development concept and consequent effects are illustrated in Figure 6-5 for review.

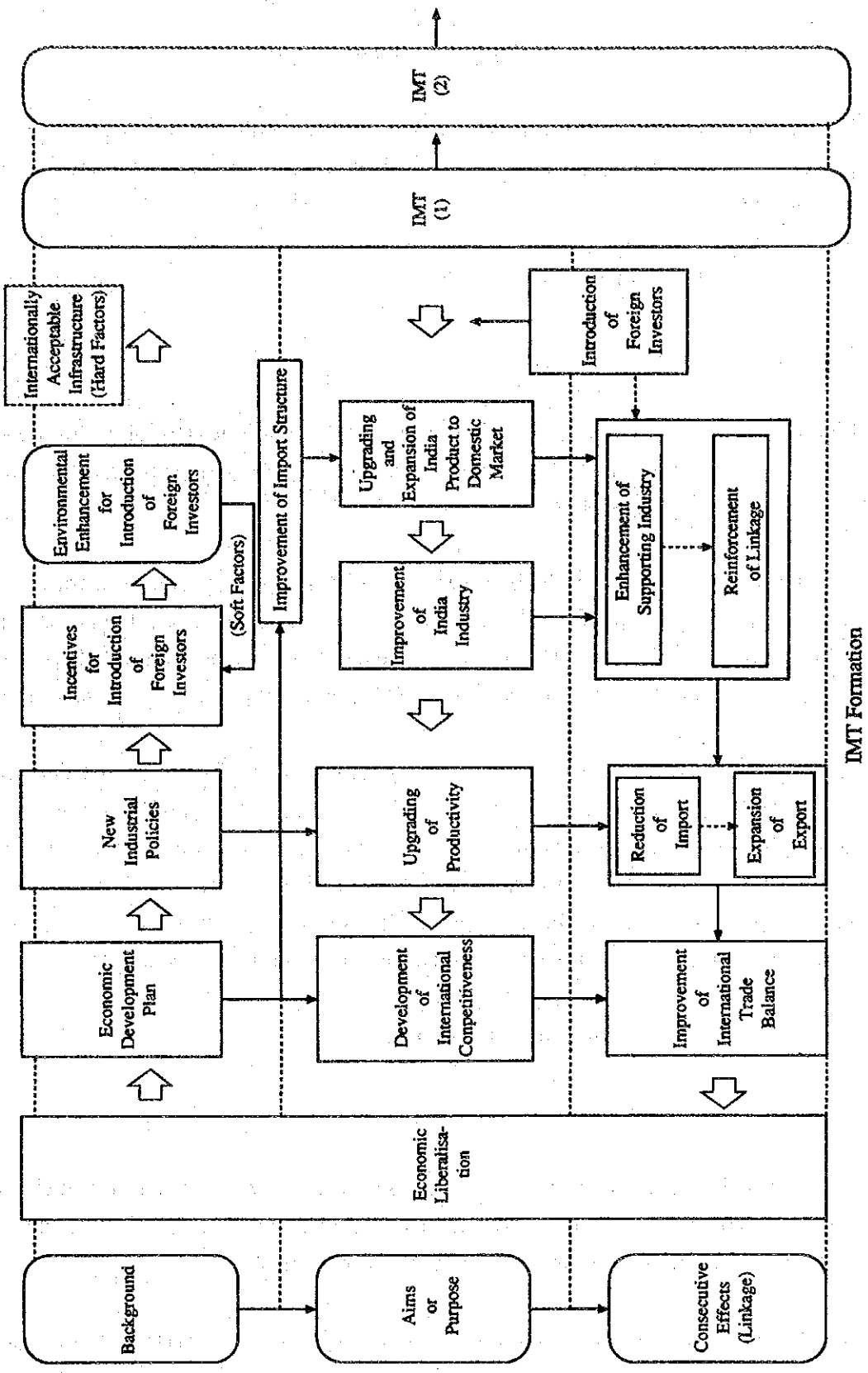


Fig. 6-5 IMT Formation

6.2 Industrial Model Town (IMT) Development Scenario

The IMT development scenario is shown in the following illustrations (Figure 6-6 and Figure 6-7) and describes the *current* industrial structure and *future* industrial structure of India.

6.2.1 Industrial Structure Reinforcement

(1) Current Industrial Structure

Figure 6-6 illustrates that India's industrial base is comprised of three dominant sectors: domestic industry, export processing zones (EPZ), and export oriented units (EOU). The following descriptions apply.

The importing of raw materials, intermediate goods, and parts, generally characterizes the manufacturing needs of EPZ unit (a). Domestic inputs are minimal, and are primarily relegated to providing some raw materials, skilled and unskilled workers, and basic infrastructure (b). In principle, EPZs export 100 per cent of production (c).

Consequently, EOUs mirror the input-output scenario of EPZs except that domestic inputs (e) in the form of raw materials etc., are larger than for EPZ units. The country's domestic producers also mirror the input-output scenario of imports (h) and domestic (i) procurements. However, produced goods are primarily for the domestic market (k) with a small share of production for the export markets. The raw materials, labour force, utility supply (j) are also provided to domestic producers.

Note: Letters in ( ) refer to items described in Figure 6-6.

(2) Future Industrial Structure

Figure 6-7 illustrates the changes occurring in the country's industrial relations if an IMT is established. The newly created factors are shown as "M", "P", "Q", and "R" (refer to the legend for concise definitions of the variables).

The changes that are illustrated portend an IMT will purchase raw materials, intermediate goods and parts abroad (M), and also purchase from existing producers (N). IMT produced goods will be supplied to domestic manufacturers

located outside the IMT (P), and some finished goods will be supplied to the domestic market (R). Enterprises operating in the IMT are also acquiring raw materials, labour, intermediate goods and infrastructure needs from domestic sources. If the linkages among the enterprises within the IMT boundary and linkages with those enterprises located outside the IMT boundary are strengthened, India's industrial base also benefits. Consequently, the country's international competitive position will improve, as will the country's standard of industry and technology.

Note: Letters in ( ) refer to items described in Figure 6-7.

6.2.2 IMT Development

For the IMT project to become a success, the following programmes should be considered.

(1) IMT Enterprises and Industries

(a) The number of enterprises and industries locating within the IMT should be comprised of three investor groups: domestic, foreign, and joint ventures.

One of the primary objectives of the IMT *is development* of local enterprises. This means expansion of effects caused by the introduction of foreign enterprises and the accumulative effect thereof, according to India's past experiences. The accumulated effect of joining foreign investors to existing domestic enterprises provides communication and network exchanges between the IMT's foreign and domestic companies. This will provide local enterprises with valuable management and production information, which in turn would improve the level of domestic companies' production technology and management techniques.

(b) Intermediate goods manufacturers and parts manufacturers should also establish operations within the IMT in conjunction with finished goods manufacturers.

IMT enterprises will have relative advantages for business relationships such as lower transportation time and their expenses compared to enterprises located outside the IMT. Also, business transactions and supplementary relationships will accelerate, allowing production to be upgraded to be specialised. Which in turn produce a "cost reduction effect". In addition to that, if competitive consciousness will be existed among enterprises, quality products will be developed, this leads to "quality improvement effect".

(2) Domestic Industry: Linkage

The IMT should provide reinforced linkage relationships among industry groups and sectors within the IMT, and with enterprises located outside because the IMT will revitalize domestic industry by attracting advanced technology and management techniques from foreign manufacturers.

(3) Incentives for Foreign Investors

It is assumed that reasonable incentives could be provided based on the principles of a market economy.

The offer of maximum incentives for the IMT would further attract foreign investors during the initial implementation stage. However, incentives should be reduced over a period of years to adjust for inequity of opportunities in relation to enterprises located outside the IMT. Phased incentive programme should be employed in accordance with their accomplishment. This programme should be established during the planning stages of the IMT.

6.2.3 Infrastructure Development Conditions

The investment environment attractive to foreign investors requires that production activities receive adequate supplies of energy, telecommunications, water, etc., as well as provide for quality lifestyle conditions. Basically, the following conditions should be provided.

(1) Industrial production conditions

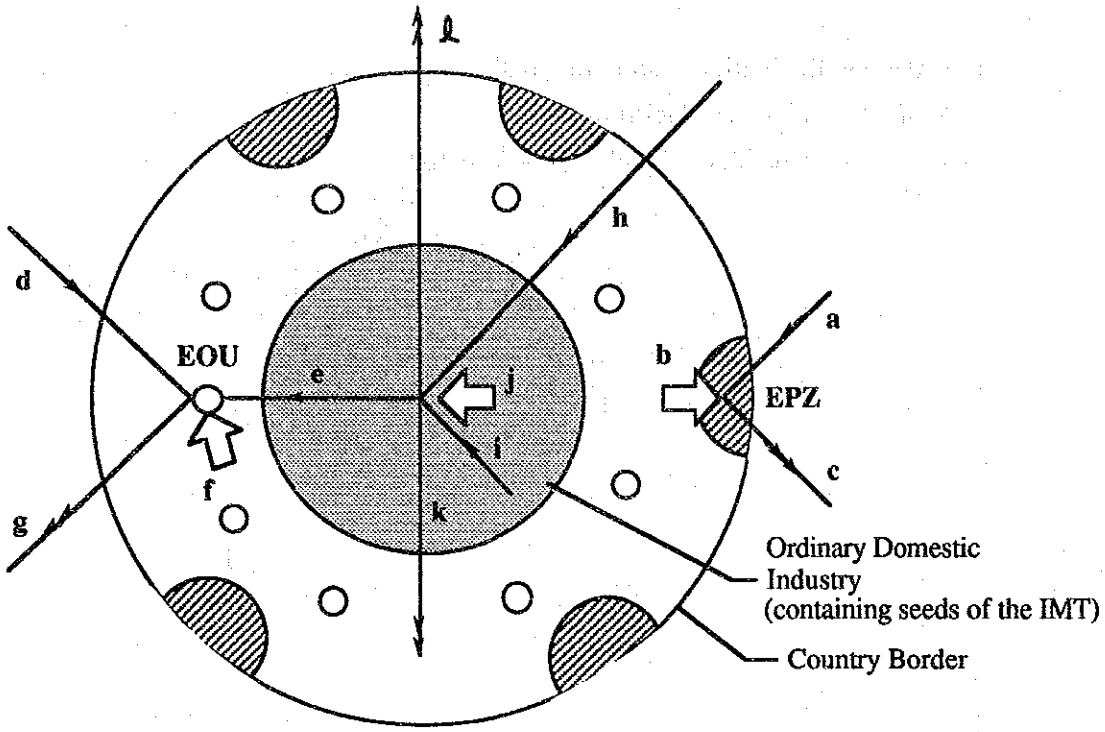
- access to large cities by reliable air and land transportation networks.
- labour pool of qualified technical, skilled, and unskilled workers.
- produce competitive products by purchasing parts and intermediate goods manufactured by local companies.
- control research and development investment costs in laboratory equipment by utilizing existing research and development centres.
- provide adequate support services for production activities prior to and after investment.

(2) Quality of Life

The minimum amount of public and private facilities development requirements for quality of life are as follows:

- housing, public facilities, shopping malls.
- recreational and leisure facilities.
- safe and secure residential and commercial zones.

Current

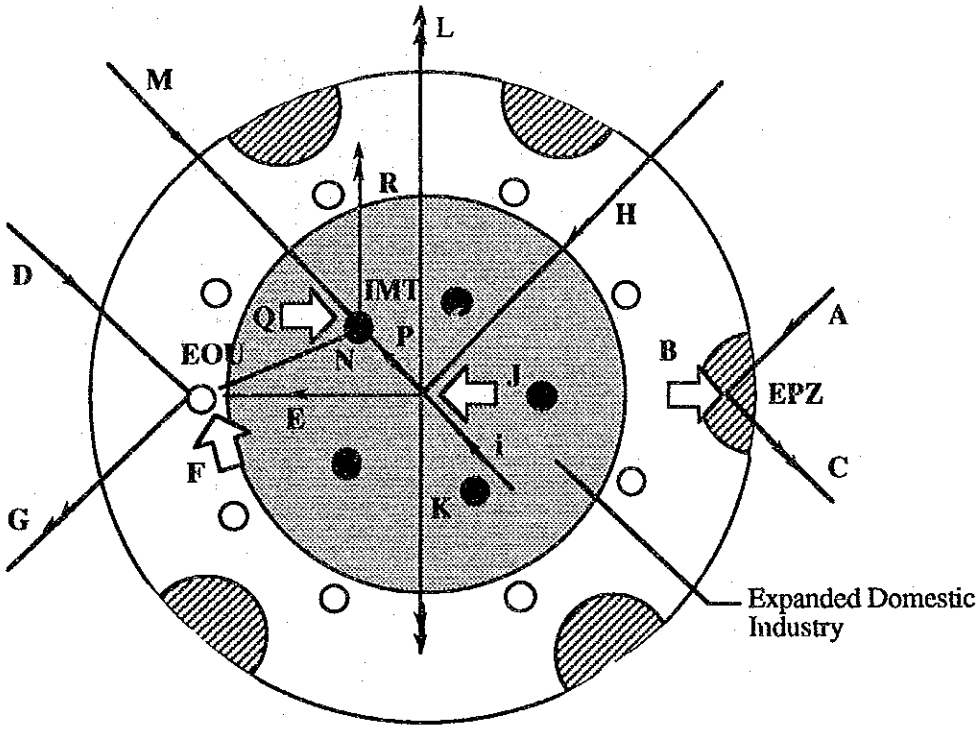


Legend

Outer circle	:	India	d	:	Inflow to EOU from Abroad
Inner circle	:	Domestic Industry	e	:	Inflow to EOU from Domestic Industry
▨	:	Export Processing Zone (EPZ)	f	:	Input to EOU
○	:	Export Oriented Unit (EOU)	g	:	Output from EOU
⇦	:	Work Force & Infrastructure	h	:	Inflow to domestic Industry from Abroad
←	:	Input/Inflow	i	:	Inflow to Domestic Industry from Domestic Industry
←←	:	Output/Outflow	j	:	Input to Domestic Industry
a	:	Inflow to EPZ from Abroad	k	:	Outflow from Domestic Industry to Domestic Market
b	:	Input to EPZ from Domestic	l	:	Outflow from Domestic Industry to Overseas Market
c	:	Output from EPZ			

Fig. 6-6 Industrial Structure of India (Current)

Future



TOTAL VALUE OF "K" & "R" > TOTAL VALUE OF "k"

Legend

Outer circle	:	India	F	:	Input to EOU
Inner circle	:	Domestic Industry	G	:	Output from EOU
▨	:	Export Processing Zone (EPZ)	H	:	Inflow to domestic Industry from Abroad
O	:	Export Oriented Unit (EOU)	I	:	Inflow to Domestic Industry from Domestic Industry
⇦	:	Work Force & Infrastructure	J	:	Input to Domestic Industry
←	:	Input/Inflow	K	:	Outflow from Domestic Industry to Domestic Market
←←	:	Output/Outflow	L	:	Outflow from Domestic Industry to Overseas Market
A	:	Inflow to EPZ from Abroad	M	:	Inflow to IMT from Overseas
B	:	Input to EPZ from Domestic	N	:	Infow to Enterprises located within IMT from Outside
C	:	Output from EPZ	P	:	Outflow from IMT toEnterprises located outside IMT
D	:	Inflow to EOU from Abroad	Q	:	Input to IMT from Domestic
E	:	Inflow to EOU from Domestic Industry	R	:	Outflow from IMT to Domestic Market

Fig.6-7 Industrial Structure of India (Future)

CHAPTER 7 INVESTMENT DEMAND SURVEY

7.1 Summary of Investment Demand

The investment demand survey was designed to analyze the domestic and foreign investment trends in India, identify potential industries for the IMT project as well as to clarify the conditions sought by investors. The results of the investment demand survey are therefore summarized.

The levels of interest demonstrated by potential investors in India, the U.S., Germany, and Japan, are summarized below. These, however, are yet to be finalized at this stage as the project requires several yards to complete, and factors important to them (location, land prices, available facilities etc.) are still unknown. Overall, relatively few showed interests in investing in the IMT during interviews.

7.1.1 India

(1) Interests in an IMT

Many Indian companies demonstrated interests in an IMT project aimed to promote foreign investment and technology transfers to local industries. Although the companies surveyed are mostly large scale and have experiences with foreign collaborations, Indian companies appear to be willing to collaborate with foreign firms, especially Japanese companies. It is likely that foreign investors will not have difficulty in finding a local partner. Of the companies surveyed indicating some kind of interest in the IMT (80 per cent of total), the manufacturers of chemicals, steel, non-ferrous metals, and transport equipment have shown the most interest.

As a number of Indian companies are willing to participate in foreign collaborations, foreign investors will play a major role in forming the investment demand of the IMT.

The results obtained from Indian companies regarding interests in the IMT and location are summarized below.

Interest in the IMT		(N=72)
Very Interested	n=17	23.6%
Deserves Scrutiny	n=39	54.2%
Beyond Consideration	n=12	16.6%
No Specific Answer	n=4	5.6%

Desirable Location for the IMT

(unit: %)

Present Location	Delhi Area	Bangalore Area	Others*	No Answer
North (n=27)	70.4	11.1	3.7	14.8
East (n=17)	17.6	5.9	35.3	41.2
South (n=38)	0.0	36.8	26.3	36.8
West (n=32)	3.1	43.8	21.9	28.1
Total (n=114)	21.1	28.1	21.1	29.8

Note: "Others" refers to location of existing factories.

(2) Desired Features of the IMT

An adequate industrial infrastructure appears to be the most desirable characteristic for the IMT facilities along with services, including incentives. Among infrastructure requirements, stable electric power supplies are the most critical based on the reports of Indian companies. It is important, however, that infrastructure should meet international standards, not local standards, in order to attract foreign companies.

Although Indian investors want the IMT to be located near existing plants, many companies reported a willingness to consider a foreign partner's choice. This implies that foreign investors are decisively important in the IMT project.

7.1.2 Japan

(1) Interests in an IMT

(a) The first phase survey results by a simple questionnaire

The first survey questionnaire intended to solicit a large number of company responses, thus optimizing the overall sample population's responses. The result of the first questionnaire indicates that the chemicals, glass, machinery, and electric and electronics industries among the manufacturing sector in Japan appear to have relative investment potential to India; joint ventures and technological collaborations with Indian companies. In addition, these industries also demonstrate investment potential in the IMT project

(b) Second Phase Survey Results

A sample size of 1,115 companies were mailed a questionnaire. Of that total, 250 companies responded, and 32 indicated interest in the IMT project in the second phase survey. Chemicals (3 companies), glass (5 companies), electric (6 companies) and electronics, and transport equipment (3 companies), responded positively along with 9 from others.

The responses regarding interest in an IMT project and location of the project are summarized below.

Interest in IMT (N=250)

Interest	n=32	12.7%
No Interest	n=47	18.8%
No Specific Answer	n=171	64.5%

Desirable Location (N=32)

Delhi Area	18.7%
Bangalore Area	31.3%
Others/no specific answer	50.0%

(2) Desired Feature of the IMT

Many responding companies attached importance to infrastructure, in particular to power supply, water supply, transportation system, and telecommunications; and were considered inadequate when considering India as an investment target. It would appear that the IMT project should give priority to the preparation of those infrastructures, as well as social infrastructure so as to facilitate foreign investment.

The primary objectives considered by a majority of foreign investors in India are marketing activities in India and obtain reasonable profits corresponding to levels of investment. For the decision making study of investment in India, many companies are expecting to obtain more generous tax incentives, investment concessions, etc., than those granted in other Asian countries.

Low priority over investment in India was a common attitude by a majority of Japanese companies in addition to their concern about problems associated with local partners, the quality problems of parts from ancillary industries. Availability of information about labour management local market, business practice and legislation system is another set of issues. Accordingly, the aggressive advertisement and investment promotion activities by India are essential to invite investors to the IMT project.

7.1.3 The United States

A sample size of 2,001 companies were mailed a questionnaire. Of that total, 97 companies responded, and 22 indicated interest in the IMT project. The categories of industries with three or more companies demonstrating an interest were the chemical (n=5), electric and electronic (n=6), and the other sector industries (n=3).

The results of the responses are summarized below.

Interest in IMT (N=97)

Interest	n=22	22.7%
No Interest	n=61	62.8%
No Specific Answer	n=14	14.5%

Desirable Location (N=22)

Delhi Area	50.0%
Bangalore Area	36.4%
Others/no specific answer	13.6%

7.1.4 Germany

Seventy-two companies, including those surveyed by telephone, responded to the questionnaire mailed to a sample of 1,001 companies. Of the 72 respondents, 11 indicated interest in the IMT. The type of industries with two or more companies that demonstrated interest in the IMT were the chemical (n=2), metal working (n=3), and other sector industries (n=2). A summary of the responses are given below.

Interest in IMT (N=72)

Interest	n=11	15.3%
No Interest	n=43	59.7%
No Specific Answer	n=18	25.0%

Desirable Location (N=11)

Delhi Area	45.4%
Bangalore Area	27.3%
Others/no specific answer	27.3%

German companies' investment priority of India has been on the decline, particularly after German unification. The survey interviews revealed that a majority of German companies shifted investment priority to Eastern European countries due to convenient location, inexpensive labour, availability of well-qualified engineers, and the size of the domestic market (as well as a similar culture, economy, religion, etc.). However, it also appears to be difficult for many German companies to access current and reliable information on investment development opportunities in India. Although companies interested in the Indian market highly rated the country's market size and relatively competitive wage rates, negative impressions of India's infrastructure, particularly power generation and supply, also affect investors confidence. Under these conditions, it is advisable that proper public relation campaigns regarding India be launched in addition to providing social infrastructure and attractive concessions to investors to facilitate investments in the IMT.

CHAPTER 8 INVESTMENT CLIMATE FOR SELECTED IMT CANDIDATE SITES

8.1 Industrial Support System

The IMT candidate sites are located in the states of Karnataka, Uttar Pradesh, and Haryana. Primary industrial and investment support organisations and major incentives observed in the states are as follows.

8.1.1 Karnataka

(1) Single Window Service

In the past, Karnataka State had a Single Window Agency (SWA) comprised of 25 members representing various state government departments and agencies for the purpose of considering large investment projects. The government observed that the SWA was too large and in May 1991, reconstituted the SWA and provided a high level committee made up of only eight members with the Minister of Industries acting as chairman.

The state SWA will continue to make decisions on projects with investments up to Rs. 50 crores and assist entrepreneurs with obtaining land, power, water, communications, i.e., assist with infrastructure requirements. The high level committee however, will consider projects exceeding Rs. 50 crores. Further, the SWA and the high level committee can co-opt the heads of departments or chief executives of any government agency depending upon the investment need on a case to case basis.

(2) The State of Karnataka offers the following incentives:

(a) fiscal concessions

- sales tax exemptions for selected zones and thrust areas such as electronics, telecommunications, informatics, leather, pollution control equipment, and exemption upto six years to units in electronic cities of Mysore and Dharwar.
- exemption from entry toll on raw materials for 100 per cent Export Oriented Units.

- training schools, testing and development facilities.
- single window agencies at the state and district level for permit and license clearances.

(b) financial incentives

- investment grants (maximum Rs. 2.5 million).
- additional investment grant to pioneer units.
- for export oriented units, 10 per cent assistance on fixed capital assets (maximum Rs. 1 million).
- special assistance upto Rs. 5 million for installation of pollution control equipment.

8.1.2 Uttar Pradesh

(1) Single Window Service

The State of Uttar Pradesh offers various agencies to facilitate investment. There are multi-tiered committees at district, division and state levels that act as forums for investors to expedite sanctions, permissions and no objection certificates, as well as to remove inter-departmental bottlenecks at the local level. Also, the state has formed Udyog Bandhu, a two-tier coordination agency with the Secretary, Heavy Industries as Chairman. How successful the multi-tiered approach is remains to be further studied. Two examples follow that more closely resemble a single window service agency.

(a) The New Okhla Industrial Development Authority (NOIDA) is a statutory body constituted by the state government under the Uttar Fradesh Industrial Area Development Act, 1976. The NOIDA board is the main policy making body and the state government's department of industry is the administrative department. An empowered committee under the chairmanship of NOIDA's chairman, provides single window service to entrepreneurs.

The committee can sanction electricity load, sales tax exemptions, special state capital subsidies, building plans, and grant consent on behalf of the state's pollution board to small scale units. The committee also coordinates and monitors the sanctions of term loans and working capital loans by the state financial corporation and banks.

(b) The Greater Noida Industrial Development Authority plans to develop a new administration office complex in Surajpur as an industrial secretariat, where all various departments and institutions having an impact on investment such as sales tax, labour, financial assistance, etc., will be found under one roof. The plan is to establish an effective single window service coordinating agency for facilitating timely and effective interaction between entrepreneurs and the service departments.

(2) Uttar Pradesh's incentives are as follows.

(a) fiscal concessions
-- special rebate on electricity usage charges.
-- concessional power tariff.
-- exemption/deferment of sales tax (rates range from 100 - 125 per cent of fixed capital investment up to eight years).

(b) financial incentives
-- preferential land rates for industrial use in selected areas.
-- investment grants based on fixed capital costs (maximum Rs. 2 million).
-- investment assistance of Rs. 1.5 million for units with investment assistance of more than Rs. 250 million.
-- special grants for industrial units in the hill areas.

8.1.3 Haryana

(1) Single Window Service

The state government has provided it seems, two single window service agencies. A single window service agency under the Industrial Assistance Group exists to facilitate foreign investment and assists in the identification of projects for entrepreneurs. There is also, SWS agencies that exist in each district except for Gurgaon. The district level agency has the following basic functions to provide assistance for the allotment of land/plots/sheds -- acts as liaison with the Directorate of Industries, Haryana State Industrial Development Corporation, and the Haryana Urban Development Authority, and provides assistance in the following areas:

- financial assistance
- electric connections
- consent/No Objection certificates from the Water Pollution Control Board
- provide raw materials to industrial units

- maintenance of industrial estates
- incentives/assistance in the industries department
and,
- provides guidance to entrepreneurs.

(2) Haryana provides the following incentives.

(a) Fiscal concessions
-- concessional power tariff for a five year period.
-- exemption/deferment of sales tax up to Rs. 60 million for a period of five to nine years (dependent upon location of the unit).
-- reservation of plots for export oriented units, units with foreign equity participation.
-- single window clearing agencies at state and district levels.

(b) financial incentives
-- capital investment grant of Rs. 5 million (for units with investment of Rs. 100 million or more).
-- Rs. 1.5 million grant to units with investment of Rs. 500 million and Rs. 1,000 million.
- -additional 50 per cent grant if units are located in certain identified areas.
-- capital investment grant to cover up to 25 per cent of fixed capital investments (maximum of Rs. 3 million).
-- grant to meet a part of the cost of captive electricity generating sets.

8.2 Foreign Collaboration

In an attempt to describe foreign investor activity to India, summary tables are provided that indicate foreign investors' countries of origin and the industry group where venture relationships existed for the years 1988 to 1991.

8.2.1 Investment Characteristics

(1) Bangalore and Vicinity

Total foreign investors are 67 companies and the largest number of foreign investors are found in the electrical machinery and electrical parts industry (31.3 percent), with the machinery and machinery parts industry group garnering about

19.4 percent and transportation equipment and parts (11.9 per cent)of all foreign investment in the survey area.

The number of companies are: 19 Japanese, 10 French companies, and eight U.S. companies. Japanese companies comprised the single largest number of investors from one country in the electrical machinery and electrical parts industry. Overall, Japan had the most foreign investors locating to this area for the period surveyed.

(2) Delhi and Vicinity

An examination of the data reveals that total foreign investors are 202 companies in the Delhi area, and the electrical machinery and electrical parts industry comprised the single largest percentage (26.7%) of foreign collaborations to the Delhi area. Of the countries listed, Japan comprised the largest share of this industry group as already noted for the Bangalore area. However, in terms of total investors, Japanese collaborations were slightly more concentrated in the transportation equipment and parts industry.

In comparison to the U.S., Germany, Italy, the U.K, France, Sweden and Switzerland, there is a significantly larger number of Japanese foreign collaborations located in the Delhi area than the other countries surveyed.

8.2.2 Type of Foreign Collaborations

There are five classifications of foreign collaborations in India. The classifications are defined as: technical, financial, technical and financial, design and drawing, and management services.

Technical and financial collaborations comprise about 30 per cent of total foreign investment. However, technical collaborations make up about 70 per cent of total foreign investment, Financial collaborations representing the Japanese investor comprised only 20 per cent, less than other foreign investors' average financial collaboration investments. This data portends Japanese investors are relatively passive when it comes to investing in India. Table 8-1 summarises foreign collaborations for Karnataka.

The data indicate that technical collaborations comprises 80 per cent of the total foreign collaborations in Karnataka, significantly higher than for technical and financial collaborations (13.7 per cent).

Table 8-1 Karnataka: Nature and Industry-wise Distribution of F.C. Approvals

Classification	Technical	Financial	Technical & Financial	Design & Drawing	Management Services	Total
Metallurgy	32	4	1	2	0	39
Electrical/ electronics	169	3	21	11	1	205
TelComm						
Mechanical/ Enginering	150	5	28	6	0	189
Chemical /Drugs	21	3	10	0	0	34
Fertilizer						
Others	47	7	14	0	2	70
Total	419	22	74	19	3	537

Source: Technology Profile of Foreign Collaborations State of Karnataka

CHAPTER 9 PHYSICAL CHARACTERISTICS OF CANDIDATE SITES AND SURROUNDING AREA

9.1 The IMT Candidate Site : BIDADI

9.1.1 The Social Environment

Bidadi is a Mandal headquarters and is located in the State of Karnataka within the rural district of Bangalore. The IMT site is located within the Ramanagaram Taluk. The administrative headquarters is located at Ramanagaram Town which is about 10 kilometers from the Bidadi site. The site is located along the Bangalore-Mysore State Highway No.48.

According to the regional and sub-regional plan strategy, Bidadi is within the Metropolitan Area of Bangalore.

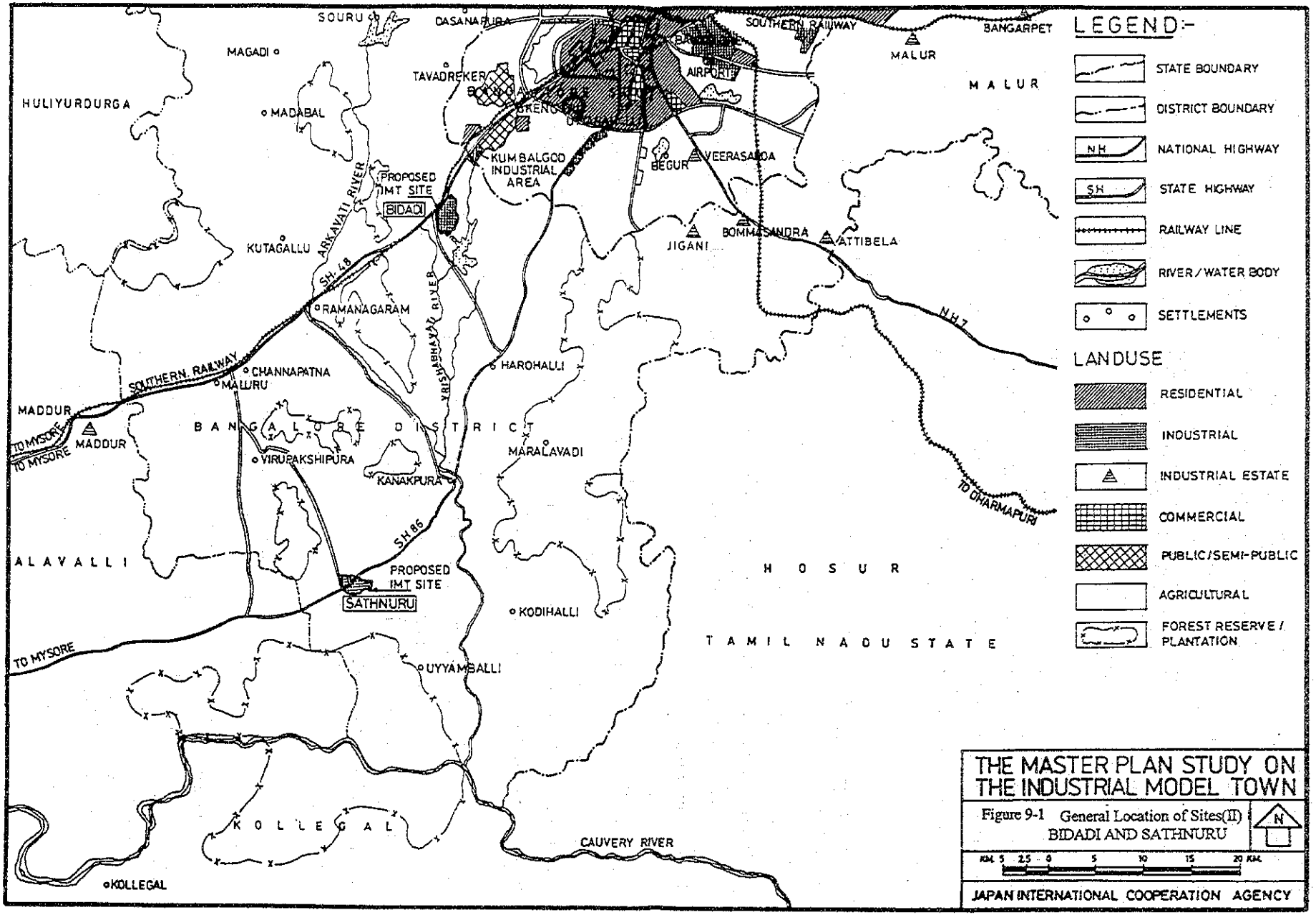
The present urban settlement pattern around the IMT candidate site upto a 30 to 50 kms radius is shown in Fig. 9-1. The urban population of Bangalore was 4,086 thousand as per 1991 census figures.

Bangalore is a primate city which contained 27.2 per cent of the total urban population of the state in 1981, and increased to 29.5 per cent as per the 1991 census. But the decade growth rate of the Bangalore Urban Agglomeration (BUA) has dropped from 75.6 per cent to 39.9 per cent from 1971-81 to 1981-91.

As per the 1991 census, the Bangalore rural district around the Bidadi IMT site, Ramanagaram and Channaptna are the only two class towns, and Kanakpura is a class III town located nearby. The census class size, population, and decade growth rate for the urban centre are given below:

Name of the Town	Census Class Size	Population	1981-91 Growth Rate (%)	1971-81 Growth Rate (%)
Bangalore	**I**	**4,086,548**	**39.87**	**75.56**
Ramnagram	**II**	**50,411**	**14.56**	**39.96**
Channaptna	**II**	**55,210**	**8.84**	**55.66**
Kanakpura	**III**	**37,837**	**25.45**	**48.60**

Source: Census of India, 1981, 1991


SOURU
DASANAPURA
MAGADI
TAVADREKER
HULIYURDURGA
MADABAL
KUMBALGOD INDUSTRIAL AREA
PROPOSED IMT SITE
BIDADI
ARKAVATI RIVER
KUTAGALLU
SH-48
RAMANAGARAM
SOUTHERN RAILWAY
CHANNAPATNA
MALURU
MADDUR
TO MYSORE
VISHWABHARAVA RIVER
HAROHALLI
BANGALORE DISTRICT
VIRUPAKSHIPURA
KANAKPURA
MARALAVADI
SH 86
ALAVALLI
PROPOSED IMT SITE
SATHNURU
KODIHALLI
HOSUR
TAMIL NADU STATE
UYYAMBALLI
KOLLEGAL
CAUVERY RIVER
BEGUR
VEERASANDRA
JIGANI
BOMMASANDRA
ATTIBELA
AIRPORT
SOUTHERN RAILWAY
BANGARPET
MALUR
NH7
TO DHARMAPURI
LEGEND:-
STATE BOUNDARY
DISTRICT BOUNDARY
NATIONAL HIGHWAY
STATE HIGHWAY
RAILWAY LINE
RIVER / WATER BODY
SETTLEMENTS
LANDUSE
RESIDENTIAL
INDUSTRIAL
INDUSTRIAL ESTATE
COMMERCIAL
PUBLIC/SEMI-PUBLIC
AGRICULTURAL
FOREST RESERVE / PLANTATION
THE MASTER PLAN STUDY ON THE INDUSTRIAL MODEL TOWN
Figure 9-1 General Location of Sites(II) BIDADI AND SATHNURU
N
KM 5 2.5 0 5 10 15 20 KM
JAPAN INTERNATIONAL COOPERATION AGENCY

The BUA is growing into a large urban sprawl due to the absence of a statutory regional development plan. The primary is being reduced by placing development emphasis on other major urban centres like Hubli-Dharwar, Mangalore, Mysore, and Belgaum, which are under active consideration by the Government of Karnataka.

(1) Site and Surrounding

The village Bidadi is located on the west of State Highway No.8 bordering the IMT site.

The land proposed for the IMT is partly held by private ownership and the remainder is under state government control. The site as demarcated by the Department of Industry measures approximately 1,094 hectare. The site is beyond the jurisdiction of BUDA, but under the Mandal Panchyat.

The topography of the site is undulating with few hillocks near the highway. On the whole, the site has a gentle eastern slope.

(2) Present Landuse in and around the Site

At present the proposed site for the Industrial Model Town (IMT) at Bidadi is under dry agriculture covering most of the site except for a rocky ridge and woods which covers approximately 10 per cent of the site area. According to the latest industrial location policy of the state and the centre, the site is proposed for urban conversion as an industrial growth centre and to develop as a sub regional centre in the Bangalore Metropolitan Region by 2001.

(3) Existing Urban Facilities

The present IMT candidate site is surrounded by a few small villages with mostly temporary structures. There are few permanent structures in the Bidadi settlement.

The settlement for a 10 kms radius does not offer intermediate or high order urban facilities except within the Bangalore Urban Development Area.

There are a few rich forest and plantations and water bodies with unspoiled scenic beauty. The site would have to depend on Bangalore City for all intermediate and

higher level facilities such as an airport, medical, education, and other institutional facilities, as well as national and international wholesale trade offices.

9.1.2 Infrastructure Conditions : Bidadi

(1) Road, Access and Traffic

The proposed IMT site at Bidadi is located at a distance of 35 km. from Bangalore City. The major access to the proposed IMT site at Bidadi is by State Highway No.48 which runs between Bangalore and Mysore via Bidadi. Bidadi-Harohalli major district road connects Bidadi with State Highway No. 86 (refer to Fig. 9-1).

(2) Water Supply

The proposed site of this project in Bidadi is located in the basin of the Arkavati River.

At present, the Arkavati and Cauvery rivers serve as sources of water supply for the city of Bangalore and the surrounding vicinity. In recent years, however, planned water volumes from the Arkavati River are not secure because of inadequate river water perennially due to the small volume of rainfall in the river valley. The volume of water intake from the Cauvery River is stable throughout the year.

(3) Sewerage and Drainage

Sewerage and drainage in the city of Bangalore is under the control of the Sanitary Division (Maintenance) of the Bangalore Water Supply and the Sewerage Board (BWSSB), and in other areas under the Karnataka Urban Water Supply and the Drainage Board (KUWSDB). Underground drainage systems were developed for the city.

(4) Power Supply System

Unlike other State Electricity Boards in the country, the Karnataka Electricity Board (KEB) is vested mainly with the function of transmission and distribution, and the Karnataka Power Corporation Limited (KPC) is vested mainly with the function of power generation. The KPC today has an installed capacity of approximately 3,000 MW. The KEB purchases power generated by the KPC at rates specified, from time to time, by the Government of Karnataka.

(5) Telecommunication System

As a part of the national telecommunication system, there is an exchange (128 pc DOT Digital Electronic Exchange), which covers the Bidadi area. Working connections are 68 in the Bidadi area, while waiting subscribers are 79.

9.2 The IMT Candidate Site : SATHNUR

9.2.1 Social Environment

Sathnur is located in the State of Karnataka, within the rural district of Bangalore, about 70 kms from the City of Bangalore. The IMT candidate site falls within the Kanakpura Taluk, whose administrative headquarters is located at Kanakpura town which is about fifteen kilometres from the Sathnur site. Sathnur is one of the 20 Mandals in the Kanakpura Taluk. The site is situated along the Bangalore Mysore State Highway No. 86.

According to the regional plan and sub regional plan strategy, Sathnur is on the border of the Bangalore Metropolitan Area.

The present urban settlement pattern around the IMT candidate site upto a 30 to 50 kms radius is shown in Fig. 8-1. The urban population of Bangalore (U.A.) was 4,086 thousand as per 1991 census figures.

The Bangalore rural district comprising 5,815 sq. km, has 16,664,315 population whose urban component is 302,999 people as per 1991 census.

Bangalore is a primate city having 27.2 per cent of the total urban population of the state in 1981, which increased to 29.5 per cent as per the 1991 census. But the decade growth rate

of the Bangalore Urban Agglomeration has dropped from 75.6 per cent in 1971-81 to 39.9 per cent in 1981-91.

Ramanagram and Channapatna are the two Class II Towns nearby, and Kanakpura is a Class III Town close to the IMT site.

(1) Site and Surroundings

The village Sathnur is located South-West of State Highway No. 86 bordering the IMT site.

The land proposed for the IMT site is partly under private ownership, with the remainder under the state government. The site as demarcated by the Department of Industry measures approximately 1,400 hectare.

The site is beyond the jurisdiction of BUDA, but under the Mandal Panchyat.

The topography of the site is fairly flat and having a gentle slope.

(2) Present Landuse

At present the proposed site for the IMT at Sathnur is under dry agriculture use covering a major part of the site. According to the latest industrial location policy of the state and the Centre, the site is proposed for urban conversion as an industrial growth centre, and to develop into a regional centre in the Bangalore Metropolitan Region by 2001 AD.

(3) Existing Urban Facilities

The present IMT site is surrounded by a few small villages with mostly temporary structures. There are few permanent structures in the Sathnur village settlement. The settlement for a 10 kms radius does not offer any intermediate or high order urban facilities of any significance.

There are a few rich forests and plantations, and water bodies with unspoiled scenic beauty. The site is far from Bangalore, but would have to depend on Bangalore City for intermediate and higher level facilities like an airport, medical, education and

other institutional facilities, as well as wholesale trade offices of a national and international level.

A number of inexpensive semi-skilled and unskilled labour are available in the surrounding area, but skilled labour would have to be recruited from Mysore or Bangalore.

9.2.2 Infrastructure Conditions: Sathnur

(1) Road, Access and Traffic

The proposed IMT site at Sathnur is located at a distance of 70 km. from Bangalore City. The access to the proposed site of Sathnur is by State Highway No. 86 which runs between Bangalore and Mysore parallel to State Highway No.48. Channapatna-Sathnur major district road connects Sathnur with State Highway No. 48.

Bangalore has a domestic airport which is located southeast of the city about 5 km in distance. It has flights to and from Delhi, Bombay, Hyderabad, Madras, Calcutta, Cochin, Mangalore and other cities.

(2) Water Supply

In the countryside, tube wells are used to supply ground water. Data for Sathnur in 1988 indicate 2,652 tube wells were in use. The Cauvery River serves as a source of water supply for the IMT candidate site as it does in Bidadi.

(3) Sewerage and Drainage

In Sathnur, treated waste water and rain water is to be discharged from the site through an existing small drain that cuts the proposed site vertically and flows into the Arkavati River. The treated water thus discharged is used by the Forestry Bureau for irrigation of neighboring farms.

(4) Power Supply

The present conditions and future projects in Karnataka State are the same as in Bidadi.

(5) Telecommunications System

Working connections are 22 in the Sathnur area, and waiting subscribers are two.

9.3 The IMT Candidate Site : NOIDA

9.3.1 Social Environment

Location: Of the four candidate sites for an IMT in India, the proposed NOIDA (The New Okla Industrial Development Authority) IMT site is located within the Ghaziabad District, and in the Dadri Tehsil of the State of Uttar Pradesh. The site is situated on the North-East corner of NOIDA and on the Delhi-Ghaziabad National Highway (NH) No.24, connecting Eastern India (Fig. 9-2).

According to the Regional Plan and the Uttar Pradesh Sub-Regional Plan Policy of the NCR, NOIDA is a major city within the Delhi Metropolitan Area. NOIDA has developed mature high-tech industries due to its proximity to Delhi. The objective of the regional and sub-regional policy of the National Capital Region (NCR) is to decentralize and reduce congestion in Delhi by inducing growth away from the Delhi Metropolitan Area (DMA) to the less developed places in the region.

NOIDA is one of the six major cities containing 167,440 people in 1991, and falling within the Delhi Metropolitan Area. The NOIDA development is contiguous to Delhi's developed area. It is the nearest city to the DMA, and is the closest to the central business district of Delhi.

The site is less than 10 kilometers away from the Ghaziabad Urban Agglomeration which is a major city within the Delhi Metropolitan Area. Hapur is a priority town in the NCR which is located about 50 km away from the IMT site at NOIDA.

Bhaghpat, Modinagar, Pikhria, Sikandrabad, and Greater NOIDA (Surajpur-Kasua) are potential settlements in Uttar Pradesh as sub-regional centres under the NCR sub region plan 2001 AD. Although Dadri has some potential, it is very close to Ghaziabad and is planned as a service centre in the NCR sub region plan for 2001 along with Muradnagar, Khekada, Dankaur, Guladhi, Kharkhauda, Sewalkhas, and Aminnagar. Greater NOIDA is targeted for a population of 300,000 by the end of this century.

(1) Site and Surrounding

The site contains the existing village of Bazidpur which covers 0.2 hectares, and has approximately 1,500 residents in 1991.

The land that is proposed for the IMT site is privately owned. The site area demarcated by NOIDA would measure approximately 350 hectares. The topography of the site is fairly flat with gentle southward slope.

(2) Present Landuse in and around the Site

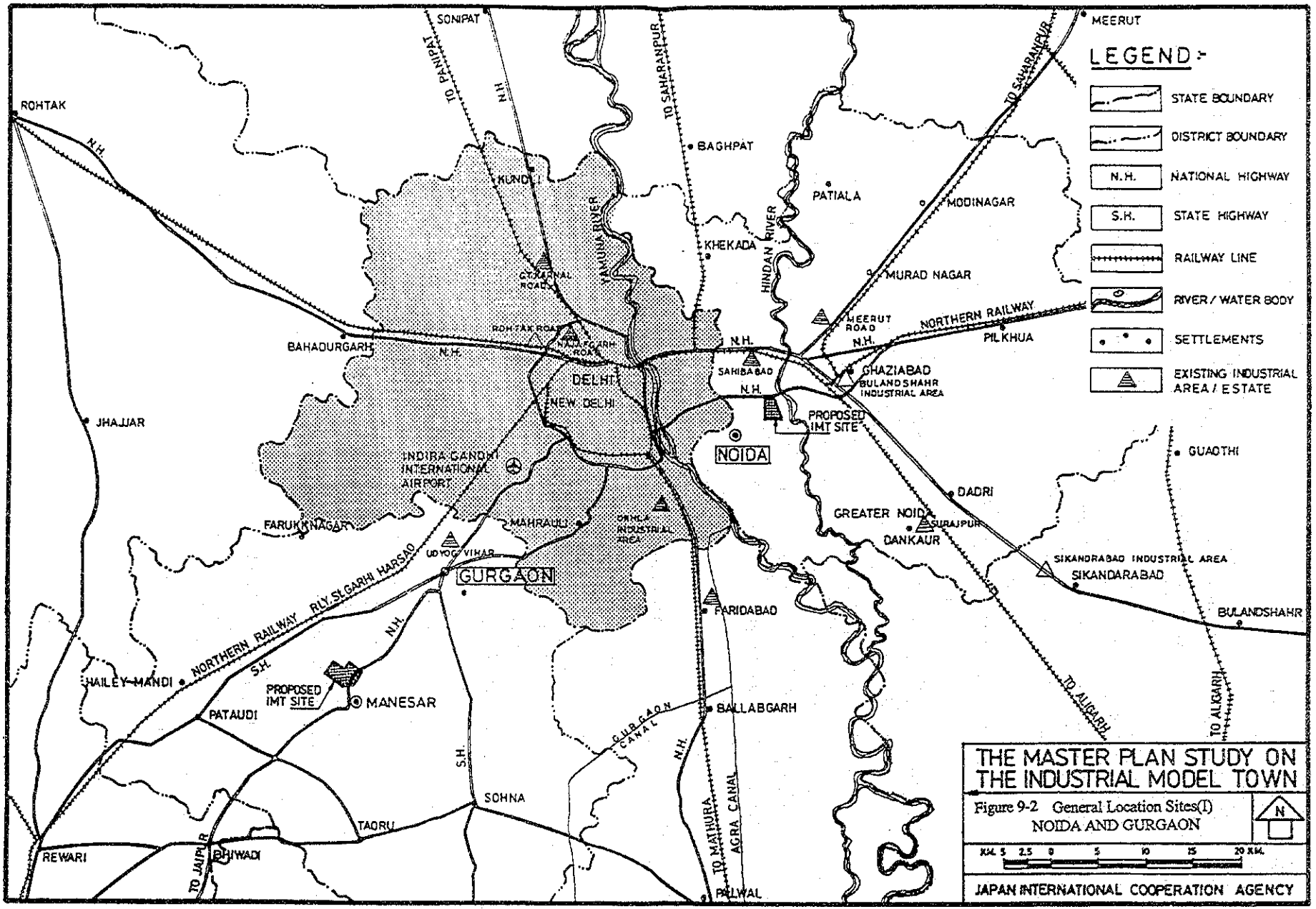
The land earmarked for the site is at present under agricultural use. However, according to the statutory NOIDA Development Plan, the proposed IMT site comprises three large sectors (63, 64, & 65) designated mainly for government, semi-government, and supporting residential use. If the IMT site is selected by the Government of India, the conversion of existing designated landuse into an industrial estate would not be difficult.

Table 9-1 Existing Land Use

SL No.	Landuse	Existing 1991	
		Area in Ha	per cent
1.	Industrial	985.0	26.9
2.	Residential	1,106.0	30.2
3.	Commercial	151.0	4.1
4.	Institutional	830.0	22.7
5.	Transportation	300.0	8.2
6.	Organised Open Spaces	290.0	7.9
	Total	3,662.0	100.0

Source: Development Plan of NOIDA

The ongoing development at the periphery of NOIDA by the UPSIDC under the Greater NOIDA Industrial Authority, is not in conformity with the Regional Plan at present.


LEGEND :-
STATE BOUNDARY
DISTRICT BOUNDARY
N.H. NATIONAL HIGHWAY
S.H. STATE HIGHWAY
RAILWAY LINE
RIVER / WATER BODY
SETTLEMENTS
EXISTING INDUSTRIAL AREA / ESTATE
SONIPAT
MEERUT
ROHTAK
BAGHPAT
KUNDLI
PATIALA
MODINAGAR
KHEKADA
MURAD NAGAR
PILKHUA
BAHADURGARH
DELHI
NEW DELHI
SAHIBABAD
GHAZIABAD
BULANDSHAHR INDUSTRIAL AREA
PROPOSED IMT SITE
NOIDA
JHAJJAR
INDIRA GANDHI INTERNATIONAL AIRPORT
GUAOTHI
DADRI
GREATER NOIDA
SURAJPUR
DANKAUR
FARUKHNAGAR
MAHRAULI
UDYOG VIHAR
GURGAON
FARIDABAD
SIKANDRABAD INDUSTRIAL AREA
SIKANDARABAD
BULANDSHAHR
HAILEY MANDI
PROPOSED IMT SITE
MANESAR
PATAUDI
BALLABGARH
SOHNA
TAORU
REWARI
BHIWADI
PALWAL
TO PANIPAT
TO SAHARANPUR
TO ALIGARH
TO JAIPUR
TO MATHURA
NORTHERN RAILWAY
RLY.SLGARH HARSAO
GURGAON CANAL
AGRA CANAL
YAMUNA RIVER
HINDAN RIVER
THE MASTER PLAN STUDY ON THE INDUSTRIAL MODEL TOWN
Figure 9-2 General Location Sites(I)
NOIDA AND GURGAON
JAPAN INTERNATIONAL COOPERATION AGENCY

(3) Existing Urban Facilities

At present the site at NOIDA Phase II, is surrounded by a small settlement with mostly temporary and few permanent structures. The settlement within a 10 km radius are Ghaziabad and NOIDA Phase I, which offer few very high order urban facilities, and most of the required intermediate level facilities.

All higher level infrastructure such as medical, educational and other institutional facilities, as well as commercial establishments, research and development centres, wholesale trade market and international level offices and markets of finished goods, are available within a distance of 12 kms in Delhi. The international and national level airports are 35 km away from site in Delhi.

In NOIDA, about 12.6 per cent of the land (985 ha) is planned for industrial use in accordance with the Master Plan. Whereas the developed area for industry is around 70 per cent, i.e., 690 ha., out of the total 6,650 planned units, 5,318 units are allotted, and only 56 per cent (3,735) of the planned units are fully utilised.

9.3.2 Infrastructure Conditions : NOIDA

(1) Road; Access and Traffic

The proposed IMT site of the New Okhla Industrial Development Authority (NOIDA) is located at a distance of 12 km. from the central part of New Delhi. National Highway No. 24, which leads to Calcutta, runs along the north boundary of the site. This will be the main access road to the proposed IMT site. Metropolitan Road No. 3 feeds into the proposed site through NOIDA. The Delhi Link road connects No. 24 with the following national highways:

National Highway No. 1 towards Punjab up to Kashmir.
National Highway No. 2 towards east up to Calcutta.
National Highway No.8 to Jaipur, Ahmedabad up to Bombay.
National Highway No.10 towards Haryana up to Rajasthan.

NOIDA is connected with New Delhi by the Ito Bridge, Nizamuddin Bridge and the Okhla Bridge.

National Highway No.24 is a four lane road with 75 m R.O.W. Currently a 60 m road is under development at the west boundary of the site. This will serve for the NOIDA institution area, which is located at the west side of the proposed IMT site, and other parts of NOIDA as well as the IMT.

According to NCR traffic surveys, the heaviest traffic congestion take place on the Ghaziabad-Delhi Section followed by the Delhi-Faridabad and the Delhi-NOIDA sections. The composition of vehicular traffic on the Delhi corridors of five national highways is 67.3 per cent of passenger vehicles, 7.7 per cent of buses, and 25 per cent of commercial vehicles.

Railway linkages are through Delhi. Available stations for the proposed site area:

New Delhi rail way station ..... 20 km from the site.
Old Delhi railway station ..... 25 km from the site.
Nizamuddin railway station ..... 17 km from the site.

The Indira Gandhi International Airport is at a distance of 35 km from the proposed site of NOIDA. This is the primary air gateway of India to other countries. The domestic airport adjacent to the International Airport is the largest in the country. This provides air linkage to all major cities in India. According to information provided by officials of NOIDA, the capacity of the airport is as follows:

i) Annual passenger handling capacity: 3,350,000 pas/year.
ii) Cargo handling capacity
Cargo complex Phase I: 200,000 ton/year.
Cargo complex Phase II: 300,000 ton/year.

(2) Water Supply

The NOIDA area is located between the Hindon River and the Yamuna River. In the NOIDA area, each sector currently sinks wells to use ground water. The utilisation of the Ganges water as a resource is scheduled to begin from 2001, as water demand increases subsequently to the development of NOIDA.

(3) Sewerage and Drainage

The discharge water in the NOIDA area is made by two separate systems of sewage lines and drainage lines. In the center of NOIDA, irrigation drain run vertically and some rain water and treated waste water is used for green belts and other irrigation purposes. The remaining water is discharged into the Hindon and Yamuna Rivers.

(4) Power Supply

The Uttar Pradesh State Electricity Board (UPSEB) is vested primarily with the function of power generation, transmission, and distribution, and NOIDA is charged with the responsibility of developing an integrated industrial and residential township and other related infrastructure. the consumption of this township is 2 million units per day, out of which 1.2 million units per day is for the industrial sector, and 0.8 million units for the residential sector.

(5) Telecommunications System

As a part of the national telecommunication system, the following digital switching facilities are:

(a) Main Exchange at NOIDA of which capacity is 16,000 lines

(b) Remote Line Unit (RLU) at Sector-39, NOIDA, of which capacity is 2,000 lines

(c) RLU at the NEPZ, Industrial Area Phase II, NOIDA, of which capacity is 1,000 lines

9.4 The IMT Candidate Site : GURGAON

9.4.1 Social Environment

The IMT site near Gurgaon is located in the State of Haryana, and the Gurgaon District and Tehsil, about 13 kms from the Gurgaon City (Refer to Figure 9-2.). The site falls within the District and Tehsil administration located in Gurgaon City. The site is situated on the North-West of the Delhi-Jaipur National Highway (NH) No.8, except for a small strip of land falling on the South-West, adjoining the village of Manesar.

Gurgaon is the nearest existing major town falling under the Delhi Metropolitan Area (DMA). It has a population of 135,000 as per the (1991) census. Faridabad is the largest DMA town in Haryana, and has a 1991 population of 613,828. The Rewari-Dharuhera urban complex is also near the site and are NCR priority towns to be developed as a Regional Center.

(1) Site and Surroundings

The Manesar village is situated on the South-East corner of the site and has a population of 5,649 as of 1991.

The land proposed for the IMT site is privately owned. The site area, demarcated by the Department of Industry and the Haryana Urban Development Authority, measures approximately 600 hectares.

The topography of the site is fairly flat with a gentle slope in a northward direction.

(2) Present Landuse in and around the Site

The site is utilized for agricultural purposes. However, according to the latest industrial location policy of the state and the central governments, the site is proposed for conversion as an urban industrial growth center and to be developed as a sub-regional center in the National Capital Region Plan 2001.

(3) Existing Urban Facilities

The site is surrounded by small settlements with temporary and few permanent structures. The settlement for a 10 kms radius does not offer urban facilities of any significance, but there are existing recreational facility areas. For example, there is one resort and club with a golf course facility, one golf club, a holiday resort with club facilities (without a golf course); another hotel with a club facility is under construction near the site.

The Sultanpur Birds' sanctuary that has an existing resort and picnic spot for tourists, is located within 10 km from the site.

At present, the site would have to depend on Gurgaon City and Delhi for all intermediate and higher level facilities. Infrastructure such as the Indira Ghandi

International Airport, medical, educational and other institutional facilities as well as commercial establishments, research and development centres, wholesale trade markets, international markets of finished goods, offices of national and international level, and reputed firms are available within a distance of 30 kilometers. Inexpensive labour is available in the surrounding villages near the site. The adjoining towns of Gurgaon and New Delhi have polytechnic training institutions. Various skilled workers, specialised researchers, and technicians are available from New Delhi.

(4) Gurgaon City

Gurgaon City is designated as one of the six Delhi Metropolitan Area (DMA) towns with an area of 266.7 sq.km.

From the total area of 1,535 hectares of land proposed in the Master Plan for Industrial Use by the Department of Urban Estates, the State Government of Haryana is responsible for land acquisition and could acquire 726 ha. of land. The total area developed by HUDA and HSIDC is 367 hectares. HUDA has developed/ allotted/auctioned residential and industrial plots. HSIDC has also developed some industrial areas of Gurgaon.

9.4.2 Infrastructure Conditions : Gurgaon

(1) Road, Access, and Traffic

National Highway No. 8 connects the proposed site with Delhi, Ahmedabad, and Bombay via Jaipur. The Indira Gandhi International Airport is along National Highway No. 8. Maruti and Hero Honda are located on this highway. The area is also connected with neighboring towns by state highways.

The National Highway No. 8 is a four lane road up to Gurgaon, but narrows to two lanes after Gurgaon. The state highway connecting Gurgaon and Rewari is a two lane road. Another state highway connecting Gurgaon with Sohna is also a two lane road.

Based on a traffic survey during June 1992, daily traffic volume (from 6:00 am to 22:00 pm) on National Highway No.8 is between 6,500 and 7,500 for both directions. Maximum peak hour traffic during a week is 971 for down and 686 for up.

The nearest metre gauge railway station is Garhi harsaru, which is at a distance of 10 km from the Manesar site. This line runs between Delhi and Jaipur. A junction of broad gauge railway in the DMA is 40 km from the proposed site.

The Indira Gandhi International Airport is at a distance of 32 km from the proposed site, which is connected by National Highway No.8. The domestic airport adjacent to the International Airport is the largest in the country. This provides air linkage to all major cities in India.

(2) Water Supply

The ground water level in and around the IMT candidate site is 10 to 25 m deep and the water volume is stable. The quality of the above water meets water source requirements for drinking and industrial purposes, but contamination in the future is anticipated as a result of the development of surrounding areas. On the other hand, intake of river water is made from the Najafgarh Drain, a tributary of the Yamuna River.

(3) Sewerage and Drainage

In the city of Gurgaon, sewerage and drainage works are operated by the Public Works Department (PWD), and the Public Health Division. The sewerage system for newly developed residential quarters, industrial estates, etc., in the neighborhood were developed by the Haryana Urban Development Authority (HUDA). There is not an independent drainage system in the city, but the newly developed estates have a two line system for sewerage and drainage.

(4) Power Supply

The area around Gurgaon is serviced via a 220 kV Substation, Badshahpur, having an installed capacity of 160 MVA. This Substation is presently connected to a 400 kV Substation, Samaypur through a 220 kV D/C Samaypur-Badshahpur line. The 400 kV Samaypur Substation, is one of the main stations of the NTPC/NPTC Network, which is fed from the Singrauli Super Thermal Power Station, the Rihand Super Thermal Power Station, and the NCR Dadri Gas Station.

(5) Telecommunication System

(a) Status of Nearest Manesar Exchange

As of this date there is not a telephone exchange in operation at the candidate site. The nearest telephone exchange is the Manesar exchange which is a 128 port CDOT exchange. The second CDOT project of 128 port at Manesar is ongoing and is likely to be commissioned in the near future.

(b) Telecom Facility in Gurgaon District

Gurgaon Main Exchange is of 4,000 lines capacity, and another exchange of 1,000 capacity in Sector-18.

(c) Main Links

Gurgaon is connected with Delhi and Bombay by an optical fiber system.

CHAPTER 10 COMPARISON OF CANDIDATE SITES

10.1 Basic Strategy of Comparisons

The study results for the four candidate sites comprised of state-level and site conditions which were short-listed in the Scope of Work, are described in Chapters 8 and 9. An IMT development concept was derived in Chapter 6 based on background information and characteristics. The purpose of this model study was to select an appropriate site without any constraints, as the selected site will proceed to determine the Conceptual Plan's formulation as the initial operation of the IMT in India.

The study framework for the IMT is illustrated in Figure 10-1.

(1) Necessity of the IMT Formulation

According to "Chapter 6: IMT Concept", the introduction of foreign investments including technology transfers, is practical and effective measures for improvement and expansion of India's domestic industry. For promotion of this objective, an investment climate consisting of both "soft factors" and "hard factors", should be well established. Realisation of these measures will formulate the IMT, therefore, the following should be seriously considered for successful implementation of the IMT.

(a) The investment climate of neighboring countries should be considered when attempting to provide an investment climate.

(b) The IMT is an accumulated production base that receives foreign investors, thus the IMT is required to establish incentives and infrastructures with international standards.

(c) Additional IMTs should be planned in the future based upon this model study.

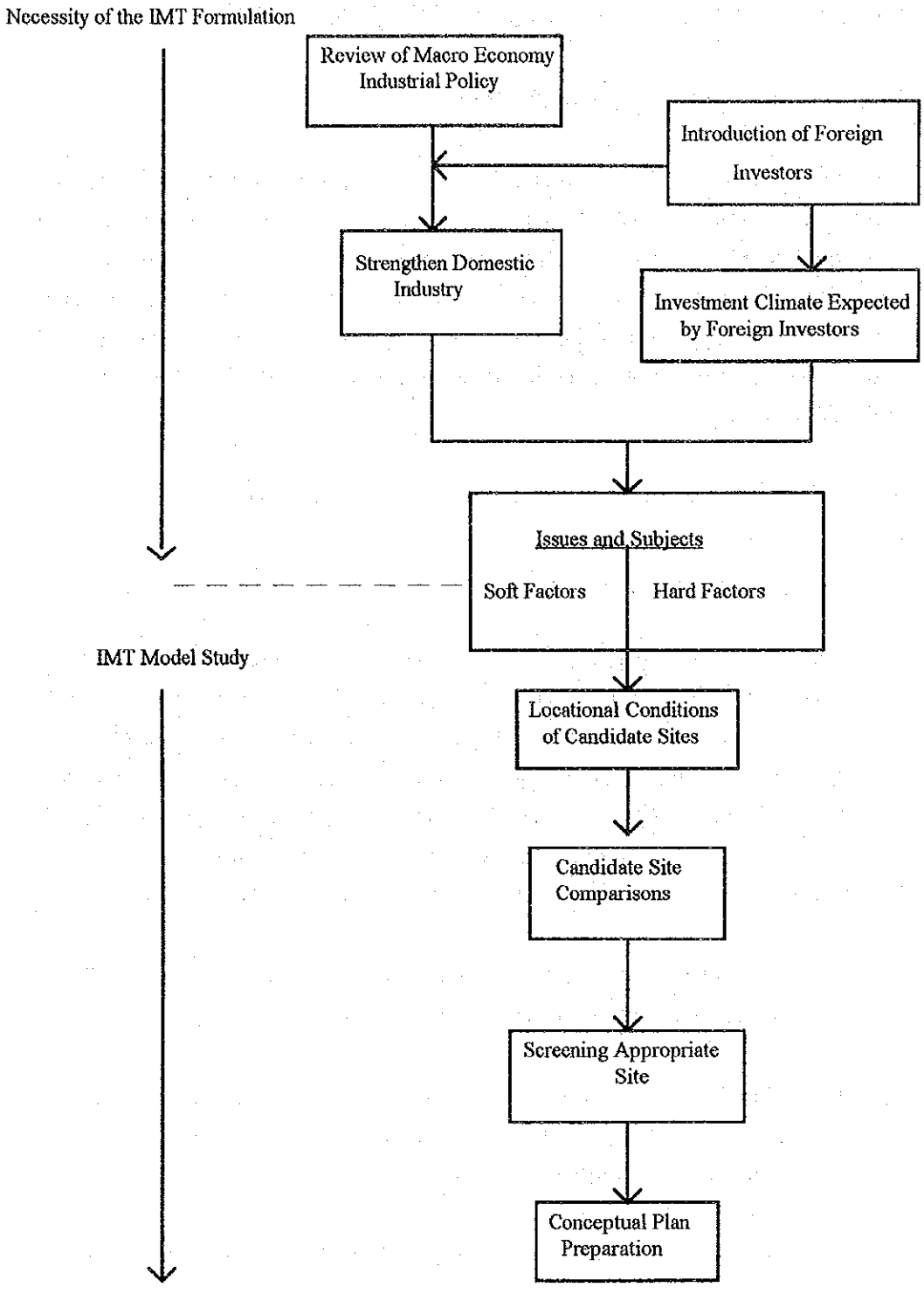


Figure 10-1 Framework of the Study for the IMT

(2) Appropriate Site Screening

The objective of preparing the Master Plan is to study what is an appropriate ideal model for the IMT that has the most functional and effective climate for the promotion of investment (including foreign investors). Therefore, selection of an appropriate site for the model study will be accomplished by screening the four sites. Comparisons of the candidate sites will be accomplished in the following manner.

(a) Primary Evaluation

Adjustment and appropriation between the objectives of the Master Plan Study and the candidate sites.

(b) Secondary Evaluation

Quantitative evaluation for relative advantages and disadvantages among the candidate sites.

10.2 Primary Evaluation

The objectives of the study are to formulate a Master Plan for an Industrial Model Town provided with the proper incentives, infrastructure, and other necessary facilities attractive to the investment requirements of foreign investors. Therefore, prior to complete formulation of the master plan, to ascertain whether the objectives of the study can be obtained, each candidate site must be evaluated.

(1) NOIDA Candidate Site

From the objectives of the study, the following conditions of NOIDA were evaluated and observed to differ from the other candidate sites.

(a) NOIDA is adjacent to Delhi, a major town in the Delhi Metropolitan Area, and has well-organised urban facilities (such as housing, commercial, industrial, etc.) that were developed during the early 1980's based on NOIDA's master plan.

The NOIDA area is about 50 per cent developed. The IMT candidate site is proposed to be established in a part of the industrial area based on NOIDA's Master Plan. However, from the viewpoint of total urban planning, adjustments to existing facilities and new urban functions within the industrial area would be required if the IMT is established in this area.

Therefore, for NOIDA, only an industrial estate should be established in the candidate site, and urban functions could then commonly depend upon NOIDA's present facilities; in short, reshaping the IMT concept to more resemble an industrial estate. This is not in accordance with the objectives of the Master Plan Study for ascertaining all the IMT functions.

(b) Existing enterprises in NOIDA are given several incentives. However, several incentives given to existing enterprises will have expired because development started in the early 1980s. Therefore it is assumed, that some difficulty would occur during adjustments between existing enterprises already given incentives and newly established enterprises located in the same area. Furthermore, it appears that preferable incentives are difficult to be awarded to the IMT, and this is also another difficulty related to achieving the objectives of formulating an ideal master plan in NOIDA.

Given the conditions mentioned above, it was judged difficult to proceed with preparation of the Master Plan Study in accordance with the objectives of the IMT development concepts.

(2) Bidadi Candidate Site

The Bidadi candidate site is planned as a proposed site by the state government. There are no constraints, and no structures to be removed in and around the candidate site. It appears that there are no barriers to the incentives established by the state government as one of the objectives of formulating the IMT Master Plan.

(3) Sathnur Candidate Site

Sathnur is the same as Bidadi, and it appears that there are no barriers to the incentives and location conditions of the candidate site for the objectives of formulating the IMT Master Plan.

(4) Gurgaon Candidate Site

There are no special constraints regarding incentives and location conditions of this site for the formulation of the objectives of the IMT Master Plan.

(5) Primary Evaluation Conclusion

From the descriptions above, the NOIDA candidate site becomes an exception to the IMT's formulations compared to the other candidate sites. Therefore the secondary evaluation will proceed for the three candidate sites of Bidadi, Sathnur, and Gurgaon.

10.3 Secondary Evaluation

10.3.1 Comparison Parameters

(1) Objective of Evaluation

An evaluation of the IMT candidate sites should consider the needs and limitations of the central government, state government, district-level government bodies, and foreign investors. The forthcoming comparative analyses employed such a working concept when attempting to identify and quantify parameters and variables for this study.

(2) Grouping of Parameters

Grouped factors consist of the following categories:

(a) Regional Maturity/Social Environment: a measure of the state's industrial production base and the social environment as perceived and evaluated by foreign investors.

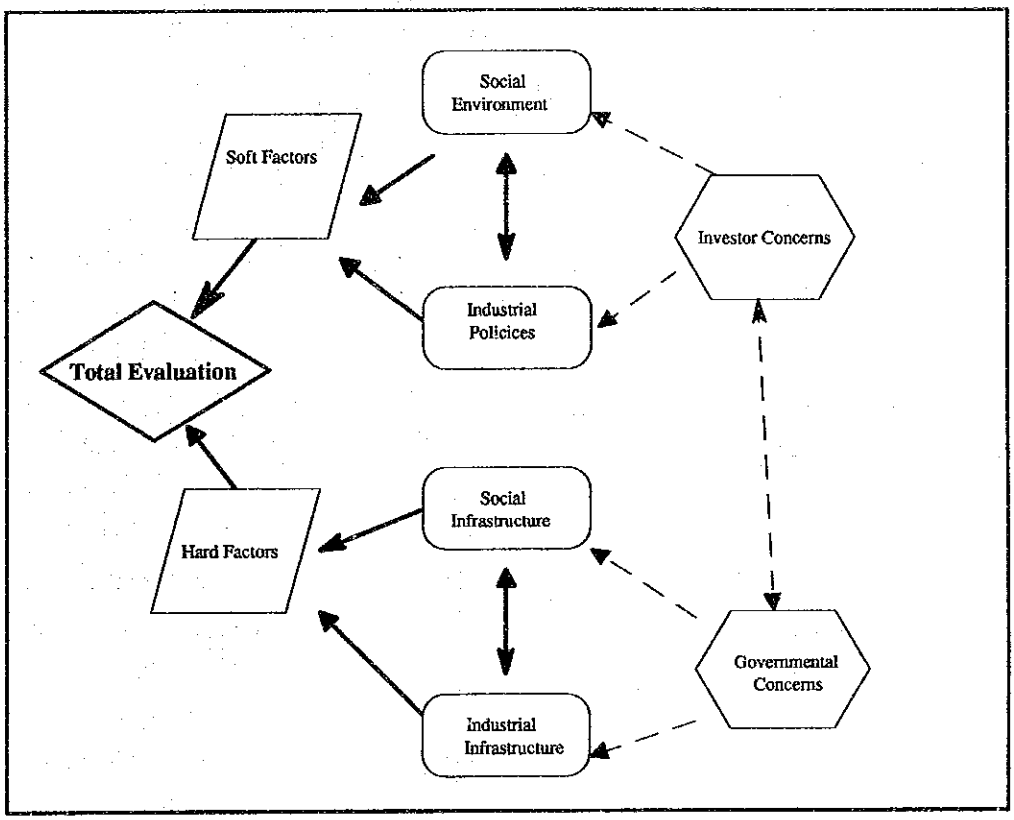
(b) Industrial Policies: state government policies and systems for providing industrial development promotion and incentives.

(c) Social Infrastructure: operationally defined as the necessity of basic infrastructure improvements for the areas and regions in and around the candidate site locations.

(d) Industrial Infrastructure: comprises those variables that demonstrate the "ease" of industrial infrastructure development for production and quality of life activities.

The use of a flowchart presentation was selected as the most concise method of explaining direct and indirect relationships regarding the classifying and prioritizing of the IMT candidate site locations.

Evaluation Flowchart



10.3.2 Evaluation Methodology

(1) Primary Analyses

The evaluation of the parameters consisted of collecting data and observations for the variables previously described for each of the candidate sites. The study hypothesis states that a comparison of the relevant variables will reveal the relative advantages and disadvantages between candidate sites and states for the development of an IMT in India.

The four major factors and additional characteristics (variables) follow.

i) Social Environment	living conditions and the kinds of enterprises to be established after the IMT becomes operational.
ii) Industrial Policies	establishment of state governments to foreign investors needs and requirements.
iii) Social Infrastructure	comparisons of costs associated with improving infrastructure around the IMT candidate sites (e.g., transportation networks) for improved quality of life.
iv) Industrial Infrastructure	comparisons of costs associated with industrial infrastructure requirements for the IMT candidate sites.

(2) Secondary Analyses

In addition to the primary analyses, secondary analyses were accomplished for subsets of variables for each factor. The weighted scores estimates are products of value rankings based on the findings of foreign investor receptivity to the development of industrial estates considering India's characteristics, and the findings of the *Japan Industrial Policy Research Institute* for inland industrial estates in Japan in order to avoid arbitrary evaluations. Variables and weighted scores are given as shown in Table 10-1.

Table 10-1 Factors, Variables and Weighted Scores

Factors	Variables/Parameters	Weighted Scores
Social Environment	1. Meteorological conditions	0.6
	2. Quality of Life	1.0
	3. Level Industrial Development	1.0
	4. Labour Force	0.8
	5. Environmental Impact	0.6
	6. Transportation Characteristics	1.0
Industrial Policies	1. Level of Incentives	1.5
	2. Organisations for Industrial Estates	1.0
	3. Support Agencies	1.5
	4. Legal Concerns	1.0
Social Infrastructure	1. Transportation Infrastructure	1.0
	2. Commercial Facility	0.7
	3. Education Facility	0.6
	4. Social Welfare Facility	0.6
	5. Public Service Facility	0.7
	6. Amenities Facility	0.7
	7. Housing	0.7
Industrial Infrastructure	1. Real Estate Concerns	1.2
	2. Geography	0.5
	3. Water Supply	0.9
	4. Drainage and Sewerage	0.7
	5. Electric Power Supply	1.0
	6. Telecommunication Systems	0.7

Note: Weighted scores are for variables and associated factors, values are not applicable across factors.

(3) Tertiary Analysis

The tertiary analysis attempts to discover the relative importance and strength of each factor category for comparisons between the candidate sites based on the results of the secondary analyses.

10.3.3 Analysis Results by Parameters

Overall evaluations are based on scores derived from the comparative evaluations of the parameters and factors for each of the candidate sites.

The formula for ascertaining an overall evaluation by candidate site is as follows:

$$K_1 \sum_{l=1}^{6} \frac{Pl}{5} \times \frac{Gl}{10} + K_2 \sum_{m=1}^{4} \frac{Pm}{5} \times \frac{Gm}{10} + K_3 \sum_{n=1}^{7} \frac{Pn}{5} \times \frac{Gn}{10} + K_4 \sum_{o=1}^{6} \frac{Po}{5} \times \frac{G0}{10}$$

where:

K = weighted scores by parameter group K1 (= 25) + K2 (= 25) + K3 (= 25) + K4 (=25) = 100

P = weight by each parameter (P1 + ...Pn = 5.0)

G = Evaluated score by parameter (1 ~ 10 score)

l, m, n, o = Each parameter from K1 to K4.

The overall evaluation scores are as follows and illustrated in the radar charts.

Table 10-2 Overall Evaluation Results

Candidate Site	Score	Ranking
Bidadi	64.9	2
Sathnur	60.6	3
Gurgaon	73.7	1

10.4 Site Selection Recommendations

The evaluation for the three candidate sites for an industrial model town is illustrated in the evaluation charts from the perspective of social environment, industrial policy, social infrastructure, and industrial infrastructure. The evaluation results based on the study parameters and comparison table findings which indicated the rankings of each candidate site, allowed for recommendations regarding site selection priority and comprise the overall guiding concepts of the successful implementation of an industrial model town in India.

(1) Gurgaon (Ranked First in the Secondary Evaluation)

Regional maturity, adequate access to the site and surrounding areas, free of planned development designs, and ranked first in the secondary evaluation analysis, were deciding factors in the selection of Gurgaon as the first priority site for development of an IMT in India.

(2) Bidadi (Ranked Second in the Secondary Evaluation)

Although Bidadi has not developed regional maturity, the eagerness of the state government to promote development and provide investor incentives, accessibility to Bangalore and the geologic record findings, are the rationale for selecting Bidadi as the second priority site for the development of an IMT in India.

(3) Sathnur (Ranked Third in the Secondary Evaluation)

The present evaluation of Sathnur considered the level of infrastructure because the first site development must seriously consider time factors and infrastructure development costs (Note: according to the results of the investment demand survey, there are indications that there will not be enough investors to completely occupy the three candidate sites). Although regional maturity and the general conditions of the Sathnur site are not at levels that can be recommended as a priority site selection, overall indications suggest that long term potential for this area's development is a possibility after establishment of general concepts in the region.

(4) NOIDA (Primary Evaluation Exception)

NOIDA should be developed according to the NOIDA Master Plan which is well-planned based on clear concepts, and recommend to introduce foreign investors to refer to this Master Plan study's findings.

CHAPTER 11 INDUSTRIAL MODEL TOWN CONCEPTUAL DESIGN

11.1 IMT Development Premise

(1) Basic Development Strategy

A general flow diagram of the IMT development premise is depicted in Figure 11-1 below.

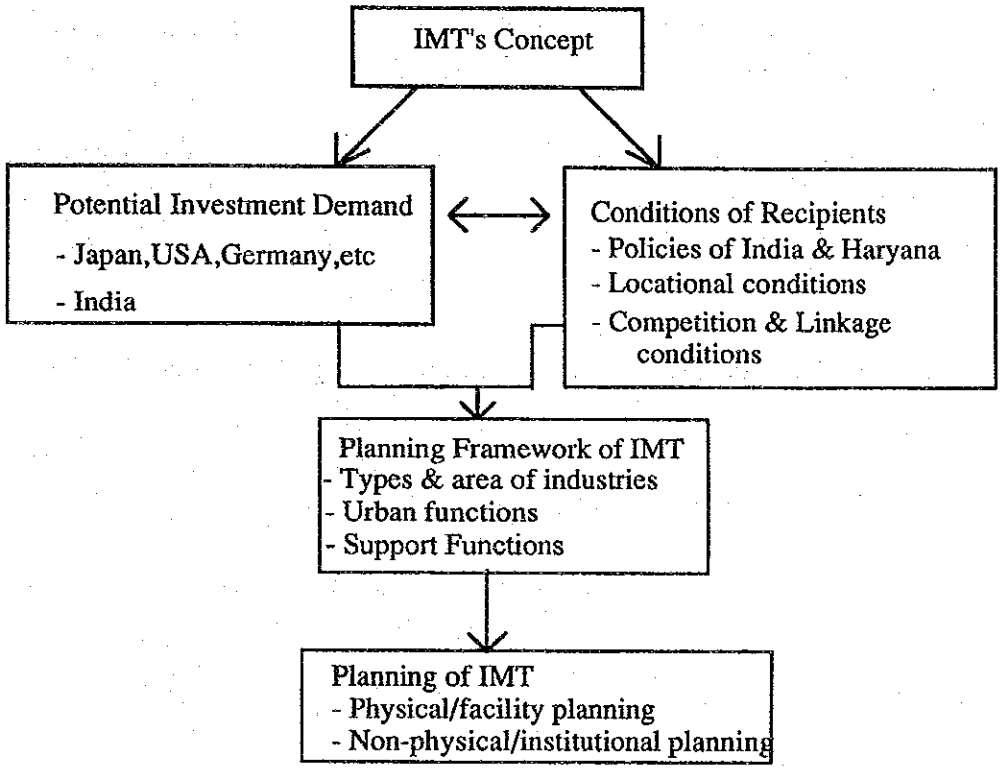


Figure 11-1 Flow Diagram of IMT Conceptual Design

(a) To improve Indian technology through technology transfers based on the introduction of foreign investment and develop more local support industries.

(i) To improve investment climate through development of soft factors (institutional) and hard factors (physical conditions) in relation to industrial production and social environment aspects for promotion of foreign investment.

(ii) To strengthen industrial linkage between IMT industries and local enterprises, the IMT should not become an isolated industrial zone (which export processing zones tend toward).

(iii) To strengthen linkages with domestic enterprises, industries with strong associations with other industries should have highest priority.

(iv) Technical support functions should be established to strengthen industrial linkages.

(v) Industries locating to the IMT should be correlated with existing industries and local available technologies.

(vi) Foreign and domestic industries should locate in the IMT as a multinational complex to enhance industrial linkages.

(b) Domestic market-oriented and import substitution industry

(i) Priority should be given to develop industries with greater prospective domestic market demand.

(ii) Priority should be given to import substitute industry.

(iii) The IMT should not become an export-oriented industrial zone such as EPZs or EOUs.

(c) To establish a base for future export promotion as there is not any immediate plan for export orientation.

(d) Industrial pollution-free, environmental conservation model

(i) Polluting industries can be located with adequate prevention measures.

(ii) Promotion of production for pollution control and environmental protection equipment and the development of conservation technology.

(2) Gurgaon Development Conceptions

Future development conceptions regarding Gurgaon and the future IMT site are referred to in the "National Capital Region Plan, 2001", which describes Gurgaon as an independently developing

city. However, the IMT project site is located at the foothills about 20 kilometers from the centre of Gurgaon City, and is used for agriculture. A development plan should consider the location conditions and the NCR Plan.

11.2 Analysis of Group and Industry Scale to be Introduced

11.2.1 Analysis of Group

(1) Summary of Potential Investment Demand

The results of the foreign investment demand estimates indicate that about 125 foreign firms would require about 400 ha., domestic demand for 56 firms would require 205 hectares. Total foreign and domestic investment demand were based on an assumption that about 50 per cent of the 400 ha of foreign demand and about 50 per cent of the 205 ha. of domestic demand are counted as joint undertakings, and will require 200 hectares. Thus, total site demand was estimated to be 503 ha based on the following calculation:

(pure foreign demand) + (pure domestic demand)
+ (pure joint foreign and domestic undertakings) = Total Site demand.

Thus, substitution provides the following details:
(400 ha x 0.5_{pfd}) + (205 ha x 0.5_{pdd}) + (400 ha x 0.5_{pju}) = 503 ha TSD

Further, industries' area shares were based on the simple sum of foreign demand and domestic demand. The number of factories were estimated later based on a final estimation of site area for each industry.

(2) Production Targets of Eighth National Five Year Plan

To identify priority industries viz. national policy, production targets for selected industries for 1996-97 from the Eighth National Five Year Plan were analysed.

(3) Import Amounts for Principal Commodities

The import amounts for principal commodities were reviewed because a key role of the IMT is import substitution.

(4) Industries Welcomed by the Haryana State Government

The Haryana State Government seeks the introduction of many industries (especially pollution free industries, import substitution industries, and export-oriented industries), but does not actively seek the introduction of pulp and paper, oil and coal products, glass and ceramics, iron and steel.

(5) Local Resources

Agricultural land accounts for 81 to 83 per cent of total land in the State of Haryana. The agricultural population accounts for 78 per cent of the state's total population.

(6) Regional Development Prospects

As a regional development plan, the National Capital Region Plan for the year 2001 includes the IMT site. According to the NCR Plan, in the Delhi Union Territory, growth should decelerate while Gurgaon should develop in a regulated manner as a suburban town of Delhi.

(7) Regional Industries

In Gurgaon District, industries employing more than 500 workers are: (1) transport equipment and parts; (2) textile products; (3) chemical and chemical products; (4) non-metallic mineral products; (5) machinery and machine tools; (6) cotton textile; (7) metal products and parts; (8) rubber, plastic and petroleum products; (9) basic metal and alloys industries; and, (10) electrical machinery, apparatus and appliances. Also, there are 600 workers involved in repairs.

(8) The IMT Site Geographic Conditions

The geographic conditions of the IMT site suggest the following specific industry-related criteria.

(a) Inland Location

Heavy industries suitable for coastal areas would not locate inland to the IMT (shipping industries were excluded). Industries that require large volumes of water are not suitable to the IMT site location.

(b) Proximity to Delhi

A highly qualified work force and a quality commodity market exist in proximity to the IMT site. Land values are generally costlier than in remote regions. High technology and high value added commodities, research and development oriented industries, and consumer goods meeting the needs of the urban market appear adequate.

(c) Access to International and Domestic Air Transport

Light, small, and high value added goods can be shipped via Indira Gandhi International Airport.

(9) Competition and Linkage Conditions

In the National Capital Region and Haryana State, agro-industrial centers have located or will be located, in various districts outside Gurgaon. The IMT site is in proximity to Delhi and is dominated by transport, pharmaceutical, and machinery industries, with plans for further development of electronics and software industries. One of the IMT's objectives is to strengthen industrial linkages with local industries and upgrade industrial capabilities.

11.2.2 Evaluation of Locational Conditions

Evaluation Factors for determining industrial groups and development scale are listed as follows.

(1) Evaluation of potential Investment Demand.

(2) Evaluation by Eighth National Five Year Plan's Targets

(3) Evaluation by Import Value of Industrial Products

(4) Evaluation by Haryana State Government Preference

(5) Evaluation by Local Resources

(6) Evaluation by Regional Industries Trends

(7) Evaluation by Geographic, Competition and Linkage Conditions

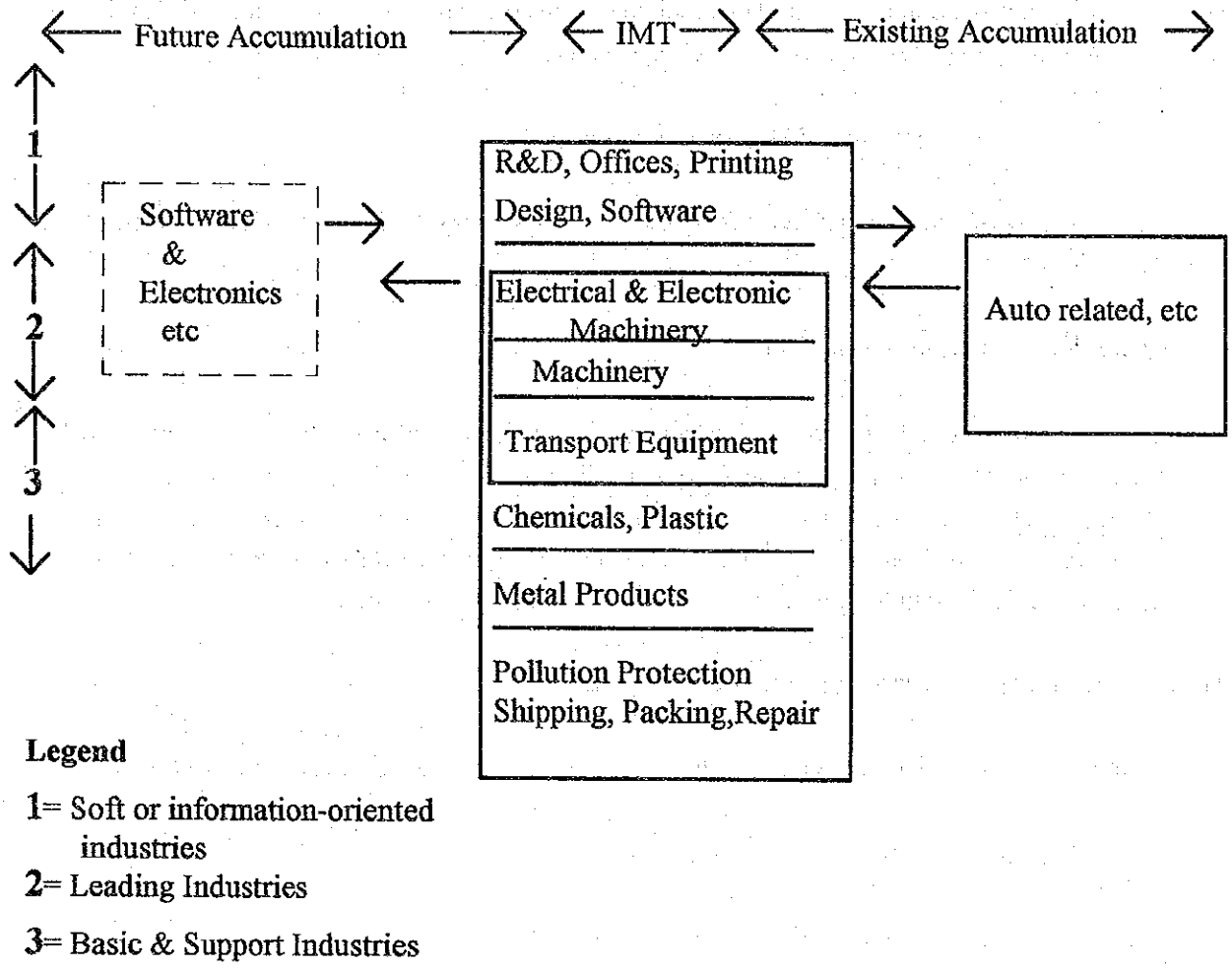


Figure 11-2 Main Industries Comprising IMT

11.2.3 Industry Scale

(1) Estimate for Site Area by Industrial Category

An average score for the above (1) to (7) was calculated for each industrial category. The total area of the factory plots was calculated to be 288 hectares. The IMT primary industrial groups are as follows.

Machinery group (machinery and precision machinery) = 65 ha. (22 per cent)

Transport equipment group (transport equipment, rubber products) = 61 ha. (21 per cent)

Electrical and electronic group (electrical machinery) = 56 ha. (20 per cent)

Chemical group (light oil products, soap, detergents, pharmaceutical. plastic and non-metallic mineral products) = 57 ha. (20 per cent)

Metal group (metal products, non-ferrous metals such as castings and cables, iron and steel such as forging and castings) = 21 ha. (7 per cent)

Others (urban industries such as printing and design, software, R&D, production support industries such as shipping/storage, packing and repair, offices and agro-industries) = 28 ha. (10 per cent)

(2) Number of Factories by Plot Area

Based on site area calculations, the number of factory lots by area for each category, were estimated. Shares of foreign participation and Indian-owned factories were assumed. The total number of factories was estimated at 57.

(3) Employees and Water Demand of Factories

Based on the calculated site area by industrial category, the number of employees and fresh water demand for the factories were estimated.

The number of employees is approximately 17 thousand. The fresh water demand is approximately 42,000 m^3/day, assuming that five foreigners work for a foreign or foreign collaborated factory. The number of foreign workers is estimated at 170 for all IMT factories, which is about one per cent of the total factory work force.