

# Reverse Flow of Capital and Technology from India : A Case of Economic Transformation

VIKRAM CHADHA\*

## INTRODUCTION

India has experienced significant structural shifts in all its sectors and activities, which demonstrates India as an emerging economic power. To establish itself as an independent economic leader, especially among the Third World countries, India has been exporting both capital and technology so as to support a wide range of projects abroad.

More uniquely, India has not only been appearing as a major exporter of capital and technology among the Third World countries (including the exports under 'south-south' cooperation), but has also provided cheap technical manpower and resources to the developed countries. So much so, the substantial role of Indian capital in joint ventures (JVs) in the Third World countries is now being formulated as definite policy. The Fifth Five Year Plan stated that "the objective has to be to move towards a position in which the country is not merely a recipient of foreign technology but is also capable of exporting know-how in certain fields to bring about a measure of balance."<sup>1</sup>

This paper is intended to describe India's place in the international transfer of capital and technology, under both official and private arrangements.

## SCOPE OF CAPITAL AND TECHNOLOGY TRANSFER FROM INDIA

India has exported capital and technology under various bilateral and multilateral agreements. Under the latter, it has contributed effectively through different U.N. specialised agencies like UNESCO, FAO, WHO and International Atomic Energy Agency, etc.<sup>2</sup> India is also involved in the formulation of policies and programmes of these agencies, especially for the development of science and technology. Very often, India has been organising, on behalf of these agencies, special training programmes, workshops, seminars and conferences in specialised topics, for examples, science policy, problems of R & D management, etc.

On the other hand, bilateral agreements on expert exchange programmes, participation in international scientific unions and associations, technical cooperation, exchange of scientific information and execution of joint research projects are the mechanisms through which the world experiences Indian influence on technology transfer.

\*Mr. Chadha is a Senior Lecturer, Punjab School of Economics, Guru Nanak Dev University, Amritsar (Punjab) India.

Apart from these, the national level scientific agencies like Council of Scientific and Industrial Research and the Indian Council of Agricultural Research have cooperation agreements with their counterparts in a number of other countries. The scientific bodies such as the Indian National Science Academy also have exchange programmes and cooperation agreements with foreign societies, associations and academics.

Capital and technology have also been transferred from India to other countries through the export of engineering goods, the joint ventures abroad, the international technical consultancy, the project export, the collaboration with international contractors, the Technical and Economic Cooperation Programme, the licensing of technology, etc.

#### INDIAN CAPITAL AND TECHNOLOGY ABROAD

##### The Joint Ventures

Even during the colonial period, there were a few Indian companies, owning or controlling other companies abroad. Mainly, Gujraties and Muslims had invested capital in physical assets in Burma, East Africa, Ceylon, Malaysia, Nigeria, etc. However, there was hardly any investment in industry. Indian investments were mainly confined to trade, commerce and money lending. These features were not at all surprising, since the colonial policy was indifferent to industrial development of others.

After independence, though the Indian Government looked upon joint venture as a component of export promotion effort on a programme for cooperation among developing countries, yet it restricted Indian equity participation to the extent of capitalisation of exports of indigenous plant and equipment. Only in the late 1970's, the Government relaxed controls, so that the capitalisation of technical fees and royalties was allowed. The Government's restrictive posture on India's foreign investment flows from India's own inhibitions, in relation to foreign investment at home. Nevertheless, due to a number of restrictions, many enterprises, instead of holding equity shares, have started to open their subsidiaries in other countries on the pattern of multinational corporations (MNCs).

The beginning of direct investment, in the strict sense of the term, in the post independence period, may be associated with the establishment by Birla of a textile mill in Ethiopia in 1955.<sup>3</sup> Since then upto March 1983, there were 228 effective joint venture proposals, out of which 140 joint ventures were in production or operation, and 88 proposals were under various stages of implementation. Region-wise, the largest number of Indian joint ventures are located in the neighbouring countries of Asia, followed by Africa. Indian joint ventures currently in operation are dispersed over 27 countries. A little over eighty percent of them are concentrated in ten countries.

Indian joint ventures abroad encompass a very wide spectrum of industrial products, ranging from consumer goods to heavy engineering products. Engineering, chemical and pharmaceutical industries account for the highest proportion, followed by construction. These facts are depicted in Tables 1, 2, 3 and 4.

Table 1  
Value of Indian Equity Share Capital in Joint Ventures Abroad, 1964-82

Year	Number of JV's	(Rs. in Lakhs)		
		Total Equity Share Capital	Indian Equity Share Capital	Growth in Indian Equity Share Capital (Percent)
1964	5	237	108(45.57)	-
1965	6	292	132(45.21)	22.2
1966	10	565	263(46.55)	99.2
1967	12	730	332(45.48)	26.2
1968	14	1082	403(37.25)	21.4
1969	21	1404	528(37.61)	31.0
1970	24	2268	809(35.67)	53.2
1971	32	2815	951(33.78)	17.6
1972	37	4064	1140(28.05)	16.6
1973	41	4637	1300(28.04)	14.0
1974	62	7000	2185(31.21)	68.1
1975	83	10298	3121(30.31)	42.8
1976	96	11371	3610(31.75)	15.7
1977	117	14458	4588(31.73)	27.1
1978	145	22700	6975(30.73)	52.0
1979	159	28096	8354(29.73)	19.8
1980	189	32236	9738(30.21)	16.6
1981	226	46827	13413(28.64)	37.7
1982	221	49046	13934(28.41)	3.9
1983	221	50792	14354(28.26)	3.0

Note: Figures in brackets represent percentages of total.

Source: Morris, S., "Trends in Foreign Direct Investment from India (1950-82)", Economic and Political Weekly, Vol. XXII, No.45, November 7, 1987, p. 1913.

Table 2  
Magnitude of Foreign Direct Investment Outflow - An Inter Country Comparison for 1978-80

(US dollars in million)

Country Source	Total	Share of LDC's
Portugal	2.6	-
Chile	10.9	-
South Korea	15.1	-
Colombia	18.1	-
India	35.3	28.7 (81.30)
Denmark	82.3	71.9 (87.36)
Philippines	66.9	-
Austria	89.8	21.1 (23.50)
Finland	106.0	16.4 (15.47)
Norway	120.1	13.8 (11.49)
Kuwait	184.8	-
Brazil	188.0	-
Spain	221.1	-
Australia	344.1	105.8 (30.75)
Italy	420.9	243.5 (57.85)
Sweden	550.9	104.5 (18.97)
Belgium	669.1	-
Netherlands	2209.7	275.0 (12.45)
France	2359.2	782.8 (33.18)
Japan	2551.7	1335.3 (52.33)
Canada	2617.4	389.5 (14.88)
West Germany	4262.0	1193.5 (28.00)
U.K.	5755.8	1074.1 (18.66)
U.S.A.	19547.2	5861.8 (29.99)

Note: Figures in brackets represent percentage of total.

Source: UNCTC, Third Survey, Annex. Table II.I.

Table 3  
Outflow of Indian Equity Share Capital on Account of Joint Ventures to  
Selected Countries for 1979-82

(Rs. in Lakhs)

Country	Number of JV's	Amount
Senegal	1	1976.10 (28.08)
Singapore	23	864.40 (12.28)
Nigeria	17	746.35 (10.61)
Sri Lanka	18	741.70 (10.54)
Indonesia	15	720.64 (10.24)
Malaysia	33	384.18 (5.46)
Sudan	1	360.00 (5.12)
Thailand	10	343.81 (4.89)
Greece	2	115.14 (1.64)
Saudi Arabia	5	111.60 (1.59)
Liberia	1	103.06 (1.47)
Nepal	8	102.14 (1.45)
UAE	13	91.24 (1.30)
Baharain	2	76.96 (1.09)
USA	15	75.12 (1.07)
Kenya	12	69.92 (0.99)
All others	45	155.27 (2.21)
Total	221	7037.63 (100.00)

Note: Figures in brackets represent percentages of total amount.

Source: Morris, S., "Trends in Foreign Direct Investment from India (1950-82)", Economic and Political Weekly, Vol. XXII, No. 46, November 14, 1987, pp. 1963-68.

Table 4  
Selected Industry Classification of Indian Joint Ventures Abroad (1983)

Sector	Number of Units	Indian Equity Share Capital (Rs. in Lakhs)
i) Services		
a) Banking and Insurance	5	570.67 (0.04)
b) Hotels	12	841.57 (5.95)
c) Restaurants	13	22.37 (0.16)
d) Architectural Consultancy	2	1.76 (0.01)
e) Engineering and Technical Consultancy	8	23.81 (0.17)
f) Shipping	2	44.81 (0.32)
g) Civil and related Construction	8	159.69 (1.13)
h) Engineering and Industrial Projects Construction	6	113.20 (0.80)
i) Electrical repairs, road transport, etc.	5	27.92 (0.20)
j) All Services	90	2217.25 (15.69)
ii) Industrial Sector		
a) Food	8	176.73 (1.25)
b) Beverages	5	50.12 (0.32)
c) Man-made Textile Fibres	5	1024.64 (7.25)
d) Vegetable Oils	12	1091.95 (7.73)
e) Chemicals	20	2448.68 (17.33)
f) Drugs and Pharmaceuticals	7	167.51 (1.19)
g) Fertilisers	1	1976.10 (13.90)
h) Rubber Products	5	141.50 (1.00)
i) Pulp, Paper and Board	5	1637.34 (11.59)
j) Textile Fabrics	9	989.51 (7.00)
k) Iron and Steel	11	850.85 (6.02)
l) Glass	6	572.16 (4.05)
m) Machinery and Transport Equipment	38	1793.45 (12.67)
n) Machine Tools	6	572.16 (4.05)
o) Diesel Engines, Pumps and Agricultural Machinery	6	149.87 (1.06)
p) Automobiles and Ancillaries	14	442.09 (3.13)
All Industries	154	11915.73 (84.31)
All Joint Ventures	244	14132.98 (100)

Note: i) Number of units includes: units in operation, under implementation and abandoned.

ii) Figures in brackets are percentages of total amount.

Source: Morris, S. (1987), op. cit., p. 1966.

Table 1 shows that the number of India supported joint ventures increased from 5 in 1964 to 221 in 1983, with largest increases coming during 1978 to 1981. Total value of equity share capital engaged in these projects went up from Rs. 237 lakhs in 1964 to Rs. 50792 lakhs during 1983; out of which Indian equity share capital escalated from Rs. 108 lakhs to Rs. 14354 lakhs. Thus the share of Indian equity was the largest at 46.55 percent during 1966; however, it tapered down to 28.26 percent during 1983. Nevertheless, the largest growth in the Indian share capital in joint ventures abroad came in 1966, when it was enhanced by about 100 percent; followed by 68.1 percent in 1974 and 52 percent in 1978. Nineteen eighties saw an arrested growth of India's equity disinvestment abroad, perhaps due to more lucrative avenues of domestic investment in the wake of more liberalised policies for domestic industrial production.

Table 2 presents a comparative picture of the outflow of direct foreign investment from different countries for the years 1978-80, including LDC's. The Table 2 shows that though Western countries in Europe, U.S.A. and Japan are the largest exporters of capital, India stands out as an example of 'south-south' cooperation; as it invests over 80 percent of its foreign investment in LDC's. Share of foreign investment going out in LDC's is also high for Denmark (87.36 percent), Italy (57.85 percent) and Japan (52.33 percent).

Table 3 shows that maximum number of India supported joint ventures were in Malaysia, followed by 23 in Singapore, 18 in Sri Lanka and so on. However, maximum proportion of direct foreign investment from India is exported to Senegal (28.08 percent),<sup>4</sup> followed by Singapore (12.28 percent) and so on.

An explanation of the geographical patterns of Indian investment abroad would have to be primarily made in terms of politico-economic policies of the host countries, and the economic prospects they offer; along with an understanding of the underlying internal factors that have propelled the Indian investments. It seems that mid-sized LDC's, not too closely aligned to any particular great power and which have also been recipients of much foreign investment in general, have attracted investment from India.

Table 4 shows that the services sector accounted for a lower fraction of total Indian equity-share in joint ventures abroad, i.e., 15.69 percent. On the other hand, flow of Indian capital in industrial manufacturing joint ventures abroad accounted for over 84 percent of India's direct foreign investment. Maximum number of joint ventures abroad in the services sector, promoted with Indian capital was in the hotel and restaurants sector (12 and 13 percent respectively). However, maximum proportion of India's equity investment abroad is in banking and hotel trades (over 4 and 5 percent respectively).

In the industrial sector, out of 154 joint ventures with Indian capital, machinery and transport equipment sector alone includes 38 projects; while 20 chemical JV's were set up with Indian participation in their equity capital. Though total Indian equity capital in chemi-

cal JV's was the highest at Rs. 2448.68 lakhs; but it was machinery and transport equipment producing JV's which cornered the largest proportion of total foreign investment from India, i.e. over 12.5 percent, followed by paper and pulp (over 11 percent) and so on.

#### Engineering Goods Exports

Export of Indian technology is manifested in the export of engineering goods. In the mid-1950's engineering goods were an insignificant part of India's exports, amounting to about Rs. 5 crores in 1955. The economic recession in the mid-1960's compelled the engineering industry in India to find foreign markets, as the internal market shrank.<sup>5</sup> The devaluation in 1966 also made India exports some what more competitive, but it was not sufficient for taking adequate export advantage. So the subsidies were necessary again to compensate for the custom duties on imports of raw materials. Thereafter engineering exports expanded rapidly. In 1965-66, engineering exports amounted to Rs. 26.2 crores and to Rs. 875 crores by 1987. Thus, whereas engineering goods exports formed only 2 percent of India's total exports in 1965-66, they increased to about 7 percent of the total exports by 1987.<sup>6</sup> India's better export performance in engineering goods during the 1970's resulted from a better competitive position stemming from favourable exchange rates, and comparatively slow growth of inflation upto 1979.<sup>7</sup>

The nature of engineering goods exported by India has also undergone a considerable change where in the mid-1950's India exported primarily handtools, by 1970's it was exporting sophisticated engineering products, power stations, sugar and textile mills and cement and oil plants.<sup>8</sup> Other items of engineering exports were diesel engines, machine tools, automobiles, electrical machinery and textile machinery.

The major market for India's engineering goods has been West Asia, which accounted for one third of such exports. Asia and Africa together take over 70 percent of India's engineering exports. Among the advanced countries, USA, West Germany, U.K. and U.S.S.R. are major recipients of India's engineering products.

Though Indian engineering products are cheaper because they are produced on small scale, with labour intensive technology, yet they fail to compete with those from Japan, South Korea and Taiwan, on account of their quality exposed to better technology. So, to make India's engineering goods more competitive in foreign markets, more investment has to be made in R & D which raises the scope for the development of new technology that could be used by export industries.

#### Project Export

Project export is another mode of technology transfer. Indian enterprises have successfully completed a large number of projects in diverse fields in several developing countries such as Libya, Kuwait, UAE, Iraq, Nigeria, Tanzania, Mauritius, Thailand and Malaysia. Indian



projects set up in other countries include power plants, sugar mills, textile, cement, paper mills, metallurgical and engineering industries, chemical and pharmaceutical plants, etc. These projects have been set up by Indian enterprises in the face of stiff international competition, because among Third World countries India has a special advantage in this area, as she has got diversified industrial base, skilled manpower and advanced technology.

A large part of the projects exported from India has an affinity with construction industry. Engineering Projects (India) Limited has remained as a major agency performing this construction activity abroad. It has won contracts for building an integrated modern township in Kuwait amounting to Rs. 2300 crores; for setting up a mechanical training centre and water supply system in Iraq, palace project in Kuwait, electrification scheme and oil storage for Saudi Arabia, civil works for a refinery in Abu Dhabi, water treatment plant in Bangkok, equipment for coke oven and by-product plant in Yugoslavia,<sup>9</sup> etc. National Buildings Construction Corporation is yet another major public sector agency that has won contracts for construction projects relating to airports, roads, hotels and housing. Likewise, a private sector firm, Siporex India, has executed contracts worth Rs. 18 crores in Dubai and UAE for providing prefabricated building materials.<sup>10</sup>

Bharat Heavy Electricals Limited (BHEL) won a massive turnkey project for a power station in Libya which includes its operation and maintenance for four years, and training of personnel. BHEL has also won orders for boilers in Malaysia and power sub-system in Zanzibar.<sup>11</sup> Similarly, Gwalior Rayon Silk Manufacturing during mid-1970's, supplied a complete viscose staple fibre plant to Korea, valued at over Rs. 5 crores. It also exported similar plant to Thailand. Star Trading Company has built up textile mills in Sudan and Libya. Larsen and Toubro has put up a dairy plant in South Yemen. A textile machinery manufacturing group is setting up a Rs. 9 crore project in Tanzania and Rs.10 crore textile mill modernisation in Sri Lanka.<sup>12</sup>

These are only a few examples among many others that have won projects in global competition against American, European and Japanese companies.

### Technology Licensing

Indian enterprises have provided technical knowhow for the production of a wide ranging products abroad. Tata Engineering and Locomotive Company licenced its technology to Malaysia for the manufacture of trucks and Bajaj Auto to Indonesia for three wheelers and to Taiwan for producing scooters. Birlas provided technical know-how, during 1970's, to Nigeria for setting up pulp and paper mill.

In 1978, Wanson (India) entered into an agreement with Vapor Canada Limited in order to provide drawings and know-how for the manufacture of boilers and its components. From this the Indian company earned over Rs. 2 crores of royalty and technical know-how fees over a five year period.<sup>13</sup> Similarly, Precision Rubber Industries sold technology to H. Beveridge & Co., U.S.A., for the manufacture of textile accessories.<sup>14</sup>

By 1978, there were 158 Indian companies which were offering, or eagre to offer technology abroad.<sup>15</sup> Though most of those had themselves imported technology earlier, by their own R & D, they have managed to develop their own expertise independently, which they were ready to share with others abroad.

#### Technical Consultancy Services

Until the early 1950's, India was herself entirely dependent on foreign consultancy services. But now a large number of consulting engineering firms are rendering project engineering and technical consultancy services in foreign countries. These services range from the stage of concepts to the act of commissioning, providing appropriate know-how and design engineering. The range of consultancy services available includes development planning, studies of economic environment, socio-economic surveys, project identification, preparation of project profiles, market research, techno-economic feasibility studies, turnkey assignments, engineering of project commissioning and initial operation and management, manpower development, training services, procurement and evaluation of plant and equipment.

Some of the early consultancy organisations to be establishbd were National Industry Development Corporation and M.N. Dastur & Company. By mid-1970's, the Government of India made it obligatory for the Indian supported foreign collaborations to obtain consultancy services from India. With this arrangement, during 1970's, some 300 consultancy organisations had come into existence.<sup>16</sup>

However, Indian consultancy organisations tend to be more general-ist rather than specialising in particular fields, and are relatively weak in the area of technology design; but their professional endowments are better attuned to working conditions in Third World countries.<sup>17</sup>

Most of the Indian consultancy firms were rendering services in West Asia and Africa. By 1980, foreign exchange earnings of India's technical consultancy amounted to Rs. 13.80 crores. Some examples follow Engineers India Ltd. provided consultancy services for pipe line construction in West Asia and consultancy for a refinery project in Algeria.<sup>18</sup> Water and Power Development Consultancy Services (India) Limited have executed 20 projects in the countries of Asia and Africa. The Rail India Technical and Economic Services managed for 3 years the railway system in Nigeria in 1979. This organisation has also done feasibility studies; loaned technical experts; provided consultancy on planning and training to Algeria, Syria, Iran, Ghana, Nigeria, Zaire and Philippines and Bangladesh.<sup>19</sup>

Similarly, Matallurgical and Engineering Consultants (India) Ltd., has done feasibility studies for establishing steel plants in Bangladesh, Syria, Abu Dhabi and Dubai and Nigeria.

A private sector consultancy organisation, Associated Cement Companies Ltd, provided consultancy and technical training, and built cement plants in Bhutan, Iran, Nigeria, Guyana, Kuwait, Iraq and

Afghanistan and Tanzania. M.N. Dastur and Company has done 20 projects overseas in the field of iron and steel and spanning over Asia, Africa and South America. Pan African consultants won a Rs. 50.3 crore contract for setting up steel plant in Nigeria, against stiff competition from American and European companies.<sup>20</sup> Tata Consulting Engineers has provided consultancy services for 20 projects in the fields of thermal power, chemicals, metallurgy and hotels.

Thus, Indian consultancy services are doing reasonably well abroad, even in the face of stiff competition from advanced countries.

#### Collaboration with International Contractors

European, American and Japanese project contractors and equipment suppliers, who bid for projects in developing areas like West Asia, East Asia and Africa etc., face shortage of technically skilled and managerial personnel. The high cost of professional services and supply of plant and equipment works out, in some cases, uneconomic to contain the overall project costs. Similarly, due to non-availability of facilities and uncongenial climatic conditions in developing countries, international contractors find it difficult to deploy proper project personnel. Thus many of such international contractors entrust segments of their projects to Indian firms. Thus many Indian firms are supplying equipment, personnel and even consultancy in Third World projects by collaborating with big western companies like GEC of USA and UK and SIEMENS of FRG.

#### Technical Assistance and Training Under Indian Technical and Economic Cooperation Programme (ITEC)

India has been sharing her accumulated experience in the field of industry, technology and skill formation with other developing countries under ITEC, 1964. The programme includes: (a) training of nationals of developing countries in India, (b) deputation of Indian experts abroad, (c) gifts of machinery and equipment, (d) assistance for conducting feasibility studies and (e) undertaking specific projects. By 1980, India had set aggregate aid expenditure aside amounting to Rs. 250.4 crores, out of which technical assistance alone amounted to Rs. 80.7 crores.<sup>21</sup> Some 50 countries, including Sri Lanka, Burma, Afghanistan, Vietnam, Mauritius, Tanzania and Fiji, etc. have been covered under ITEC.

A wide range of training has been imparted to foreign nationals including civil aviation, fire fighting services, meteorology, cattle rearing, plant protection, dairy, poultry, health and nutrition, etc. India has been sending its experts to other countries to train their technical personnel and render services. By 1981, India had sent 727 experts including doctors, nurses, teachers, engineers, accountants, economists, etc. to other countries, under ITEC programme. Another 12749 experts were sent to various countries under bilateral assignments. Out of these, maximum number have gone to Afghanistan.<sup>22</sup> Besides this, India has been receiving the largest number of foreign students in its universities and technical institutes.

SOME CONCLUDING REMARKS

From the above description, India's record as capital and technology exporter sounds impressive. However, there also appears a paradox that how a capital starved country like India is exporting capital and technology to other countries. Many reasons have been ascribed to this tendency of Indian firms investing abroad.<sup>23</sup> These firms, very strongly, like:

- (a) to overcome the limited size of internal market, particularly for capital goods;
- (b) to by pass restrictive regulations like MRTP;
- (c) to safe guard external markets;
- (d) to spread risk;
- (e) to enhance social prestige; and
- (f) better acceptability of products in other LDC's due to identical socio-economic conditions.

A keen look at the nature of Indian technology exports would show that it was hardly any know-how that has been transferred to other LDC's. Mainly, drawings and specifications alone have been shared; and only peripheral items have been exported. The core technology, however, was missing.

Most of the exporting firms from India were only re-exporting technology acquired from other MNC's, without assimilating or adapting it through their own R & D. This can hardly be termed as technology transfer. In fact, these firms alone have a 40 percent share in India's technology and capital exports; and they are supported mainly by other MNC's.<sup>24</sup>

It is only a few big business houses like Birlas, Tatas, Thapars, JK and Modis, which account for about 50 percent of India's foreign investment. Moreover, the industrial sector alone has absorbed about 84 percent of the equity share capital exported; that too is concentrated in few industries like textile, paper, cloth, vegetable oils and transport and machinery. Perhaps, Indian firms get orders or contracts because Western MNC's have left these fields, as they don't find these areas attractive. Moreover, according to some, India is using political privilege to acquire commercial supremacy. It is observed that she favours the policy of expansionism in South Asia and East Africa.<sup>25</sup>

Nevertheless, despite such scathing objections to India's export of capital and technology, one can observe that the above described features do exude India's outward leanings as a rising economic power. India has acquired this position of technology exporter which is the reflection of her concerted policy rather than an outcome of chance.

FOOTNOTES

1. Government of India, Eighty Ninth Report: Foreign Collaboration in Public Undertakings, New Delhi: Committee on Public Undertakings (1975-76), 1976, p. 9.
2. India's policy in promoting international cooperation in science and technology, especially among developing countries, was clearly stated in its national paper on Technical Cooperation among Developing Countries (TCDC), in United Nations Conference on Science and Technology for Development, at Vienna, 1979.
3. Many studies have been undertaken to study the export of capital and technology from a developing country like India. These studies throw light on both the quantitative and qualitative aspects of Indian ventures abroad, as also on the reasons for outflow of capital and technology from capital starved countries like India. Some of these studies are:

Balakrishnan, K., "Indian Joint Ventures Abroad: Geographical and Industry Patterns", Economic and Political Weekly, May 11, Vol. 22, pp. 35-48, 1976.

Lall, S., "Developing Countries as Exporters of Industrial Technology", Research Policy, Vol. 9, No. 1, January 1980.

O'Brien, P., "Third World Industrial Enterprises: Export of Industrial Technology and Investment", Economic and Political Weekly, Vol. XV, No. 41, 42, 43, December 1980.

4. Such huge foreign investment from India in Senegal, is on account of one large sized fertiliser plant supported by Indian Farmers Fertilizer Corporation (IFFCO).
5. Mehta, S., "Indian Engineering in the Perspective of Current Global Engineering", Business Standard, February 6, 1979, pp. 6-17.
6. India, Economic Survey 1970-71 and 1987-88, New Delhi: 1971 and 1988, pp. 146-47 and 89 respectively.
7. Verghese, S.K., "Developments in International Competitiveness of India in 1970", Economic and Political Weekly, XIV, October 13, 1979, pp. 1718-26.
8. Singh, R.K., "Engineering Exports", Business India, No. 42, October 15-18, 1979, p. 56.
9. Indian Investment Centre, Monthly Newsletter, XVII, No. 3, March 25, 1980, p. 20.
10. Business India, No. 9, July 9-26, 1978, pp. 44-45.

11. Indian Investment Centre, Monthly Newsletter, XVII, No. 1, January 25, 1980, p. 5.
12. Thakore, D., "The Prosperity of the Lakshmi Group", Business India, No. 66, September 15-28, p. 37, 1980.
13. Business India, Wanson Goes West, No. 20, December 11-24, 1978, pp. 42-43.
14. Business India, Precision Goes West, No. 88, July 20-August 2, 1981, pp. 29-81.
15. Indian Investment Centre, India Offers Technology, New Delhi, 1978.
16. Federation of Indian Export Organisation, Report on Project Consultancy, New Delhi, 1977 and Mariwalla, K.D., Consultancy Services in the Public Sector: A Perspective View, New Delhi: Standing Conference of Public Enterprises, 1977, p. 7.
17. Mariwalla, K.D., Ibid., pp. 19-21, 27-33.
18. Business India, No. 58, June 1-15, 1980, p. 51.
19. Indian and Foreign Review, XVII, No. 3, November 15, 1979, p. 8.
20. India Today, Vi, No. 15, August 1-15, 1981, pp. 71-72.
21. Vohra, D.C., India's Aid Diplomacy in the Third World, New Delhi: Vikas, 1980, p. 283.
22. Rahman, A., Science and Technology in India, New Delhi: NISTADS, 1984, pp. 140-41.
23. Dhesi, A.S. and Malhotra, A., "Foreign Direct Investment in Manufacturing from an LDC: India", The Indian Economic Journal, Vol. 32, January-March, 1985, No. 3, pp. 36-41; Lall, R.B., Multinationals from the Third World, Delhi: OUP, 1986 and Kumar, N., "Foreign Direct Investment and Technology Transfer among Developing Countries", in Panchmukhi, V.R., The Third World and the Economic System, Delhi: Radiant Publishers, 1986.
24. Wells, L.T., Third World Multinationals, Cambridge: MIT Press, 1983.
25. D.N., "Trade Follows the Flag; Nature of Indian Expansion", Economic and Political Weekly, Vol. XXIV, No. 22, June 3, 1989, pp. 1205-07.