Chapter V

Transnational corporations and human resource development

Introduction

Human resource development is central to economic growth and development. Although its precise contribution is difficult to measure, human capital created through investments in education and the development of skills emerges as one of the most significant determinants in studies of economic growth (Schultz, 1980; Barro, 1991), High levels of education, the most important element in human resource development, lead to high productivity through improvements in the ability to adopt sophisticated technology and efficient organization structures. Education also shapes values, attitudes and behavioural patterns which are instrumental in influencing the pace and form of social and economic development. Not surprisingly, the most rapidly growing economies have made considerable investments in education. For example, between the 1950s and the 1980s, the share of education in government expenditure in the Republic of Korea rose from 2.5 per cent to 22 per cent; in fact, the latter represented only one-third

of total educational expenditure when private spending was included. Between 1945 and 1986, enrolment in tertiary education in the Republic of Korea rose by 150 times (Tan, 1992, p. 52).

Human resource development is a principal determinant not only of economic development, but also of international competitiveness (Porter, 1990). Investment in human capital represents a major form of created assets — assets created from natural resources, particular climatic conditions and the stock of (untrained) labour — as well as a means to create other assets. Such assets, tangible (e.g., plant and equipment) or intangible (e.g., technological and organizational know-how) offer a more sustainable basis for competing because they are more difficult for competitors to imitate. The very creation of such assets contributes positive externalities in the form of a growing pool of ideas, information and creative personnel, offering the potential for ongoing innovation and upgrading.

Building up a stock of human capital generating development and increasing competitiveness may require more than simply public investment in education. National education systems focus on the provision of general training that has applicability in more than one activity or industry. Industry-specific or specialist training has more limited applications, but is fundamental to the creation of a sustainable competitive advantage. The development of such skills is also riskier and may require funding from the private sector. Private sector organizations have closer links to the market and are in a better position to judge priorities in skill formation. This suggests that private enterprises, including TNCs, have an important complementary role to play in the provision of education and training.

The relationships between TNCs, globalization and the growing significance of created assets are important. The present trend in technological innovation is towards increasing the international mobility of created assets that are the basis of competitive advantage. This shows itself as generic advances in communications and transportation and in the continuing miniaturization of intermediate and final goods. These trends increase the potential for the globalization of business. At the same time, TNCs provide a major vehicle for the international exchange of created assets, many of which are intangible. Their proprietary investments in technology and skill development create a large pool of such assets. The difficulties of trading knowledge-based assets at arm's length mean that, in many cases, internal transactions within a corporate network may be achieved at a relatively lower cost. On the other hand, the rising cost of creating and upgrading resources is reflected in a variety of new TNC operating forms, a shift towards greater functional integration within TNCs, the growing regional integration of markets and the shift by government towards market-oriented policies. In sum, these developments highlight the role of created assets in determining both corporate competitive advantage and, increasingly, locational advantage.

The management of production activities within TNC networks implies the possibility of a mutually beneficial relationship between globalization, upgrading of competitive advantage and human resource development. This potential interaction is explored in this chapter. The discussion focuses on two principal issues. The first is the contribution that TNCs can make to human resource development, particularly within developing nations. The second issue is the role that the level of human resource development plays in the location decisions of TNCs. Increasingly, it is the quality — rather than simply the cost of labour resources — that influences location decisions. The interaction between these two considerations has major implications for the design of policy and for the encouragement of cooperative relationships between TNCs and national governments in fostering human resource development.

A. The role of transnational corporations in human resource development

In the course of their production activities and the formation of sophisticated assets necessary for maintaining and exploiting their competitive advantages, TNCs have a significant direct effect on human resource development through the provision of employment opportunities for skilled labour, the provision of additional training opportunities and the creation of incentives for employees to augment their skills. They also provide opportunities for informal learning through contacts with experts and through the creation of a business culture conducive to economic growth and development. Industries in which TNCs are active, both in manufacturing and services, are characterized by a marked reliance upon highly skilled labour. In addition, TNCs may be involved in the provision of formal or general education, directly as transnational educational service providers or indirectly through support of and collaboration with national educational institutions. Transnational corporations also have important indirect effects on human resource development, through their impact on educational investments by potential employees, impact on government programmes and educational institutions and on technical assistance to enterprises linked to them through backward and forward linkages.

While a broad conception of human resource development includes the contribution of health and nutrition as well as education and training, and TNCs play an indirect role in the former two areas through their research and development, production and trade activities in certain industries, it is mainly in the latter two areas that TNCs have a role to play (UN-TCMD, 1992a, chapter VII). The discussion below focuses, first, on formal education and then on training and considers to what extent and how TNCs play a role in human resource development by directly or indirectly affecting each of these areas.

1. Formal education

Formal education takes place at three principal levels: the primary level (formative schooling years, typically from age 5 to 11); the secondary level (typically schooling from age 11); and the tertiary level (post-school education). In most countries, TNCs play a limited role in primary and secondary education, but may be significant for the tertiary level. Foreign affiliates do provide opportunities for basic education if local circumstances make it necessary (UN-TCMD, 1992a), as when their production facilities are located in remote or isolated areas and access to public schooling is limited. This may occur, for example, in the case of some transnational agricultural or mineral operations. In such cases, TNCs are typically responsible for a range of services, including, among others, education and health provision.

Transnational corporations may also influence pre-tertiary education in two more general ways. The first is through the provision of financial support or specialists to schools. The donation or subsidization of capital equipment, such as computers, is widespread, even within developed countries. The second influence is where TNCs offer remedial education opportunities, typically to those who have been denied or poorly served by the public education system. Poorly qualified employees may have access to remedial reading, writing and mathematics education at the workplace. Such education is typically provided through classes organized before or after work hours. As well as benefiting the individuals concerned, such education may lead to more effective internal communication, reduced labour turnover and lower accident rates as employees better understand instructions and warnings.

However, it is within the tertiary, or post-compulsory schooling stage, that TNCs exercise their principal influence on formal education. Their most obvious direct impact is in the provision of employment opportunities to highly skilled science, engineering and commerce graduates. While there are no precise estimates of the employment of such graduates within TNCs, their

clustering within technology-intensive industries as well as the higher skill-intensity observed in foreign affiliates than in comparable domestic firms, (within both developed and developing economies),[1] are indicative of their importance in employing graduates. Transnational corporations also play a direct role in the provision of scholarships and the sponsoring of employees for higher education. This assistance encompasses both formal education and work experience which may form part of the study programme.

Apart from assisting actual and potential employees, TNCs — partly because they are among the largest and best endowed firms, partly because they have a special interest — provide, in a variety of ways, assistance to institutions of higher education. Their demand for highly trained graduates manifests itself in the form of financial support, particularly to business schools and science facilities, the provision of assistance and advice through membership of advisory boards, curriculum review committees, councils and senates. The senior management of many TNCs play a similar role in training organizations and certification agencies. In a number of countries, as public funding to higher education has been restricted in recent years, the links between large businesses and educational establishments have increased significantly. In the United Kingdom, for example, TNCs have provided considerable funding for the establishment of professional chairs and the creation of business schools in a number of universities. This has long been true in the United States. It is increasingly the case that senior appointments made by universities and polytechnics draw upon a pool including international business leaders.

The links between international business and business school education are particularly close. Indeed, the *Institute pour l'Enseignement des Methodes de Direction de l'Enterprise* (IMEDE) and the International Management Institute (IMI), two of the most prestigious business schools in Europe, were originally founded as company training centres (of Nestlé and Alcan, respectively). In large part, they were established to meet specific needs of international business or were a response to the then limitations of training provided by publicly-funded universities and business schools.

Mirroring the internationalization of production, an acceleration in the expansion of transnational educational institutions has also been seen in recent years. A considerable number of universities have internationalized their operations through the establishment of overseas facilities, international strategic alliances and by a range of agreements for the exchange of knowledge. Most of this internationalization has occurred in the field of management education. An international survey of business schools engaged in teaching international business programmes reported that 33 per cent of respondents were involved in at least one consortium, of which 38 per cent were abroad. Twenty-three per cent of respondent schools offered their programmes in another country (Arpan, et al., 1993). The Belgian-based European University operates affiliates in sixteen European cities. The Netherlands International Institute for Management operates joint ventures with local institutions in a number of European and Asian countries.

Management education has long been exported in the form of distance learning. The British Henley Management Centre is one of the longest established institutions in this field and offers its programmes in a number of European, Asian and Pacific rim centres. Business schools are developing cross-regional alliances; a good example is provided by the Macau-based Asia-Pacific International University which links students, faculty and employment experiences between Asia, Western Canada, Australia and the Pacific. United States-European, United States-Japanese and European-Japanese links are now being forged by a number of schools. Leading United States schools, such as Harvard, play an important role in management education in Latin America; MIT is now linked with a Hong Kong university; and Canadian business schools are active in China (UN-TCMD, 1992a, p. 174). Eastern Europe represents an important emerging market for Western management schools.

These initiatives with respect to formal tertiary education have significance for TNCs as well as for other firms in that they provide a source of managerial skills and also influence business culture. The global spread of international business training contributes to local pools of management talent and facilitates the localization of management, which is important for TNCs as well as host countries. Among others, the high costs and failure rates of expatriate managers encourage TNCs to localize management where possible.

The internationalization of management education by universities and other institutions and the introduction of "best-practice" management methods complements the educational contributions of TNCs engaged in the production of goods and other services. This is because, in large part, the curricula, faculty experience, and research programmes of transnational schools are determined by the present and future operational needs of TNCs. This may not be without drawbacks. For example, one might question the appropriateness of United States dominated management programmes for Asian managers.[2] Asian management, for example, places a greater emphasis on cooperative approaches; it is, moreover, less concerned with short-term financial performance than United States business education.

Growing local educational capability means that new training paths are likely to be developed in the near future, further strengthening the importance of national differences in the valuation of, and approach towards, education. For example, the United States system places a high value on formal education, with perhaps 85 per cent of top United States managers holding university degrees. This investment in education is seen as largely the responsibility of the individual. Since the return on such investment may be maximized by frequent job moves, external certification is important. In contrast, while education is also highly valued in Japan, the approach to management education is quite different. The Japanese view is that management skills are best acquired through a process of tutelage under the supervision of older, more experienced colleagues. This focus on internal training, coupled with lifetime employment and promotion based on service and seniority, reduces the importance of external credentials. There are probably no more than 3,000 Japanese managers who possess MBAs. In contrast, the United States produces more than 65,000 each year (Warner, 1992, p. 69).

2. Training of employees

(a) Factors influencing training

The provision of training for their employees is perhaps the most important contribution of TNCs to human resource development in the countries in which they operate. The amount and types of training provided by TNCs, as well as their probable impact on local labour markets, depend on a range of factors. Among others, they include the industry, the size of investment, duration of commitment to operate in a country, and the nature of activities undertaken; the last is itself likely to depend upon the size and quality of the existing domestic manpower (including the skills available) of the country.

Also significant for the amount and nature of training is the mode of entry, with greenfield investments likely to require greater initial investments in training, in contrast to firms that are acquired by a TNC. Another factor is the extent to which new technologies are imported and require new skills: unique technologies reduce the opportunities for TNCs to add to pressures on local labour markets by poaching fully trained employees from competitors or by increasing the demand for skilled labour. The location of production facilities (including higher value-added ones) in the home or host country, and the extent to which the investing firm chooses to tap completely new sources of labour, are also important because they may require a company to provide basic training in the early stages of investment. Government policies encouraging the

promotion of training programmes by TNCs, including provision of incentives or other schemes for TNCs and workers, as well as the availability of alternative training programmes (for example, national educational training institutions) also play a role. The type of training provided by TNCs is also influenced by the values and business culture prevalent in the home country. Some TNCs tend to emphasize technical, individual training and monetary rewards, while others stress group training and non-monetary rewards to those undertaking such training. The size of the foreign affiliate is also a relevant factor with respect to the type of training undertaken: large affiliates are more likely to have formal and specialized training programmes for their employees, while small affiliates may rely more on ad hoc training schemes and informal training.

The strategies of TNCs with respect to the functional scope of activities in different locations have implications for the amount and quality of training and the way in which it is distributed across the parent company and its various affiliates worldwide:

- In companies pursuing stand alone strategies, the amount and quality of training is most likely to be determined by the conditions that govern production for the local market. Firm-specific capabilities, such as technological and marketing skills, may be an important factor for the success of a company operating abroad, and distinctive training efforts may be required to consolidate such skills in foreign affiliates. Training packages can be developed on the basis of what has been successfully experienced at home and then exported, sometimes in an adapted form, to foreign affiliates, but the gist of the training is framed nationally, and training programmes and human resource management policies are drawn up primarily at the affiliate level, taking into account local needs and requirements.
- In simple integration strategies, particularly when they are geared towards taking advantage of a local supply of labour at low cost, employment in foreign affiliates is often mainly constituted by unskilled and semi-skilled workers. For these workers, training is likely to be limited to the acquisition of elementary skills. The tasks of the affiliates are circumscribed, and training at the managerial and technical levels is correspondingly narrow.
- Complex integration strategies are likely to require greater commitment and coordination of training because of the greater interdependence they involve between the parent firm and affiliates, and among affiliates. In an integrated structure, the profitability of the entire corporate system depends upon achieving satisfactory performance in each unit of the value chain. Thus, an internationally integrated approach towards human resource management may be an important element for complex integration strategies to be successful. Such an approach is more evident for some corporate functions, such as marketing, accounting, research and development that are more frequently globalized.

  International executive development is particularly important for companies that adopt complex integration strategies. The move to such strategies implies that the human resources function becomes more significant and more centralized as it is more closely linked to the overall corporate strategy. Indeed, attention by corporate boards to the management of key human resources has gradually increased in a number of companies (Evans, Lank and Farquhar, 1990). Many TNCs have developed mixed human resource management policies, in the sense that human resource management is global and centralized for senior executives and those with such potential, while for other employees a decentralized, country-based approach prevails (Evans and Lorange, 1990). The wider distribution and deepening of training efforts at the affiliate level are likely to be greater in those integrated TNCs that adopt new flexible forms of production and best management practices, such as just-in-time or lean production. Within these new forms, labour tends to be seen as an innovatory resource whose potential has to be maximized, rather than as a factor whose cost has to be minimized. Thus, these developments are likely to influence human resource development by TNCs in several ways. First, training is increasingly

directed towards production workers. Such training will have to be more intensive if these workers are to carry out their new tasks. Indeed, the distinction between blue-collar and white-collar workers is already becoming blurred in some industries, as growing emphasis is being placed on knowledge workers; TNCs carry such approaches and practices to their host countries. Second, the recruitment of production workers will have to be more selective, and recruitment standards generally higher, as basic education is a requisite for workers to take full advantage of training. Third, training will also include both technical and motivational or behavioural aspects. Without this, workers' involvement in the new production methods can decline markedly over time and the expected gains in productivity may not be achieved.

Cross-border integration and the interdependence of tasks across affiliates also imply that inputs of production and services increasingly flow across borders within a firm's system. Intra-firm communication at various levels is ceaseless and requires widespread language competence within the firm. People that participate in these intra-firm networks have to be equipped with the capacity to understand and manage interpersonal cultural diversities. A similar capacity is also needed to sustain the galaxy of international inter-firm arrangements that characterize integrated producers, ranging from international outsourcing to joint-ventures and strategic alliances.

One result of integrated international production may be that the training function becomes a more specialized function within the firm. Formal corporate training centres may be established outside the home country in the most convenient locations for the firm from a global or regional perspective. Formal corporate training would not only allow employees, particularly managers, to gain cross-cultural expertise rapidly and share cross-border experience, but also to contribute to shape and disseminate common corporate values. As technical and production workers are increasingly the target of training efforts, training packages can be developed centrally for dissemination to foreign affiliates. Training for specific purposes can also be outsourced to international specialists or business consultants, and links can be developed with local training institutions and universities.

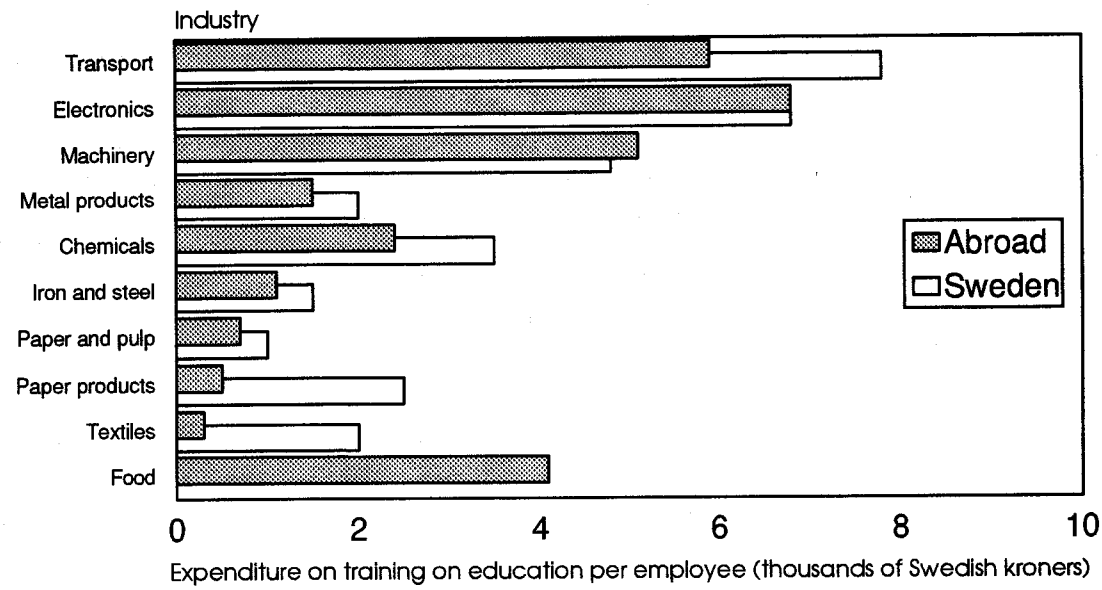
(b) Extent and pattern of training

Subject to these factors, most TNCs provide facilities and programmes for training their employees. Often, the extent of training in their foreign affiliates is comparable to that provided at home. For example, in 6 out of 10 industries, expenditure on education and training in the foreign affiliates of the largest Swedish manufacturing TNCs was comparable to that provided by those firms at home (figure V.1). Overall, average training expenditure per worker in Swedish foreign affiliates was three-fourths of that in the parent firms. Transnational corporations from Japan have also been observed to undertake significant expenditure on training and retraining of workers in host countries, comparable to that of their parent firms (Watanabe, 1993).

Transnational corporations often spend more on training in their foreign affiliates than do similar local firms in the host country. For example, Japanese affiliates in the United States spend significantly more on training than their domestic counterparts (Campbell and McElrath, 1990, p. 78). The proportion of workers in Japanese-owned plants who received training (24 per cent) in 1985 was almost twice that in comparable indigenous United States plants. The cost of training per worker was two-and-a-half times as high and the cost of training per newly hired person was over four-and-a-half times as high as that in United States plants (Mincer and Higuchi, 1987, p.22). That included not only training for new employees but also continued training. More was spent on recruitment as well per newly hired person by Japanese-owned plants, although the degree of newness of Japanese plants may have accounted for some of these higher costs. The purpose of the training was apparently the building up of specific, rather than general human capital — that is, the purpose was to develop a workforce with the specific skills and consistent with the affiliates'

management style. Japanese firms were also less interested in training subsidies offered by states or in external tuition grants than other foreign investors (Watanabe, 1993).

Figure V.1. Training expenditure by Swedish transnational manufacturing corporations at home and abroad, by industry, 1990



Source: based on data obtained from the Industrial Institute for Social and Economic Research, Stockholm.

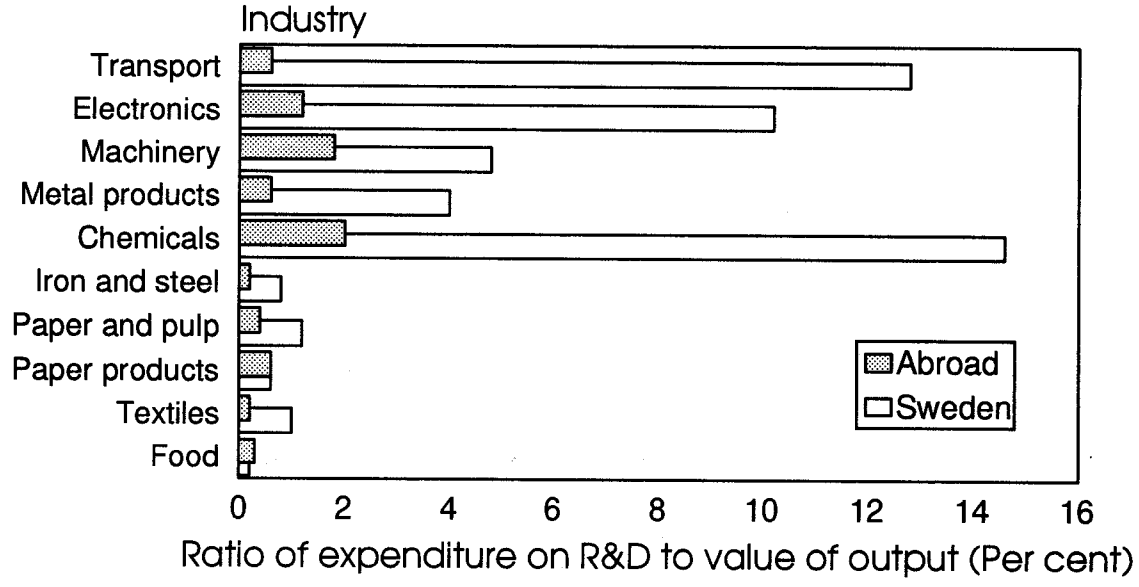
a The data are based on a questionnaire survey of all Swedish TNCs in manufacturing; the response rate exceeded 80 per cent but with a number of large TNCs missing.

Studies on training activities of TNCs in other host areas, such as Scotland (Scottish Development Agency, 1986), Thailand (Sibunruang and Brimble, 1988), Malaysia (Yong, 1988), Nigeria (Iyanda and Bello, 1979) and Turkey (Erden, 1988), also confirm that foreign affiliates often spend more on training than their local counterparts. However, there are variations depending, among others, on firm size and industry. For example, among the relatively large non-oil manufacturing firms promoted by the Board of Investments in Thailand, a higher proportion of employees was trained locally by Thai-owned firms and affiliates of TNC's from developing economies than affiliates of TNCs from developed countries in 1990, but there were wide variations according to size and industry, making it impossible to reject the hypothesis of identical ratios at the industry-level. However, training provided abroad was greater in the case of TNCs from developed countries.[3] In Kenya, although TNCs provided an appreciable quantity of training for Kenyan management, the average number of weeks of training per year provided to managers by joint ventures as well as national public enterprises was greater than that provided by other foreign affiliates, according to a survey of 72 top- and middle-level managers from 41 firms conducted in 1982-1983 (Gershenberg, 1987, p. 935). Where comparable levels of training expenditure are found it is important to note that some of the training provided by TNCs may be undertaken outside the host country, perhaps at headquarters, and may be financed by the parent company (Gonçalves, 1986).

As mentioned earlier, training opportunities in TNCs vary according to the industry, as well as types of workers involved. For example, training by Swedish manufacturing TNCs (figure V.1) tended, by and large, to be positively related to the research-and-development intensity of TNCs by industry (figure V.2). Data for Japanese foreign affiliates also show considerable variation, with affiliates in electrical, machinery and chemical industries providing training to a larger proportion

of workers than those in other manufacturing industries or services (table V.1). In Malaysia, considerable differences were found in the frequency of training among industries and among types of workers in 31 foreign affiliates that responded to a questionnaire survey in 1988 (Yong, 1988). While 18 per cent of employees attended training of one kind or another, training was concentrated in the managerial and professional staff; about 45 per cent of the managerial employees and over 40 per cent of professional and technical employees received training, but only 16 per cent of sales employees, and less than 2 per cent of others, including clerical, production and service workers (table V.2). Clearly, the investment in training was directed mainly to higher-level staff. However, while training was heavily concentrated in the managerial and professional/technical categories, it was not concentrated in the higher-technology industries, according to the survey mentioned above. The proportion of employees given training was highest in non-metallic minerals and beverages, where almost all the managerial and professional/technical employees benefited from it (table V.2). More technologically-oriented industries, such as chemicals and electrical machinery, were about average in the extent of training, and the chemicals industry was below average in the proportion of managerial and professional and technical workers trained. This is related, of course, to the kind of employment placed in the host country. In the case of electrical machinery, 90 per cent of the employment placed in Malaysia at the time was clerical and production work that apparently required little in the way of training of the labour force (Yong, 1988).

Figure V.2. Research-and-development intensity in Swedish manufacturing transnational corporations, at home and abroad by industry



Source: based on data obtained from the Industrial Institute for Economic and Social Research, Stockholm.

The amount of training varies not only according to the category of worker and industry but also according to the entry strategy and the nature of technology or management methods used by an affiliate. For example, when Ford Motor Company established a greenfield plant in Hermosillo, Northern Mexico, it invested heavily in training for the new just-in-time production system. All new workers received nearly 700 intensive classroom hours before starting work, and

the 300 technical and supervisory workers spent between one and three months in training abroad (Shaiken, 1990). A study of the introduction of new production methods within Brazilian manufacturing reported similar levels of investment in training for quality management and just-in-time (Fleury and Humphrey, 1992). In Malaysia, electronics TNCs have more recently introduced new production concepts with implications for the quality of production workers hired as well as training provided to them. According to an empirical study of 12 electronics TNCs in Malaysian export processing zones conducted in 1990, the qualifications for operators entering employment had been upgraded to 12 years of schooling, and training provided had significantly increased (Liebau and Wahnschaffe, 1992, p. 192).

Transnational corporations may also provide training opportunities for certain specific groups, such as rural migrants and women workers, who may find themselves disadvantaged in gaining access to training and promotion. For example, Japanese electronics TNCs have preferred to employ women with limited work experience (Oliver and Wilkinson, 1989). Although the majority of women and migrant workers are likely to be employed in unskilled and semi-skilled jobs in labour-intensive industries, when compared with alternative employment opportunities, such as agriculture or domestic service, TNCs offer above average wages and conditions and the opportunity for acquiring some skills. In some countries, such as Singapore, the entry of foreign firms — by accentuating labour shortages — has increased the employment opportunities of those from non-traditional groups, including women in white-collar occupations (Lim, 1985).

(c) Nature and types of training activities

The training provided by TNCs may be formal or non-formal. Formal training involves classroom instruction, courses of specific duration or structured apprenticeship programmes, and may be provided either in-house or by external experts. Non-formal training takes many forms and is largely within the employing organization and on the job.

Box V.1. Vocational training in foreign affiliates of transnational corporations: some examples from developing countries

Vocational training is an important element in the training programmes of TNCs for the workforce in their foreign affiliates. For example, the Daimler-Benz group has vocational training programmes in virtually all countries where it has production facilities, including Brazil (with 640 apprentices in 1994) and Argentina and India (200 apprentices each). In total, almost 2,500 young people in developing countries and newly industrialized economies are trained for qualified jobs in Daimler-Benz affiliates. The company's apprentice schemes usually offer a two-to-four-year training programme — partly on the job, partly in the classroom and partly in special apprentice workshops affiliated with a factory.

Nestlé runs apprentice schemes all over the world, designed to offer basic training and provide skills for upgrading the company's artisans and crafts persons in the various grades and trades. For example, in Araras, Brazil, a special workshop is integrated into the local production plant. After passing an entrance examination, school-leavers from the country receive three years of practical and theoretical training in mechanical and electrical engineering in the workshop to enable them to install, maintain and repair the machinery. After vocational training in the workshop during the day, they continue their upper secondary school education in the evening. Apprentices are not required to stay with the company after passing the final examination; however, most of them do go on working for Nestlé. In a number of cases, people who had received the training subsequently succeeded in opening and running their own repair workshops.

Source: information provided by the European Round Table of Industrialists (Working Group North-South).

Table V.1. Proportion of employees trained by foreign affiliates of Japanese transnational corporations, by region and industry, 1989

(Percentage)

Region/area	*All industries*	*Total*	*Manufacturing*					*Services*
			Textiles	*Chemicals*	*Metals*	*Machinery*	*Electrical*	
All countries	4.1	4.3	0.9	1.0	6.9	3.4	7.1	3.6
Developed countries								
North America	2.7	2.9	-	0.3	9.1	3.5	3.8	2.1
United States	2.8	3	-	0.3	9.2	3.7	3.9	2.2
Europe	5.9	6.4	1.2	0.2	1.6	0.3	11.1	4.7
European Community	6.1	6.6	1.2	0.4	1.6	0.3	11.1	5.0
Australia, New Zealand and the Pacific Islands[a]	2.7	0.2	-	-	-	-	-	9.7
Developing countries								
Africa	3.2	5.7	-	-	30.9	-	-	0.1
South, East and South-East Asia	4.9	5.0	1.0	1.5	9.6	2.8	6.7	4.6
ASEAN	3.8	3.9	0.9	1.3	9.5	0.9	3.4	4.4
Newly industrializing economies	6.1	6.6	1.0	1.8	6.4	3.1	9.6	3.6
Latin America and the Caribbean	4.2	4.8	1.0	2.5	0.4	8.2	16.0	1.0

Source: Japan, Ministry of International Trade and Industry (1992a).

a Including, also, developing Pacific islamd economies.

Table V.2. Training provided to employees by selected transnational corporations in Malaysia, by industry, 1988

Industry	Number of firms in sample	Percentage of employees provided training				
		Total	Managerial	Professional	Sales	Other[a]
Food	5	16.3	43	11	33	1
Beverages	1	26.3	100	100	0	3
Tobacco	1	17.1	59	61	13	1
Printing and publishing	1	10.4	33	25	..	0
Rubber products	1	12.3	27	20	..	3
Chemicals	5	19.4	23	21	46	8
Non-metallic minerals	5	36.0	100	81	47	3
Basic metals	1	19.4	75	100	0	0
Electrical machinery	9	16.1	40	41	20	1
Transport equipment	2	2.8	3	14	3	0
Total	31	17.7	46	44	16	2

Source: based on Yong (1988), pp. 59 and 63.

[a] Clerical, production and service workers.

Training of production workers is undertaken mainly to satisfy the staffing requirements essential for the functioning of the enterprise. However, an important secondary objective may be for workers to adjust to the culture of the corporation or the type of corporation. The latter factor, in particular, leads to greater emphasis on the use of on-the-job or in-house training, as, for example, in the case of Japanese TNCs (Watanabe, 1993).

Systematic vocational training programmes are implemented by many large TNCs (box V.1), particularly for skilled workers who usually get a significant share of TNCs' training budgets (ILO, 1980b). These may be established at or close to the production facility or local or regional training centres. However, on-the-job training for varying durations is the most common avenue for training production workers. In Malaysia, new production employees in 12 electronics foreign affiliates studied in 1990 were first put on a training programme lasting from three days to a week, which finished with a test that they had to pass in order to be given a permanent job. This was then followed in all of the firms by on-the-job training lasting up to three months. The management systematically aimed at expanding and raising the qualifications of the production workers by offering further both internal and external, training courses, and corresponding opportunities to rise within the company. Multi-tasking with multi-skilled workers was the principal goal of the firms' educational and training policy. Each company had its own educational and training department with a number of full-time teachers. One of the United States affiliates, with 200 employees, had 40 full-time teachers, and an annual expenditure on education and training of $750,000 or one per cent of total wage costs. Another United States firm reported

spending 2.5 per cent of its total wage costs annually on education and training (Liebau and Wahnschaffe, 1992, p. 192).

Training programmes for professional employees in management as well as technical fields are generally the most important part of TNCs' training activities. Here, again, the objective is generally to provide training in job-related skills, as well as (frequently) to imbue staff with the corporate culture that many firms consider essential for effective management. Some TNCs — for example, Citibank, Pepsi Cola and IBM — implement global human resource and training strategies. In others, such as Glaxo, the United Kingdom's largest pharmaceuticals company, personnel and human resource policies and programmes are completely decentralized, with each affiliate having its own human resources director reporting to the local managing director, although these policies and programmes take their general direction from a broad framework of corporate values developed centrally.[4] In still others, such as Nissan, centralized programmes are combined with a significant amount of foreign affiliate autonomy (box V.2).

A distinct advantage enjoyed by TNCs in their training is the ability to utilize international networks of facilities and expertise in employee development (UNCTAD-DTCI, 1994h; ILO, 1991a; Foley et al., 1993). For example, a study of foreign-owned firms in the Republic of Ireland showed that almost 90 per cent of respondent firms had sent employees abroad on training visits to the parent company (Whelan, 1980, p. 39). Another example is that of Japanese affiliates in Germany, which show a high propensity to send qualified staff for training and exchange visits to Japan. Overseas assignments are widely used for key executives and technical staff. In developing countries, too, the most popular mode of training for foreign affiliate employees is to send them to the parent firm for training (UNCTAD-DTCI, 1993c, p. 125). In some developing countries the provision of such training may have increased over time. A study of foreign firms in Indonesia in the early 1980s found that TNCs were more likely to attract managers from local firms than to provide their own training (Okada, 1983). On the other hand, a more recent study concludes that most local managers and technical personnel obtained their expertise mainly through on-the-job training and additional training by working for a certain period at the TNC's plant in the home country or other foreign locations (Thee, 1990, p. 232).

The growing globalization and functional integration within TNCs and the spread of international strategic alliances further broaden both the scope of training opportunities and the diffusion of skills. For instance, Ford (United States) and Mazda (Japan) have sent production workers from their jointly operated factory in Hermosillo, Mexico, to Japan and to Ford factories in Europe for training. The engineering team that set up the production line for Ford's Mondeo in Belgium performs the same function in the United States, and trains local engineers in the process. Motorola (United States), as part of its expansion in China, has sent Chinese engineering recruits to Motorola facilities in Hong Kong, Singapore and the United States for training, and rotates top management trainees for its Chinese affiliate through almost all of its semiconductor manufacturing operations worldwide (UNCTAD-DTCI, 1993a, p. 125). Philips (Netherlands) has operated a systematic management development programme for more than a decade. As the global scope of Philips has expanded, it has attempted to increase both the general and the international experience of its managers. One way in which this has been achieved has been to extend job rotation to involve ventures with other companies. As well as contributing to management development, this programme has extended considerably the diffusion of Philip's training investment (van Houten, 1989). In some cases this ability to arbitrage experience may allow a TNC to introduce genuinely innovatory approaches, including those related to new organizational procedures and "best practice" and provide the training necessary (box V.3). The experience of TNCs in a range of cultures and environments also provides exposure to alternative training approaches and an enhanced sensitivity to the learning process. Their experience of cultural gaps may assist in determining the optimal amount and type of training (box V.4).

Box V.2. Human resource development and training at Nissan

Nissan Motor Co., Ltd., Japan's second largest automobile manufacturer, has three key strategic philosophies: technological innovation, strategic role in the market place and quality of product. These philosophies place a high priority on human resource development, viewing people as the key to their successful delivery. This is reflected in the extensive training programmes throughout the corporation.

The training and development activities of Nissan Motor Manufacturing (U.K.) Ltd. provide an example of the company's approach. This is focused on long term individual continuous development rather than narrowly based occupation job specific training. Underlying this is the view that people need to be continually developed, motivated and challenged to grow as all-round individuals. To achieve this, Nissan has established training and development programmes covering all occupational categories within the company.

The Continuous Development Programme provides a structured systematic appraisal of individual training and development needs. The Programme reflects the change of job scope, responsibility and key tasks for each of the occupation category levels from manufacturing staff to managing director. At each level, training and development needs are identified jointly between the company and the individual staff member, the emphasis being based upon competent performance and the training or development required to do the job effectively. The resulting programme selections are tailored specifically to the needs of each staff member covering all aspects of performance including technical, process and personal effectiveness content. The approach is typically incremental, considering the training and development needs over a forward planning time of two to three years.

Nissan's total expenditure on training in the United Kingdom represented 7.6 per cent of total payroll costs during 1993. The training department budget totalled £5.85 million, including the salaries of staff undertaking training and trainer specialists. Off-the-job training delivery for each employee averaged 7.2 days during 1993, and the young person trainee programme averaged 56.4 days per trainee. On-the-job training, mainly aimed at manufacturing production workers, averaged 4 days per staff member. Training programmes are not limited in duration, rather they reflect the needs of the individual balanced against the operational business needs. Over 50 per cent of off-the-job training is delivered in-house. Nissan has its own college, practical training centre and open learning centre on-site.

The training programme has been developed largely by the United Kingdom affiliate itself, with very little consultation with the parent company in Japan. Indeed, significant differences exist in the training programmes between the parent firm and United Kingdom affiliate. In Japan, 90 per cent of training days are on the job and only 10 per cent off the job. As the above data show, the pattern in the United Kingdom is quite different. For Nissan, decentralization in the development and implementation of training is necessary to respond effectively to local needs. Employees are consulted during the development and design of the training programmes and provide feedback and evaluation data for programme improvement.

Source: information provided by Nissan.

Transnational corporations that are large in size and scope can achieve considerable economies in training through the development of global or regional training centres. One example is Motorola University, which trains in-house personnel and operates a number of cooperative arrangements with both private and public university business schools around the world. The University has established, among others, a branch in Beijing which provides training for Motorola employees, customers, partners and suppliers in management practices and technology.[5] Another prominent example is Nestle's Rive-Reine training centre near its headquarters in Switzerland which, in 1993, held seminars attended by over 1,200 participants drawn from its staff in 60 different countries (Nestlé SA, 1994). Similarly, Nestle's professional training centre

Box V.3. Raising quality standards: the experience of Mitsubishi Belting

The concept of quality control pioneered by Japanese firms has attracted considerable attention in a number of Asian countries. With the support of the Asian Productivity Organisation, many Japanese experts have visited Asian countries. Since 1988, the Union of Japanese Scientists and Engineers has undertaken total quality-control seminars throughout Asia. Quality-control concepts have been adopted by enterprises in India, Indonesia, Malaysia, the Philippines, Singapore and Thailand. The diffusion of quality-control methods in Asian developing countries has been accelerated by the presence of a considerable number of Japanese foreign affiliates.

The experience of the Japanese-owned Mitsubishi Belting Company in Singapore is illustrative. The company began producing automotive and industrial belts for worldwide export in 1978. Its quality-control efforts began in 1979. At that time, Mitsubishi Belting faced a number of problems: many of its employees were new to Singapore; few had experience in the factory work; many were poorly skilled; and labour turnover was high. The company believed that improving education and training, with quality activities as the vehicle, was the answer. Initially, it sent supervisory staff on outside courses to familiarize them with quality-control concepts. This was followed by the provision of English and mathematics classes for production workers. The third stage was to standardize and simplify operations manuals to facilitate on-the-job training.

In 1980, the company commenced small group activities. The focus on solving specific shop-floor problems raised awareness of the importance of quality. The formation of a quality-control circle committee saw members of three pilot quality-control circles sent to head office in Japan to study developments in quality control. Since then, quality-control circles have expanded across all company functions. Apart from participating in Singapore's national quality-control circles conventions, Mitsubishi Belting was awarded the "JIS" mark by MITI in 1990.

Mitsubishi Belting Singapore's quality levels are now comparable to those of the Japanese parent firms and this know-how is now being transferred to group companies in other countries. Throughout this period, labour turnover has been high with the implication that some of the benefits of quality training have spilled over to other companies.

Source: based on Tradescope (JETRO International Communication Department, Tokyo), 20 January 1994.

INDEC, located in Mexico, provides training for employees within the entire Latin American region. McDonald's Hamburger Universities are global training centres for management trainees in the final phase of their training operations. Many transnational banks have also established training centres, some in host countries. One of the few consulting firms to have a training centre is Andersen Consulting which has its own college at St. Charles, Illinois, intended to ensure a consistent approach and methodology to problem-solving (UNCTAD-DTCI, 1993, p. 16). In a number of Asian economies, TNCs, sometimes as the result of government request or with government collaboration, have established technical training schools serving not only their needs, but also those of other firms (Watanabe, 1993; p. 142; chapter X).

While TNCs that are large in size and scope are best-placed to provide training and other activities contributing to human resource development, small and medium-sized enterprises also undertake similar activities (table V.3). There are, however, some differences in the extent and nature of their training programmes, in comparison with large TNCs. According to survey data, formal technical training (other than on-the-job training) was undertaken in 44 per cent of developing-country affiliates of small and medium-sized TNCs, compared to 73 per cent of those of large TNCs (table V.3). Affiliates of large TNCs were also more involved in other forms of technical training. For example, in-plant or in-office training by technical personnel from parent firms was undertaken in more than one-half of affiliates of small- and medium-sized TNCs, but at a higher rate of about four-fifths of large TNCs (UNCTAD-DTCI, 1993c, p. 125). Training of

Box V.4. Suzuki and skills development in India

The Japanese automobile manufacturer Suzuki produces both automobiles and motor cycles in a number of developing countries. In 1983, Suzuki entered a minority partnership with the Government of India, forming Maruti Udyog, Ltd. to produce a range of small vehicles for the Indian market. The selection of a Japanese partner reflected the desire of the Government to foster the acceptance of Japanese production and personnel methods. Before the introduction of a range of Japanese-style practices, Indian managers visited Suzuki plants in Japan and worked alongside Japanese managers. They gained first hand experience of the importance of total quality-control methods, worker participation and open communication for the success of Japanese production systems.

On-the-job training played a central role in the venture. A large-scale employee-exchange programme was initiated. In the early stages, Suzuki personnel provided advice within Maruti. As problems were identified, key Indian operating staff were sent to Japan to learn how these could be solved. This process was repeated. By 1993, Maruti employees had made more than 750 trips to Japan; Suzuki staff have made 500 visits to the Indian plant.

Indian trainees in Japan enter initial training programmes to learn basic work skills. To facilitate communication, they also take Japanese language lessons. Completion is followed by some ten days classroom instruction within a Suzuki factory. They then spend two-to-three months on the shop-floor, working alongside experienced Japanese employees. Workplace training, which even includes office workers, is supplemented by ongoing classroom instruction in such areas as total quality management, the use of suggestion schemes and supervisory skills.

Output at the Maruti plant was ahead of target in early 1993 and a significant expansion was planned. Some vehicles have been exported. A constraint facing the plant was the need to upgrade local suppliers. By 1993, local content was 94 per cent. Under a vendor-development programme, Maruti is helping suppliers to develop their capability. Suzuki is also facilitating exchange relations between Japanese and Indian suppliers.

Source: based on Tradescope (JETRO International Communication Department, Tokyo), February 1993.

affiliate employees in parent firms of TNCs was carried out in 80 per cent and 93 per cent of affiliates of small- and medium-sized TNCs and large TNCs, respectively. However, for affiliates of small- and medium-sized TNCs, this form of training is by far the most popular method. Inviting foreign affiliates' employees to parent firms is a channel likely to be chosen if the technical experts are based at the parent firms and involved in another job, there are no training facilities in host countries, or parent firms wish local employees to feel directly the rigour of management and establish relations with home-country employees. However, the national origin of small and medium-sized TNCs as well as the type of affiliates has a bearing in this respect. For example, most Japanese small- and medium-sized TNCs tend to provide training at their headquarters (more than four-fifths of the affiliates) rather than on site (51 per cent), but affiliates of United States small and medium-sized TNCs use on-site training to a greater degree (85 per cent of affiliates, as opposed to 90 per cent for training at headquarters) (UNCTAD-DTCI, 1993c, p. 125).

Formal and non-formal training and professional development, as well as the informal transmission of values, attitudes and behavioural patterns through contacts with expatriates are particularly important in the economies that are in the process of transition to a market-oriented system. In Central and Eastern Europe, entrepreneurial, technological and managerial capabilities required for a market-oriented economic system were largely unavailable, due to the centrally-planned production and the administrative nature of management under the previous economic system. Furthermore, the earlier isolation of the region had greatly reduced the access

Table V.3. Training of employees in foreign affiliates in developing countries, by region
(Percentage of affiliates that provide training)

Type of training and host region	*Affiliates of small- and medium-sized TNCs*	*Affiliates of large TNCs*
On-the-job training		
South, East and South-East Asia	61	75
Latin America	60	69
All developing countries	61	73
Technical training (other than on-the-job training)		
South, East and South-East Asia	46	71
Latin America	35	74
All developing countries	44	73

Source: UNCTAD-DTCI (1993c), p. 110, based on a survey conducted in 1991-1992.

to modern product and process technologies. After their opening up to FDI, to a large extent, therefore, the operations of foreign affiliates in the countries of the region required an adjustment of the workforce to the requirements of the world market through training and education. This situation was characterized as follows in a statement of a director of ABB in Poland: "From the beginning, our approach was to transfer the software first, the hardware second. We began with a lot of training, for instance in marketing and sales. Then we started the technological transfer".[6]

Human resource development has thus become a main feature of all major FDI projects in the region. A great number of major foreign investors in both manufacturing and services sectors establish some kind of employee training scheme. Fiat Auto (Poland), for example, trained all of its 19,000 employees in schools in one or more of its various operations in courses of six weeks duration, during which employees were placed on a so-called "training line", cutting by half their normal workload. This enabled the introduction of technology that resulted in productivity as measured by cars per employee per year rising from 5 in 1991 to 19 by the end of 1993.[7] Similar training efforts have contributed to ABB Zamech achieving rapid productivity increases and winning export orders of some $150 million. It expects that with the injection of new management skills and technology, the Polish operations will generate 4 to 5 per cent of ABB's global revenues by 1996.[8]

Similarly, local managers and business leaders in the economies in transition — who had been trained under a centrally-planned system — were largely unable to conduct managerial functions required for a competitive market environment. Marketing, price-based procurement, "hard" budgeting etc., were largely unknown, since these were unnecessary functions under the centrally-planned system. Apart from training in these new principles of business conduct, adherence to old management practices had to be overcome throughout management and factory levels. To deal with these problems, ABB Zamech, for example, created a "mini MBA programme" in Warsaw in order to introduce the top management to basic business concepts and to enable them to transfer these concepts to the staff. The courses covered five key modules — business

strategy, marketing, finance, manufacturing, human resources — and were taught by faculty members of INSEAD (Taylor, 1991, p. 103).

Training efforts often go beyond the transmission of technological skills needed in the modern world. In general, basic "market" concepts and production philosophies (and, most importantly, language skills needed for basic communication between Western management and the local labour force and management) usually form part of the educational process. Apart from basic technological skills, Fiat (Italy), for example, also tried to instill in its Polish workers concepts of competition and quality as well as cooperation and team-work.[9] These training and professional development activities and the informal transmission of values, attitudes and behavioural patterns are important features of TNC affiliates' activities in Central and Eastern Europe, with direct consequences for efficiency and productivity.

The upgrading of the workforce through training is an important aspect of foreign affiliates in China as well. Despite the fact that the educational system in China provides substantial and diversified vocational training and technical education, the demand for skilled technicians and, in particular, managers exceeds the supply, given the country's rapid growth and market-oriented economic reform. Most foreign affiliates have organized their own training programmes. Some, particularly those in tourism, electronics and chemical industries, have established their own staff training centres. Motorola, for example, has set up two centres in China for its Chinese employees. On-the-job training for Chinese managers and employees is also widely practised (Zhan, 1993).

3. Training and the transfer of soft technology in services

Training in TNCs is closely related to the transfer of technology. Training of production staff in manufacturing is generally intended to provide know-how on how to use the machinery and equipment in which technology is embodied. In manufacturing as well as services, however, the principal channel for the transfer of soft technology, such as management systems, marketing know-how and quality control is training itself, supplemented by knowledge embodied in manuals, blueprints and the like. In service industries, which are generally customer-specific and involve the application of knowledge and know-how by each service provider, most technology is of this latter kind.

Because of their intangible and customer-specific nature, many services are not tradable at arm's length across borders. Transnational service corporations cannot, therefore split up their production process to take advantage of differences in labour and skill availability that may exist between developed and developed countries. Thus, they tend to reproduce in host countries the technologies used by their parent companies. To some extent, this is reflected in the smaller differentials between home and host country compensation levels in service TNCs as compared with those in manufacturing TNCs (chapter IV); this suggests that average skill levels in service affiliates are closer to those of their parent companies than is the case with skill levels in manufacturing affiliates relative to those in their parent firms. In other words, unlike in the case of manufacturing TNCs, the skills required for the production of services do not tend to be centralized in parent companies; rather, they are spread to host-country operations, primarily through training.

Indeed, training practices in transnational banks and financial institutions, for instance, suggest that training, particularly of management personnel, is given considerable importance (ILO, 1991a). Such training is intended to provide managers with both the technical skills and the wider knowledge required to direct an enterprise. As opposed to the earlier approach of focusing on particular jobs, the emphasis of management and supervisory programmes is increasingly placed on modern management skills, such as setting goals, defining tasks and building teams. Such training is provided either through internal courses, which most banks run at residential or

non-residential training establishments, or through external courses, whereby the management-development department selects managers to attend courses at a business school or management department of a university. Another focus for training is that of senior managers, who, as occupants of leading positions, have to be able to articulate the long-term goals of the corporation, based on a global market perspective, to manage large-scale changes in strategy, organizational structure and management practices, while at the same time being responsible for building and maintaining public credibility. While the extent and variety of training is largest in home countries and developed host countries, transnational banks also make a useful contribution by training their management staff in host developing countries. The most common form is on-the-job training, provided in the bank itself (ILO, 1991a). Some banks, however, establish special training

Box V.5. Human resource development and training in Citicorp/Citibank

Citicorp, one of the world's largest financial firms, is a holding company for a group of affiliates involved in the provision of financial services, the principal subsidiary company being Citibank. Citicorp's foreign subsidiaries seek to achieve maximum responsiveness to customer needs, local regulations and competitive conditions. There exists, however, a high level of global coordination and integration in some areas in order to exploit competitive advantages from the company's global scale. One of these areas is the worldwide diffusion of knowledge. Human resource development and training are, therefore, managed on a corporation-wide basis.

The overall human resource policy of the company is to recruit, develop and retain the best people. Citicorp's policy is to employ local staff whenever possible. Where there is an inadequate pool of local personnel of the required quality, the company brings in staff from abroad until local staff is adequately developed. The use of expatriates is also intended to transfer the corporate culture, develop skills in local personnel, create a pool of internationally experienced managers and fully exploit market potential in major growth areas.

Training and development of personnel are considered necessary by the company to meet the ever changing demands of the financial services industry and to improve the quality of local personnel. They are also considered important for reducing labour turnover, which can be quite high in tight labour markets. Training programmes are available in the form of formal courses as well as on-the-job training, in three broad areas: skills-based training, customer-related training and personal self-development. As a result of increasing concentration on higher value-added activities, greater emphasis is being placed on training in customer-related personnel development and people management. The employee groups receiving training are divided into executives (the top 100 senior staff worldwide), managers, professional and technical personnel and others. On average, each Citicorp employee spends five days per annum on training. Most training is done in-house, but external training is provided when required.

Training is organized on a regional basis. The company has established regional training centres in London (covering Europe), New York (covering North and South America) and Singapore (covering Asia and the Pacific). The Asia-Pacific region is Citibank's fastest growing region in terms of total revenue. Nominations for training in the Singapore Centre are made on the basis of a number of criteria, including "must-know" and "should-know" considerations, business needs and priorities, suitability of the participant, distribution of participants by business and class size. Courses at the Singapore Centre include basic skills training, product-specific training and management training, including strategic leadership training. Although most courses are designed for senior and middle management, short (one- and two-day) programmes are available for lower level personnel. Most of the training at the Centre is provided by in-house personnel, but external consultants are used when appropriate. Individual needs for training are identified on the basis of extensive discussions between staff members and their supervisors. Issues in these discussions include staff responsibilities, performance gaps and possible improvements, the selection of the appropriate courses and agreement over objectives and goals of training.

Source: information obtained from Citicorp.

Table V.4. Training activities and related aspects of foreign affiliates in selected service industries in Latin America

Item	*Advertising*	*Banking*	*Consulting* [a]	*Hotels*	*Software*
Number of firms	14	16	17	10	16
Average number of employees	142	172	245	658	138
Ratio of officers to staff (percentage)	91	83	25	6	20
Officers training (days per year)	15	11	23	10 [b]	19
Staff training (days per year)	11	7	20	22 [b]	16
Principal sources of training: officers	in-house, mainly local	local, on the job & univer-sity	in-house, home and local	in-house mainly local	in-house, local and home home
Principal sources of training: staff	local, in-house, on-the-job	local, in-house & univer-sity	local, in-house	local, in-house, on-the-job	local, in-house, on-the-job
Visits per year by home office experts	10	10	18	21	18
Number of expatriates in local affiliate	2	2	2	15	2
Annual turnover of officers (number) [c]	4	5	1	2	1
Annual turnover of staff (number) [c]	9	5	12	126	3

Source: United Nations-DTCI, 1994h, based on information obtained through interviews affiliates of selected transnational service firms in seven Latin American countries, 1991.

a Almost half of the consulting firms operated as partnerships.

b This figure ignores two hotels that provided much more training than the others.

c Turnover averages are modes, not means.

courses for their foreign-affiliate staff, as illustrated by Citibank's training programme for its affiliates in Asia and the Pacific (box V.5).

In Latin America, according to a study of technology transfer by transnational corporations in five service industries, training activities were common in foreign affiliates in all five industries, (table V.4). The firms studied included a majority of fully-owned affiliates but other forms of association as well, such as partnership or association agreements in the case of consulting, locally-owned franchises in the case of hotel chains, and joint ventures in the case of advertising. In all cases, training occupied each employee for an average of at least 9 days per year, ranging upward to an average of 22 days per year for hotel workers and 23 days per year for consulting firm officers. Most training was done in-house in the host country, although a good deal of training was provided at the home office to officers in all of the industries. Visits by home-office experts for

training purposes were common across all services, though most frequent in the software and consulting firms (United Nations-DTCI, 1994h).

The soft technologies required by service industries are by no means static, but rather undergo continuous change, owing to forces such as increased competition and the growing use of data technologies. For example, the skill structure of banks and insurance companies is changing rapidly towards more sophisticated and flexible tasks than used to be the case a decade or so ago (Bertrand and Noyelle, 1988, p. 8). The quality of human resources of service firms has become a major factor determining the rate at which new technology can be introduced and productivity increases can be achieved. This not only creates increased demand for better educational preparation by institutions of formal education, but has also led to the development of in-house training systems for employees by many service companies. This is particularly the case where firms, including foreign affiliates, must compensate for deficiencies in national educational systems (UNCTC, 1989a). This has particular relevance for developing countries and economies in transition to a market-oriented system. For example, Citibank's affiliate operations in Poland, providing foreign trade and cash-management services and electronic banking services for large foreign investors, such as International Paper or McDonald's, are conducted with a workforce comprising 120 locally recruited staff and several expatriates. Training young Polish staff (for one in three it is their first job) in electronic banking has become a priority for the company, which claims to spend $400,000 per year on training.[10]

Box V.6. Human resource development in a non-equity arrangement: management development in Pepsi-Cola International

Pepsi-Cola International, the international beverages division of PepsiCo Inc., operates mainly through franchise agreements negotiated with local bottlers worldwide. Given the limited technology involved in the production process, training requirements for the general workforce are quite limited, and the responsibility for workforce training is assumed by the bottlers themselves. However, the company has developed a comprehensive management development and training programme. Its purpose is to address the shortage of qualified and competent managers in some countries as well as to improve business knowledge and skills and meet specific needs of its franchisees or field managers.

The management development and training programme established by the company is directed by three guiding principles: to achieve high levels of individual and organizational performance; to ensure the worldwide coordination of activities; and to respect the decentralized nature of the organization. In an attempt to combine global coordination with national responsiveness in human resource development, Pepsi-Cola International has established a set of globally applicable human resource practices which are modified to meet country-specific needs in a rapidly changing international business environment. In order to ensure that its managers are able to work effectively with franchisees and have the personal flexibility and creativity to deal with environmental complexity, Pepsi-Cola International has developed human resource programmes and processes focussing on six broad issues: shared values; leadership; personal performance; career/skill development; and balancing teamwork and individual achievement.

A particularly important part of the programme is the Pepsi-Cola International Management Institute (PCIMI). The Institute is an umbrella delivery system that is the primary vehicle for delivering training programmes around the world — to both Pepsi-Cola employees and franchise bottlers. A typical programme for the former would concern sales-force management; for the latter, production and manufacturing techniques for Pepsi brands. For all programmes, broad standards are established on a global basis; but individual programmes are adapted to local market needs and cultural differences.

Programmes offered by PCIMI fall within three broad categories:

Individual programmes, designed to improve skills, such as writing or presentation skills. Such programmes are unique to particular individuals who need to improve some aspects of their

In addition to equity investment, arrangements such as licensing and franchising offer scope for the transfer of soft technology and skills (box V.6). In recent years there has been a rapid growth in international franchising, particularly business-format franchising (Welch, 1992). Business-format franchising is of particular importance in contributing to human resource development, because it requires the establishment of an ongoing relationship between the franchiser and franchisee as the total business system is transferred. In addition to the rights to relevant products, patents or trademarks, this type of franchising provides training in business management. The use of a standard package ensures comparability and adherence to high quality standards. This is achieved through a careful selection of franchisees, a detailed operations manual, thorough training and continuous supervision. Franchisers are prepared to make considerable investments to maintain standards. Other kinds of non-equity arrangements with TNCs also provide scope for training and human resource development. For example, management contracts with hotel chains incorporate training (and localization) as a contractual obligation. Transnational hotels are in a position to perform the training function very well, as they have established procedures, manuals and training programmes that have been revised over the years in accordance with their experience (UNCTC, 1990d, p. 20). Such training can benefit not only employees of affiliates with equity participation (table V.4 above) but also those of non-equity associates, especially if the training requirement is incorporated into the agreement. Management, licensing and technical assistance contracts with TNCs in other industries offer similar opportunities for training and human resource development.

performance, skills or knowledge. Programmes are normally offered by outside vendors or training in-house. Generally, such programmes are locally driven and initiated, with local operating units being free to establish programmes on an as-needed basis. Pepsi-Cola International's head office may assess quality or provide assistance on the inclusion of a particular subject matter.

Managerial/organizational programmes, designed to pursue cultural themes or initiatives. Generally, such programmes are designed by headquarters staff in response to locally identified needs; examples include executive leadership programmes, performance management workshops and excellence-in-management programmes. The aim of such programmes is to deliver specific skill training (e.g., in leadership) and to establish shared values across diverse cultures. The programmes are generally run by outside consultants.

Business programmes, designed to improve specific business knowledge or skills, such as quality control, sales-force management and merchandising. Programmes are developed jointly by Pepsi-Cola International staff and external consultants. The programmes are developed to meet a specific business need identified by franchise bottlers or Pepsi-Cola International field managers.

A second important component of the management development and training programme is the Pepsi-Cola International Designate Programme, which brings non-United States managers to the United States for a period of specialized training (up to 3 years) in Pepsi's system there. It is aimed at providing in-depth experiential training and developing skills which can be transferred back to host country markets. So far, 28 countires have participated in the programme. Individuals are selected by their local units for the programme, covering both newly hired and existing staff. The key criteria for selection are English language ability and potential for significant future growth. Participants must agree to return home or to another mutually agreed upon location on completion of the assignment, since the aim of the programme is to transfer skills to overseas markets. Complementing this programme, young United States managers with potential are sent abroad to gain international experience and knowledge.

Source: information obtained from Pepsi-Cola International and from J. Fulkerson and R. S. Schuler (1992).

4. Research and development

Research-and-development (R&D) activities are both an indicator of human resource development in a country and a channel by which TNCs may upgrade human resource capabilities. Before any meaningful R&D can be undertaken, it is necessary to have a minimum, fairly high, level of skills. At the same time, in carrying out R&D, skills are further upgraded. Transnational corporations are key actors in the development of technology and devote significant resources to R&D. Thus, companies with the highest R&D expenditures in Germany, Japan, Sweden, Switzerland and the United States spent 5 to 6 per cent of their total sales revenue on R&D in the late 1980s (UN-TCMD, 1992a, p. 136). Research and development by TNCs provide opportunities for scientific and professional personnel to become involved in activities related to technology innovation, development and adaptation in new areas and on a larger scale and scope than might otherwise be possible, thereby offering opportunities for applying existing skills as well as improving them. These may be particularly important in countries where there is a shortage of such opportunities.

Historically, R&D by TNCs has been concentrated in their home countries. There are signs, however, that the internationalization of R&D activities is increasing. For instance, the share of R&D undertaken by United States TNCs outside their home country increased from 7 per cent in 1966 to 10 per cent in 1989 (UN-TCMD, 1992a, p. 137). Transnational corporations from European countries such as Germany and Sweden have reached a much higher degree of internationalization of their R&D activities. The trend towards increased R&D abroad seems, moreover, to be accelerating (Pearce, 1990). Two-thirds of all R&D facilities established by the world's leading TNCs since 1980 have been located outside the home country, as compared with only one-third prior to that date (Pearce and Singh, 1992).

However, there is large variation by industry in the propensity to internationalize R&D and overseas facilities are concentrated in a few developed countries possessing distinct innovative capability. Differences by industry are evident, for example, in the pattern of R&D intensity at home and abroad by Swedish manufacturing TNCs (figure V.2). As mentioned earlier, a somewhat similar pattern of distribution of training expenditure per employee prevails for Swedish manufacturing TNCs, although the gap between training in foreign affiliates and training at home was much smaller in each industry than the R&D intensity of home and host country operations.

Although the overwhelming proportion of R&D by TNCs is located in developed countries, the R&D activities of TNCs can be quite significant from the perspective of some developing host countries. In countries such as India, the Republic of Korea and Singapore, the share of aggregate R&D expenditure attributable to foreign firms exceeded 15 per cent in the 1970s (UN-TCMD, 1992a, p. 146). According to survey data, a fairly large proportion of foreign affiliates in developing countries — 55 per cent of affiliates of large TNCs and 45 per cent of affiliates of small and medium-sized TNCs — were involved in R&D activities (as compared with 60 per cent of indigenous firms) (UNCTAD-DTCI, 1993c, pp. 125-126). Judging by data on foreign affiliates of United States TNCs, moreover, it seems that the proportion of R&D scientists and engineers in total employment in foreign affiliates overall, and in particular, in developed and some developing countries, including countries in the Asian region, is increasing.[11]

Little is known of the type of research undertaken by foreign affiliates in developing countries. Much of it is likely to be related to the adaptation of technology transferred from the parent firm to local needs (UN-TCMD, 1992a). While such activity is unlikely to form the basis for strengthening capabilities for technology development, it could nevertheless contribute to the development of human resources, not only by providing a broader market for existing skills but also through spillovers resulting from the movement of personnel.

Table V.5. Expatriates as a percentage of skilled workers in a sample of non-oil manufacturing firms in Thailand, by ownership, 1990

Item	*Executives*	*Technicians and engineers*	*All skilled workers* [b]
Local firms	1.5	0.9	0.7
Affiliates of Japanese TNCs	18.5	3.6	5.8
Affiliates of TNCs from other developed countries	8.4	2.1	2.7
Affiliates of TNCs from developing countries	26.1	11.8	9.9

Source: UNCTAD, Division on Transnational Corporations and Investment, based on information for 732 BOI promoted firms obtained from the Board of Investments (BOI), Thailand, and other sources.

a Includes executives, technicians and engineers and clerical workers.

5. Expatriate staff and the localization of management

Transnational corporations rely, to some extent, on expatriates, especially from their home countries for staffing their foreign affiliate operations. In aggregate terms, the number and proportion of expatriates working in foreign affiliates is not large. For TNCs based in Japan and the United States, for which comprehensive figures are available, expatriates from the home country accounted for 3 and 0.4 per cent respectively of total employment in foreign affiliates in 1989 (UN-TCMD, 1992a, p. 178). Furthermore, in the case of United States TNCs, the percentage had declined by half since 1982.

The relatively small proportion of expatriates in TNCs is largely concentrated in senior management positions or in key technical and engineering jobs to execute sophisticated or specialized production tasks. Reliance on expatriate personnel is greater in the case of foreign affiliates in developing countries than in those in developed host countries: for example, according to a sample survey of the largest United States TNCs (Tung, 1988, pp. 6-7), 40 per cent of the positions at the senior management level in the European affiliates of United States TNCs were staffed by home country nationals (33 per cent) or third country nationals (7 per cent), as compared with 53 per cent (44 per cent home country nationals and 9 per cent third country nationals) of such staff in United States TNCs' affiliates in Latin America. In affiliates of the largest Japanese TNCs, the proportion of expatriates in senior management positions was 77 per cent in European affiliates and 83 per cent in Latin American affiliates, comprising, in both cases, only expatriates from the home country (Tung, 1988, pp. 6-7). The global average ratio of Japanese nationals filling directors' posts in foreign affiliates was 45 per cent in the late 1980s, while the proportion of Japanese nationals occupying the post of chief executive officer ranged from 82 per cent in North America to 63 per cent in Asia, broadly corresponding to the proportion of wholly owned affiliates (Watanabe, 1993, p. 150). Data from a survey of firms in the non-oil manufacturing industry in Thailand in 1990 also show that expatriates accounted for a relatively large share of executive staff in foreign affiliates , reaching 18 per cent in local affiliates of Japanese TNCs and 26 per cent in affiliates of TNCs based in other developing countries (table V.5).

A high share of expatriates can be explained, at least partly, by the age of the investment. In general, reliance on expatriate managers and technicians is higher for new investments but tends to decline as affiliates get rooted in the local market and their local workers gain experience

and can make more operating decisions themselves.[12] In addition to their role in organizing enterprises in their early phase, main reasons for employing managers and professionals from the home country include ensuring the availability of technical expertise and developing the international management expertise that TNCs require (Tung, 1988, p. 10). Other factors may also be important; for example, in the case of Japanese TNCs, these are likely to include language barriers, the need for highly experienced and trained managers to implement lean production methods and maintain high company-wide quality control standards, and the particular management style, in which "human networks" based on informal rules and mutual understanding are important elements in establishing connections within the corporate system. In fact, Japanese TNCs tend to entrust to compatriots those units where close and accurate communication and understanding with head office are required (Dunning, 1986a).

Aside from country-specific differences in management style, administering the development and mobility of expatriates and senior executives in particular, as well as replacing them by host country nationals on the basis of cost or other considerations, is a major challenge for most TNCs. Following the evolution in the strategies and structures of international production, the reasons for relying on expatriate managers have changed over time. Originally, the need for international transfers of personnel within TNCs was for specific skills that the local labour markets did not supply, supplemented by the need to ensure control over affiliates (Evans, Lank and Farquhar, 1990, p.122). While these remain important factors, a further objective has developed that the best executives ought to get international experience in different cultures if they are to manage an international organization successfully. The fact that TNCs operate in a growing number of countries under a variety of complex forms, including joint-ventures and strategic alliances, means that international managerial capacities are of growing importance for TNCs. Thus the restricted number of expatriates usually entrusted with high level management positions and hired directly by parent companies has evolved towards the creation of a larger and more mobile pool of regional and international teams. For example, more than 80 per cent of top managers at Xerox (United States) had had international assignments in 1989; in the case of IBM, which operates in over 130 countries, the number of expatriates is on average 3,500 out of a total of some 300,000 employees (Buckley and Brooke, 1992, p. 526).

In building up their international management teams, TNCs can draw upon the variety of human resources that they find in the different labour markets in which they operate. International experience within the corporate system becomes relatively more important than being a national of the parent company, and opens the possibility to nationals from other countries to reach top management positions in TNCs. Selective recruitment policies and management mobility schemes are a main tool utilized by TNCs in building their international management teams, but the development of tailored training facilities is also essential. As integration at various levels across the geographically dispersed affiliates of a TNC increases, the need to provide affiliate managers with a more thorough knowledge of the corporate system is likely to increase.

Aside from these trends towards developing teams of international managers comprising home, host and third country personnel linked to the spread of internationally integrated production systems, a number of factors lead to the localization of staff, including management and key technical employees, in foreign affiliates. These are both internal and external to the TNC:

- The relative cost of expatriate staff is generally high compared to local staff, especially in developing countries.
- The costs of building a pool of internationally qualified staff are also very high, and the process can be lengthy when the company is engaged in a substantial expansion of its overseas activities.
- Aside from the relatively lower salary costs, the employment of host country staff carries advantages in terms of familiarity with host country culture and language.

Box V.7. Management training, expatriates and localization: Sony's operations in the United Kingdom

Within Sony's Bridgend, Wales, television plant, only 2 out of 11 senior managers are Japanese. The company has integrated its technology-transfer and training strategies. The importation of new technologies is accompanied by the assignment of Japanese managers and engineers to the affiliate. Engineers are typically on two-to-three-year project assignments; managers are more likely to be on six-to-eight-year foreign assignments. At this stage, local personnel is recruited or assigned, and skill transfer begins within two-to-three years. Sony rarely recruits local managers at a senior level. The more usual route is for an aspiring manager to be assigned to a senior Japanese executive for three-to-four years and to gradually assume responsibility over this period. Managers with good potential are moved around the company and between functions. Induction into the "Sony way" is achieved through induction courses both locally and in Tokyo. The process of gradual localization is well illustrated by television research-and-development by Sony in the United Kingdom. A local research and development facility was established in 1984 and, within three years, was fully staffed by local staff, with the only Japanese nationals being those on assignment. Since 1988, all television-design work has been undertaken within Europe.

Source: *Management Europe* (Geneva, Business International S.A.), May 1991.

- Pressures are often exerted by host country governments on TNCs to employ and promote local personnel, particularly in developing countries, as a way to nurture the creation of indigenous management and professional expertise.

The interaction of these factors tends to encourage the replacement of expatriates by host country nationals through professional development and advancement within a foreign affiliate. Mention has already been made of the significant reduction in expatriate staff in United States foreign affiliates during the 1980s. A decline in the relative use of home country staff in management positions has also been observed in recent years for Japanese TNCs (Watanabe, 1993, p. 150). Increasingly, TNC policies with respect to training and use of expatriates are oriented towards the gradual localization of management in affiliates (box V.7). This applies to developed and developing economies as well as economies in transition to market-oriented systems. For example, for some large TNCs, such as Toshiba, Pepsi Cola and Hewlett-Packard, one of the basic strategies with respect to their operations in China is to promote localization of the company's management. During its first five years of operation in China, Hewlett-Packard adopted a "reverse development strategy", i.e., all its profits earned were reinvested; a substantial portion was devoted to human resource development. During 1985-1990, Hewlett-Packard (China) spent $2.5 million to train its Chinese employees overseas. As a result, the proportion of foreign employees declined from 20 per cent in 1986 to 4 per cent in 1990, and operating costs have decreased considerably as well.[13] It should be noted that there are situations where the opportunities for skill acquisition and upward mobility for host country nationals within foreign affiliates may be constrained by the personnel strategies or the desire of TNCs to control their technological assets (Salt and Findlay, 1991, p. 171-172). Increasingly, however, the movement of expatriates within the organizational structures of TNCs represents, on the one hand, an opportunity for highly skilled individuals in home as well as host countries to become part of an international management team whose members might be located at any place where the firm has operations and, on the other, a means for upgrading skills and assisting in the process of localization of management.

B. Maximizing and diffusing the contributions of transnational corporations to human resource development

Irrespective of the particular operating mode, the maximization of the contribution of TNCs to human resource development in a given host country requires that a number of conditions be satisfied:

- TNCs must add to the total stock of training by offering opportunities that would not have been forthcoming in their absence. This is most likely to occur where employees would have been unemployed or confined to unskilled tasks in the absence of foreign investment, and/or where TNCs bring with them new or different skills and management methods that enhance productivity in the host economy. Developing countries with abundant supply of educated labour generally fit both aspects of this description, while economies in transition to the market system are likely to be particularly in need of the new and different business skills that TNCs provide.
- Training costs should be borne by TNCs and not by employees in the form of trainee wages or the taxpayer in the form of training subsidies. While trainees in TNCs generally do not appear to receive apprentice wage rates, instances have been observed of employees of TNC affiliates in Brazil and Mexico being encouraged to obtain training in their own time by, for example, practising other jobs (Miller and Zaidi, 1982). Furthermore, evidence from export processing zones suggests that training costs can be held down by the extreme fragmentation of tasks and the widespread employment of women, who may earn one-fifth to one-half of comparable male employees.
- Benefits are not totally lost through the international movement of production or staff. The mobility of TNCs means that, in a situation of rapid technological and environmental change, production facilities may be relocated, or staff reassigned. Where comparative advantage is declining and production is closed, or where facilities are attracted to locations enjoying increasing comparative advantage, this mobility contributes to economic restructuring. Transnational corporations are accelerating the global movement of employees in other ways. These include their use of expatriates as well as a certain tendency to recruit from global labour pools, certainly for managerial, professional and technical staff. Such movement of personnel within TNCs could be detrimental to a country if there is an excessive loss of highly trained employees who are in demand but who are unlikely to return in the foreseeable future.
- For an economy to capture the full benefits of TNC-financed human capital investment there must also be some mechanism for the diffusion of skills, for example through labour turnover or membership in trade associations. Diffusion is likely to be limited where TNC skills are firm-specific, that is, of productive value within only one organization, or where the underdevelopment of indigenous enterprises means that the acquired skills cannot be employed outside the foreign-controlled sector. Concern regarding truncated production and the transfer of highly specific training relates to plants located in developing countries as well as less developed regions within industrialized economies. In the extreme — perhaps where limited training is provided within highly specialized export processing-zone affiliates — the benefits to a host country could be minimal. In general, the training provided by TNCs within developing host countries must be considered in the light of broader skills that may be displaced through the transfer of a technology package and increased dependence on parent or related operations for higher order activities (research and development, marketing etc.).

However, the specific training provided within TNCs can also be a strong and desirable complement to the training provided by a nation's educational system. The most significant and

durable forms of competitive advantage are those built upon the specialized and advanced skills that result from human capital formation within a firm or narrow industry group. Attempts to develop such factor skills through the public education system are less likely to succeed, because governments lack the commercial pressure and proximity to markets that ensure appropriate skill investment. This suggests a complementarity of general education and the more specialized training offered within TNCs.

Employee turnover is essential for the diffusion of skills and knowledge. According to earlier research on labour turnover within TNCs, wage rates are important determinants of turnover. Turnover rates are much lower when TNC wages are particularly attractive (Cohen, 1973;Gershenberg, 1987b) and much higher, approaching 50 per cent or more in export processing zones, where conditions of work are less attractive (Jenkins, 1987, p. 128). However, in many cases the turnover of export processing-zone labour does not assist in the diffusion of skills, among other reasons, because it involves typically low-skilled labour that is in plentiful supply. This suggests that the potential for training externalities from export processing zones and similar arrangements may be quite low. Turnover rates also depend upon factors other than wages, which may, in turn, vary among TNCs from different home countries. For example, in the United States, annual turnover rates were much lower for Japanese-owned plants than for US-owned plants (Mincer and Higuchi, 1987, p. 23).

Evidence for several developing countries suggests that there are positive effects in terms of diffusion of skills and know-how. For example, according to a study of Latin American manufacturing, many managerial personnel in locally-owned firms started their careers in foreign companies, bringing important spillovers to the host countries (Katz, 1987). According to another study, in Mexico, many management positions in locally-owned firms generally were held by persons with earlier experience in foreign firms (Blomström, 1989). Training in foreign affiliates has been identified as an important element in the development of local firms in South-East Asia as well (Yoshihara, 1988; Hill, 1993b, p. 212). Transnational corporations are reported to have played an important role in the dissemination of managerial know-how in Kenya, although turnover rates in TNCs were lower in foreign affiliates than in locally owned firms (Gershenberg, 1987a). The movement of trained employees to other firms was identified as one of the main ways in which insurance-industry technology was transferred from the American Insurance Group. For instance, in the Philippines, that company was known as the training ground for the insurance industry (Shelp, 1984). Thus, the available evidence from developing countries suggests that positive spillovers exist from the training of employees by TNCs. Although TNCs may have smaller training effects in the more developed countries, they may still have an incubator effect (i.e., incubating new spin-off local businesses) (Blomström, 1994).

The training and human resource development activities of TNCs have also had various spillover effects in the economies of Central and Eastern Europe. Western business culture is diffused through the interaction of employees with their colleagues in other local firms and with their families; expatriate employees do not confine their experience and expertise to their company alone; the TNC trainees are hired away to affiliates of other foreign firms or even local companies. GE Tungsram, for example, provided company finance courses in the United States for some of its local managers who, upon their return to Hungary, left the company.

C. Human resource development through linkages with transnational corporations

Some of the most significant channels through which TNCs add to human resource development are the links they develop with suppliers and customers. The sourcing decisions of TNCs, particularly whether to import or procure locally, are critical in determining this impact.

The decision of TNCs to produce their own intermediate products or to source them externally depends, among other things, upon the relative costs of integrating production, the strategy of the TNC, the extent to which technology is proprietary and specialized and the degree to which quality variations can be tolerated. The maturity of a plant is also an important consideration. Local sourcing tends to be much lower in the early years of establishment and may increase over time. For example, Japanese affiliates in Europe imported 37 per cent of their components by value in 1988. This compares with an average foreign procurement ratio of over 50 per cent when operations first commenced (JETRO, 1990). Nationality differences in the organization of production are also important. Japanese TNCs apparently tend to source externally to a greater extent than European or United States TNCs, although this may be a reflection of the relatively late entry of TNCs from Japan into host countries.

Transnational corporations contribute to skill development in their suppliers in a number of ways. They specify quality and performance standards that may exceed suppliers' norms. In many cases, as illustrated by Nissan and Toyota in the United Kingdom, the buying firm will work with suppliers to help raise their standards and assist in lowering costs (Dunning, 1986b). This is also the case with some TNCs that enter into subcontracting arrangements (box IV.7). Transnational corporations forge critical linkages with local suppliers through the provision of information (on markets, investment plans, competitors), technical assistance (product design, production processes, total quality management, staff development), financial assistance (soft loans, pre-financing of investment, prepayment of orders) and managerial assistance. In Mexico, for example, more than 86 per cent of foreign affiliates provided training in quality management to their suppliers. More than two-thirds provided technical assistance (UNCTC, 1992c). In China, TNCs such as Motorola, Siemens and Xerox have provided training not only to their employees, but to their customers, partners and suppliers (as well as industry-related education in general).[14]

There are marked differences between TNCs from different home countries in their management of supplier relationships and the extent to which such relationships represent opportunities for effective knowledge transfer. Traditionally, United States TNCs have tended to deal with a larger number of suppliers, often on short-term contracts, and with a strong expectation of achieving cost savings. Japanese TNCs seem to work with fewer suppliers, judging from Japanese automobile TNCs (Asanuma, 1992). However, the Japanese approach to subcontracting and backward linkages appears to offer greater potential for the transfer of knowledge and skills. Suppliers benefit from an early involvement in product development and carry considerable responsibility for the successful development of components. While suppliers are under pressure to contain costs, this is achieved through close cooperation between the suppliers' and the foreign affiliate. Suppliers have every incentive to cooperate within such a system as they are likely to benefit financially from any cost savings achieved. There are also strong incentives for them to achieve the highest possible quality levels. This is because, in Japan at least, suppliers' responsibility for defective work extends into the market for the final product. This means that they could be liable for recall and replacement costs. While many Japanese TNCs operate multiple sourcing (typically two to three) with their first-tier suppliers, the competitive nature of the relationship is different. Japanese TNCs seek to develop competitive, but cooperative long-term relationships. Supply is assured over the life of the model, but may not be renewed for successive models.

There is, however, one drawback to this system. The tiers of suppliers form a pyramid in terms of preference and importance. Successful suppliers gradually move up the pyramid as they prove their ability and improve their capabilities with assistance from the TNC in upgrading their activities. This makes its difficult for indigenous suppliers to break into this process and helps to explain why so many Japanese TNCs have drawn their suppliers overseas with them. It underscores, moreover, the attractiveness of supply joint ventures between local firms and leading Japanese suppliers or the TNC itself.

D. Human resource development as a factor inducing foreign direct investment

The relationship between human resource development and the production activities of TNCs runs both ways; TNCs tend to be attracted to those locations that offer them access to the created assets that they need. Since such assets are created by highly skilled labour, the presence of such labour is critical in determining location decisions of TNCs, particularly in certain industries. In other words, the skill and education level of a population determines, to a considerable extent, the volume of FDI inflows and activities that TNCs undertake in a country.

Indeed, the dominant direction of influence is likely to be from the level of skills to the composition of TNC investment. Skill and education levels are largely determined by the countries themselves through the amount and type of investment they make in education and training. The training activities of TNCs can strengthen a country's stock of skills, but only to a limited extent. The interaction of the two factors often results in a virtuous circle, where the domestic availability of skills not only contributes to attracting FDI but is also upgraded in turn by the employment and training opportunities that TNCs, especially in sophisticated industries, provide (box V.8).

Box V.8. Human resource development at IBM's Greenock facility

In recent years, IBM has embarked upon a major restructuring of its activities. These changes aimed at reducing costs and developing a more flexible structure able to penetrate the fastest growing segments of the information-technology industry, have important implications for employment and human resource development. In terms of employment, the restructuring has meant that a total of 115,000 jobs have already been lost or are expected to go between 1991 and 1994. Most recently, and in contrast to earlier years, job losses have been concentrated outside the United States (an estimated 60-65 per cent of the job losses expected during 1993-1994).

IBM's European operations are also undergoing restructuring. Different plants, however, have been affected differently. The experience of the plant in Greenock, Scotland, IBM's main production base for personal computers in Europe, stands out in contrast to other production plants in Europe. The plant is located in an area of high unemployment. In addition to its direct contribution to employment, the plant has helped create employment indirectly through the sourcing of components and services, 60 per cent of which are sourced locally. In addition, given its growing importance in the restructuring of IBM's operations worldwide, there was an increasing recognition that the Greenock facility could make a greater contribution to IBM's global personal-computer operations, including product development, manufacturing and the provision of customer relations.

To achieve "world-class" status in the personal-computer industry, a major contribution from human resources at every level was required at the Greenock plant. In terms of education, the management of the Greenock facility identified the requirements of the plant and the desired results from its proposed training and development programme. This was the outcome of an analysis of the plant's current skills compared with those skills regarded necessary to attain "world-class" status. The management acknowledged that it was necessary to upgrade the skills of both plant managers and labour force in order to maximize the competitiveness of the plant.

Retraining and upgrading the skills of the existing workforce required the removal of various obstacles. The management of the Greenock facility negotiated with the local educational institutions an "open-entry" system, whereby employees would be accepted for various training courses even though they might not possess the required prerequisite qualifications. Once accepted for the course, however, the educational institution would be expected to maintain its normal standards of assessment and evaluation. Another difficulty that had to be overcome was arranging the courses to be delivered to the employees in a manner convenient to them. Rather than expecting employees to commute to the

A country seeking to attract equity or non-equity participation must at least meet TNC expectations with regard to a minimal educational and competence level within the labour force. If a country seeks investment in sophisticated activities or higher value-adding functions in international production, its human resources must possess the necessary specialist skills. Some of these factors can be illustrated by the experience of host countries in South-East Asia, which is one of the major host areas for FDI in the developing world. Transnational corporations were drawn to Singapore by the high skill level of the labour force as well as the quality of infrastructure and incentives offered (Natarajan and Miang, 1992). When they expanded operations to Malaysia or Thailand, they tended to allocate relatively low-skill and labour-intensive operations to those countries, retaining higher skill, more technical operations in Singapore and also using Singapore staff and Singapore operations for the training of staff in the other countries. However, over time, foreign affiliates in Malaysia and Thailand tended to become more sophisticated. The relationship between the type of investment and the skill level of the labour force operated not only across these countries, but also within each country over time. Thus, TNCs that established operations in Singapore in the 1960s, when there was a large pool of unemployed workers, were labour-intensive and in low-technology industries, matching the low skills of the labour force of that period. The companies that began operations in the 1970s were more capital-intensive and in higher-technology industries, and those established in the 1980s were mainly in high-technology areas (Natarajan and Miang, 1992, p. 17). As individual firms shifted their labour-intensive operations to Malaysia or Thailand, their employment in Singapore also continued to grow,

educational institutions in central Scotland, the Greenock plant persuaded the institutions to deliver the courses in the facility itself. The courses selected by the Greenock plant were driven by the business needs of the facility (e.g., graduate degree courses in materials management, electronics, manufacturing, software and procurement management) and employees received substantial support from the company in terms of purchase of course materials and company time dedicated to study.

Since the introduction of that initiative, 320 employees have participated in the programme. Various surveys of participants have demonstrated high levels of satisfaction, with participants recognizing that their skills have improved substantially. Of those attending the courses, 77 per cent have already been allocated additional responsibilities, while 55 per cent have been promoted. In 1988, the management of the Greenock plant had set a target of increasing the level of educational attainment to 50 per cent of the workforce with a graduate qualification by 1993; the actual level reached in 1993 was in fact higher (54 per cent). While the focus of the training initiative is on full-time employees of the Greenock plant, the company encourages employees of subcontractors to participate as well.

Greenock's investment in training has been in response to the changing role and responsibilities of the workforce. In 1987, manufacturing was restricted to basic assembly operations. Now, the Greenock plant aims to ensure self sufficiency in manufacturing (e.g., maintenance of equipment etc.), as well as to acquire some product-development functions. For example, some product-development work has been transferred to the Greenock facility from IBM's laboratory in Hursley, United Kingdom, making this site the worldwide centre for visual display, design and development. Within two years of launching the educational programme, the Greenock plant received two National Training Awards from the Government of the United Kingdom in 1990 and 1992.

The quality of the local educational infrastructure is often cited as a reason for establishing a greenfield production facility in a particular location. The example of the Greenock affiliate confirms the clear benefits of having high-quality education centres in close proximity. Although Greenock continues to send managers to La Hulpe, an education centre owned by IBM in Belgium, it would have been difficult to undertake training on the same scale without the availability of education centres in close proximity and the cooperation assured by them.

Source: information obtained from IBM.

although clearly changing with respect to the type of activity. Singapore has been able to attract higher technology TNC operations over time as a result of large investments in education, including a significant expansion in enrolment in engineering programmes (almost nine-fold between 1970 and 1989) and in technician training programmes (more than 18-fold between 1960 and 1989). In addition, the Government has set up, in cooperation with TNCs, special technical training institutes geared to the needs of particular industries (chapter X).

Despite increases in the output of engineers, Malaysia continued to experience a shortage of trained technicians in the early 1990s. Transnational corporations had to undertake a considerable amount of on-the-job training and allow time for workers to become productive on the job. In Thailand, even though investment by TNCs was largely labour- intensive and in relatively low-technology industries, the rapid expansion of FDI during the 1980s has apparently created a shortage of technical personnel. This demand for high skills, in turn, has caused the Government of Thailand to expand engineering training at home and subsidize overseas study for students to become teachers of technical subjects. Thus, even if TNCs do not train workers themselves, they may induce the government to invest more heavily in training. In Thailand, the turnover of engineers was high, with one or two years at the first job resulting in an increase in market value of their services of between 50 and 200 per cent. This increase in remuneration suggests that, during these few years in a TNC job, a considerable amount of investment in human capital must have taken place (Natarajan and Miang, 1992, p. 29).

Key locational determinants of FDI have changed markedly over time. In the immediate post-war years, the strong demand for natural resources and the adoption of import substitution strategies were important factors influencing the location of international production. Market size and growth rates were increasingly important in determining the geographical pattern of investment during the 1960s and 1970s. More recently, TNC production and marketing strategies have been driven by innovations in information and communications technologies; the accelerated pace of technological change; growing market competition; and policy liberalization, to move towards internationally integrated production systems characterized by increasing locational differentiation as specialist value-adding functions are dispersed in an optimum fashion from the viewpoint of the firms as a whole. Locational decisions are now more likely to be influenced by the presence of sophisticated, created assets, including human resources with innovatory capabilities and marketing, planning and management skills, rather than by plentiful supplies of low-cost labour or natural resources. At the same time, the competitive success of TNCs is increasingly based on their ability to create and coordinate complex transactional networks.

Host countries, for their part, increasingly evaluate international investment in terms of its contribution to the goals of upgrading capabilities and integration into the world economy. It is complex, created factors that unite these objectives. They can only be realized through the services of highly skilled and creative individuals. The presence of such people is now perhaps the key competitive resource for firms as well as for countries. Governments, aware of the importance of providing such skills can do much to increase the locational advantage of their countries in this respect (chapter X).

Conclusions

The relationships between TNCs and human resource development are complex and multi-faceted. On the one hand, the operations of TNCs have the potential to make a considerable contribution to human resource development, particularly in developing countries. On the other hand, and perhaps of greater importance, investments by TNCs depend increasingly on the presence of created assets within a local economy. Such assets, which form the basis for economic development and the creation of competitive advantage, are the result of the application of highly

skilled and creative human capital. The interaction between these effects can be important. An economy that is successful in attracting TNCs and achieving a consequent upgrading of labour skills can strengthen its locational position for obtaining further investments.

The contributions of TNCs to human resource development lie mainly in the areas of education and training. In education, their role is largely confined to direct or indirect investment in the provision of tertiary-level education, especially in business management. The major role of TNCs in the development of human resources stems from the training and other learning opportunities they provide to their staff in various forms. Such training may be valuable for workers in developing countries and others in which opportunities for acquiring vocational, technical and management skills are limited.

Training and other forms of learning provided by TNCs are directed towards all categories of workers, although the main focus is on managerial and technical personnel. Evidence suggests that the size and scope of TNCs enable them to provide substantial formal and informal learning opportunities for employees. Moreover, the learning provided by TNCs often relates to new or different production and management methods. Under appropriate conditions, the contributions of TNCs to knowledge, skills and management expertise of their employees can be disseminated more widely in the host economy and complement domestic human resource development in promoting growth and strengthening competitiveness.

As the tendency of TNCs to pursue complex integration strategies proceeds and the links between parent companies and their affiliates increase, the training requirements that are needed to manage successfully the corporate production system and its geographically dispersed segments are likely to increase and become more sophisticated. Foreign affiliates may be progressively involved in higher value-added and more specialized activities, and more training needed to improve the quality of local personnel. The commitment to training in affiliates could be considerably reinforced by the growing interdependence between operations at home and in the various affiliates. This may lead to a wider distribution of training packages throughout the TNC.

The trend towards complex integration strategies and the increasing competition for FDI make it more important than ever for developing countries to build up their own human resource capabilities. In addition to providing the basis for the development of the domestic economy, such capabilities would allow labour and national enterprises to interact more effectively with TNCs. They would contribute to increasing the volume and raising the quality and sophistication of the FDI that a country could attract, thereby strengthening the prospects for further human resource development. At present, only a limited number of developing countries attract sizeable shares of FDI, particularly in areas that are technologically sophisticated. While these countries have the greatest potential and hold promise for significant human resource development by TNCs. For those countries, foreign affiliates linked to TNCs' value chains are an important complement to national programmes for upgrading human resources. However, other developing countries that do not offer similar locational advantages may also benefit, in terms of improving their human research development from FDI and the emerging integrated international production system. They need to consider how to formulate and coordinate policies so as to maximize the benefits to their human resource capabilities. Issues relevant to the formulation of appropriate policies are discussed in chapter X.

Notes

1 See, for developed countries, ILO, 1981a; Buckley and Enderwick, 1985; and Simoes, 1985. For developing countries, see Hughes and Seng, 1969; Willmore, 1986; Kumar, 1990.

2 H.C. Bettignies, "The challenges of management training in Asia", *Euro-Asia Business Review*, 2, 4 (1983), pp. 34-39.
3 On the basis of data for 1990 obtained from the Board of Investment (BOI), Office of the Prime Minister (Bangkok). Data cover 732 BOI-promoted firms.
4 Based on information obtained from the companies.
5 On the basis of information provided and statements by company executives at the International Conference on Transnational Corporations and China, organized by the United Nations Conference on Trade and Development, Programme on Transnational Corporations and the Ministry of Foreign Trade and Economic Cooperation, and University of International Business and Economics, China, Beijing, 9-11 September 1993.
6 Tony Jackson, "Pioneer looks east for profit: the challenges facing ABB's engineering ventures in the former communist bloc", *Financial Times*, 16 April 1994.
7 Anthony Robinson, "The Financial Times 500: on the trail of new potential markets", *Financial Times*, 13 June 1993.
8 Christopher Bobinski, "Lame ducks are the target", Survey on Poland, *Financial Times*, 18 March 1994.
9 "Automotive survey", *Business Central Europe*, 2, 8 (February 1994), p. 34.
10 Henry Copeland, "Top jobs in East Europe becoming tough to find", *The International Herald Tribune*, 28 October 1993.
11 Based on data from United States Department of Commerce (1981), (1985) and (1992).
12 In the survey on which table V.3 is based, the proportion of expatriates was significantly correlated to the age of the investment.
13 On the basis of information provided and statements by company executives at the International Conference on Transnational Corporations and China, 9-11 September 1993 (see note 5 above).
14 Ibid.