CHAPTER - 2
International Transfer of Technology:
Some Legal Aspects.

1. Transfer and Development of Technology:

Technology is at the heart of modern economic growth. Technology affects economic growth in all its stages. This has been proved by the comparative observance of the long term growth of the national products of industrialized countries. Robert Solow in one of his pioneering study attributed 87.5% of the growth of per capita income in United States to technological progress and the rest to the use of capital. Economists have decreed that economic growth depends on large measure on growth in labor, capital inputs and advances in technology. Excellent literature has developed over the role of technology as an input in economic growth of countries.

The importance of technology for the economic development of the developing countries (LDCs) has in the same vein been highlighted. The economic historians have reassured the need of the use of technology in the economic growth of the LDCs. Reeling under poverty and underdevelopment the economic development programmes of LDCs have assumed a greater importance.

The Third world Studies have confirmed a predominant place for technology in their economic development. The use of advanced technology by the developing countries (LOCs) has thus become the key to their ability to enhance their capacity for rapid industrial development. Since these countries do not possess the technology, therefore, they need to transfer technology from advanced industrialized countries. The transfer of technology from the advanced North to LOCs has become essential not only for their growth but also to enable them to enter the international market with their manufactures and semi-manufactures. Apart from industrialization the use of advanced technology shall increase the competitiveness of their products.

Most of the discoveries and inventions in science and technology take place in advanced industrialized countries. These countries have highly developed research institutions which cater to their technological growth. On the other hand the developing countries lag far behind the developed countries in scientific and technological advancement. The difference in technological developments between developed and developing countries explain the existence of technological gap and economic imbalance between these


countries. The consequence of the difference between technological impacts on developed countries and LDCs is that the latter are dependent economically and technologically on the former.

The transfer of technology from the developed countries to developing countries has become quite essential for bridging the economic and technological gap between the developed and the developing countries. The realization that transfer of technology would lead to economic advantages for LDCs has ushered into a new era of transfer of technology from the advanced to developing countries. Added to this belief is the fact that transferred technology if properly diffused would strengthen the technological capacity of the LDCs. The LDCs get encouragement and inspiration for its transfer programmes from the example of successful diffusion of Western technology by Japan in its postwar reconstruction.

As the World's scientific research and development is


9. See generally UNCTAD, Technological Dependence, Its Nature, Consequences and policy implications UN. DOC. 70/190


concentrated in developed countries, the developing countries have adopted the importation of advanced technology from abroad as the cornerstone of their industrialization strategy.\(^\text{13}\)

The reasons for advocating transfer of technology are three-fold: namely, the LDCs lack resources to produce new technologies, (ii) the technology they need is already available in developed countries, therefore they need not apply resources in the development of already produced and tried technology, and finally the technology already developed in the western countries is socially costless to transfer or can be transferred at marginal costs.\(^\text{14}\)

The pace of technology transfer has continued unabated especially after World War II. Most of the underdeveloped countries of Asia, Africa and Latin America have set in motion a process of growth using the advanced technology from industrialized countries. These countries have adopted a


variety of programmes involving western technology. The desire for greater economic independence has focussed the need for developing an industrial base and to create internal markets for their manufactured goods. The industries thus created would produce domestic substitutes for goods that were previously imported. In this background the postwar strategy of the developing countries has been the importation of technology and the substitution of domestic manufactures for imports. Thus technology transfer has in the recent years assumed a significant importance for developing countries in recent decades.

2. Problems of Definition:

During the past four decades modern technology has emerged as one of the primary sources of national growth, and power and prosperity. The issues surrounding technology transfer between recipient and supplier nations have of late generated much debate in policy making and scholarly circles. One of such issues has been the appropriate definition of 'technology'.

15. UNCTAD. A Strategy for Technological Transformation of Developing Countries. (UN:1985) E.84 II.0.19.4

and 'technology transfer'. This debate has been compounded by the fact that technology transfer has come to have a special role and meaning vis-à-vis LDCs. Almost all of the UNCTAD literature focussed its attention on technology transfer as an important input for economic development of LDCs. It is oriented towards the specific goal of technology transformation of LDCs which in turn is interpreted in the light of increasing developmental strategies of LDCs. These tendencies have resulted into multifaceted approaches to technology transfer in economic development literature. The paucity of facts and abundance of rhetoric have also led to uncertainty and disagreement over what the transfer of technology is. Therefore it is pertinent to turn to some of the definitions of technology and technology transfer.

17. Mathew J. Betz. *Appropriate Technology; Choice and Development* (1984), 49-63


2.1 Technology

Technology over the years has represented a massive embodiment of technical knowledge either of production or of application of knowledge towards an end product. Technology is a body of skills, knowledge and procedures for making, using and doing useful things. Goulet recognizes a variety of technologies in his definition of technology as 'the systematic application of collective greater control over nature and over human processes of all kinds'. He distinguished between product embodied, process embodied and people embodied technology. Stewart has given a comprehensive definition of technology. Technology according to him includes methods used for production in marketed as well as non-marketed goods. It includes the nature and specifications of what is produced (product design) as well as how it is produced (process design). It encompasses managerial and marketing techniques as well as techniques directly involved in production. Technology extends to services administration, education, banking and law as well as manufacturing and agriculture. A complete description of technology in use in a country would


include the organization of productive units and terms of scale and ownership. G.M. Dobrov has given a definition of technology which represents official Soviet Government attitude on technological progress. According to him, "It is vitally important to understand technology not only as a set of technical means (Machines, tools, materials etc. called hardware). It is not enough even to add the idea of 'knowhow' or 'software' which is already recognized as a component of technological systems. Technology must be seen as a unified system of hardware and software and a social, economic and organizational component (orgware) which can be defined as a set of organizational arrangements specially designed and integrated, using human, institutional and technical factors to support appropriate interaction of technology and external systems." According to UNCTAD technology as 'an essential input to production' is bought and sold as:

1. Capital goods including machinery and intermediate goods;
2. Human labour, usually skilled and specialized manpower and management;
3. Information of a technical and commercial character including that which is readily available and that which is subject to proprietary rights and restrictions.

22. See F. Stweart. Supra note 1, p. 1,2


24. See UNCTAD. Guidelines for the study of Transfer of Technology UN. DOC.TT/A3/5
Given these broad definitions, the measurement of technology becomes problematic. Consequently a buyer without an understanding of the nature of either process technology, or product technology or application and management technology, gets sometimes a deal less than he bargained for. It is this complex character of technology which is responsible for conflicting interests in the domain of technology transfer. Given the fact that modern technology has come to represent much more than physical assets, like patents, 'know how' and 'know-why', most of the problems which the enterprises of developing countries face is the result of lack of an understanding about the full implications of technology transfer. Moreover the proprietary nature of the technology and its commercialization has given rise to most of the problems in technology transfer to LDCs.

2.11. Technology Transfer

Technology transfer similarly can be a deceptively simpler process. On occasions it may seem to involve the mere invention and commercialization of a useful technical device,


27. See UNCTAD, Major Issues Arising from transfer of Technology Doc.70/8/AC.11/10/Rev.2;
the sale of that device and the use and absorption of that device in the new environment of the transferee nation.

In that it would simply mean that technology transfer can be achieved by passing through the three stages of creation, transmission and reception. However, such a simple process rarely occurs. Technology transfer is a complex process that includes not only the ongoing creation, transmission and reception of technology but it is equally the creation, transmission and reception of disembodied technical concepts and designs or the productive know how required to create technology.

Secondly, the success of transfer of technology would be conditioned by political, economic, social, legal and human factors. The degree of receptivity of the receiving firm and the social order would combine to determine the efficiency of technology transfer. The organizational decisions of the MNC have another important bearing upon the transfer of technology. Therefore the transfer of technology has posed serious problems of identification, qualification and...

---


Another factor which has made transfer of technology rather complex is because technology is regarded as an item of commerce, property and process whose transfer has similarities with all other processes of exchange. Most of the technology is sold rather than transferred. The objective of the entire transaction is the determination of value as is perceived by both suppliers and intended users, and thus is a normal part of international trade. Viewed in that perspective it stands to be governed by rules, regulations and norms of international commerce, where technology transfer represents the international saleable commodity.

Cooper and Hoffmann have identified the transfer of technology with transfer of technology transactions which include; (1) simple direct sale of embodied and disembodied technology (2) process packaged sale of technology where a complete industrial process or plant is supplied by manufactures; (3) 'project packaged' sale of technology accompanied by other operations like management, capital

30. Ibid, See also Ernst Braun. Wyward Technology (1984)


Kranjaic has made a distinction between transfer of technology and transfer of technological knowledge. The latter represents the transmission of specific knowledge whilst the former represents the transmission of procedures and processes alone. According to him the transfer of technological knowledge need not necessarily accompany the introduction of technology, but the availability of adequate technological knowledge can result in the emergence of self-styled original technology. On the other hand transfer of technology does not mean the transfer of adequate knowledge for it can be transferred with a minimum of technological knowledge.

Otto Kimmick has put forward succinctly his formulation on technology transfer. "There is great variety of human experience which can be stored and transmitted to others without having anything to do with technology. The definition can be made operational by describing which sort of experience is to be transmitted. But one has to bear in mind that capacity to transmit is part of technology not of the transfer - so that the transfer of technology would include the transmission -

33. Quoted in S. Lall supra note 14, p. 128

of a certain type of human experience. If these elements are not kept apart one is apt to arrive at a circular definition like the following. Technology transfer is the process of transferring from one production entity to another the know how required to successfully utilize a particular technology.35

Traditionally transfer of technology has been characterized as the process of transferring a production technique from one territorial limit to other. However, this transfer process is a complex one involving different legal and juridical systems. It involves the difficulty of characterizing technology transfer transactions, the regulation of these transactions and the settlement of disputes in case of conflict. The process is also marked by the involvement of governments especially of developing countries who directly or indirectly have a stake in completion of the technology transfer transactions.36 Further technology includes various concepts which have legal connotations under the national and international law. As Lowenfield points out, technology is both a 'property and process'. It includes not only patents, designs, technical data, but also the ability to put things

35. OHO Kimmick, Supra note 10, p. 60

36. See T.S. Mann, Transfer of Technology (1983) Chap. 2
Together to make them work and to maintain efficient operations and uniform quality. 37

International transfer of technology denotes a legal arrangement whereby compendium of rights and interests represented by an owner in 'commercial technology' is sold, licenced or otherwise made available to the recipients. To be more precise technology transfer refers to a set of legal transactions that govern the purchase, sale and use technology, locally, nationally and internationally. 38

These commercial transfers are completed by commercially negotiated agreements representing sale of patents, know how and other industrial property rights. The parties are regulated by the contract in question or other legal instruments national or international.

The developing countries (group of 77) have given a comprehensive definition of the transfer of technology which has been a rallying point in the preparation of draft international code of conduct. The term according to their definition covers "any kind of transfer of proprietary or non proprietary technology irrespective of the legal form of such

37 Lowenfield, Supra note 31, p. 226

transfers including technology transactions associated with the establishment and operation of wholly owned subsidiaries or affiliates of transnational corporations and other foreign enterprises and of joint ventures with various degrees of foreign ownership. 39

3. Legal Framework of Transfer of Technology

Transfer of technology is a dynamic process. It represents an association between various actors, the enterprises, governments and individuals. It is an economic, social and legal relationship between these actors. The actors participating in the international distribution of knowledge include the MNCs, the host and the home Governments. The process is characterized by an interaction between various actors endowed with differing personalities. Apart from the ordinary contractual relationships between the suppliers and the recipients technology transfer has given rise to a number of contacts between the national and international legal system. 40 Given the fact that at international level no corporation law is present the national legal systems have to regulate the diverse aspects of technology transfer.

39. UNCTAD Draft outline for Preparation of an international Code of Conduct on Technology Transfer TD/B/D.60A/C.1/L-16.

40. Howard Perlmutter, Supra note 38, p. 20
The prerequisite of successful transfer of technology is an adequate legal framework. The legal framework would fix the respective rights and obligations which would permit an equitable balance to be struck between the parties.  

The legal environment for international business in technology consists primarily of investment laws, industrial property laws, administrative guidelines and courts of the individual nations. Since no single international commercial system exists, the international firm has to respond to as many legal environments as there are countries. This accounts for differences in corporation laws, tax laws, contract laws etc. Consequently the intending investor has to consider his legal position in the host country apart from extra legal factors such as the political and economic stability of the country, the cost of labour, raw materials, size of the market and membership of the country to a regional trade group. The legal position determines as to whether it is advisable to work out the agreement for transfer of technology through the establishment of a subsidiary/branch of the MNC or through direct licensing. Broadly speaking there are four branches of

41. See Supra note 1, p. 21; see UNCTAD. Implementation of Laws and regulations on transfer of technology: The experience of Portugal (UN:1985) DOC.UNCTAD/TT/73

law which have a bearing upon foreign investors activity in host countries i.e. law relating to companies; employment, taxation, foreign investment and industrial property laws.  

The operation of these legal rules have thus been conditioning the international distribution of technology.  

However, scholars have pointed out that MNCs and international business are not only governed by municipal law or internal law. There is in evolution a body of substantive rules termed as lex mercatoria especially through codes of conduct as distinct from municipal law. Nevertheless lex mercatoria as a source of law for transnational business cannot be equated with municipal law. The notable aspect of it is that it is a contractual arrangement for reducing the sources of conflict in international business.

The access to technology is conditioned by the nature of legal systems operating in supplier and recipient countries.

43. Schmittoff, Export Trade Law (1986) 270
44. The implications of some of these laws in transfer of technology have been discussed in latter chapters. Robert Goldscheider, "Technology Transfer process: A Vehicle for Continuity and Change" 14 Vanderbilt Journal of Transnational Law (1981) 256.
45. Schmithoff, Supra note 43
The transfers between the supplier and recipient is based on the free will of parties and is the exclusive preserve of private law. The transactions are completed through commercial negotiations.47 There is evidence to suggest that these contractual forms of resource transmission are multiplying in recent years.48 This consensual understanding permits immediate access to advanced technology and control over the means of production. Developing countries especially prefer this arrangement because it leaves decision making (control) with indigenous firms rather than leaving it in the hands of MNCs or subsidiaries.49

In the historical evaluation of the legal framework concerning transfer of technology, licensing has had a major role to play. Especially after world war it has occupied a predominant role in the transfer of technology to developing countries.50

4. Licensing

The transfer of technology is a major element of international trade and investment. Patented inventions, processes

and know-how, trade secrets as technical skills have played a crucial role in the industrialization of the world. The developing countries on their part are taking great efforts to achieve the goals of economic and social development through the incorporation of advanced technology through these processes.  

The commercial transfer of technology to developing countries usually takes place through enterprise to enterprise arrangements, principally consensual. The outcome of such transfers is dependent upon the legal relations between the parties to the transfer. Apart from the legal act which characterizes the creation of a business organisation, the terms and conditions governing the commercial transfer of technology is incorporated in a legal instrument called as a 'license', a 'grant' or an 'agreement'. The other arrangements apart from licencing are the supply of technical know-how or technical service contracts or franchising or as a result of direct investment. These agreements are subject to one or more legal systems that provide rules on contract, rights and the protection of private property and settlement of disputes.


52. These are some of the core problems which have arisen in transfer of technology. WIPO, Licensing Guide for Developing Countries (1977) 22-24.
Over the years 'licensing' has emerged as one of the important legal means for the transfer of technology from developed to developing countries. Licensing is thought to be a product of pre-war liberalism, and its customary clauses are based on the freedom of parties. 53

The license is the means by which the owner of the technology confers a right on another to use the invention and formalize the commercial understanding between the licensor and the licensee. The right in contract consists of the permission to use industrial property right such as patents, trade marks, brand names etc. etc. The terms and conditions and the extent of the use of the invention is detailed in the license or the agreement. 54 Based on the free will of the parties these licensing agreements have not been subject to any specific or systematic regulation either at the national or international level. 55

The subject of a licensing agreement has generally been an industrial property right, a patented invention, an industrial design, a utility model, a trade mark or a service mark. The grant also specifies sometimes the modalities and

53. Wilner, Supra note 51, Also Edith Penrose, "International Patenting and Lower Developing Countries" 83 Economic Journal (1973) 768
54. WIPO, Licensing Guide... Supra note 52, p. 21.
55. Wilner, Supra note 51, p. 178.
methods of the use of the particular industrial property right. These modalities depend upon the type and content of the legal protection to the industrial right by the legislations of both supplier and recipient countries. In other words the licensor may circumscribe the use of the industrial right in situations which give him ultimate control of the technology. 56

A patent licensing agreement gives the licensee the right of exclusive use of the patent or other industrial property right for a particular time and territory. By such licensing the patent holder transfers some of his exclusive rights, which results in a greater distribution of technology. 57 By such a license the licensee is enabled to use new manufacturing techniques and processes he would otherwise not have been able to employ either because of the lack of knowledge or because of patent or trade mark restriction. The licensor receives payments or royalties out of these licensing agreements. 58 Payments under these agreement may take a variety of forms. It may include a lump sum fee, running royalty, share in profit, issue of equity representing the capitalization of technology, payments on (as used) basis and the like. Payments usually

58. Ibid.
depend not only on the nature and value of technology supplied but also on the relative bargaining power of the parties.\textsuperscript{59}

Dennis Thompson points out. The reason for licensing depends upon the fact that technology is a wasting asset. Patent protection of the technology is at the most 20 years. Secretly guarded know-how runs out within five years. It therefore pays firms to capitalize on their technology before it runs out, the exact procedure being a careful balance between the interests of the firm in preserving its intellectual property and making it as profitable as possible.\textsuperscript{60} Licensing has over the years emerged as an alternative to foreign investment. Especially after sixties when developing countries tightened their control on foreign investment and after a spate of nationalizations by LDCs, the climate for foreign investment lowered down considerably. The MNCs did not want to risk their capital and thus preferred to license their technology. Because of the local restrictions and resource constraints of firms licensing provided a mode of entry into foreign markets.\textsuperscript{61} In this way the MNC gets substantial returns in the form of fees, royalties and profits from assured sale of products in developing countries where a large market exists for trade in


There are certain factors which have an important role in the determination of whether to prefer equity form of technology transfer or licensing. They are the size of the market, the risk involved in the investment, the secrecy and novelty of technology, the financial and management strategies of the firms and the range of technologies and products involved. Licensing may be used with wholly owned subsidiaries as well as joint ventures and between unaffiliated firms. Because royalties are tax deductible expenses, licensing reduces the tax liability of the subsidiary.

Despite their increasing importance in technology trade, licensing has had a mixed response from developing countries. As it is essentially an agreement, it contains various restrictive clauses. These restrictive clauses limit buying and selling outlets of licensees. The license may be granted only for a specified period of time and may be subject to withdrawal at a short notice. Apart from high costs and royalties, the licensor sometimes licenses obsolete technology.


63. Sanjay Lall and Paul Streetin. *Foreign Investment Transnationals and Developing Countries* (1977) 35.

or inappropriate technology to maintain its competitive market advantage. 65

The developing countries have recently enunciated governmental regulation of licensing agreements in technology transfer. The regulation and approval is to ensure that the licensing agreements contribute to the national development and its terms and conditions are in the public interest. Moreover, the governmental scrutiny is to minimize the incidence of restrictions and limitations put by the licensor. 66

5. Know-how Agreements.

In the recent decades the know-how has also gained considerable importance in the transfer and development of technology. The advantage of not seeking patent protection of a process or product is that know-how is a considerable capitalizing asset for a MNC. The possession of know-how enables a MNC to approximate monopoly rents for its invention. 67

Over the years the know-how agreements have increasingly been utilized for the transfer of technology. The know-how contract involves an agreement for the package of technical information required for manufacturing of industrial


66. Krishnamurthy, Supra note 49, p. 36; See also UNCTAD Selected Legislations and Regulations on Transfer of Technology (1980)

67. See Lall, Supra note 14
units, machines, equipment or components. The underlying feature of the know-how agreements is to enable the supplying MNC to capitalize on its 'corporate signature' not only in the product formulation but also in the marketing of know-how. 68

The more modern the technology and the more specialized the process or product, the greater are the chances of it being licensed. Secondly the licensors through such a know-how licensing have been successful in continuing their control over the technology unlike patents which after monopoly protections is over, run into public domain. 69

The supply of know-how may also be the subject of an agreement whereby the supplier undertakes to supply through consultants or other professional experts who provide services and assistance covering the basic engineering of an industrial plant or its machinery and equipment, the installation, operation and maintenance of an industrial plant and the training of its personnel or the management of its enterprise and its industrial and commercial activities. Such professional expertises may also extend to preinvestment and post-investment phases of a project, including technical, economic, 

68. See UNCTAD. Impact of Technology Transfer by foreign small and medium sized enterprises on technological developments in Kenya (Un: 1985) DOC.UNCTAD/TT/85,p.7

69. WIPO Licensing Guide. Supra note 52, p. 24

70. Ibid, p. 23
financial, organizational studies and general planning. The know-how agreement designates the rights and duties of the parties to the transfer. The terms and conditions form a part of the agreement. These terms include the administrative provisions, rights and obligations of the parties, remuneration payable to the supplier and services and matters adjunctive to know-how.

6. Turnkey Contracts

These are legal arrangements whereby a developing country enterprise entrusts the responsibility of constructing a plant to a foreign company. The contract ensures the completion of the enterprise covering all the phases of the project, including feasibility and general design studies till the completion of the working of the enterprise. A national engineering firm or a consulting firm may be entrusted by the contractor to carry out feasibility and design studies.

Many developing countries have favoured the construction of projects on a turnkey basis. The contractor's responsibility includes consultancy services, procurement and supply of equipment, construction management and erection of the plant during a specified period of time. The contract furthermore

71. Krishnamurthy, Supra note 49, p. 37; See UNIDO Guidelines for the Acquisition of Foreign Technology in Developing countries (UN: E.73. II B. I).

72. Farok Contractor, Supra note 62 p. 50; See UNCTAD Document E.72. II B.14.246; Also Erbar, "Technology Issues in the Capital Goods Sector", UNCTAD/70/B/276/AC.
incorporates performance guarantees to be given by the contractor. The guarantee includes the successful functioning of the plant as required by the offerer. The provisions may also include the damages in case the plant has turned out to be defective or is not according to the descriptions of the original contract.73

The arrangement in all turnkeys provides for the complete once for all physical transfer of technology as a package from one party to another. The contractor firm does not have an ongoing interest in the ownership of management of the operations of the customer firm. Moreover, in all such cases the nature of the technology would determine the supplier or an engineering consultancy organization. Where the intending project is very large several foreign corporations combine to produce a turnkey ready for operation by the recipient. However, the disadvantage of this operation being its high cost and no participation of the local personnel in the project implementation. Moreover, the costs are determined in overall terms and without a full and detailed breakdown of the various elements of expertise and machinery.74 Other contractual

73. See Brian G. Brunsvold, "Negotiation Techniques for Warranty and Enforcement Clauses in International Licensing Agreements" 14 Vand. J. Trans' (1981)282

techniques used by the developing countries are production arrangements, management contracts and contracts for the supply of equipment. Such arrangements have also become popular with the developing countries. These contracts may or may not involve the licensing of technology or know how. 75

7. Equity Forms of Technology Transfer.

Subsidiaries are the legal form of technology transfer frequently employed by large multinational corporations. Nevertheless in the recent years many smaller corporations intending to penetrate a market of an LDC also employ this form. 76

The opening of a subsidiary is one of the traditional forms of technology transfer. The technology transferred is usually in a packaged form, consisting of capital, technology and other techniques.

The transfer through subsidiaries consist mostly of embodied technology of a MNC from its parent to the subsidiary. However, a large MNC may license its technology

75. UNCTC, Supra note 74, p. 6; See R.C. Pugh, "The Promotion of International Flow of Private Capital" ECOSOC, official records 32 Session Item 215.

76. Goldscheider, Supra note 44, p. 261; See UNCTAD. Transfer of technology to developing countries by France's small and medium sized enterprises (UN.1983) DUC.UNCTAD/T /84.
to an already existing subsidiary. The notable feature of the transfer through equity forms is the opening of a wholly owned or partially owned subsidiary in the receiving developing country.\textsuperscript{77}

The scope and extent of technology transfer through subsidiaries has been expanding quite substantially after the war. The developing countries accounted for one third of the book value of foreign direct investment as opposed to 1/5th of world's exports in 1960's. Most of the subsidiaries opened by MNCs were in manufacturing sectors. The subsidiaries have accounted for $43 billion of foreign investment in 1980. The average growth of foreign investments through these subsidiaries works out to be 12\%\textsuperscript{78}.

The foreign direct investment has proved to be an area in which the MNC mobilize their financial, physical and human resources throughout the world to develop new technology and skill to combine them in economically viable and commercially profitable activities.\textsuperscript{79}


\textsuperscript{78} Joseph Jova, "Private Investment in Latin America" 19 \textit{Texas International Law Journal} (1984) 6-7

\textsuperscript{79} See C.T.C. Reporter (1982) Spring No. 11, p.10-25
Of all the major OECD suppliers of foreign investment US Corporations were leading in supplying foreign direct investment, followed by U.K., France and Japan. However, in seventies the rate of investment through subsidiaries decreased to developing countries. Moreover during this period new forms of investment have emerged. These new forms were like International Joint Ventures, International subcontracting, which did not involve equity participation by foreign FmC. Further, political and commercial circumstances have become more uncertain in many foreign jurisdictions in recent years. The resulting risks have dimmed the enthusiasm of several technology proprietors to establish or maintain wholly owned subsidiaries in such countries. Accordingly many of these entities have been converted to joint ventures or arm's length licences in order to reduce the attendant risks.

Technology transfer through subsidiaries is however not free from difficulties. There is a sharp division of interest between the foreign company and the interest of the host country. Of course, there are other theories of

80. See UNCTC, Trends and Issues in Foreign Direct Investment (UN:1985) E.85.II.A.15, p. 3-11.
82. Woidenschieder, Supra Note 44 p. 261; See John Dunning, Multinational Corporation in Eighties (1983).
Multinational Corporate management which explain the reasons for direct investment, nevertheless profit maximization remains an important aspect of international business planning by the transnational corporation. Moreover, the costs of technology transfer through subsidiaries has been greater than the advantages to the host country. Taking into account these negative features of transfer through subsidiaries, the developing countries are no longer favouring technology transfer through direct investment. They are increasingly adopting 'licensing' and other 'arm's length' technology transfers.

8. International Joint Venture

Joint venture is another legal form of association which is utilized by MNC while transferring capital, resources and technology to the developing countries. Prof. Kolde has given an inclusive definition of international joint ventures as a business enterprise in which two or more economic entities from different countries participate on a permanent basis.

83. Lall, Supra note 14

84. Thompson, Supra note 60, UNCTC, Supra note 80

85. Friedmann & Beugin. Joint International Business Ventures in Developing Countries(1971)Chap. 4
The venture may or may not involve equity participation by the foreign MNC, i.e. it may be an equity venture or non-equity venture. It is essentially an agreement in which the parties agree to share the capital, technology and techniques. The agreement in question sets out in detail the rights, duties and sharing of profits of the venture. It is some sort of a continuing partnership in which the foreign company actively participates in policy making, planning and management functions. In addition there is often a license agreement from the proprietor to the joint venture setting forth the terms and conditions under which the joint venture is permitted to use the intellectual property rights of the proprietor. Such license may or may not provide for royalty payments depending upon whether the parties consider the shareholding in the joint venture to be compensation in whole or in part to the proprietor for the permitted use of the technology.

Cynthia Wallace has given four reasons for preference of joint ventures by the host countries:

86. Kolde. *International Business Enterprise* (1973) 192

87. Friedmann Supra note 83, 214.

88. Robert Goldsheider Supra note 49 p. 261
(i) Joint venture serves as a common cure for accommodating the interests of both parties;

(ii) It represents a trial experiment to enter into an unknown and competitive market for the first time;

(iii) It has become a major symbol of sovereignty and control. For host countries it is important as to who owns the majority shares to exercise control. The host countries have provided by law the extent of foreign holding by foreign companies. These legislations generally provide for minority share holding by foreign corporations.

(iv) Joint ventures are being favoured for the continuing requirement of technology and management which are significant economic resources. 89

Moreover, because of sharing and control of benefits the nature and quality of technology supplied will tend to be made more explicit in a joint venture. Similarly technology payments will also be more explicit. 90

However, the equation of ownership of equity with control is misleading. The holding of majority ownership

89. Cynthia Wallace, Legal Control of the Multinational Enterprise (1983) 76-78

90. See UNCTC Report on Transfer of Technology (1987), p3
by the local partner does not entail control by him. Even if the foreign company is a minority participant, it may exercise defacto control by virtue of its technical superiority. The foreign minority company because of its higher dominance may enter into technical and patent agreements which entails virtual control by the foreign partner, the local partner being a weak bargaining partner in the absence of local skill and technology. 91

Joint ventures have also been criticized on the count that it has not proved to be an effective means of transferring technology or enhancing operations. It is argued that the weaker communication and control systems inherent in joint venture means a loss in efficiency, effectiveness and global optimization potential of the enterprise. Also joint ventures have to pay more costs for patent, know how, trade names and technical and managerial services in the form of royalties than do the wholly owned foreign subsidiaries. The ventures do not get ready access to the advanced knowledge. The use of know how and trade names may also be restricted by contract. 92 A UNESCO report points that because of the lack of local skill, the developing countries joint ventures have failed to cure the problems raised by foreign investment.

91. Dunning, Supra Note 29, p. 14

92. Wallace, Supra note 89, p. 81.
It may not on balance produce a greater contribution to national economic and social development.\textsuperscript{93}

Despite the above adverse remarks against the joint ventures, they have gained wide popularity among developing countries. The issue of control has not proved to be an obstacle in the increasing number of joint ventures allowed by governments of developing countries.\textsuperscript{94}

It may thus be seen from the above that the main forms of technology transfer are equity and non-equity transfer of technology. While as licensing represents a typical example of non-equity transfer of technology, the equity form of transfer is usually associated with opening of subsidiaries and joint ventures. Moreover, in non-equity transfers of technology the transferor does not participate directly or indirectly in the production process in a developing country. In equity form of technology transfers the transferor possesses control over the whole establishment including technology transferred.

In contrast to equity participation which usually involves the transmission of comprehensive technology packages,

\textsuperscript{93}UNESCO \textit{Acquisition of Technology from Multinational Corporations by Dev. Countries}, (1984) 29

licensing contracts are suitable for the transfer of specific types of technology. Moreover licensing agreements imply the commitment of less resources than foreign investments which by definition are more capital and time intensive.

It is possible to classify technology transfer agreements according to their content and purpose of technology transfer. For example, contracts involving patents, trade marks, industrial technology may be classified as technical know-how contracts. These contracts involve technical information required for the manufacturing of industrial units or subunits, machines, equipment and components. Such information involves the designs and specifications regarding product engineering or related to the methods used for manufacturing certain products. The opening of subsidiaries and joint ventures may on the other hand be classified as investment contracts.

The above mentioned forms of technology transfer have undoubtedly increased the sources of technology for developing countries. Nevertheless they have also thrown open new issues in the present mode of international business in technology. By any means it cannot be said that these forms have represented a smooth transfer of resources (technology) to developing countries as seen later. The MNC being essentially a profit oriented enterprise has not conducted in such a way which can be said to be conducive to the welfare of developing countries.
Thus these forms have raised very complicated issues especially concerning the developing countries. As mentioned earlier the developing countries have enunciated governmental control on licensing operations. Efforts are on at the international level to arrive at an international code of conduct to regulate transfer of technology. We return to the issues involved in transfer of technology and the initiatives towards international regulation, in the next chapter.