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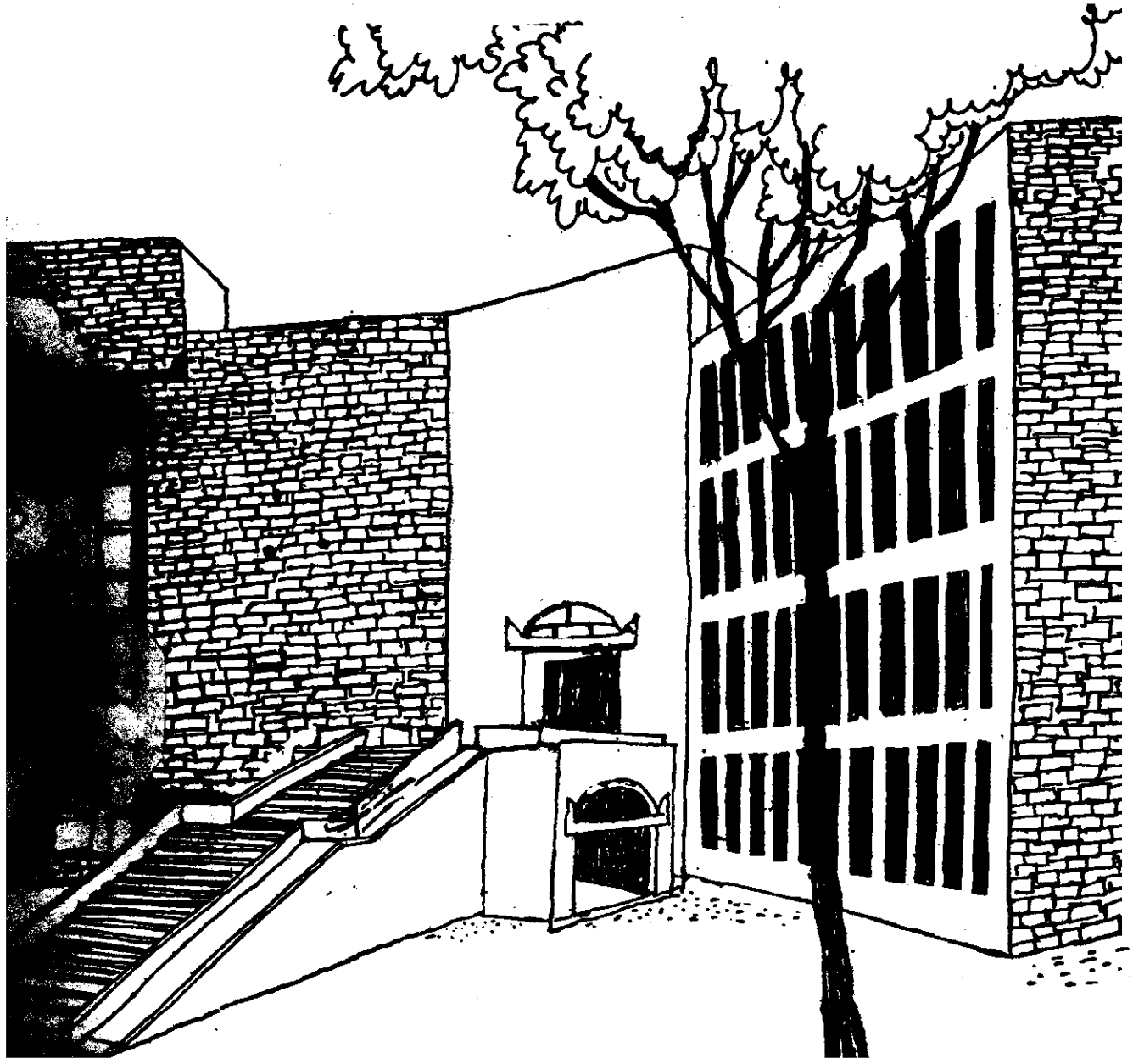

INTERNATIONALISATION OF INDIAN PES

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Abstract

An increasing number of public enterprises from India and other developing countries are internationalising their operations, and some are even turning into multinational corporations. The paper discusses some of the motives for internationalisation as well as factors facilitating and inhibiting it. The paper also discusses the organizational design appropriate for internationalisation, and some issues in the management of internationalisation of PEs. The paper concludes with a brief discussion of the opportunities and threats internationalising PEs may pose to MNCs from developed countries.

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Introduction

A variety of pressures are inducing enterprises in developing countries to internationalise their operations. Internationalisation involves some or all of the following: Shopping globally for technologies and inputs; planning production not just for the domestic market but for export; setting up production and/or distribution facilities abroad; inducting into the organization the most suitable technical and managerial personnel and management practices from abroad as well as from the home country. Balance of payments difficulties, export incentives, national emphasis on import substitution, need to modernise obsolete technologies, need to acquire control over scarce inputs like oil that are located abroad, and so forth may be national policy stimuli inducing enterprises in developing countries to internationalise their operations. The ultimate in internationalisation may be the international or global corporation that takes a completely global perspective and tries to integrate its production and marketing operations across national boundaries, seeking to produce at the least cost and to market its output on the most favourable terms globally (Schwandiman, 1973). At the other extreme is the essentially national enterprise with some interest in exports or technological linkages with foreign sources. In between lie most enterprises with international pretensions. Thus, internationalisation is not a

dichotomons, zero-one variable, but rather a multidimensional continuum, and one that is as much a philosophy of management and policy orientation as it is a concrete set of activities. The multinational corporation, with significant production capacity located abroad (Kolde, 1974), is a special case of the internationalisation of enterprises.

This paper explores some issues in the internationalisation of the PEs of developing countries (with special emphasis on India), such as factors that inhibit and facilitate their internationalisation, appropriate organizational design for internationalisation, and management of the process of internationalisation.

Internationalisation of enterprises in developing countries

Though MNCs from the developing countries are a relatively recent phenomenon, there has been of late an increasing internationalisation of the operations of firms (both private and public) based in developing nations (Agrawal, 1981). Multinationals from the developing countries have been increasing at a rapid rate during the last decade. Though there is no one definition of multinational corporations, generally an enterprise that owns production or service facilities in one or a number of countries other than in the country of origin is an MNC (Kolde, 1974). This would also include enterprises in which two or more parties share responsibilities for operations by providing a number of resources, e.g. risk

capital, technical know-how, natural resources, access to markets and management. Firms in a number of developing countries have been setting up manufacturing and other facilities in other developing countries for more than a decade. The process of firms from developing countries setting up manufacturing plants even in the industrialised countries has also begun. For example, the U.S. accounted for over 17% of Taiwan's foreign direct investment during the period 1971 - 78 (Ting and Schive, 1981). The Kirloskar group in India has invested in manufacturing facilities in West Germany and Thermax Ltd., another Indian company, earlier known as Wanson India Ltd., has taken over its erstwhile collaborator in Canada.

Indian companies have set up joint ventures in a number of developing countries and also in a number of industrially developed countries like U.K., U.S.A., West Germany, Canada and Ireland. In fact, according to one study, India has emerged as one of the leading developing nations to set up joint ventures abroad (Agrawal, 1981). The same study states that there are already 200 operating joint enterprises spread over 35 countries, out of which 110 have already gone into production and 87 are in various stages of implementation. Between the private and the public sector, the former has been more active in this field; however, there are a few

public sector enterprises which are actively seeking an increasing degree of internationalisation. Indian public enterprises are stated to be involved in some 230 projects in at least 38 nations, according to a recent study (Negandhi and Ganguly, 1982). Some of the Indian public sector enterprises that have already initiated international activities (Indian Investment Centre, 1976) are:

1. National Industrial Development Corporation
2. National Research Development Corporation
3. Hindustan Machine Tools Limited
4. Engineering Projects (I) Limited
5. Engineers India Limited
6. Metallurgical and Engineering Consultants India Limited
7. Water and Power Development Consultancy Services (I) Ltd.
8. Bharat Heavy Electricals Limited
9. Rail India Technical and Economic Services Limited
10. Balmer and Lawrie Limited
11. Indian Road Construction Corporation
12. National Building Construction Corporation
13. Steel Tubes of India Limited
14. State Bank of India and other nationalised banks.

Balmer and Lawrie was the first public sector enterprise in India to make direct foreign investment (Krishna Kumar, 1981). The company successfully commissioned its

barrel and can plant in Dubai (United Arab Emirates) in 1978. Bharat Heavy Electricals Limited has, as per its annual reports, considerably contributed to the installation of thermal power generating capacity in Malaysia and has installed other electricity generating units like hydro turbines in Thailand. It is involved in the manufacture of 120 MW capacity boilers in Libya on a turn key basis; laying of a sub-marine cable from Zanzibar to the coast of Tanzania, and in developing a 544 MW electricity generating plant in New Zealand. Another well known Indian public sector enterprise, HMT, has also made significant strides in its internationalisation effort. It has set up a subsidiary company known as HMT International Ltd., which is spearheading the parent company's international effort. HMT has entered the U.S. market for machine tools through its branch office, and has entered into various types of collaboration arrangements with organizations in Nigeria, Tanzania, Kenya, and Indonesia for supplying machinery, and providing project consultancy and technical services. In Nigeria it has entered into an agreement with the Federal Government of Nigeria for setting up a machine tool unit. The agreement with the Small Scale Industries Development Organization of Tanzania envisages supply of machine tools for 8 common facility centres to be set up by the Tanzanian organization. In Kenya it has formed a joint venture company

for the setting up of a machine tool unit. It has also entered into an agreement with SONELGAZ in Algeria for the supply of machinery and equipment, erection and commissioning the same, and training of personnel both in Algeria and in India. In the non-manufacturing sector a number of nationalised banks have also made some efforts at internationalising their operations, by opening branches in foreign cities with significant Indian communities.

Reasons for internationalization of PEs

Not much systematic work may have been done on the motives of public enterprises in developing nations for internationalisation. However, the extant literature on public enterprises does suggest the following driving forces for internationalisation (Negandhi and Ganguly, 1982; Krishna Kumar and McLeod, 1981; Mazzolini, 1979):

1. Protecting existing markets or searching for new ones
2. Sale of technologies
3. Access to critical raw materials
4. Rational utilization of productive resources at binational and regional levels
5. Utilisation of excess domestic capacity
6. Need to grow rapidly
7. Political objectives of the state.

A number of these motives seem to be exemplified by the case of BHEL which has aggressively tried to develop foreign markets for its products and know-how. Starting from the manufacture of electrical equipment for power generation and transmission, BHEL diversified into industrial boilers, steam generating equipment for nuclear power plants, pumps, compressors, foundry forge, oil rigs etc. BHEL's plants were designed to produce 4250 MW of electrical equipment each year, whereas the total installed electricity generating capacity in India in 1956 was only 3400 MWs. The venture entailed high marketing risk stemming mainly from the fact that the Government decided to set up the plants well before domestic demand had grown to the point of running the plants at full capacity. However, after several lean years, BHEL, because of a rapidly growing domestic market, among other factors, was able to improve production and financial performance and grow into a diversified company in the electrical field (Ramamurti, 1982).

As part of its efforts towards diversification it ventured into several foreign markets. Saddled with excess investment, BHEL's management was forced to search for opportunities for product and market diversification. It has not only attempted to cater to markets in developing countries but also in the industrialised ones. The example of BHEL also exemplifies another emerging motivation, that of

growth, and the desire for recognition as one of the premier high technology organizations able to compete with internationally renowned companies in the same field.

HMT's export efforts, as per its annual reports, were begun when the domestic market was passing through a recessionary period. Among Indian public enterprises HMT is something of a legend. Founded in 1953, it grew rapidly, both production-wise and product-wise, and except for some years, by public sector standards, it showed a good profit and growth performance (Khandwalla, 1981, Part E). Unlike BHEL, HMT started relatively small in each of its diversifications, but then grew rapidly. Around 1967-68, the recessionary period during which, for the first time, HMT made financial losses, it begun searching for opportunities for product and market diversification. From its initial beginning as an exporter in the late sixties, HMT has come a long way in its internationalisation efforts. It has greatly diversified its technology base by entering into a large number of technical collaboration and licensing arrangements with enterprises in the developed countries.

As discussed earlier it has initiated collaboration with a number of developing countries and has set up branch offices in Australia, Luxembourg, Kenya, and the United States. It exports machine tools to America, Western Europe, Southern

Europe, Africa, West Asia, South East Asia, Australia and New Zealand. Like BHEL, HMT also exemplifies the motive of searching for new markets for its existing products, sale of technologies, and utilisation of excess capacity. Interviews with senior managers of HMT also suggested that the desire to provide promising executives opportunities for increasing their earnings may be one factor in the development of international operations; another may be freedom of operations from an overly restrictive domestic environment.

A number of other Indian PEs mentioned in the previous section have been major exporters of turn key plants, capital goods and consultancy services. Engineering Projects (India) Limited, Engineers India Limited, Metallurgical and Engineering Consultants India Limited, Water and Power Development Consultancy Services (I) Limited, Rail India Technical and Economic Services Limited and a number of others fall in this category.

Many other examples of public enterprises searching for new markets are available in the literature (Krishna Kumar, 1981). Many state controlled enterprises from Latin America have formed foreign joint ventures for tapping new markets. The National Iranian Oil Company attempted to establish joint ventures with firms in Greece, Germany, Belgium and the United States to have assured markets for its crude oil.

In some respects public enterprises also exhibit behaviour akin to that of private sector multinational firms (Krishna Kumar, 1981). IME established a joint venture in Uruguay with a local firm for assembling light freight vehicles to protect its export markets when the government of Uruguay wanted to restrict the import of these vehicles in order to encourage domestic production.

The uncertainty of raw materials supply in Brazil, Hongkong, South Korea and Taiwan have forced public enterprises to search for raw materials elsewhere by forming joint ventures (Krishna Kumar, 1981). Brazil's Braspetro has been conducting oil explorations in a number of Middle Easten countries, Madagaskar, and Colombia. Vale do Rio Doce, another Brazilian public enterprise has acquired a coal mine in British Colombia. Chinese Petroleum Corporation, a Taiwanese state enterprise, has entered into a collaboration with National Petroleum of Colombia for joint exploration.

The motivation for rational utilisation of productive resources at binational and regional levels seems to be strong in the Latin American countries. Several binational public sector companies have been formed between Paraguay and Brazil and Paraguay and Argentina.

Idealogical and political imperatives seem to be present in some of the overseas investments by public enterprises from

developing nations (Krishna Kumar, 1981), such as the case of India and Nepal signing an agreement for setting up joint ventures for manufacturing diesel water pumps. The motivation of the Government of India in setting up these joint ventures seemed, according to the study, to improve its relationship with its neighbouring countries even though the profitability of the proposed venture was doubtful.

Facilitating factors for the internationalisation of Indian PEs

Recently, Dr. Khusro, Member - Planning Commission, Government of India, emphasised that the developing nations may provide the greatest marketing and investment opportunities for firms from the industrialised countries and the more developed amongst the LDCs. He stressed the opportunity of participating in engines of overall economic growth in LDCs, such as house building activity, road construction, laying of railway lines, etc., areas needing a very rapid rate of growth.

India may now be one of the leading nations of the developing world in terms of its industrial production and its capacity to assimilate new technologies. India has also emerged as one of the leading developing nations to set up joint ventures in other developing countries in a very wide range of industries (Agrawal, 1981).

Public sector enterprises in India attached to the Central Government and the various states are by and large relatively large enterprises and account for half of the

country's industrial production (Khandwalla, 1982). The 200 odd PEs attached to the various ministries of the Central Government employ nearly 2 million persons, produce goods and services worth nearly Rs.350/= billion, and market goods and services ranging from coal, steel, cement, textiles, watches, lamps, scooters, chemicals and fertilizers to ships, machinery, machine tools, air crafts and heavy equipments.

This broad array of industries in which the public sector is involved in India is a great source of strength which can be utilised to achieve the various objectives of the Government. The public sector enterprises have accumulated significant technological expertise and know-how and have made adaptations geared to the peculiar characteristics of the local economy. For example, when HMT diversified into tractor manufacturing and marketing, initially their Czechoslovak collaborator had prepared a project report, which envisaged a very high degree of vertical integration. As a result the project cost was estimated to be around Rs.320 million. But this was reduced to only Rs.120 million through an indepth study by HMT's engineers, who decided to subcontract a large number of components (Chaudhury, 1983). Punjab Tractors Limited (a joint sector company) made a number of innovations in manufacturing technology, like using special purpose machine tools to process a number of components (in

industrialised countries SPMs are used to machine only one or two components), by utilising road construction technology in the design and construction of their tool room to reduce costs, and investing in developmental efforts to produce a wide range of tractors (Chaudhury, forthcoming). One study notes that Indian public enterprises have developed new manufacturing technologies in such industries as machine tools, steel, construction and engineering (Krishna Kumar, 1981). The technologies that the Indian public enterprises possess can be used for much smaller scale production than those supplied by the MNCs based in the industrialised countries. For example, though licensed to produce 10000 tractors, Punjab Tractors Limited phased out its total tractor project by creating, in the first phase, a plant for manufacturing only 5000 tractors and then expanding by another 5000 in the second phase. This is in contrast to the minimum capacity of around 40000 tractors per annum in the industrialised countries.

The technologies used by Indian PEs are also more labour intensive. Interviews with engineers working for the Fertiliser Corporation of India and Indian Farmers' Fertiliser Cooperative Organization (IFFCO) suggested that other things being equal they attempt to choose technologies which can provide employment to a large number of people.

A third characteristic of technologies possessed by Indian public enterprises is that they can utilise some of the raw materials that are locally available. This is because of the administrative pressure by the Government to indigenise production as rapidly as possible using local raw materials and plant and machinery. Over a period of time public enterprises acquire competence in adapting the technologies borrowed from companies based in the industrialised countries to the local conditions and to the regulatory policies of the Government. The characteristics of technologies mentioned above are suited to the needs of developing nations, which are also characterised by an abundance of labour, lack of technical skills, and small domestic markets. Besides, as executives at HMT indicated, developing countries tend to trust PEs from fellow developing countries more than MNCs from the developed countries or private enterprises from other developing countries.

Governmental assistance and cooperation is another competitive asset of public enterprises (Krishna Kumar, 1981). Since public enterprises are instruments of governments to serve vital social, economic and political interest of the country, they receive direct and indirect subsidies, preferential treatment from governmental lending institutions and infusious of fresh capital when needed, priority in the import of technologies and other inputs, etc. The loss bearing capacity of public enterprises is also enormous, even though the

pressures on the executives in loss making public enterprises may also be large (Khandwalla, 1981, Part A). Without financial assistance from the Government, Indian PEs like Fertilizer Corporation, Heavy Engineering Corporation, or National Textile Corporation may not be able to survive. This loss bearing capacity confers on a PE a clear advantage over private enterprises in internationalising its operations, for the PE, during initial years at least, is likely to have a large loss potential due to its unfamiliarity with a foreign environment. This capacity to incur large learning costs may well make a PE from a developing country something of an equal even to an MNC from a developed country. Besides, the international environment might also favour foreign investments by public enterprises. In the context of the third world nations' desire to strengthen economic and political cooperation among themselves, and to lessen dependence on Western MNCs, public enterprises are often seen as useful mechanisms (Krishna Kumar, 1981).

Factors inhibiting the internationalisation of PEs

A number of forces may inhibit the internationalisation of PEs (Wells, 1981; Mazzolini, 1979). Research evidence from a study of international strategic behaviour of Government controlled enterprises in Europe (Mazzolini, 1979) suggests the following:

1 Government ownership often restrains PEs from internationalising their operations because their internal management systems as well as government regulatory procedures are geared to domestic activities. In addition, the perceptions and interests of key actors in the strategic decision making process of public enterprises are primarily geared to national level solutions.

2. The first international investment by a state owned enterprise faces a number of difficulties. The mechanisms for identifying problems in current operations tend to be geared to domestic activities and therefore the tendency is to find familiar, domestic solutions to current problems rather than those that make sense in a foreign context. Besides, the approval procedures often do not permit too radical a departure from existing domestic activities, nor the PE searching vigorously for international opportunities.

3. State owned enterprises with multi-national experience find it less difficult to increase their international operations. Previous exposure to international activities reduces the top management's aversion to foreign environment. Also internal management systems become geared over a period of time to international activities and provide a more appropriate context within which decisions on further internationalisation can take place.

A case study of a private sector Indian MNC may provide useful insights into the problems internationalising PEs may run into. Camlin (Malaysia) was started as a joint venture between the State Development Corporation of the state government of Negri Sembilan and Camlin Pvt. Ltd. in mid 1975 but was continuously in the red till its winding up sometime in 1982 (Morris, 1982). Camlin, which had all along been growing in the relatively protected conditions in India had sought to transfer its experience to Malaysia - essentially production techniques similar to what had been tried in India and plants with a low breakeven point for the manufacture of colours. It was promised protection from imports from the developed countries through high tariff, which however, did not materialise. With a deluge of imports from the U.K., Japan, and Germany, and low quality ones from Thailand, China, and Taiwan, Camlin (Malaysia) attempted to diversify into other products which had tariff protection. Though it received considerable help from the Government of India in mobilising financial resources, the situation did not improve. Problems were also encountered in the area of marketing.

Their approach was again to transfer their experience in India to the host country. However, their assumption of market conditions, and joint venture partner's commitment to import substitution in Malaysia, turned out to be wrong, and their financial position weakened further, which finally led to the liquidation of the company.

A lesson from this experience is that managers of nascent multinational corporations tend to see their new environments in the same way as their home country and hence try to "mirror" their policies in the new environment. However, the new environment may be totally different from their assumptions, and might create problems similar to the above one. Fresh thinking is therefore necessary in developing policies for PEs aspiring to be MNCs. The need for experience in the host country cannot be overemphasized. As an executive of an Indian MNC, Indo-Malaysia Engineering Co., a joint venture promoted by Kirloskar Co. Ltd., and Kirloskar Oil Engines Ltd., said (Morris, 1982):

"...The low-volume, high unit-cost intermediate technology which India brings in is not competitive. It works in India where doors are closed to outside technology but it will not succeed in developing countries like Malaysia when there is no protection. It is necessary for an Indian entrepreneur to bring in new technology, which he can import freely, particularly for engineering products ..."

Another executive echoed a similar concern (Business India, 1981): "... A typical Indian entrepreneur is accustomed to operate in an environment characterised by tariff walls which protect him from foreign competition; a domestic demand exceeding supply which ensures continued profitability; a relatively small scale of operations which results in lower

levels of technology and high unit costs as compared to those enjoyed by foreign counterparts; high levels of debt servicing capability as a result of generous and assured margin and a low level of product innovation."

The need for quality products, latest technology, competitive pricing, large scale production, marketing strategies geared to the local conditions has been emphasized by a number of managers of Indian MNCs. Above all there is a need for changing the world view when an Indian company moves into the international arena. Without a strategic and orientation change, PEs from developing countries may have to pay a very heavy price for internationalising their operations.

Finally, public accountability, and the close governmental and public surveillance this implies, may make it difficult for PEs, especially those from democratic countries like India, to break into markets where bribing public officials is a way of life.

Organizational design for internationalisation

Internationalisation generally creates a need for major internal re-adjustments within the enterprise. New linkages with the foreign environment which this strategy implies require considerable changes in organizational structure; system of planning, control and co-ordination; organizational values and norms; operating technology; management skills, knowledge, and attitudes, etc. Chandler's pioneering study of strategic

change in U.S. industry (1962) indicated that organizational form follows strategy. His model described the pattern of organizational change in the form of five stages. The basic finding was that a strategy of expanding into new products and markets increased the diversity beyond the coping capability of a functional structure which therefore ultimately evolved into the divisional form of organization.

Scott (undated) argued that enterprises, as they grow and diversify, transit through three structures: the centralised, when the organization is small and undiversified; the functional, when it is large but not very diversified; and the divisional, when it is large and diversified. In the third stage, certain corporate functions, particularly finance, are centralised, and each division is a profit centre. Besides, the chief executive is less of a coordinator of warring departments (as in the functional form) and more of a strategist. A fourth structure for some enterprises that produce sophisticated outputs that are custom-made (such as aerospace firms or equipment manufacturers) is the so-called matrix structure (Galbraith, 1971) in which temporary sub-organizations consisting of specialists, seconded to them from various departments, are created for each contract or project, and dissolved when the contract or project is over.

Research on Western multinational corporations suggests the possibility of many variations in the design of international organizations (Davis, 1979). This research may provide

useful pointers to PEs seeking to become multinational corporations. The general tendency is that while the domestic firm may be organized along product or functional basis, an international division responsible for managing foreign operations eventually emerges that is organized around geographical interests. The international division is typically an independent part of the enterprise whose head reports directly to the chief executive officer of the firm. This division is not subject to the same strategic planning that guides domestic activities (Stopford and Wells, 1972). During the early phases of its development, the international division has little staff of its own and there exists close links with functional departments at the corporate level.

The nature of organization at different stages in the evolution of an international business is related to the motivation of top management (Stopford and Wells, 1972). The considerable autonomy of foreign subsidiaries (the stage before the creation of the international division) is related to the lack of knowledge and expertise at the top management level. The threat of losing an export market to competitors often leads firms to build their own plant abroad, an act which is defensive in nature. During the initial phases managers of the foregin subsidiaries are allowed a very large degree of autonomy. Sometimes the only contact a subsidiary might have is in terms of remitting dividends. Reports are sent to the

central office but are seldom used for decision making and action. The reason for this autonomy may be that the initial foreign investment is small and is not critical to the overall success of the enterprise.

These investments are exploratory in nature and are used to learn more about international business. Also it is difficult for the corporate office to develop any control system without the necessary knowledge of what constitutes a reasonable level of performance under conditions prevailing abroad. Hence a subsidiary manager is in a strong position to be his own boss.

This situation is unlikely to continue if the subsidiaries grow rapidly (Stopford and Wells, 1972). When this happens pressures to introduce controls begin to emerge at the headquarters. Rapid growth of the foreign subsidiaries becomes the impetus for creation of the international division. The international division is created with the aim of coordinating the activities of the foreign subsidiaries. Coordination is necessitated by the top management's desire for raising the overall performance of the subsidiaries above the level that would be possible if each subsidiary was operated autonomously. Transfers of goods and services amongst the subsidiaries, raising capital for the subsidiaries, etc., are some of the areas where there are possibilities of economic gain from centralised control. Furthermore, as the new manager of the international

division learns more about international business, there is some tendency towards centralisation. MNCs which deal with mature and narrow product lines based on stable technologies face greater pressures for centralisation than those which deal with highly diversified product lines and rapidly changing technologies and market conditions (Davis, 1979). With increase in the size of the international division, pressures are again generated for creation of new organizational forms for coordinating operations on a world wide basis. A world-wide perspective in planning and control is hindered by the presence of the international division, which acts against complete integration of the domestic and international activities (Stopford and Wells, 1972).

In order to introduce company wide strategic planning and control further structural changes become necessary. There are four major types of world wide structures which emerged in Western MNCs during the 1960s in response to the need for global integration (Davis, 1979; Stopford and Wells, 1972):

1. World wide product structure;
2. World wide area structure;
3. Mixed structure; and
4. Matrix structure.

In the world wide product structure the international division is disbanded and separate groups are made responsible for particular products (Davis, 1979). In the worldwide area structure the total business of the company is organised on geographical lines, for example, North America, Latin America, Europe, Middle East, Africa, and the Far East. The head of each area is fully responsible for all the functions within his geographical domain. The mixed structure is a combination of the worldwide product and area structures.

As seen previously, a strategy of product and market diversification necessitates the creation of the product division structures. Differences in manufacturing technology and customer groups are best managed within separate product based organizations. International companies which have highly diversified product lines tend to have world wide product structures. In contrast, the world wide area structure tends to be preferred by companies that have mature product lines and serve relatively similar markets. Low manufacturing costs through long runs, specialised production in large plants using suitable technology seem to be important in MNCs preferring world wide area structures.

Both the product structure and the area structure involve a trade off. The former is based on differentiation of goods and services according to distinctions in their

manufacture and/or their end use, while the latter is based on geographical location with boundaries influenced by one or more of several factors, including distance, national legal, political and cultural considerations. Many firms opt for a compromise between the world wide product and area structures. The mixed structure has some worldwide product divisions and worldwide area divisions simultaneously. In all three structures the principle of unity of command is maintained. The mixed structure might emerge from mergers and acquisitions, or it may be an intermediate stage in the transition from one kind of structure to another.

The fourth structure for some enterprises that produce sophisticated products that are custom made (such as aerospace firms or equipment manufacturers) is the so called matrix structure (Galbraith, 1971), in which temporary organizations consisting of specialised people from various departments are created for each contract or project and dissolved on completion of the work. A similar structure exists in the context of multinational operations (Davis, 1979). This is known as the global matrix structure. Multinational corporations that are organized on product lines face the problem of coordinating their diversified business within a geographical area. From the point of view of the total company the worldwide product structure duplicates resources. On the other hand,

the worldwide area structure suffers from poor coordination between geographical areas for any one product line. The global matrix organization structure attempts to blend these two kinds of organizational structures.

This organizational structure is based on dual reporting, and product and area orientations are given equal weight in decision making. This kind of structure may be useful when the diversity of products and markets require balanced and simultaneous attention, where there is a need for shared use of scarce human resources, and there is a demand for greater information processing as a result of uncertainty and complex and interdependent tasks. In the global matrix structure information planning and control systems operate along the two dimensions of the structure simultaneously and instead of a hierarchical culture which is the guiding principle in the other three types of structure, the matrix structure requires a culture of negotiated management. Global matrix organizations are structurally unstable. Conflict is inherent in the design, but it is a cost to be paid to achieve advantages of both the product and area structures.

Problems of planning and control become more complex when a multinational organization adopts a grid or matrix structure which essentially is a move towards a system of shared responsibilities (Stopford and Wells, 1972). In such

organizational systems a delicate balance is required to be maintained between cooperation amongst managers and competition and conflict between them. Emphasis on cooperation may blunt the competitive drive of managers. On the other hand a certain degree of competition and conflict between them may generate a better search for alternatives, but may impede coordination between competing managers.

A global matrix organization structure imposes higher demands on the manager than other systems. Managers are required to satisfy the conflicting demands of their product and area supervisors. They often have more demanding responsibilities than managers in either product or area divisional structures, but with less authority. These complex demands necessitate special qualities in international managers, and imply extensive training.

International firms face a number of problems in formulating their overall long term plans. A major problem of MNCs which one study revealed was the lack of strategic integration of plans (Schwandiman, 1973). Planners located in the central office tend to give greater attention to the domestic business as they know that terrain better (Stopford and Wells, 1972). Domestic division managers may not support actively the firm's international efforts. Firms find it difficult also to decide the extent of centralization that would be appropriate for a particular firm. Though the problems of determining an appropriate balance between centralization and decentralization get obviated with experience in international operations, many of the problems remain.

Problems are also encountered in designing appropriate control systems for international operations (Vernon, 1972). Comparison of management effectiveness and efficiency across divisions requires common standards. These are difficult to design when a firm operates in very different environments. For instance, control of machine downtime, absenteeism, rejection rate, warehouse pilferage, sales productivity, returns and allowances is beset with the problem of adjusting standards to local environments.

Several organization theorists have argued that superior performance necessitates a good fit or synergy between the organization's strategy and structure (Chander, 1962, Scott, undated), and the organization's situation and strategy (Khandwalla, 1977: ch.7; Khandwalla, 1981; Child, 1977). As far as internationalisation is concerned, essentially the greater complexity of decision making attendant upon internationalisation implies not merely decentralisation, possibly divisionalisation, and also the development of a more sophisticated management information and control system, but also greater technocracy. Technocracy means the hiring of technical specialists and giving them a say in decision making, most commonly by allocating them to staff departments such as industrial engineering, data processing, corporate planning, environmental scanning, forecasting, finance, and legal matters. But these very necessary structural moves - decentralisation, installation of sophisticated management control

and information systems (MICS), and the setting up of various high level staff departments may create severe problems in coordination and integration of activities (Lawrence and Lorsch, 1967; Khandwalla, 1973). For example, decentralisation may lead to suboptimisation; MICS to neglect of non-quantifiable variables like morale; and staff departments may sharpen line staff conflicts. Thus, structural change needs to be supplemented by change in the organization's operating culture and modes of decision making. Considerable investment needs to be made in human relations and leadership training, participative decision making and team management, professionalised decision making, organization development, human resources development systems, etc. To embark on internationalisation without planning for appropriate structural, systems, management decision making style, and cultural changes is an invitation to disaster. These very far reaching changes in organizational design need to be borne in mind by any PE attempting a significant degree of internationalisation.

HMT, an Indian PE, provides a fine example of an effective organizational design for internationalisation (Khandwalla, 1981, Part E). During the decade of the 1970s HMT diversified from machine tools and watches into not only more sophisticated machine tools (such as numerically controlled machines) and watches (such as electronic and digital watches) but also

into tractors,lamps, dairy equipment, etc., and moved aggressively to promote exports and internationalise its operations. This diversification and internationalisation was, however, accompanied by a series of organizational changes. Early in the seventies the company got partially divisionalised, and each plant became a profit centre. Later, the company got fully divisionalised, into each product group doing its own marketing. The management installed a sophisticated MICS under which a flash report on a unit's monthly performance went out to the headquarters within a week of the closure of the month, and a more detailed report followed within two weeks more. An international division was set up. The company initiated long range corporate planning exercises in the mid-seventies, and set up the personnel and finance directorates at the corporate headquarters. Management and staff training were given high priority since the late sixties and HMT set up a full fledged O.D. department to coordinate human resources development activities. As a consequence, HMT has, among Indian public enterprises, been one of the most successfull in diversifying and internationalising its operations. The organizational adaptibility demonstrated by Indian PEs like HMT and BHEL raise confidence in the capacity of PEs from developing countries being able (if allowed by their governments) to internationalise their operations successfully.

Some considerations in the management of PE internationalisation

A PE is not an autonomous enterprise that can go about internationalising its operations as it pleases. PEs are creatures of the state, set up to pursue missions the state deems are important. Thus, any internationalisation move must ultimately be related to the overall mission and strategic plan of the PE and its parent ministry, and hence it is necessary to develop objectives for each internationalisation move. Defining objectives for the proposed internationalisation helps in directing the environmental scanning effort. This is an portant point, since the external information that an enterprise needs to collect for this purpose can be enormous.

The objectives of internationalisation can be many: stability of earnings, better capacity utilisation, growth, exploitation of organizational strengths, increase in earnings and profitability, image building, reducing dependence on existing businesses, etc. In the case of a PE, meeting national priorities is also an important objective. Determination of these objectives depends upon an analysis of the existing strategic priorities of the PE and the government. The top management of the PE might be already aware of this from previous analysis, and based on that it may decide the objectives. However, in the course of the total planning process involving internationalisation, these objectives may undergo some redefinition, for strategic planning is inevitably an iterative process.

After the objectives of internationalisation are reasonably clear, the organizational group responsible for planning the internationalisation task should conduct a capability diagnosis and a resource audit exercise. This is part of the popularly known SWOT (strengths, weaknesses, opportunities and threats) analysis. For this exercise senior executives from different parts of the organization may be involved to get multiple perspectives. Defining organizational strengths and weaknesses is quite often a difficult task, since the perception of relevant factors is baised by familiarity and by experience. A particularly important consideration is the required changes in organizational design (see previous section) that an internationalisation move may require, and whether the PE is capable of this kind of a change. Besides, PEs in developing countries like India may have to face some thorny issues of equity : for the same work a PE may have to pay far higher salaries to its foreign personnel.

The next step is that of identifying suitable opportunities. A brainstorming exercise may be performed to generate a large number of ideas. Other sources may also be used to get as many ideas as possible. The parent ministry or the other organizations with which PEs come in contact often, like the Bureau of Public Enterprises, other ministries, etc., may also be tapped. Customers, dealers, and suppliers can also be other sources of ideas. Once a sufficiently large

number of ideas have been generated, a few amongst them may be taken up for more careful scrutiny. For this scrutiny, the objectives of internationalisation and the list of strengths and weaknesses need to be used. The output of this exercise should be presented to the top management. At this stage it may be useful to involve the key officials of the parent ministry to get their approval for going ahead with a detailed examination of a few from amongst the large list of ideas.

The next step is a rough assessment of the foreign environmental influences on each of the selected internationalisation thrust areas. Typically the foreign environmental influences may be categorised into : i) regulatory, ii) political, iii) economic, iv) social, v) competitive, and vi) technological factors. These evaluations of internationalisation alternatives need to be presented to top management which then finally decides on one or more proposals to be put up to the ministry for approval.

If the internationalisation efforts involves investment of substantial funds, some further considerations need to be borne in mind. Evaluation of PE investment proposals by the Government is a complex process involving complex institutional relationships. The main actors in India are the concerned ministry, the Bureau of Public Enterprises, the Public Investment Board and the Project Appraisal Division of the Planning Commission. The Finance Ministry and the Union Cabinet also play important residuary roles (Khandwalla, 1981, Part A).

The process of providing funds for investment by the concerned ministry is linked with the national five year plan. A provision is made in the plans for each public enterprise and detailed project proposals have to be worked out at the stage when actual approval is required. The funds allocated in the five year plans form the basis of estimating the financial requirements and investments out lay provisions on an annual basis, and these are presented in the annual performance budget of the ministry. An investment proposal, whether for expansion or for setting up new production facilities, is to correspond to these outlays, However, there is no automatic approval for projects included in a ministry's approved investment budget. The approval for the project is given only after its detailed scrutiny by various organs of the Government.

The process of evaluation by various organs of the Government may range from 6 months to several years, during which a variety of perspectives are brought to bear on the proposal. This process of evaluation from multiple and differing perspectives may lead to several recastings of the project to make it satisfy the multiple requirements of the assessors, with resulting delays and cost escalations.

Thus, familiarity with the evaluation criteria used by the different organs of the Government is needed, and the

proposal needs to anticipate their objections. The PE may also need to cultivate key officials in its parent ministries as well as in the various appraising organs of the government to expedite the appraisal.

Once the approval of the Government is obtained, the PE would have to work out a very detailed implementation plan which would spell out details of entry strategy, investment programmes, manpower build-up programme, organization development programme, detailed financial calculation for the first two to three years. If this internationalisation plan has a longer time span than 2 or 3 years, it may not be possible to spell out details beyond 3 years due to various uncertainties. However, the future growth strategy should be developed of which the entry strategy would be an organic part. Beyond a period of 2 or 3 years aggregate quantitiative data would suffice. The premises on the basis of which the projections are made are likely to change as a result of environmental changes. These would need to be incorporated periodically.

As was mentioned at the outset of the paper, internationalisation is a multi-dimensional function involving any or all of shopping globally for inputs and technologies, substantial exports, setting up production facilities abroad, adopting international management practices, etc. Clearly many PEs can profitably internationalise their operations to

a limited extent, but few PEs can, or may be allowed by their parent ministries to, go all the way. PE charters are generally fairly narrow, and in India, at least, their permitted diversification has been along related lines (Chaudhuri et al 1982; Chaudhuri and Khandwalla, 1983). If the government does adopt a policy of permitting PEs to internationalise their operations, the scope is likely to be fairly narrow, and international activities of PEs may also be subjected to fairly extensive surveillance. In the circumstances it may be adviseable for PEs to try and understand their international environment better before mounting a large internationalisation effort. A fairly strong export drive and continuous monitoring of the technological environment pertinent to the PE's products and manufacturing processes may have considerable learning value for the PE. Even after this sort of familiarisation it may be better to avoid grandiose plans for becoming a multinational. Instead, as with the effective diversification strategy for PEs (Chaudhuri and Khandwalla, 1983), an incrementalist approach that maximises familiarisation with a foreign environment may pay the richest dividends. This does not necessarily mean that PEs should go only to those markets where the pickings are easiest. Instead they may well want to enter the toughest but potentially largest markets with a view to maximise learning and establish a global

credibility (Patil, 1982). What is suggested is simply that for PEs used to operating in sheltered markets the first priority in internationalisation should be to learn the ropes at the least cost.

Concluding remarks

Public enterprises in developing countries may have much potential for internationalising their operations and realising economies of scale by producing for a much larger market consisting of developing countries with common characteristics. A number of forces also, of course, limit this potential. Public enterprises in India have of late been increasing their international involvement. Given the nature of control exercised by the Government over public enterprises and the latter's limited charter (Chaudhuri and Khandwalla, 1983), they may internationalise in areas more or less related to their existing ones. This hypothesis is also supported by Mazzolini's study (1979) of government controlled enterprises in Europe. Indian public enterprises have a number of weaknesses in their management systems and regulatory structures (Khandwalla, 1981) which, if unrectified, may impede internationalisation. They may especially find it difficult to operate in competitive foreign markets. Operating in competitive foreign markets requires a fast, aggressive, professionally executed response to environmental changes. Public enterprises

with relatively bureaucratic systems and procedures may not be quick enough to respond to competitive moves of MNCs from developed countries. Thus, these PEs would need to build more enterpreneurial and organic decision making systems which could be quite different from organizational structures and systems used in their domestic operations.

If PEs from India and other developing countries do become MNCs, given their vast loss bearing capacity familiarity with conditions in the developing world, and political support of their mother countries, they could pose a formidable challenge to MNCs from the developed countries in the markets of the developing countries. Since the MNCs from the developed countries have an edge in sophisticated technology, one cannot rule out partnerships between PE MNCs from developing countries and private MNCs from the developed countries. Another possibility is private MNCs from developed countries becoming quasi-PEs to match the loss bearing capacity of MNC PEs from the developing countries. But before these intriguing scenarios can unfold, the governments of developing countries will need to make a far-reaching strategic choice: whether or not to allow their PEs to internationalise their operations and emerge as MNCs. The choice is an important one because of the vast changes in organizational design and operating culture that will have to be permitted if these PEs

are to be viable in the international arena. It is also important because internationalisation carries with it a potential loss of control of the Government over the PE. A second strategic choice will have to be the fixing of the strategic objectives of PE MNCs. Will they be purely commercial (profit maximisation), or will they be also economic (influencing of balance of payments, control over crucial imports) and political (influencing the foreign policy of the countries where the PE MNCs operate)? Clearly, some complex strategic thinking and some tough choices are in store for the governments of those developing countries that are contemplating the internationalisation of their PEs.

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