

No.

Private Sector Development in India (Project Research)

Final Report (Summary)

July 2006

Japan International Cooperation Agency

KRI International Corporation

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Currency Equivalents

As of 2005 Year average

1US\$dollars = INR 44.1 = ¥110.22

Abbreviation

AAI	Airport Authority of India	JOCV	Japan Overseas Cooperation Volunteer
ADB	Asian Development Bank	KEB	Karnataka Electricity Board
AOTS	Association for Overseas Technical Scholarship	KfW	Kreditanstalt für Wiederaufbau
ASEAN	Association of Southeast Asian Nations	KVA	Kilo Volt-Ampere
BDS	Business Development Service	KVIC	Khadi & Village Industries Commission
BESCOM	Bangalore Electric Supply Company	MDGs	Millennium Development Goals
CAD	Computer Assisted Design	MF	Micro Finance
CAM	Computer Assisted Manufacturing	MIDC	Maharashtra Industrial Development Corporation
CFS	Container Freight Station	NABARD	National Bank for Agriculture and Rural Development
CII	Confederation of Indian Industry	NGO	Non-Governmental Organization
CNC	Computer Numerical Control	NHAI	National Highway Authority of India
CPSU	Central Power Sector Undertaking	NHPC	National Hydropower Corporation Ltd.
DFID	Department for International Development	NPC	National Productivity Council
EPZ	Export Processing Zone	NPCIL	Nuclear Power Corporation of India Ltd.
FDI	Foreign Direct Investment	NRI	Non-Resident Indian
FICCI	Federation of Indian Chambers of Commerce and Industry	NSDP	Net State Domestic Product
GDP	Gross Domestic Product	NSIC	National Small Industries Corporation
GTZ	Deutsche Gesellschaft für Technische Zusammenarbeit	NTPC	National Thermal Power Corporation Ltd.
IBRD	International Bank for Reconstruction and Development	ODA	Overseas Development Aid
ICD	Inland Container Depot	OEM	Original Equipment Manufacturer
IDA	International Development Association	PPP	Public-Private Partnership
IDBI	Industrial Development Bank of India	QCD	Quality, Cost, Delivery
IDF	Indian Development Forum	R&D	Research and Development
IIFCL	India Infrastructure Finance Company Ltd	RBI	Reserve Bank of India
IL&FS	Infrastructure Leasing and Financial Services Limited	SBI	State Bank of India
IPP	Independent Power Producers	SEZ	Special Economic Zone
ISO	International Standards Organization	SIDBI	Small Industries Development Bank of India
IT	Information Technology	SIDCO	Small Industries Development Corporation Ltd.
ITC	Industrial Training Centre	SIDO	Small Industries Development Organization
ITI	Industrial Training Institute	SISI	Small Industries Service Institute
ITPO	India Trade Promotion Organization	SME	Small and Medium-sized Enterprises
JBIC	Japan Bank of International Cooperation	TQC	Total Quality Control
JETRO	Japan External Trade Organization	UNIDO	United Nations Industrial Development Organization
JICA	Japan International Cooperation Agency	USAID	United States Agency for International Development
JIPM	Japan Institute of Plant Maintenance	VA	Volt-Ampere
JNP	Jawaharlal Nehru Port	WTO	World Trade Organization

Summary

India's Industrial Structure

In India, the share of the manufacturing sector in GDP is only 16.1% (2004/05). India's manufacturing sector is burdened with the following issues:

- i) two-tier structure of modern sector and traditional sector;
- ii) inactive foreign direct investment (FDI), which should be an engine for industrialisation;
- iii) generally low-level of product technology and production technology which hamper the international level production;
- iv) underdevelopment of export-oriented industries in spite of high merchandise export ratio;
- v) infrastructure development falling behind the pace of industrialisation;
- vi) inadequate deregulation of business environment; etc.

As the market liberalization advances according to the WTO and bilateral free trade agreements, the domestic industry will face stiffer international competition. Therefore, the international competitiveness should be improved in terms of product development, quality, cost, etc.

Trend of the Manufacturing Sector

With an economic crisis of 1991, the government introduced the drastic economic reform and liberalization called "New Economic Policy" attaching great importance to market mechanism. Since then Indian economy showed a recovery from the economic crisis and accelerated its growth. However, the economic growth rate showed the decreasing tendency when entered the latter half of 90's. This deceleration was due to the following reasons: i) decreased investments; ii) slump in consumer goods demand; iii) restraint fiscal expenditure policy as a result of budget deficit, iv) constraint of infrastructure, etc. India's economy has demonstrated a steady economic recovery since 2003/04. Recent favourable condition of Indian economy is supported by the recovery in agricultural production, domestic demand expansion pulled by private consumption, and expanded production of manufacturing and IT industries.

Corporate sector in India as a whole has kept good business performances, given the country's stable economic growth in recent years. Index of manufacturing, which occupies 79% of total weight of index of industrial production, recorded a 4 consecutive year growth of +2.9%, +6.0%, +7.4% and +9.0%, from 2001 to 2004, respectively. Consequently, even for existing, local companies who supply their goods and services mainly to traditional, domestic market where very high quality standard is not necessarily required, business environment from the macro economic point of view has improved with an expansion of the domestic market.

Trend of the IT Industry

The IT industry has sustained a favourable growth. It is estimated that the share of the IT industry

reaches 4.8% of GDP in 2005/06. In addition to conventional software development services, businesses related to IT-based services and business process outsourcing (ITBS & BPO) have been rapidly expanding in recent years.

The advantages of India's IT industry are i) low cost as a result of low wages, ii) abundant talented human resource, iii) considerable experience in businesses with the US and European companies, iv) fluency in English, the official language of India, v) positive government support policy, vi) high awareness of quality management in leading IT companies.

Trade Trend

India has had constant trade deficit in recent years. However, if export of computer software, which is India's major export and counted as balance of services, is included in balance of trade, the deficit becomes much smaller.

According to the "Foreign Trade Policy 2004-09", the central government sets the objectives of doubling Indian share of global merchandise trade within the next five years, and acting as an effective instrument of economic growth by giving a thrust to employment generation. Major policies to achieve these objectives, the following ten strategies are deregulation, simplification of procedures, reduction and exemption of taxes on input to exporting products, fostering of potential sectors at rural areas, productivity improvement to gain international standard quality, infrastructure development, etc. In addition, there are incentives to exporting companies which are located in the Special Economic Zones.

Since 2000, India has been active in negotiating on economic partnership agreement with various regions and countries of the world, from Asia to South America and Southern Africa. India precedes trade agreements with intentions such as strengthening domestic industries by expanding and diversifying export market, and taking part in the Asian economic block based on "Look East policy."

Investment Trend

Foreign direct investment (FDI) to India has been in a decreasing trend after the peak year of 2000 when FDI of 193,417 million rupees was implemented. However, the FDI figures were 172,665 in 2004 and 192,991 in 2005, showing increases in two consecutive years. The FDI of 2005 recorded the largest amount in the last five years.

Cumulated amount of sector wise FDI from August 1991 to December 2004 shows that FDI in electronics (equipment and software) is the most successful sector to attract investment. Country wise, Mauritius is the largest investor (though mostly "bypass investment" by European or American NRIs), followed by the United States, Netherlands, and Japan.

Indian government adopted policy to protect domestic industries until 1991, by principally prohibiting investment from abroad and imposing compulsory license system for the private sector including

foreigners. However, FDI policy has drastically changed since June 1991, when New Economic Policy was introduced. Under the new policy 34 sectors were opened up to foreign capital where more than half shareholding by foreigners were allowed, and other deregulations in FDI followed, such as automatic approval in more industrial sectors. In February 2002, India converted its FDI approval from "positive list system" where sectors subject to automatic approval are listed, to "negative list system" where sectors not subject to automatic approval are listed, which means FDI in most sectors were basically allowed.

At present 100% foreign investments are automatically approved in many sectors, and all investors had to do is notify Reserve Bank of India after the investment, with no prior approval needed. In recent years, such sectors were deregulated for investment as civil aviation in October 2004 and telecommunication and construction and real estate development in February 2005. In 2006, retail sector, one the most expected sectors, became open to FDI.

The central government offers several fiscal incentives with the purposes of export promotion, investment promotion for infrastructure development, promotion of IT industry, development of backward states, etc. In addition to incentives by the central government, every state government has its own incentive schemes, to promote investment.

Industrial Promotion Policies

It is the Department of Industrial Policy and Promotion that has the main responsibility for making India's national industrial policy. Yet, there are many other ministries which relate to promotion of the manufacturing sub-sectors. In addition, the Ministry of Small Scale Industries and Ministry of Agro and Rural Industries are responsible for promotion of small-scale enterprises and agro & rural industries. As for the IT industry, the Department of Information Technology under the Ministry of Communications & Information Technology is in charge of policy issues. Moreover, such vertical demarcation exists at two horizontal levels; i.e. the national and provincial levels. The 10th Five Year Plan (2002-2007) provides the overall picture of the current industrial policy in India. The Plan aims to attain GDP growth at 8% per annum. As for the manufacturing sector, which is considered as the driving force of the economic development, it aims at 10% growth per annum. The strategies proposed to achieve the targeted growth include the realisation of conducive policy environment, development of world-class infrastructure, optimization of resource allocations, enforcement of efficiency by upgrading technologies, export thrust, and establishment of level playing field, etc.

The Government of India considers it the utmost importance to assist small scale industry as the main absorbing source of the labour force. Although the small-scale industrial policy of India has been traditionally protective, its emphasis is now moving towards strengthening competitiveness.

Financing

The financial system in India is well developed for both direct financing and indirect financing.

Financial demands are matched by appropriate supply of funds due to an increasing domestic savings and inflow of foreign funds. For such specific areas as agriculture, SMEs and infrastructure, policy-oriented specialised financial institutions are operated by the central government and state governments. The whole country is covered by branch networks of various financial institutions.

Financing depends more on foreign capital rather than only from domestic sources. Due to the increasing inflow of foreign capital, the financial market turned into a borrower's market. Therefore, competition among financial institutions is intense and the margin is thin. This tendency does not remain only in a city but is gradually spreading into rural small cities. In addition, commercial banks are increasingly entering into the field of micro finance which used to be the territory of public institutions. Two policy-oriented financial institutions, SIDBI, specialised in SMEs finance, and the NABARD, specialised in agricultural and rural finance, have interest in the cooperation with JICA. They are considered to be potential partners with JICA.

Infrastructure

Insufficient infrastructure is a major constraining factor to promote foreign direct investment in India. One of the major reasons for stagnant Infrastructure development in the country is restraining investment in infrastructure over the last decade to reduce deficit of fiscal balance. It is said that while Indian Government took aggressive action to solve social issues such as poverty alleviation, the government was unvalued on infrastructure development, which is not lead to popularity rating.

Development of infrastructure holds the key to realize stable growth of Indian economy. In other words, in order to materialize target annual growth ratio of 8% and annual foreign direct investment of US\$ 7.5 billion, which were mentioned in the Tenth Five Year Plan (2002-07), biggest barrier is sluggishness in the infrastructure development.

Economic Relationship between Japan and India

Regarding the statistics issued by the Ministry of Finance of Japan, the direct investment in India has rapidly expanded since 1992 in the wake of economic deregulation of the latter, and reached JPY53.2 billion in the FY 1997, when a large scale project of Toyota Motor Corporation was done.

After the peak of FY 1997, Japan's direct investment in India showed downward trend. The FY 2003 investment decreased to seven in number, and JPY9.9 billion in an amount (0.24% in the whole), recoding less than one-fifth of that of the peak. This declining trend is due to the problems, such as delayed liberalisation of domestic market, worsened relation with Pakistan, adverse effects of nuclear tests, complicated and inefficient administrative proceedings, high customs duty and corporate tax, opaque tax system, undeveloped supporting industry, slow pace of infrastructure development, and biased social system which overemphasizes worker protection.

While the export and import amount between Japan and India had shown sluggish growth since the

middle of the 1990s, it shifted upward after bottoming out in the period between FY2001 and FY2002. According to the statistics of the Indian side, the FY2004 exports for Japan totaled US\$1.98 billion, 15.7% increase over the previous year's to rank the tenth (2.5% in the whole) in descending order of amount. On the other hand, the imports from Japan totaled US\$3.01 billion, up 12.7% from the previous year to take the same ranking as that of exports (2.8% in the whole).

The top three commodities exported from India to Japan in the FY2004 in descending order of amount is as follows: i) gems and jewellery (including diamond), ii) marine products (including prawn), and iii) iron ore, all of which are categorised as primary products or labour-intensive light industry products. The ratio combining the three accounts for approximately half (49.5%) of the whole exports from India to Japan. Sharp rises in the exports of iron ore as well as other ores and minerals (excluding iron ore) are connected to an increase in international commodity prices for natural resources caused by a world-wide great demand. In addition to the above primary products and labour-intensive products, there is a steady rise in the exports of industry products or chemical products, including i) drugs, pharmaceuticals and fine chemicals, ii) machinery and instruments, and iii) inorganic/organic/agro chemicals.

On the other hand, top two commodities exported from Japan to India in the FY2004, the first ranked non-electrical machinery and the second ranked electronic goods, dramatically grew, both of which resulted in increases by 20% over the previous year. In the machinery and instruments sector, the export amounts of the following: motors, machine tools, industrial machinery as well as scientific and optical instruments exhibit drastic increases. With expansion of direct investments made by Japanese companies in India, the export amounts of intermediate goods and capital goods from Japan to India are considered to be increasing.

Evaluation of India's Export Competitiveness

Evaluating India's export items with two indicators, share to total exports and export growth rate, the following items are identified as export items which are supposed to enhance its export competitiveness (promising export commodities).

Mineral Products (resource-oriented products), chemical Products (resource-oriented products), plastics and rubber (labour-intensive products), pearls, precious and semi-precious (resource-oriented/labour-intensive products), base metals and articles thereof (labour-intensive products), machinery and mechanical appliances (technology-intensive products), transportation equipment (technology-intensive products)

Although textile products (resource-oriented and labour-intensive products) maintain the international competitiveness, they show a sign of weakening the competitiveness.

Evaluation of Investment Environment of India

Although India has successfully proceeded its economic liberalization and deregulation since introduction of New Economic policy in 1991, there remain a number of issues and problems to be tackled to improve business environment.

In this Study, a questionnaire survey was conducted, asking 491 companies operating in India for evaluations on business environment of the country. The result shows that more than 20% of the responding companies see the issues "Labour laws", "Tax regime", "Administrative procedures at the central level", "Administrative procedures at the state level", "Real estate prices", "Electric power supply", "Transport system/network" as either very bad or bad. Especially, more than 10% of the respondents rate "Labour laws" as very bad, together with evaluation as bad, making negative evaluation of the issue amounting to 37%. On the other hand issues such as "economic conditions", "cost of labour", "availability of skilled human resources", "availability of funds" and "telecommunication system" are favourably evaluated, all of which are rated as very good or good by more than 50% of the responding companies.

Evaluation of India's Industrial Competitiveness

The problem of India's Industrial Competitiveness is a dual industrial structure which consists of a limited number of internationally competitive enterprises and a great number of small and medium enterprises. Most of enterprises do not possess international competitiveness. Therefore, it is imperative for India to upgrade competitiveness of companies that are positioned at the bottom and medium level of a pyramid shape of the industrial structure.

According to the questionnaire survey conducted in this Study, many companies responded that inferior price competitiveness, lower technology, poorer quality, and poorer facilities are major obstacles for their business expansion even at the Indian domestic market that is seen as having comparatively lower product specification level demanded by customers. This shows a tendency that Indian companies themselves view their competitiveness very skeptical and to be improved, given increasingly competitive business environment.

Direction of India's Industrialisation

Following China, India is the second largest economy in the Asian developing countries. India has great potential in view of recent well-sustained economic growth and growing labour power. However, Indian economy's significant potential is far from being fully tapped. Global evaluation toward India's competitiveness remained low compared with its scale of economy. The ratio of the manufacturing sector to GDP in India is a relatively low of 17% (2003/04). In the manufacturing sector, large and medium enterprises comprise approximately 60% of total output, although they are a small portion in number of enterprises. The major reasons for low industrialisation rate are i) a demand growth is constrained by limited purchasing power in the rural area, ii) the unorganized sector has a high proportion of the manufacturing sector in number, iii) the international competitiveness is

comparatively low except some industries, iv) rich resources are not fully utilised by such industries and food processing, material production, and so on; etc.

The strengthening of industrial competitiveness is a key to raise the role of manufacturing sector in India's economy. Higher competitiveness realizes the market expansion at the domestic and overseas markets, and this leads to larger employment enlargement and higher income. An industrial competitiveness is associated with individual enterprises' issues and government's policy issues. Individual enterprises' issues for competitiveness are corporate strategy, technology, production and management, financing, etc. Government's issues are a competition policy, level of market mechanism, infrastructure development, industrial linkage, etc. Therefore, competitiveness improvement requires comprehensive measures.

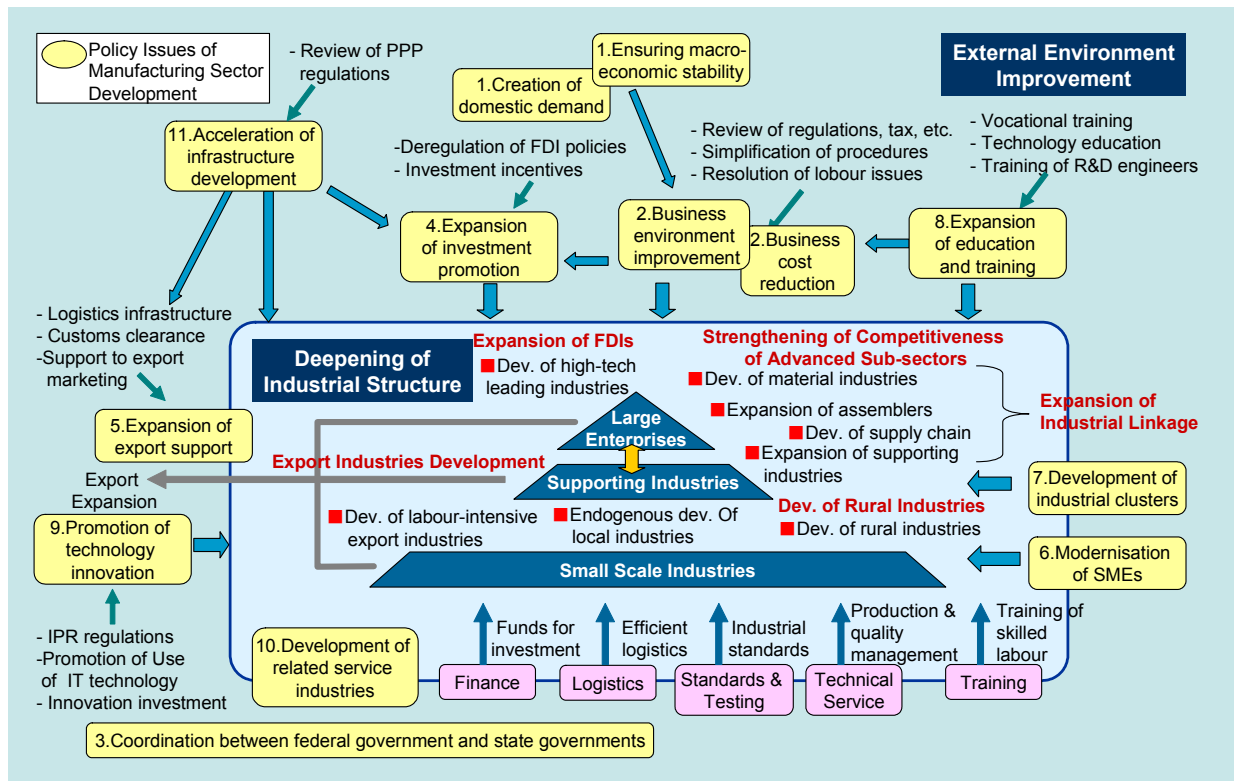
Considering various respects such as the manufacturing sector's problems and advantages, Indian government's industrialisation policies, and recommendations by the National Manufacturing Competitiveness Council, the following scenario can be drawn out as a direction of India's manufacturing sector.

The deepening of industrial structure will be achieved through the expansion of export-oriented industries, endogenous development of local industries and promotion of rural industries, which are to be promoted in three ways: i) to promote advanced manufacturing sectors and its exports through technical innovation and expansion of FDI's, improve competitiveness; ii) to strengthen the industrial linkage by expanding materials industries, assembling industries, and supporting industries, and iii) to bottom up SMEs in order to promote labour-intensive export-oriented industries, realize endogenous development of rural industries, and develop rural industries.

To facilitate this industrial deepening process, major policy issues to be taken by the government can be summarised into the following five groups.

- | | |
|--|---|
| I. Promotion of economic reform: | 1. Ensuring macro-economic stability and creation of domestic demand |
| | 2. Business environment improvement and business cost reduction by reviewing existing systems |
| | 3. Coordination between federal government and state governments |
| II. Investment and export promotion: | 4. Expansion of investment promotion |
| | 5. Expansion of export support |
| III. Local industry development: | 6. Modernisation of SMEs |
| | 7. Development of industrial clusters |
| IV. Strengthening of industrial base: | 8. Expansion of education and training |
| | 9. Promotion of technology innovation |
| | 10. Development of related service industries |
| V. Industrial infrastructure development | 11. Acceleration of infrastructure development |

Fig. 1 Development Scenario of India's Manufacturing Sector and Relevant Policy Issues



Source: JICA Study Team

India's Economic Growth Compared to East Asia

According to "Country Assistance Program for India" established in May 2006, the important target of India ODA are three points; 1) promotion of economic growth, 2) improvement of poverty and environment issues, and 3) enhancement of human resources development and expansion of exchange. In "promotion of economic growth", emphasis is put on the electric power and the transportation sector which is the bottleneck of the economic growth of India. Specifically, support for 1) electric power sector, 2) transportation sector, and 3) increase of the value-added through infrastructure development assistance is emphasized. Following this plan, improving infrastructure in power and transport sector is the priority issue in terms of private sector development. In fact, when seeing the evaluation of investment climate by investors, it is actually certain that infrastructure development is the biggest subject on private sector development.

In the process of the economic development in East Asian countries, Japan's ODA to these countries created a chain of i) infrastructure development and education and training of competent personnel resources to support it in East Asia through yen loans, ii) increase of private direct investment to the area due to this, and iii) enhanced economic status and living conditions of people living there. This can be called as 'Japan ODA Model'.

When the application of this "Japan ODA model" to India is considered, there are several respects to

be examined. These are a recent change in infrastructure finance methods, a change in economic development situation in Asia, and the characteristics of India's economic structure.

The privatization proceeds in India in the areas of port management and airport management. The participation of private sector is promoted for railway transport. The infrastructure development on a public-private partnership (PPP) basis has tended to increase globally. Individual government seeks a strategic way of financing infrastructure development projects with the combination of ODA funds and private funds.

Rapid economic growth in the advanced ASEAN countries was, in a large portion, pulled by the development of export-oriented industries as result of foreign investment promotion. In this process, Japan's ODA is considered to have contributed to promoting FDIs, including from Japan, to a recipient country. However, due to the concentration of foreign investments to China, the flying-geese pattern of foreign investments to the developing Asian countries has lost its shape. Least-developed ASEAN countries have developed infrastructure and export processing zones. In some cases, they utilise ODA funds for these projects. However, the FDI inflow to these countries has been not outstanding compared with the past experience in the East Asian countries. Although the coastal areas in China have shown a rapid development supported by a huge size of FDIs, its spillover effects to the inland of China is limited.

When compared with the Southeast Asian countries, India comparatively has more similarities with China than East Asian countries in terms of economic structure at the start of liberalization. They are: i) they had a big domestic market with huge population; ii) they had accumulated a certain level of technology base due to a full-set type industrial structure developed under the socialism system; iii) as a result, there existed certain level of leading local companies although most of them were state-owned enterprises; etc. In China such labour-intensive export-oriented industries as electronics, textile, etc. rapidly developed at the coastal areas in the 1990's. However, it is different in India. In the case of China, foreign enterprises from Japan, Taiwan, Korea, etc. made intensive investments by focusing China as a key export base. Meanwhile, foreign investments aiming the establishment of an exporting base are, so far, limited in India. Although there exist some export industries such as textiles, machinery, pharmaceutical, etc. in India, they have not yet grown to be driving force to economic growth as experienced in East Asia.

Trend of ODA to India

Despite India's dramatic economic growth throughout the 1990s, one-third of its population still suffers from poverty. To achieve Millennium Development Goals (MDGs) notably reducing the world's poor to half by 2015, international donor community is under pressure to expand its assistance to India.

Total aid flow into India in 2003/04 was approximately US\$3.8 billion, the 27.6% of which was from

Japan. After the World Bank, which composed 38.0%, Japan ranked second followed by the Asian Development Bank, 19.3%. These three dominate over 85% of the total, which results in high share of loan as compared to grant.

Many international donor agencies have applied 'priority state approach' from the early stage. The criteria of the state selection were not only poor states with desperate needs but also the existence of good governance especially its willingness to reform. However, as raised in India's 10th five-year plan, the widening gap within Indian society has regarded as more important than ever. Since 2000, donors have been expanding its support area to allocate their resources towards desperate states.

Recommendations on Japan's Technical Cooperation to India

When the way of Japan's technical cooperation to India's private sector is considered, the following respects should be considered:

Firstly, as indicated in "Country Assistance Program for India" of Japan's Ministry of Foreign Affairs, what India's government has large expectations for Japan is the development of private-based economic relationships through direct investments, trades and technology transfers. Thus, one of the roles that should be played by Japan's ODA is "to create a trend in which ODA promotes private sector economic relations". From this perspective, other than infrastructure improvement there are various fields to promote private investment, trade, and technology transfer. Upgrading technology level / standard of India's manufacturing sector is one possible area of cooperation.

The second respect is the spillover effects of the private sector development on socio-economic development issues. Poverty reduction is one of major key issues in India, where the poor of large population exists, and the income gap has tended to expand with the progress of economic development. In the 10th Five Year Plan the income increase by maintaining a high economic growth rate is aimed. At the same time, it highlights other key issues as the agricultural development, employment generation, social welfare improvement, long-term sustainability compatible with environment, and establishment of social justice. In planning Japan's technical cooperation to private sector development, a factor of disparity reduction through employment generation and income growth in rural areas should be considered even though a large consideration is given to potential contribution to trades and investment with Japan.

The third respect is how to establish an effective implementation system for technical cooperation in the vast country like India. Especially, the use of private sector including trade associations and the role of government in the process of private sector development should be examined.

India's government has been given more emphasis on the role of private sector in the economic development. Areas where the government should be actively involved are considered social development, rural infrastructure development with little expectations for private investments, etc. In

the private sector development, the government is expected to play as a facilitator which draws out the vigor of the private sector by preparing adequate market environment, establishing market system, and developing human resource. In India there established many trade associations are established and they are operating in various areas. These associations provide member companies with relevant information, technical guidance, and other services. A close collaboration with these associations can result in effective implementation of technical cooperation.

The fourth respect is the use of high-level IT technologies of India. One of possible cooperation is to advance a Japan-India cooperation in the area of IT in order to promote mutual development of both countries' IT industry. In addition, there is a possibility that Japan can seek for India's cooperation when Japan provides technical cooperation in the IT area to develop ping countries. To develop mutually complementary relationship among JICA, JBIC, JETRO, JODC, and AOTS is expected to raise effectiveness of assistance for private sector development.

Sixthly, India holds a great number of excellent bureaucrats and engineers within the country. With a high level of ownership, India's central government's needs for a policy-recommendation type of technical cooperation is considered to be small.

Potential Areas of Japan's Technical Cooperation for Private Sector Development

Considering the characteristics of India's private sector, Indian government's attitudes toward receiving technical cooperation and Japan's experience of private sector development in other countries, priority areas of Japan's technical cooperation can be largely divided into four areas. They are: i) technical cooperation concerning trade and investment promotion; ii) technical cooperation concerning local industries development; iii) technical cooperation concerning industrial base strengthening; and iv) technical cooperation concerning infrastructure development.

These are due to the following reasons:

- i) Indian government has great expectations for the growth of investments from Japan and exports to Japan. However, a need for policy-level cooperation in trade and investment is considered to be small. In India trade and investment promotion activities both at the central government level and local government level is not active compared with ASEAN countries and China. Technical cooperation to trade and investment promotion by dispatching experts, collaboration with JETRO, etc. will contribute the progress of economic relationship between Japan and India.
- ii) SMEs development is one of key issues which India's government put emphasis. On the other hand, Japan has plentiful experience of technical cooperation and know-hows in SMEs development in many developing countries. Applicable approaches are the supporting industry development with an eye to industrial linkage with Japanese companies, promotion of local export industries, SMEs development targeting employment creation and income growth in rural areas, etc. Meanwhile, as for competitiveness improvement of large scale companies and public

sector enterprises, individual company is supposed to tackle with various incentives and government supports.

- iii) There widely exist the needs for improving workers' quality and upgrading technology level. Government's programmes for education and training and skill acquisition are insufficient. Education and training programmes contribute to employment generation. Japan's technical cooperation can contribute to this area because Japan has similar experiences in other countries.
- iv) India's government puts emphasis on PPP as for infrastructure development. There exists a need for technical cooperation for Yen-loan project formation, but a need for feasibility-study-type development studies. Meanwhile, there is a possibility of technical cooperation for logistics system improvement, infrastructure facility management, energy-saving technologies, etc.

For the promotion of economic reform centered around deregulation, it is considered to be an issue which the Japanese government should address at bilateral and multilateral consultations such as EPA discussions.

Based upon the above-mentioned considerations, possible areas of Japan's technical cooperation to India's private sector development were examined in this Study. Table 1 listed the proposed technical cooperation projects by sub-categorising them into four categories, i.e., i) technical cooperation concerning trade and investment promotion, ii) technical cooperation concerning local industries development, iii) technical cooperation concerning industrial base strengthening, and iv) technical cooperation concerning infrastructure development. This table shows the Table 2 shows the priority evaluation of individual projects from the viewpoints of a degree of maturity at India's side, implementation easiness at Japan's side, importance and urgency of issue, and whether being middle and long-term issue or not.

Table 2 shows the relationship between the proposed technical cooperation projects, policy issues of India's manufacturing sector development, and priority objectives indicated in Japan's "Country Assistance Program for India."

Table1 Examination of Priority of Proposed Technical Cooperation Projects

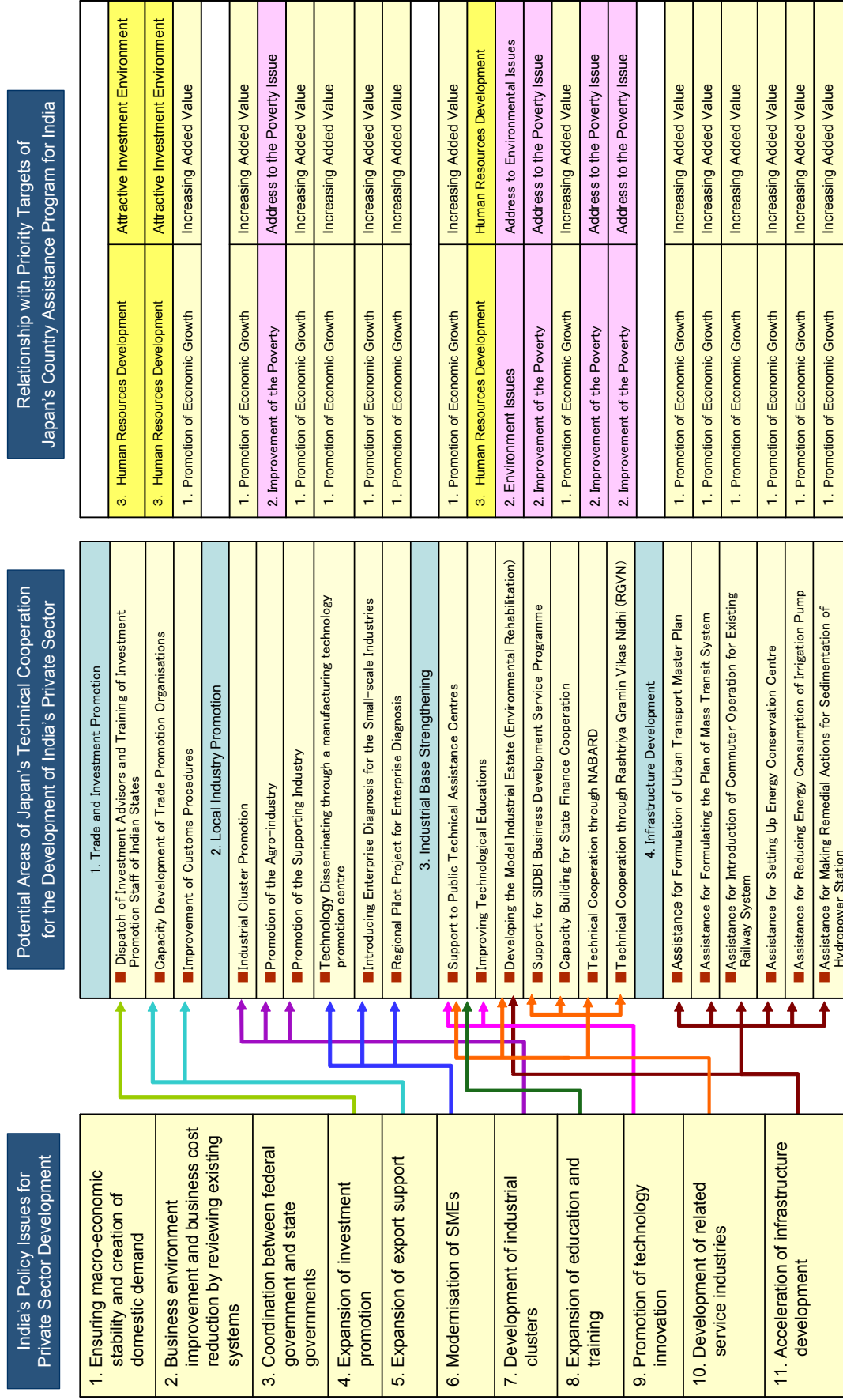
	Degree of Priority	Evaluation Factor				
		Maturity on India side	Easiness of implementation on Japan side	Importance of the issue	Urgency	Mid-to-long term
1. Trade and Investment Promotion						
■ Dispatch of Investment Advisors and Training of Investment Promotion Staff of Indian States	Medium		○			
■ Capacity Development of Trade Promotion Organisations	Medium			○		○
■ Improvement of Customs Procedures	Medium		○			

■ Dispatch of Investment Advisors and Training of Investment Promotion Staff of Indian States	Low			○	○	
2. Local Industry Promotion						
■ Industrial Cluster Promotion	High	○	○	○		○
■ Promotion of the Agro-industry	Low			○		○
■ Promotion of the Supporting Industry	Medium		○	○		○
■ Technology Disseminating through a manufacturing technology promotion centre	High		○	○		○
■ Introducing Enterprise Diagnosis for the Small-scale Industries	Medium		○			○
■ Regional Pilot Project for Enterprise Diagnosis	Medium		○			
3. Industrial Base Strengthening						
■ Support to Public Technical Assistance Centres	High	○	○	○		○
■ Improving Technological Educations	Low					○
■ Developing the Model Industrial Estate (Environmental Rehabilitation)	Medium	○			○	
■ Support for SIDBI Business Development Service Programme	High	○	○		○	
■ Capacity Building for State Finance Cooperation	Low			○	○	
■ Technical Cooperation through NABARD	High	○	○		○	
■ Technical Cooperation through Rashtriya Gramin Vikas Nidhi (RGVN)	Medium	○			○	
4. Infrastructure Development						
■ Assistance for Formulation of Urban Transport Master Plan	Middle		○	○		○
■ Assistance for Formulating the Plan of Mass Transit System	Middle		○			○
■ Assistance for Introduction of Commuter Operation for Existing Railway System	Low		○			
■ Assistance for Setting Up Energy Conservation Centre	High	○	○		○	
■ Assistance for Reducing Energy Consumption of Irrigation Pump	Medium			○	○	
■ Assistance for Making Remedial Actions for Sedimentation of Hydropower Station	Low	○	○		○	

Note: The mark “○” denotes that a relevant project fits a factor.

Source: JICA study team

Fig. 2 Potential Technical Cooperation Projects for India's Private Sector Development



Source: JICA study team

Appendix

Identified Needs for Technical Cooperation

for India's Private Sector Development

Appendix: Identified Needs for Technical Cooperation for India's Private Sector Development

1. Recommendations on Technical Cooperation in Trade and Investment Promotion

(1) Needs for Technical Cooperation

Regarding trade and investment promotion, there are many problems in legal and procedural matters from the viewpoint of investors, as mentioned in Chapter 11. The Indian government has pushed forward deregulation in trade and investment, but there still remain fields where deregulation is not sufficient from eyes of investors. However, concerned issues, such as labour problems, tax regime and investment policy, include many problems that should be treated through administrative and legislative bodies after having discussed trade policy of the country, influence on national economy, and fundamental social policy. Therefore, when tackling these problems, it is necessary to take into consideration the economic and social circumstances of India as well as coordination of opinion among parties interested.

In addition, there are also problems in trade and investment promotion that are appropriate to approach through bilateral discussion between Japan and India, or discussions through international organizations such as WTO and ICO. Reinforcement of global partnership between Japan and India was agreed at the summit meeting of the both countries of April, 2005. It is possible to solve problems through discussions for the India - Japan Economic Partnership Agreement.

Considering what was mentioned above, there are two types of technical cooperation in trade and investment; i) direct cooperation to trade and investment promotion activities by the government ("capacity building for trade promotion" and "capacity building for investment promotion") and ii) indirect cooperation through improvement of trade and investment environment ("strengthening responsive capacity for promoting trade and investment within the international framework").

About technical cooperation for trade and investment promotion activity, there exist needs for technical cooperation to the organizations which are engaged in promotional activities. For example, cooperation is needed in such activities as presentation of investment climate of India to Japanese missions visiting India to study possibility of future business, or provision of information on India to potential Japanese investors.

It seems that there are more needs for technical cooperation in state governments than in the central government, if compared. Each state is in a condition to compete for attracting investment from foreign countries and expectation for FDI from Japan is rather high. It is quite possible that those states which are strategically planning investment promotion from Japan would be positive in accepting technical cooperation aimed for investment promotion. Other possibility is to identify those states whose system of FDI promotion is not properly functioning, providing insufficient services to investors. These states may have more potential to accept technical cooperation.

As for the second type of technical cooperation, needs for indirect cooperation, or assistance for

improvement of investment environment, are great. There are big needs for cooperation in improvement of infrastructure which is a big bottleneck of Indian business environment, strengthening of supporting industries, and strengthening of an export companies. These themes are examined in the sections of “local industries development”, “industrial base development”, and “infrastructure development”.

On the other hand, needs for technical cooperation for policy support, are extremely small at organizations in charge of national trade and investment policy at the central level. Because ownership of the Indian government is very high, planning divisions of central government agencies (e.g. trade -related divisions of the Ministry of Trade and Industry) would have little needs for any assistance from foreign experts in planning and implementing policy measures.

(2) Recommended Subjects for Technical Cooperation

Dispatch of Investment Advisors and Training of Investment Promotion Staff of Indian States

Background

For Japanese companies planning investment in India, especially SMEs, it is essential to obtain correct and detailed information on Indian investment environment, such as investment incentives, condition of industrial estates, and administrative procedures to be required. Consultation service to investors in the process of decision making is also one of important factors for implementation of investment.

The Indian central and state governments should not only provide Japanese companies with information and services in attracting their investment, but also perform more positive promotional activities, while studying characteristics of behaviours of Japanese companies and Indian business environment that Japanese companies would face.

This activity is relevant to the sub-targets of mid-term objectives of the field of trade and investment promotion "Development of information and services on investment climate" and "Promotion of mutual exchanges of investment", contributing to the development objective "Capacity building for foreign direct investment promotion".

Assumed Content of Technical Cooperation

1) Training of staff of state governments who are in charge of investment promotion

After identifying appropriate Indian states which are actively promoting investment from Japan, their staff in charge of investment promotion are invited to Japan for training on understanding situation and business practice of Japan.

If requested, Japanese long term experts will be dispatched to relevant states as investment advisors for the purpose of promoting Japanese investments.

2) Dispatch of an investment advisor to Ministry of Commerce and Industry of the central government

A Japanese investment promotion advisor is sent to the Japan Cell of Ministry of Commerce and Industry, the central government. It is possible to send an advisor to business associations such as FICCI and CCI, as there were examples in the past, in the case that it is difficult for the central government to accept a foreign advisor.

Possible Counterpart Organization

Trade and industry-related departments of state governments, Trade and industry-related departments of central government, FICCI, CCI

Possible Type of Technical Cooperation

Dispatch of expert

Capacity Development of Trade Promotion Organisations

Background

India Trade Promotion Organisation (ITPO) is an organisation established under the purview of Ministry of Commerce and Industry for the purpose of promoting Indian export. The ITPO's activities include holding of a trade exhibitions, provision of information to local exporters, and dispatch of export missions to abroad, of which main activity is the operation of exhibition centre.

It is expected that expansion of activities by public organizations to promote trade including ITPO and various sectoral export councils, such as identifying new export products and providing correct information and consultation on Japanese market, e.g. standards required by Japanese, will contribute to an increase of Indian export to Japan.

This activity is relevant to respond to the sub-targets of mid-term objectives of the field of trade and investment promotion "Human resources development", "Information provision on overseas trade-related procedures and domestic procedures and preferential measures" and "Overseas market development", contributing to the development objectives "Strengthening responsive capacity for promoting trade and investment within the international framework and "Capacity building for trade promotion".

Assumed Content of Technical Cooperation

Technical cooperation is desired to strengthen institutional capacity of Indian trade investment organizations such as ITPO and Export Councils.

Technical cooperation project or dispatch of experts is suitable as modality of cooperation. Activities at the counterpart organization will aim at i) improvement of capability of market research, ii) expansion of information services, iii) improvement of ability to provide guidance to exporters, and iv) improvement of ability to identify new export products. In the technical cooperation, export promotion to Japan, including marketing for Japanese market, should be emphasized.

However, it should be noted that business association in the private sector like FIEO, FICCI, CII, and ASSOCHAM also widely perform activities such as export-related seminars and training for SMEs, dispatch/acceptance of trade and investment missions. It is necessary to examine the most suitable counterpart from the viewpoint of effect and efficiency. The FIEO (Federation of Indian Export Organisations), an apex agency of export promotion organizations of various industries, extensively carries out activities for export promotion.

Possible Counterpart Organization

ITPO, FIEO, FICCI, CII, ASSOCHAM, etc.

Possible Type of Technical Cooperation

Dispatch of expert, technical cooperation project

Improvement of Customs Procedures

Background

Many foreign investors, including Japanese, complain about Indian customs system/procedures. It is pointed out that customs clearance takes long time, various customs procedures are complicated, and distribution infrastructure maintenance is insufficient

There are several routes of smoothen trade procedures: bilateral talk, regional discussion, consultation through international organizations such as WTO and WCO. However, it is possible that within the framework of the existing trade procedure rules, acceleration of procedures can be achieved by realizing modernization of port procedures, quarantine procedures, standard certification procedures, and customs procedures.

This activity is relevant to respond to the sub-target of mid-term objectives of the field of trade and investment promotion "Simplification and appropriate enforcement of trade-related procedures", contributing to the development objective "Capacity building for trade promotion".

Assumed Content of Technical Cooperation

Environment for international trade, including customs procedures, should be improved through

implementation of analysis of trade procedural systems, development and guidance of system improvement, training of administrative personnel on trade procedures. For modality of cooperation, any one method or combination of methods among development study, technical cooperation project and dispatch of experts are, is to be adopted by examining validity of each method of cooperation. Further, in some cases technical cooperation could be combined with grant of equipment and facility.

In an attempt to improve efficiency and transparency of customs clearance system, attentions should be paid to i) institutional problems arising from legal systems and related organizations, ii) an agreement with trade union of port workers, iii) the possibility of political resistance from interested parties, etc. According to the document of Ministry of Economy, Trade and Industry of Japan, although Japan's technical cooperation project to improve trade procedures in Indonesia is underway, the difficulty of institutional building is delaying the process of the project despite the fact that there are huge needs for one stop service in customs clearance procedures¹.

It is essential to study the customs clearance system of India and identify the problems at the stage of project formulation.

Possible Counterpart Organization

The Ministry of Finance, state governments

Possible Type of Technical Cooperation

Development study, technical cooperation project, dispatch of expert

2 Recommendation on Technical Cooperation in Local Industry Promotion

(1) Needs for the technical cooperation

Followings explain the needs for the technical cooperation in reflection to the current status of the manufacturing sector and issues faced by the individual manufacturers including those by the small-scale industry.

Current status and issues relating to the internal environment of enterprises

Variances in competitiveness of the local enterprises are anticipated to be widened due to entry of the foreign companies and imported products in the markets and establishment of venture businesses. Namely, there are i. FDI companies, ii. local enterprise which have direct channels with the FDI companies, iii. a

¹ Ministry of Economy, Trade and Industry, Japan, "Basic Policy for Technical Cooperation in Economy and Industry, FY2006", April 2006.

portion of the local enterprises targeting at the foreign markets especially in IT, ITES and bio and iv. traditional local enterprises targeting at the local markets. There is a flock of companies which are strengthening their competitiveness in terms of management, technology and capital while there is the other flock of companies losing relative competitiveness. Such diversification in internal competitiveness of enterprises is suspected to become clearer.

Strengthening of Industrial Linkage

As for the automotive and electronics sub-sectors, FDI companies demand high quality and technology standards towards the local suppliers for their products and services and sometimes provide direct supervision and trainings. Through the process, the spilling over in the management and production technologies is expected to influence upgrading internal competitiveness among the local suppliers. Yet, such spill over effect is probably limited to a small portion of the local enterprises while majority of others shall remain devoid of their internal competitiveness.

Therefore, the following development needs can be observed.

India is considered to have bases for forming a "full-set type" industrial structure because she is equipped with fundamental factors such as large market, available resources and abundant human resource. On the other hand, India needs to reinforce the supply chain throughout up to down stream for her further strengthening of industrial competitiveness. Specifically, the small scale industry with its low competitiveness has development needs in the area of supporting industries, strengthening industrial linkages and acquisition of R&D.

Management and Technology Innovation of Small Scale Enterprises

Many small-scale enterprises are yet to have peculiar interests in upgrading management and technology skills because of their high rate of operation and profit, which are benefited by the buoyant economy and growth of the domestic markets. On the other hand, there are some small-scale enterprises which are willing to innovate in their management and technology in various ways in order to cope with the external changes affected by opening and globalization of the markets.

Therefore, the following development needs can be observed.

Available management and technology information and training opportunities are too small to cope with changes affected by the global economy. Opportunities for improving awareness in management and technology are even more limited to the small-scale enterprises because their number is so great and their locations are scattered in the vast area. There are development needs for raising awareness and disseminating management and technology upgrade in addition to the improvement in specific production techniques.

Current status and issues relating to the external environment of enterprises**Small Scale Enterprises**

Although it is generally regarded that investment climate in India is not at optimum level, the Japanese firms interviewed in this study do not see major obstacles to investment motivation. This may be due to the fact that India has "full-set" type industrial structure and that the policies and institutions are readily available and are being implemented in support of such industrial structure.

As for small scale industry development, government's basic policy has had a characteristic of relief of the weak, in other words, to protect small scale enterprises from the competition. Indian government has not introduced a policy of improving internal competitiveness of small scale enterprises based on the principle of market mechanism. In addition, there are various organisations in charge of industrial promotion and support at the central government level and state government level. They are managed in vertically-segmented administrative system.

The departments for industry and small scale industries of the state governments have established institutions assisting hard and soft infrastructure for industrial development based on the market principle such as State Industrial Development Corporation and Small Industries Development Corporation. In such institutions, the top civil servants called "IAS" implement top-down policies based on the market principle.

Considering the above, there is development needs concerning small scale enterprise policies as follows:

Although the needs for developing the overall policy and technology transfer for promoting the industry and the small-scale industries may not be high, information delivery and strengthening the policies and institutions targeting at upgrading internal competitiveness of the small-scale industries is considered potentially high.

In addition, there are potential needs of organizational and civil service reforms in order to attain an efficient industrial promotion. However, considering the historical, social, and political background of India, such institutional reforms are probably difficult to receive a request for assistance from the government.

Use of Private Industrial Organisations such as Trade Associations

Reflecting historical socialism and closed economy, India has a vast number of industrial associations, which are devoting specific sub-sectors, areas or specific company scale. Many of the industrial associations have been in operation for a long time. Yet, they are active not only in lobbying and protecting the interests of the members but also in exchanging information and upgrading the businesses of the members. Some of the industrial associations require information on new technology and global markets as well as technology transfer and investment promotion. In addition, these industrial associations closely communicate with the relevant departments in the central and the state governments and cooperate in some operations.

Accordingly, the use of private industrial organizations should be examined as follows.

It is considered effective to assist the individual enterprises through the industrial associations by delivering information, building institutional capacity and developing human resource. It is probably plausible to set an implementation frame of assistance with having the government institution as a counterpart while involving the industrial associations and member enterprises.

(2) Assumed technical cooperation schemes

The followings are recommended for technical cooperation schemes that are demanded and are also executable in the area of local industry promotion based on the analysis of the business trend. The following fields are also considered that the technical cooperation of Japan works effectively.

Industrial Cluster Promotion

Background

According to the survey by UNIDO in 1996, India has approx. 400 industrial clusters. The sub-sectors of the cluster are varied from handicraft to automotive parts.

The government of India is shifting its emphasis on assistance from the individual enterprises to the cluster. The cluster promotion policies are implemented by the central government including Ministry of Commerce and Industry, Ministry of Small Scale Industries and the state governments. "The National Strategy for Manufacturing" drafted by the National Manufacturing Competitiveness Council under the Ministry of Commerce and Industry also takes importance on the cluster development for promoting the small-scale industries. International organisations such as UNIDO and ADB support the cluster development of India. Nonetheless, the needs of technical cooperation are great because the number of the targeted clusters is large.

The cluster development policy symbolises a change from the conservative, protective policy for the small-scale industries. The cluster development attempts to intensify synergetic effect through promoting interaction among the companies operating in the same sub-sector and those with the supporting and related industries. The supporting institutions share understanding that the industrial cluster development is a measure for the local industrial promotion. Thus, the technical cooperation for the cluster development can easily receive understanding from the counterparts.

In the cluster development, the government agencies such as SISI and the industrial associations play the role of the cluster agent, or the cluster facilitator. The cluster agent functions as a mediator to promote the cooperation among the cluster enterprises and those with the stakeholders in order to solve problems associated with the cluster development. Moreover, business development service (BDS) providers give the cluster enterprises various supports including the technical guidance.

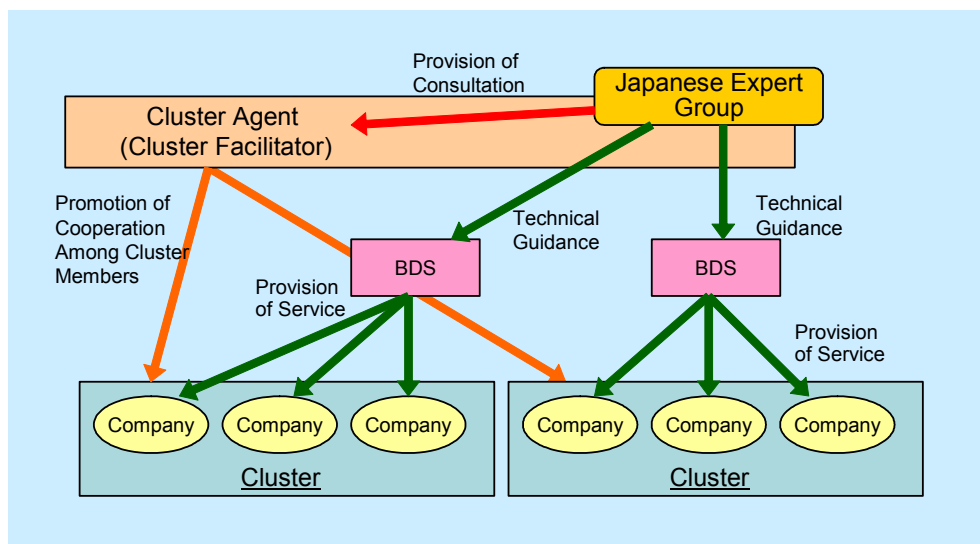
Possible Content of Cooperation

A target area, either a state or a region spread over several states, shall be selected for assistance. Then assistance is extended to the priority clusters in the selected area.

The industrial cluster assistance is executed in the following steps:

- i. The cluster agent specifies the technical fields that are necessary for solving problems that a cluster has through a thorough discussion with the cluster enterprises.
- ii. Based on the recommendations of the cluster agent, the government of India requests for dispatching the Japanese experts who can offer the identified technical assistance.
- iii. The counterpart shall be the public agencies or the industrial associations which take role of the cluster agent. In case that the Japanese experts assist multiple clusters, a governmental agency, which is an upper organisation of the cluster agent such as a state government shall be the counterpart. The latter formation enables to widen the beneficiaries of the technical cooperation.
- iv. The Japanese expert shall cooperate with the cluster agent in assisting the growth of the cluster. Its assistance is geared toward capacity building of the BDS providers and strengthening linkages with the stakeholders in the area.

Conceptual Formation of the Cluster Development Cooperation



Source: JICA Study Team

JICA has executed "Strengthening Capacity of SME Clusters in Indonesia" (2001-2004) and "The Study on Development of Consulting Services to Promote SME Cluster and Regional Development in the Kingdom of Thailand" (2004-2005). In these studies, the study team identified the development issues of the clusters in the early phase. However, the cluster agents in India are considered to be equipped of the capacity in identifying the development issues of the cluster. Thus, it is assumed that

the development issues of the clusters are identified by the cluster agents before the initiation of the technical cooperation.

The development issues in a cluster are usually varied, and they change the nature as the cluster develops. Consequently, it may be necessary to dispatch several Japanese experts in order to respond to various technical issues. The Japanese experts are not necessary to stay in the field in a long term. It can be more effective for the Japanese experts to provide technological assistance in a short term and to go back to the field to confirm implementation status after a few months.

In selecting the clusters for assistance, it is necessary to confirm that the required assistance is relevant to the technological components and marketing know-how that Japan has comparative advantages in.

Possible Counterpart Organisation

The ministries in the central government (ex. Ministry of Commerce and Industry, Ministry of Heavy Industry & Public Enterprises, Ministry of Food Processing Industries and Ministry of Small Scale Industries) or the state governments

Possible Type of Technical Cooperation

Dispatching of experts, technical cooperation project

Promotion of the Agro-industry

Background

It is said that the processing rate of the domestic agro-products is minimum in India. In contrast, the disposal rate of the agro-products is said to be large because of the fluctuation of the market prices, lack of the storage places and underdevelopment of the distribution system. Promotion of agro-industry is also considered important for rectifying the regional income gap through increasing the income of the farmers.

Assumed Context of Assistance

The technical cooperation of the agro-industry is recommended to be executed. The overall goal is set at rectifying the regional gap through the promotion of agro-industry and generating the income of the villages.

The target beneficiary is the agro-industrial cluster in a wide region. The technical assistance is geared towards solving the bottlenecks of the supply-chain spread over the agro-industrial cluster.

Dispatch of the Japanese experts is assumed. The Japanese experts need to cover the skills both in

making the overall planning and in transferring specific technological components. Consequently, it is probably appropriate to dispatch a multiple number of Japanese experts.

Assistant components include i) promoting joint actions through institutionalising villagers; ii) stabilising supply of raw material from established village institutions; iii) facilitating investment through lending from the financial sector; iv) developing physical distribution system including the cold chain and v) marketing assistance.

The supported state should be selected on the basis of having stable supply of agro-products; yet the low processing rate. Moreover the state should have strong willingness for development of agro-industry. Among the states visited during this study, Karnataka State and Tamil Nadu State are implementing the agro-industry promotion policies: the former plans to develop the physical distribution system while the latter provides subsidies with the agro-processing enterprises for their investment.

Possible Counterpart Organisation

Ministry of Food Processing Industries, Ministry of Agro and Rural Industries, Ministry of Small Scale Industries or the state governments

Possible Type of Technical Cooperation

Dispatch of expert, technical cooperation project

Promotion of the Supporting Industry

Background

The supporting industry indicates the suppliers of certain sub-sectors such as automotive and electric industries. The growth of the supporting industries is an important agenda for strengthening industrial competitiveness in India. JETRO and AOTS already provide technical cooperation for developing the supporting industries. On the other hand, JICA has ample experiences in assisting the supporting industries through studies and projects.

The automotive and motor vehicle sub-sectors in India are expanding their production volume in response to the rapid expansion of the domestic demand. The foreign suppliers are increasing their investment, following investment by their assemblers from Japan, Korea, Europe and USA in the 90s. It is expected that India shall increase her role in the supply chain of the car components within Asia. The assemblers and the Automotive Component Manufacturers Association of India (ACMA) cooperate in upgrading the skills of the suppliers targeting at acquiring the global standard. As for the electronics industry, there is a high competition among the large-scale domestic, European, American

and Korean assemblers. Yet, the supporting industry of the electronic industry is yet to be fully developed. In general, skills in supplying various materials starting from formed and fabricated materials to electron components need to be upgraded. Therefore, promotion of the supporting industry is an important issue for strengthening industrial competitiveness of India.

Assumed Context of Technical Cooperation

The range of possible technical cooperation for the supporting industry is wide. For example;

- upgrading skills in specific technological components such as those associated with formed and fabricated materials;
- subcontracting arrangement between the assemblers and the suppliers;
- improving business environment to increase investment from the foreign suppliers;
- capacity building of R&D institutions;
- human resource development of engineers and skilled workers and
- transferring processing techniques and production management techniques.

Prior to the commencement of the technical cooperation, it is important to clarify the exact fields of the technical cooperation. As a precondition, it is necessary to identify a group of the beneficiaries including those which are candidates to become the suppliers. The beneficiaries are those who have willingness to upgrading QCD (quality, cost and delivery) so that they can join in the supporting industry. A cluster of such beneficiaries has to be identified beforehand. Then it is necessary to specify a counterpart which can coordinate these beneficiaries.

The government of India has set a policy to transfer the main actor of the industrial promotion from the public agencies to the private agencies. Therefore, in providing technical cooperation, it is necessary to involve industrial associations such as ACMA, which is collaborating with UNIDO and JETRO in upgrading production management skills². ACMA has also established ACMA Centre for Technology (ACT) and delivers information on the bench marking in an effort to disseminate the production management techniques.

Some possible areas of technical cooperation are:

- providing the suppliers with "enterprise diagnosis", analysed by the Japanese experts;
- offering seminars to the potential suppliers in raising awareness of their entrepreneurships;

² For example, in UNIDO assistance project, the local experts provide guidance to a group of ACMA members. Then they go around the member factories of the group to evaluate the implementation status.

- setting a pilot project in which some enterprises are assisted in management as a model;
- assisting in subcontracting arrangement and
- a master plan study to identify the details of above action plans.

Possible Counterpart Organisation

Ministry of Commerce and Industry, Ministry of Heavy Industry or the state governments

Possible Type of Technical Cooperation

Development study, dispatch of expert, technical cooperation project

Disseminating the Japanese Production Technologies through Establishing a Manufacturing Technology Promotion Centre

Background

Some Indian enterprises which are conscious of improving productivity have already adopted measures such as ISO, TQC, "Kaizen", lean production and six sigma. Some small-scale enterprises also try to improve the production management and productivity; especially those supplying to the assemblers such as in automotive sub-sector.

The National Productivity Council (NPC) under the Ministry of Trade and Industry provides trainings, consulting and dissemination activities. NPC has a training institution called Dr. Ambedkar Institute of Productivity (AIP) in Chennai. Moreover, Confederation of Indian Industry (CII) set up Total Productive Maintenance Club (TPM Club) in collaboration with Japan Institute of Plant Maintenance (JIPM). There are also many private firms which provide consultation and training services on quality management, TQM, six sigma and lean production. Furthermore, public agencies under the state government offer seminars on productivity improvement to the local enterprises.

Assumed Content of Technical Cooperation

A "production technology promotion centre" is proposed to be established. Japanese experts are dispatched to the centre where the Japanese industrial and production management techniques are disseminated in the forms of trainings, consultation and seminars. This centre anticipates holding the same function as "the Japanese human resource development centres", which JICA have established in other countries. The centre is expected to promote technological exchanges between India and Japan in the areas of production and quality management.

The aims of the activities of the centre are not only disseminating the Japanese production and quality

techniques to the Indian enterprises but also promoting interactions between Indian and the Japanese enterprises; thus strengthening the industrial linkages between the two countries. The tasks of the Japanese experts include

- providing trainers trainings;
- disseminating production and quality management techniques and
- raising awareness of strengthening linkages among the domestic enterprises and with the foreign enterprises.

A candidate of the counterpart can be selected among the institutions under the central government such as NPC. Yet, it may be also plausible that a state government agency is selected as a counterpart in an area where a concentration of the Japanese manufacturers exists as a pilot.

Possible Counterpart Organisation

Agencies under the central government (ex. NPC and the National Manufacturing Competitiveness Council) or the state governments

Possible Type of Technical Cooperation

Development study, technical cooperation project, dispatch of expert

Introducing Enterprise Diagnosis for the Small-scale Industries

Background

Agencies under the central and the state government provide management and technological assistances to the small-scale industries. It is an important agenda that the capacity of personnel in such agencies is strengthened. Introducing a system of providing trainings on the enterprise diagnosis ("shindan"³) can develop the human resource of the consultants working in the public agencies.

Assumed Content of Technical Cooperation

The central government shall be assisted in designing introduction of the enterprise diagnosis based on the experiences in Japan and in South East Asia. The institutional design includes provision of the trainings for the enterprise diagnosis and trainings of the trainers.

The Japanese experts extend improved services based on the information and opinions on the

³ "Shindan" means a Japanese term for "diagnosis". Enterprise diagnosis is commonly known as "shindan" in Thailand where the Japanese assistance has extended to transfer the know-how.

designing and operation of the enterprise diagnosis in Japan and South East Asia. The technical cooperation in the forms of a study or a project is necessary according to the phases from designing, initiation to implementation.

The counterpart agencies can be selected from the Ministry of Small Scale Industries, Ministry of Commerce and Industry or a sector specific ministry. Otherwise, the National Manufacturing Competitiveness Council can be consulted of selecting a counterpart, which deals with designing and capacity building.

Possible Counterpart Organisation

The ministries in the central government (ex. Ministry of Commerce and Industry and the National Manufacturing Competitiveness Council) or the state governments

Possible Type of Technical Cooperation

Development study, technical cooperation project, dispatch of expert

Regional Pilot Project for Enterprise Diagnosis

Background

Each state has many industrial estates designed for the small-scale industries. Many enterprises in these industrial estates operate under the obsolete facility and production technologies. These enterprises have certain demands for upgrading production technologies.

In some cases, a state institution, established nearby a state-owned industrial estate, is providing technological guidance to the enterprises in the estate. In other cases, an industrial association, formed by enterprises in an industrial estate, takes a leading role of developing capacity of its members. Among the industrial estates visited during this study, an industrial association was actively playing the role such as setting seminars for technological upgrade.

Possible Content of Technical Cooperation

This technological cooperation aims to transfer know-how of enterprise diagnosis ("shindan"), to consultants of the public institutions, which assist in the enterprises development in states. The counterpart shall be these public institutions either owned by the central or the state government. It may be also plausible to have industrial associations dedicated for the small-scale industrial estates as the counterpart.

The dispatched Japanese experts shall cover the areas of production, quality, environment and safety management. The experts firstly transfer the methodologies of enterprise diagnosis to the consultants

working in the counterpart; then they practice the diagnoses on the local enterprises together with the trained local consultants who are to clarify the management issues of the small-scale industries in the area.

It is expected that this cooperation scheme shall develop the capacity of the local consultants and that they derive the policy directions for the small-scale industrial development in the state.

Possible Counterpart Organisation

Institutions assisting in enterprise development under the central or the state government

Possible Type of Technical Cooperation

Dispatching of experts, technical cooperation project

3. Recommendation on Technical Cooperation in Industrial Base Strengthening

(1) Needs for the technical cooperation

Technology Upgrading through the Strengthening of Public Technology Support Institutions and Human Resource Development

The management and production techniques among the small-scale industries are generally at a preliminary level, and they lack in internal competitiveness. In particular, enterprises engaging in basic production techniques such as sewing, casting, forging, metalwork and plastic molding show delay in their capacity development. The lack of management and production techniques among the suppliers results in a high defection rate and low quality of services in dealing with the assemblers. Consequently, opportunities for strengthening industrial linkages are shrunk. Technological weaknesses are due to not only the facility and production techniques but also fundamental factors such as morals and working attitudes among the factory workers and lack of operational standards.

There are development needs towards strengthening manufacturing technologies; namely, strengthening capacity of vocational trainings aiming at improving basic knowledge, techniques and awareness among the factory workers; establishing and supporting a technology centre which plays a role of soft-oriented industrial infrastructure with human resource who can undertake enterprise diagnosis and provide advises, and supports the industry's efforts to upgrade technology level.

Improvement of Technology of Environment and Energy Management

The small-scale enterprises, in particular, reveal low level of safety, sanitary, energy and environment management. For upgrading energy efficiency and environmental protection, there is a high demand for institutionalising operation of such management skills targeting at individual enterprises and the industrial

estates.

There are needs for improving awareness and developing skills for energy conservation and environmental protection that are linked to cost reduction and skills for safety and sanitary management. It is considered necessary to follow up identifying the support needs and exact counterparts for assisting environmental and energy conservation management. It is also plausible to stimulate awareness by implementing pilot projects.

Expansion of Industrial Finance

In response to India's development needs, such as SMEs development, rural/agriculture development and expansion of microfinance, the government has set up a specialized development bank for each specific financial need. These development banks are not only providing long-term loans but actively leading and implementing development projects with government's support.

During this Study, JICA study team held discussion with SIDBI (SMEs), NABARD (rural/agriculture), and RGVN (microfinance) regarding their current needs for assistance⁴. Although technical cooperation is not the best scheme to support their needs, there are certain areas where JICA's TA will be able to contribute together with other ODA schemes (grant, yen loan etc). In particular, project formulation support, capacity building of governmental agency and human resource development will be the key areas of potential cooperation.

Main areas of possible technical cooperation are considered to be project formulation, capacity development of related organizations, and human resource development.

(2) Assumed technical cooperation schemes

Support to Public Technical Assistance Centres

Background

India has various types of technical assistance centres owned by the central or the state government. For example, Small Industries Development Organisation (SIDO) under the Ministry of Small Scale Industries has 15 types of technical assistance centres. Among them is the Small Industries Service Institutes (SISIs), located in the major cities all over in India and offering various technological services to the small scale industries. In general, public institutions tend to be behind the latest technologies and leave some unsatisfied areas to meet the needs of the local enterprise.

⁴ JICA study team had a discussion with SIDBI, NABARD in January and March 2006 and received their concrete request for cooperation to JICA. The team also had a meeting with RGVN, a microfinance agency, in January 2006.

Public technical assistance centres' potential needs for Japan's technical cooperation are considered to be high. However, providers of technical services to enterprises have been shifting from public institutions to private institutions in India. When a technical cooperation in this field is considered, it is necessary to identify a field where public technical services to enterprises have significance of existence. Public technical services' role of supplementing private services is considered to be high in such services as are targeting backward regions and small scale enterprises.

Assumed Content of Assistance

The Japanese experts are dispatched in an aim of transferring the latest technologies, which are required by the public technical assistance centres. The Japanese experts shall train the trainers rather than extending the direct assistance to the enterprises. At the same time, the assistant to the technical centres shall be combined with the schemes of inviting the trainers from the local public institutions and studying tours and sending interns to the private enterprises.

Many public technical assistance centres have issues on organisational structures, operational capacity and adjusting the needs of the local enterprises. Prior to the technological cooperation, it is necessary to identify the capacity and potentials of the target centres and to clarify the technological components to be transferred.

When a decrease in the private sector's needs for a relevant public technical assistance centre arises from management issues, technical assistance to improve the management of centre is also required. When a significance of relevant centre's existence itself is questioned, technical assistance is required to include the reviews of assistance service areas, subject industries, type of services, etc.

Possible Counterpart Organisation

Public technical assistance centres either owned by the central or the local governments

Possible Type of Technical Cooperation

Dispatch of expert⁵

Improving Technological Educations

⁵ It is also plausible to dispatch the Japanese Overseas Cooperation Volunteers (JOCV) if the technical cooperation is targeted at the basic vocational trainings such as repairing or sewing. Although the transferred technologies remain basics, JOCV can contribute to strengthen the relationship between India and Japan. The Indian society has strong interest towards the Japanese technologies and cultures, but they lack in information. The dispatched young volunteers are expected to strengthen the international understanding between the two countries.

Background

India requires larger supply of trained workers who satisfy the needs of the industry. The National Council for Vocational Training (NCVT) under the Ministry of Labour and Employment is responsible for accrediting the vocational institutions, setting the curriculum and providing the certificates of vocational skills. It is quite difficult for NCVT to keeping up with the new technological demands from the private sector. The development of new curriculum that meets the industrial changes is required.

India has 1,883 Industrial Training Institutes (ITIs) run by the government. It is expected that the training quality of ITI is improved through strengthening cooperation with the private sector. This includes promotion of the public private partnership (PPP). The government of India has a plan to upgrade 100 ITIs to R&D institutions. These institutions shall be operated under PPP and be granted of the autonomous status in setting curriculum, providing on the job training (OJT) and granting qualification certificates.

The National Manufacturing Competitiveness Council under the Ministry of Commerce and Industry requests for changes in the vocational curriculum; namely, developing the curriculum which fits the needs of the industry, simplifying the approval process and transferring the authority to approve the curriculum to other relevant institutions.

Scope of reviewing the curriculum should include improvement in facility, teaching skills and qualification certificates. The qualification certificate is a national testing on techniques and knowledge of certain vocational skills. Improvement in the qualification certificate system can stimulate the willingness of the labours for upgrading their job status and to develop their capacity.

NCVT carries out All India Trade Test every year mainly for the graduates of ITIs and Industrial Training Centres (ITCs). There are the National Trade Certificates and the National Apprenticeship Certificates. The latter is for those who have received apprenticeship trainings. Those who have not attended ITI or ITC can also apply for the All India Trade Test with minimum 5 year of experience. These certificates are widely acknowledged by both domestic and abroad. On the other hand, Japan also has qualification testing system, which was started in 1959 and now conducts testing on 137 job categories.

Assumed Content of Technical Cooperation**(1) Capacity development of ITIs**

A specific state is selected for assistance. Some ITIs in the state shall be selected for a model institute. Technical cooperation shall be extended in an aim to develop the capacity of the model ITIs.

The activities include reviewing the curriculum in order to fit to the needs of the local industry. It is necessary to clarify the needs through discussion with various stakeholders such as the representatives of industrial associations, enterprises and the lecturers at the universities. The Japanese experts provide technological advises in the process. Internship at the factories should be incorporated in the revised curriculum. The Japanese experts provide inputs to the technological components, which are identified to be strengthened. At the same time, they provide the trainings to the trainers at ITIs.

(2) Review of qualification certification system

It is necessary to reflect the needs of revising curriculum to the national education policy. Accordingly, the technological standards for the All India Trade Test also need to be reflected of the revision.

In a long run, it is necessary to review the context of qualification certificates in order to meet the changes of needs from the industrial side. The qualification certificates should be targeted at not only the students but also the general labourers to stimulate their motivation for upgrading their skills and job status.

The scope of technological cooperation for the reviewing of the qualification certificates can include:

- studying on the overall industrial training system;
- studying needs of the private sector towards the industrial trainings;
- studying the technological levels for the qualification;
- reviewing the context of the testing;
- identifying the new testing elements that are needed by the industry;
- identifying the most effective way of testing and
- studying the introduction of degrees in the certificates (ex. 1st, 2nd and 3rd degrees).

Possible Counterpart Organisation

NCVT, Directorate General of Employment and Training (Ministry of Labour and Employment) or a state government

Possible Type of Technical Cooperation

Development study, technical cooperation project, dispatch of expert

Developing the Model Industrial Estate (Environmental Rehabilitation)

Background

Preventing from the environmental deterioration such as water and waste treatment is an important agenda of the industrial estates particularly those for the small scale industries, which bear the cost of the outdated treatment system. Some state governments visited during this study expressed their willingness for modernising the treatment system in the industrial estates.

Possible Content of Cooperation

This assistance aims to rehabilitate environment of the selected industrial estates for the small scale industries as a model. Water and waste treatment and air purifying systems are introduced to the model industrial estates, and policies on operational standards and environmental regulations are derived from the result.

Dispatch of experts or technical cooperation project is considered to be a possible type of cooperation. Either industrial department of the state government or an agency dedicated for industrial estate development under the department is a possible counterpart.

It is considered that technical cooperation will include technical guidance in the area of methodologies to minimise the yield loss and recycling of the waste material, management of solid wastes, and designing & control common infrastructures such as environmental management centre.

Possible Counterpart Organisation

Industrial department of the state government or an agency dedicated for industrial estate development under the department

Possible Type of Technical Cooperation

Dispatch of experts, technical cooperation project

Support for SIDBI Business Development Service Programme

Background

SIDBI (Small Industries Development Bank of India) is expecting JICA's external assistance on three on-going activities which they particularly emphasize; 1) set up of 'risk sharing facility'⁶, 2) business

⁶ SIDBI is considering to set up this agency to enhance SMEs access to finance. Required fund for the set up for RSF is estimated as total Rs 270 million (approx. US\$6 mil.) which consists of 1) seed money, 2) system investment for risk sharing system, 3) due diligence for candidate projects. The source of fund is Rs 225 mil. from match contribution, institutional building consultancy fee of Rs 5 million, and operation cost of Rs 40 million (due diligence Rs 20 mil.-10 project, other cost Rs 20 mil.)

development service program, and 3) capacity building of state finance cooperation.

Business development service program is the second phase of SIDBI's rural industrialization program for employment generation in poverty region which started in 1994. This program will first identify 10 districts in each four selected states (Jharkhand, Andhra Pradesh, and Uttaranchal, Chattisgarh). Then choose responsible NGOs as implementing agencies which is responsible in developing potential industry/entrepreneur in each area. The service menu for rural companies are formulation of investment projects, business plans, purchasing / set up / maintenance of machines, market research, marketing, accounting support etc.

The overall target of this program is to support total 12,000 units of business start-up (300 units per district) in 5 years. Total expenditure is estimated as Rs 94.7 million (approx. US\$2.1 million).

Assumed Content of Technical Cooperation

Capacity building of NGOs to improve its business development service which will contribute to effective implementation of SIDBI's BDS program.

Possible Counterpart Organisation

SIDBI

Possible Type of Technical Cooperation

Technical cooperation project, dispatch of expert

Capacity Building for State Finance Cooperation

Background

State Finance Cooperation (SFC) exists in each Indian state. Their main activity is to provide mid-to-long term loans to SMEs. During the 1970-80s, SFC has expanded its business by utilizing its underlying asset funded by SIDBI's refinancing. Recently, however, due to low accessibility for equity capital in addition to lowering market interest rate, SFC's financial position has considerably worsened that now they are even unable to enter India's expanding SMEs lending market.

To reform the current condition of SFC, SIDBI, as the major fund supplier, started to implement three measures such as 1) improvement of risk management system, 2) implementation of loan crediting model, and 3) improvement of project management system. SIDBI is considering whether to combine all SFCs in 10 states together or to select one model state to implement as a pilot project before expanding to other states. According to IDBI estimate, the cost of this program will be Rs 250 mil. (Approx. US\$5 mil).

Assumed Content of Technical Cooperation

Technical cooperation to SFCs to support implementing three activities of SIDBI's business management reform program: 1) improvement of risk management system, 2) implementation of loan crediting model, and 3) improvement of project management system.

Possible Counterpart Organisation

State Finance Corporation or SIDBI

Possible Type of Technical Cooperation

Technical cooperation project, dispatch of expert

Technical Cooperation through NABARD**Background**

NABARD (National Bank for Agriculture and Rural Development) is responsible for rural development⁷. Needs for technical cooperation are expressed in the following five areas, 1) natural resource management for sustainable livelihood, 2) creation of carbon credit, 3) development of small companies via microfinance development, 4) rural development, and 5) rural finance institution building via technical cooperation. By region, NABARD is interested in North-Eastern states where poverty is most serious. Thus, it is possible for JICA to select particular field, area of interest for future cooperation. From the above 5 fields, NABARD has shown particular interest towards support for their on-going 'Rural non-farm sector development' project.

1) Lending support

The purpose is to support the fund of financial institutions which is refinanced by NABARD. Target lending customers include micro enterprises, NGPs, infrastructure projects.

2) Capacity building

The target will be i) borrower of loans; companies, workers, ii) lender of loans; financial institutions (commercial banks, regional rural banks, and co-operative banks) and NABARD

⁷ One successful example of TA by foreign donors will be 'Watershed Development Programme' in Maharashtra state supported by KfW since 1992. This plan aims improvement of groundwater, drinking water, agriculture productivity, and prevention of population drain. The government of India established a fund ('Watershed Development Fund') to expand this model project, and promoting development of watersheds in other regions. Also, the proportion of German consultants in this project was limited to approx. 20%.

itself, and iii) organizations in between such as NGOs, implementing organization of clusters.

3) Technology development

Total 6 components, e.g. establishment of design center, support for academic-industrial cooperation, and horizontal cooperation within the same industry etc.

4) Marketing support

Total 7 components, e.g. marketing scheme, matching service, application for trade fairs, promotion activity of companies to clusters etc.

Assumed Content of Technical Cooperation

Technical assistance project and/or dispatch of expert should be considered in order to promote the food processing industry in rural areas by providing assistance in the above-mentioned 4 areas.

Possible Counterpart Organization

NABARD

Possible Type of Technical Cooperation

Technical assistance project, dispatch of expert

Technical Cooperation through Rashtriya Gramin Vikas Nidhi (RGVN)

Background

RGVN is a microfinance institution established in 1990 with the support of IDBI, IFCI, NABARD based in North-Eastern states. They have been supporting 1,200 NGOs and 2,500 SHG (Self Help Group) in the most deprived area of India. 1) provision of fund, 2) improvement of financial access to end-users via loan/saving program, 3) housing program, and recently important 4) capacity building of NGOs. They also support various projects such as cluster development, and promotion of industry-academic cooperation. They are expecting US\$30 million which one-third will be used to set up 'Capacity Building Fund'.

Microfinance in the North-Eastern states are backward in many aspects, but in particular project formulation ability and implementation capacity of related organizations. Thus they are expecting JICA's assistance in these areas.

Assumed Content of Technical Cooperation

Improving project formulation/finding and implementing capability in microfinance will be the possible area of Japan's technical cooperation. Promotion of microfinance in the North-Eastern region, backward region in India, is expected to contribute the development of local industry in this region.

Possible Counterpart Organization

RGVN

Possible Type of Technical Cooperation

Technical assistance project, dispatch of expert

4. Recommendations for Technical Assistance for Infrastructure Development

(1) Needs for Technical Assistance

In the case of East Asian and South-eastern Asian countries, Japanese ODA loans and technical assistance have been utilized for developing infrastructure. Such assistance was considered to be promoted Japanese and other foreign direct investments in these countries, and then, which resulted in rapid economic growth and subsequent poverty alleviation. However, India is immense nation, and thus, is not comparable with these countries in terms of population, gross domestic products, and national budget. So, it is quite difficult to contribute in India through the assistance in quantitative aspects.

Given conditions, execution of lot of feasibility studies on individual infrastructure projects are considered to be inefficient. India has enough capability to execute feasibility study on conventional infrastructure projects. In addition, since recently private participation is accelerated on infrastructure sector, needs to feasibility study on infrastructure sector from government side is limited.

On the other hand, as mentioned, although they have adequate capacity to execute individual projects, individual project is some time executed without consistency with other projects because of absence of comprehensive and integrated plan. Accordingly, technical assistance for formulation of upper level cross sectoral plan, such as urban traffic master plan to alleviate traffic congestion, is deemed necessary.

It is also necessary and efficient to provide technical assistance for creating best practice on problematic issues (e.g. urban traffic project, and energy conservation project) though implementation of pilot project. And, after the pilot project, it is important to disseminate and realize the best practice to other areas.

Technical assistance in concentrated on certain areas/ states should be considered instead of distributing assistance to nation wide. It is important to provide assistance intensively at the states where Japanese investment is concentrated.

(2) Anticipated Technical Assistance Programs

Further suggestions about technical assistance for transportation and power sectors are made in the following part.

Formulate Urban Transport Master Plan to Avoid Further Traffic Congestion

Background

A good network of roads and an efficient mass urban transport system make a substantial contribution to the working efficiency of a large city for its economic and promote foreign direct investment. In order to coordinate development plans prepared by each concerned agencies, Metropolitan Development Authorities (MDA) were established in several metropolitan cities including Delhi, Mumbai, Chennai, and Bangalore. However, in reality, each transport project is examined individually. MDAs are generally just compiling each project and preparing entire plan without coordinating each project. Except for Mumbai Urban Transport Project financially/ technically assisted by World Bank, there are no comprehensive urban transport plans in most cities.

Mid-term Appraisal of the Tenth Five Year Plan (Planning Commission, 2005) also mentioned about the problem. Accordingly, it is recommended that million plus cities draw up urban transport master plans by studying various modes of public transport.

When the study team visited Chennai Metropolitan Development Authority and Hyderabad Urban Development Authority, they expected to formulate transport master plan with technical assistance from Japanese Government^{*8}.

Assumed Content of Technical Cooperation

Recommended options of technical assistance are as follows; i) traffic demand forecast by mode and by road/ rail section, ii) re-examination of existing bus route, iii) capacity building for traffic related agencies, iv) formulation of traffic regulation plan and improvement plan of traffic sign and traffic control signal, iv) establishment of trans-modal transportation plan, v) implementation of feasibility study on bypass road and grade separation, and vi) formulating relocation plan of bus terminal/ freight terminal from city center to suburban. Ministry of Urban Development and/or Metropolitan Development Authority of major cities will be suitable counterpart agencies of the program.

Possible Counterpart Organisation

Ministry of Urban Development, Metropolitan Development Authority of major cities, etc.

⁸ World Bank is already committed urban transport project in Chennai and Bangalore. Thus, when formulating the plan, close communication with World Bank is needed.

Possible Type of Technical Cooperation

Development study

Assistance for Formulating the Plan of Mass Transit System**Background**

Japanese Government has been assisting metro-railway projects in Delhi and Kolkata. Such cooperation seems highly appreciated by Indian side. In addition, similar project will be implemented in Bangalore near in the future. Several metropolitan cities are also expecting assistance from Japanese Government.

Generally speaking, in developed countries, cities start planning and building a Mass Rapid Transit System (MRTS) when they reach a population level of one million and start operating MRTS by the time they are exceeding two million.

According to the 2001 Census, there are 35 metropolitan cities with million plus population. However, except for Kolkata, Chennai and Delhi, none of the Indian cities has a MRTS. And, only Mumbai, Bangalore, and Hyderabad have concrete MRTS plan.

Since introduction of MRTS needs huge amount of cost and long development period, development plan of MRTS in million plus cities is highly recommended at an early date.

Assumed Content of Technical Cooperation

It is envisaged that i) determination of suitable technological option for mass transit system (e.g. metro railway, monorail, and bus transit system), ii) traffic demand forecast by traffic mode and rail/ road section, iii) preparation of facilities plan of transfer terminal station, are suitable for technical assistance from Japanese Government. Ministry of Railways, Metropolitan Development Authority, and/or newly-established metro railway corporation will be suitable counterpart agencies of the program.

Possible Counterpart Organisation

Ministry of Railways, Metropolitan Development Authority, newly-established metro railway corporation, etc.

Possible Type of Technical Cooperation

Development study

Assistance for Introduction of Commuter Operation for Existing Railway System

Background

Although railway network in India is one of the biggest in the world, except for Mumbai, there are almost no existing railway sections coping with commuter operation. In the case of Bangalore and Chennai, while railway is passing through the city, they are not utilized for commuters. Since railways in Bangalore and Chennai have no adequate facilities and operation plan for commuter operation, operation interval is too long to cope with commuters demand. For this reason, existing railway network in both cities cannot contribute to reduce traffic congestion in urban area.

In this regards, technical assistance for making existing railway network enable to operate for commuter operation is considered to be important.

Assumed Content of Technical Cooperation

It is envisaged that i) training for officials and working staff, ii) establishment of introduction plan of facilities for commuter operation, such as traffic signal and SCADA system, iii) preparation of commuter operation plan, and iv) renovation and improvement of rail truck and station house, are suitable are for technical assistance from Japanese Government. Ministry of Railways and/or Indian Railway will be suitable counterpart agencies of the program.

Possible Counterpart Organisation

Ministry of Railways, Indian Railway, etc.

Possible Type of Technical Cooperation

Development study

Assistance for Setting up Energy Conservation Centre

Background

Since Japan has no energy resources and has experienced two-time Oil Shock (energy crisis), Japanese society has lot of knowledge and technology about energy conservation. During the survey in India, Central Electricity Authority (CEA), Energy Efficiency Bureau, and some of the state owned distribution companies exhibited a keen interest in technology transfer about energy conservation from Japan.

Expected Assistance

Establishment of energy conservation center for disseminating of knowledge and technology of energy conservation to domestic and industrial consumers is one of the suitable technical assistance from Japan to India. Particularly, JICA has several experiences in the field, including Poland, Philippines and Turkey. Bureau of Energy Efficiency under Ministry of Power and state power distribution corporations will be suitable counterpart agencies of the program.

Possible Counterpart Organisation

Bureau of Energy Efficiency under Ministry of Power, state power distribution corporations, etc.

Possible Type of Technical Cooperation

Technical cooperation project, dispatch of expert

Assistance for Reducing Energy Consumption of Irrigation Pump

Background

Energy consumption of irrigation pump accounted for more than one-fourth of total energy consumption in the country. In some states, energy consumption of irrigation pump occupied almost half of total energy consumption. Overdraft from ground water is resulted in decrease of ground water level. Such excessive energy consumption for irrigation is mainly caused by heavily subsidized electricity tariff for irrigation. However, there are ample rooms for reducing its consumption by adopting technical and institutional efforts.

Assumed Content of Technical Cooperation

a) Execution Pilot Project on Energy Conservation

It is recommended to implement pilot project in order to reduce energy consumption of irrigation. The pilot project includes replacement of degraded and inefficient irrigation pumps, awareness campaign for energy/ water conservation, limitation of load and supply hours using SCADA system. It is important to prove effectiveness of the pilot project in reducing energy consumption. Then, after the pilot project, technical assistance for dissemination of outcome of pilot project to other area is also deemed necessary. Bureau of Energy Efficiency under Ministry of Power and/or state-owned distribution company will be suitable counterpart agencies of the program.

b) Assistance for Manufacturing Technology Upgrading of Irrigation Pump

Indian side has also focus attention on technical amelioration of inefficient irrigation pump, which is prevailing to domestic market. They consider only to approved the irrigation pump achieved certain electric efficiency, and put counter stamp on it. And in installing new irrigation pump, they intend only to authorize pump with counter stamp. Given situation, there are needs from Indian side about

technical assistance for manufactures of irrigation pump. Bureau of Energy Efficiency under Ministry of Power etc will be suitable counterpart agencies of the program.

Possible Counterpart Organisation

Bureau of Energy Efficiency under Ministry of Power.

Possible Type of Technical Cooperation

Technical cooperation project, development study

Assistance for Making Remedial Actions for Sedimentation of Hydropower Station**Background**

Introduction of private finance for power generation sector is currently accelerating in India, particularly for coal and gas fired thermal power stations. However, most of these thermal power projects encounter considerable delay due to lack of adequate fuel supply and surge in the fuel price. To ameliorate the peak supply balance, and to strengthen energy security in the country, the Government of India intends to promote development of large-scale hydropower station. Although north-western and north-eastern part of county is rich in water resources, existing dam and planned sites have problem with sedimentation.

Expected Assistance Program

In order to solve sedimentation problems in reservoir of hydropower stations, it is recommended to provide technical assistance for establishing comprehensive watershed/ sedimentation management plan, and for formulating countermeasures to alleviate problems at the existing hydropower stations where is already suffering from extensive sedimentation. National Hydro Power Corporation (NHPC), North Eastern Electric Power Corporation, and/or state-owned generation company will be suitable counterpart agencies of the program.

Possible Counterpart Organisation

National Hydro Power Corporation (NHPC), North Eastern Electric Power Corporation, state-owned generation companies.

Possible Type of Technical Cooperation

Development study