

Patent Legislation and the transfer of  
technology to the Less Developed Countries:  
With special reference to Zambia.

by

John S.P.P. Ojok-Bwangamoyi

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School of Law  
University of Zambia  
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ABSTRACT.

This study is undertaken to provoke a more serious attention in the Less Developed Countries towards the issues of technology as a vital vehicle for economic and social upsurge in the Less Developed Countries. Most of the Studies on this important subject have been taken in and by the Developed Nations, while the Less Developed Countries merely mention it in passing. This is a serious omission or neglect, if it is, on the part of the Less Developed Countries.

While it is undoubtedly true that technology is the most important single item of input in industrialisation and economic development, it is equally imperative that those who consume it must fully appreciate its advantages and disadvantages, in all forms and in every conceivable area of its application. It is only then can the Less Developed Countries realise and perhaps maximise their gains from the technology that they import or hope to develop.

This dissertation is divided into four Chapters. Chapter One, traces briefly the origin of the International patent legislation and the spread of national patent legislations. Traditional justifications for patents are also examined. It is believed that one would not fully appreciate the issues of transfer of technology without one having a basic knowledge of the socio-economic infrastructure importing the technology.

Consequently Chapter two discusses the political economy of the Less Developed Countries. The role of the Multinational Corporations as 'participants' in the Less Developed Countries' economic development or underdevelopment and as 'transportees' or 'transferees' of the very much needed technology to Less Developed Countries is critically evaluated.

The role patent system plays in bringing about foreign investment as well as the part the system plays in the transfer of technology is also looked at in this Chapter.

In Chapter three, we examine the arguments for and against patents especially in the hands of the multinational Corporations. The approach used is the cost/benefit analysis of patent monopolies, to the World in general, and for the economies of the Less Developed Countries in particular. A balance Sheet is drawn, from which a conclusion that patents are a grave injustice to Less Developed Countries, is read.

Chapter four discusses the futile efforts of the Less Developed Countries to redress themselves of the inappropriateness of the patent system to their economic development needs; and the multifaceted harmful effects the patent system rains on them: The Chapter examines attempts to redress these ills at International forums, under the International and national patent legislations, and through national legal and economic measures.

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INTRODUCTION

"..... the role of the patent system in the transfer of technology can not be understood properly unless the political-economic structure of the Country which is supposed to receive the technology is clearly specified. .... The patent system can not be judged on the rather simple cost-benefit rules which seemed to have been applied to it (without the broader context being mentioned). If it is seen to promote an undesirable form of technology transfer and to perpetuate a 'dependent' form of technological development, it is the system in its entirety which must be looked at and not one particular and relatively minor component."<sup>1</sup>

It is no gain say to assert that the contemporary apex of development on International Scale is the industrialisation of the Less Developed Countries (LDCS) of the so called the Third World.

Patent legislation and practices are said to be vital to the LDCS to enable them to have the benefit of the transfer of foreign technology

which they badly need to improve their economy and bridge the stark gap of inequality of sharing global wealth with the more developed nations.

However, despite recognition by various opinions of the developmental needs for comprehensive International and national patent system, the seriousness of the adverse impact the present system has on the economic development spectrum of the LDCS continues to increase unchecked year in year out.

The graveness of the situation is more manifest in trade, in manufactures, transfer of sophisticated technologies, the utilization of the LDCS' inventions, balance of payments and the Social and economic costs of living in the LDCS. A lot of International Conferences and National attempts through legislation and formulation of trade policy have viewed the problem with horror but there is little if any evidence that things are being improved. A comprehensive study of patent system vis-a-vis the economic and developmental needs of the LDCS may make significant contribution to the growth

of industrial order in the World. This would pave way for a more balanced, equitable and humane sharing of the Scarce World resources by and for the benefit of all mankind.

If for once it could be accepted that a thorough knowledge of the problems affecting the operation of patent legislation is of utmost importance to most LDCS, then it could be suggested that this study is undertaken with the hope to expose the contemporary law and practices relating to patents with special attention to LDCS.

#### The Approach

It would be quite impossible, needless to say to give a satisfactory account of the various patent legislations and practices there are in the World within the four walls of this study. While a wider perspective would be preferable, it might not be very practicable here. It is suggested that without prejudice to the international nature of the subject, a more frequent

use of a representative illustration has been deployed. In question of time too the subject is vast and clothed with intricacies as it has to be studied in its past, present and future. While it is possible to employ the help of records in trying to understand the past and present the future could be a dream a long a blind corridor. However, one approach to conjecturing about the future is to analyse the conditions underlying past and current trends and then assess the prospects of these conditions continuing to obtain in the future. While this approach does not necessarily suggest the precise Scenario that will actually occur, it does eliminate from consideration highly improbable trends or distorted beliefs and postulates and serves as a corrective to the human proclivity for straight line extrapolation from the past and present.

No attempt has been made to wear the cloak of a traditional legal technocrat in discussing the subject of patent legislation and practices. The approach is designed to attempt answers at

why, how and with what results do patents operate in our society. This approach has been provoked by a conviction that unless we move away from traditional conservatism of strictly legal issues and being a defender of established order and vested interests, it might be impossible to justify the importation or even enactment of some of the laws.

While traditionally narrow legal confines serves useful purposes in seeking to check and harmonise conflicting interests and claims in the society, it falls short in putting the law in the front line to spear social and economic progress. This would reduce the law to an inferior and despised status in developing countries. It is believed that there is an increasing demand that the lawyer must emphatically be active and a responsible participant in the shaping and formulating of development plans. He must highlight some of the acute contemporary problems which the LDCS are likely to face in their quest for developmental tools. The lawyer can only do this if he views his role as being over and above litigation, resolution of disputes and securing conviction or acquittal. He must

politicians and Civil Servants many of whom have not received legal training.

It is the lawyer who should advise whether or not say a Country like Zambia should join CIPEC, the organisation grouping Copper producing Countries, the Lome Convention (an affiliate of the European Economic Community, GATT, UNCTAD and many such bodies.

There are even legal implications in such political decisions as to whether or not a developing country which is a member of the Non-Aligned Nations should have trade ties with Capitalist Countries of the West or Socialist Countries of the East or Communist China. Needless to say these various decisions pivot on the economic and political considerations but a lawyer always plays a vital if not a decisive role in arriving at a concrete and favourable agreement. However, no claim is made here of being an expert economist, engineer, politician or sociologist but an attempt to avoid the confines of strictly Legal issues such as the validity of contract, treaty revision clause, the interpretation of detention order or the burden and standard of proof. The approach used here is that which can be attributed to

concern himself with the formulation of policies, exercise of legal powers in constructively establishing or altering relationship between parties local or foreign, involved in the development process of the LDCS.

It is he who must draft the necessary legislation or the complex international agreements such as those found in the transfer of technology contracts. He must lead his country's delegation to the international trade negotiation and he must on behalf of national development draft application for loans from national or international institutions. He ought to squarely be responsible for the formulation and the modalities and conditions (for example of joint business ventures - one of the most important methods through which foreign technology is imported into the LDCS) between his government or a private enterprise in his country on the one hand, and foreign government or foreign firm on the other. The complexities and intricacies of such bialateral and multilateral agreements need sound legal knowledge and advice. The matters are too grave to be left in the hands of

the 'general Counsel' through whom professor W. Friedmann saw the only way that a lawyer can, "help to move the ideal of the 'rule of law' from the static and defensive meaning it has tended to acquire in the Western World and adapt it to the needs and ideals of our time- which make economic and social development a paramount matter of public national and International responsibility." 2

Few studies have been made on the effects of the present patent system on the development needs of the LDCS. Even those which do touch the area, lack depth of the actual situations in the LDCS. Few statistical data is available. This deficiency to some extent explains the absence of comprehensive evaluation of the merits and demerits of the present patent system viz a viz the economic mordenisation and industrialisation in the LDCS. There is, however, vast, albeit general literature on the subject of the patent legislation which has no doubt been of tremendous help and guidance and reference is made of them in this dissertation.

Initially the heart of the work was to perch on field research conducted in Zambia. Unfortunately, little evidence of field research appears in the work for a number of reasons.

First there is a general lack of concern in the field of technology transfer in this country. Second, there is a high degree of strict secrecy surrounding those persons and documents which would naturally be expected to offer some useful information. I came across volumes of documents marked, "classified and confidential" during my field trips. The contents were not available to me. I suspect they have useful information.

Third, and perhaps the most critical problem as far as I am concerned was the inadequacy of research grant and the delay in releasing even the little there was.

However, it is sincerely hoped that the discussion in this work will provoke further and perhaps more detail<sup>ed</sup> study in this area. It is hoped too, that it might reduce the secrecy that surrounds transactions in this

field and above all may justify a liberal and generous research grant in future.

1. Sanjaya Lall "The patent system and the transfer of technology to Less Developed Countries" (1976) Journal of World Trade Law (JWTL) volume 10. number 1. p 15.
2. Friedman, W, 'The Legal Theory' 5th Edition p. 435.

## CHAPTER ONE

### PART I

#### THE ORIGIN OF PATENT LEGISLATION

The history of patent legislation is not only interesting but also very helpful to identify the evolution of the influence of some of the interests which at times may be in conflict. Because of the narrow scope of this dissertation, however, we can not delve in detail account of this interesting epoch. What follows therefore, should be looked at as a mere introductory note.

Known records indicate that the idea of patents for inventions dates back to the Italian City-states of Florence and Venice. Florence was acknowledged for issuing the first patent for invention in 1421.<sup>1</sup> In Venice, the first patent grant exhibiting all the features of modern patent for invention was given in 1443. The evolution culminated in the promulgation of the Venetian Act of 1474.<sup>2</sup> In its patent statute, the city-state of Venice recognised four essential elements of contemporary patent grant, namely, utility to the society, the encouragement of inventive activity, the refund of costs incurred by the inventor, and the inventor's rights to the fruits of his mind. We shall

turn to these objectives at a later chapter. However it should be pointed out that these factors required skill and caution in delicate balancing of the interests of the societies on the one hand and those of the inventor or patentee on the other hand. Those interests have and continue to fuel sentiments of belligerency within the patent system.

From the Italian city-states, the patent legislation and practices spread to Western Europe. Some evidence of this was that the first few patents in Western European states were Italian patents, and the 10 year term adopted was that provided for in the Venetian Act.

A brief examination of some patent laws illustrates the conflict of interests and the difficulty encountered in trying to reconcile them. The first we shall look at is the French Patent law of 1791. This law lay emphasis on the concept that an inventor had exclusive right in his invention and the grant of patent was nothing more than recognition of this right by the state. The preamble to this law provides "Every novel idea whose realization or development can become useful to society belongs primarily to him who conceived it and it would be a violation of the rights of man

in their very essence if an industrial invention were not regarded as the property of its creator".<sup>3</sup> This Act was clearly biased in favour of the interests of the inventor/patentee. The idea was to draw on natural law to protect property and encourage the growth and accumulation of industrial capital.

The Austrian law of 1810, however, took a contrary view of the philosophical underpinning of the patent concept. It rejected firmly the idea of natural rights of an inventor in his invention. The Austrian law stated that, "Inventors had neither any property rights in their invention, nor any rights to patents, the government reserved its prerogative to grant privilege to restrict what was called their subjects' natural right to imitate an inventor's idea".<sup>4</sup>

The momentum of trade liberalization in the mid 19th Century led to serious criticism of patent monopoly which was equated with prohibitive tariffs. This agitation culminated in repeal in the Netherlands and rejection in Switzerland of national patent laws.<sup>5</sup>

Heated debates on patents continued between the period of 1850 and 1873 and ended in patent advocates triumphing, but with shift from philosophical to economic justifications for patent grants. The

objectives underlying patent grant were then stated as various alternative ways of providing a fair and just reward to the inventor, encouraging individual inventive activity and giving inducement to inventors to disclose their secrets to the society. A further discussion on this appears in the next chapter.

THE INTERNATIONAL CONVENTION FOR  
THE PROTECTION OF INDUSTRIAL PROPERTY

Before 1883, the rights of a foreigner to protection in the field of industrial property were dependent mainly on reciprocity between the laws of his own country and those of the country in which he sought protection. However, this state of affairs was generally not satisfactory because of the many juridical differences amongst the nations involved as to make reciprocity impossible. Furthermore, some countries did not have laws regulating the acquisition and exploitation of industrial property.<sup>6</sup> Meanwhile interaction among nations continued with frequent holding of international exhibitions, featuring some new inventions and innovations. But the inventors were

increasingly becoming reluctant in bringing and displaying their inventions for fear of them being copied without remedy. There was thus urgent need to work out the machinery to foster increased contact and interdependence among nations in the utilization of inventions. It was recognised that a patent grant for an invention in one country would become a restriction, unprofitable and obstructive, if the same invention, without limitation or increase in price were to be in adjoining country common property. If that were the case, the artisan who would work with the auxiliary material patented, therefore dearer in price, would suffer in the hands of competitors using unpatented but same processes. Even worse, was the fear that if patent protection in one country was to lead to drift of skilled operatives from one country to another, then there would be a danger of disturbing international industrial balance. The so called civilized states to contain such inconvenience and similar ones were disposed to the maintenance of patent protection at National and International level.<sup>7</sup>

Initial invitation for International Conference on patents rights came from the Austrian Government in 1872. A Convention was held in 1873 in Vienna to make arrangement for multilateral patent protection.

Subsequent meetings followed in Paris in 1878, 1880 and finally in 1883 when the Intergovernmental Convention, the International Convention for the Protection of Industrial Property (the Paris Convention) was established on March, 20th of that year. The Paris Convention provides that the protection of industrial property has as its object—patents, utility models, Industrial designs, trade marks, service marks, trade names, indications of source of appellations of origins and the repression of unfair competition. Specific reference is made in the revised text at Stockholm in 1967 to inventors certificate in context of claiming priority. The Convention created an International Bureau with tasks inter/alia of liaising between patent administration of the countries of the Paris Union; the study of questions relating to industrial property, the preparation of revision conferences and the publication of documents and other information.<sup>8</sup>

Perhaps contrary to the wishes of the authors of the Convention, there is no enforcement machinery for the Union matter as the office of the international Bureau for the protection of industrial property is limited to the collection and publishing of information: Since the 1967 Stockholm revision, the International

Bureau has acquired World Intellectual Property organisation, (WIPO) to assist it in carrying out its assignments. The Paris Union has 88 members, while WIPO has 78 as of the 1st March, 1978.<sup>9</sup> Since its inception the Paris Union has undergone six revisions that is in Brussels (1900), Washington (1911) The Hague (1925); London (1934), Lisbon (1958) and Stockholm (1967).

The members of the Paris Convention have undertaken to adopt certain minimum standards of protection applicable to patentees generally, but particularly to foreign patentees. A member has to give effect through its national laws to certain standards forming the core of the convention.

The heart of the International patent system is perched on a number of such standards:-  
Under Article 2 of the Convention, for Instance, each member country of the Paris Union is required to give nationals of other member countries the same protection and privileges as it gives its own nationals; and it is prohibited from imposing any requirements as to domicile or establishment. Of equal weight, is the protection of the rights of foreigners through the priority provisions. The right of priority gives any person who has filed an application for a patent

in one country of the Union twelve months in which to file in other countries of the Union his claim, and during this period his claim cannot be invalidated by acts of third parties. This provision showed how much of an international concern inventions had become; and therefore a deep concern of those involved to hatch out workable formula for co-operation in their protection and exploitation with minimum friction which would have undermined the International peace and security.

Provided for in the Convention was also the independence of patents. For the purpose of forfeiture, nullity and duration of validity a patent granted in one country is independent of others granted for the same invention in other countries whether or not these countries are members of the Union.

Importation of goods produced in any of the Union countries shall not lead to forfeiture of a patent for the protection of these goods in that country, and each country may take effective measures to remedy adverse effects of patents through compulsory licensing and revocation of the patent monopoly.

THE SPREAD OF NATIONAL PATENT LEGISLATIONS

While the Paris Convention sets general standards, it also fully acknowledges the freedom of member states to legislate according to their national interests. Bodenhausen declares "In the field for example the Convention leaves the member states entirely free to establish the criteria of patentability, to decide whether patent applications should or should not be examined in order to decide and determine before a patent is granted whether these criteria have been met, whether the patent should be granted to the inventor or to the first applicant for a patent, or whether patents should be granted for products only, for processes only or for both and in which fields of industry and for what term."<sup>10</sup>

More than half of the membership of the Paris Union come from the Third World. For many of them, membership in the Union is looked upon as another step in their advance towards full international parity with the Developed Countries. Most of them believe too, that adherence to the Convention would assist the transfer of technology which is so vital to their full economic development.<sup>11</sup> Their Conviction is so deep-rooted that even "the fact that the Convention and practices developed under it are basic to the whole structure of the pre-World War II policy of restricting economic development of LDCs, enhancing monopolization or cartelization in the more industrialised countries,"<sup>12</sup> has done little to scare them away from joining the Paris Union.

While accession to the Paris Convention has been remarkable amongst the third world countries, the issue of patenting legislation in the region, especially in Africa is a very complex and confused matter. In spite of a frequent and World wide realisation that patents and technology transfer are vital to modernization and industrialisation there has been a conspicuous lack of consolidation or promulgation of patent laws following political changes and achievement of independence in many parts of Africa.

Perhaps the most significant patent legislative development in Africa was the formation of the African and Malagasy Union which led to the setting up of a Joint Industrial Property Office. The Union comprises mostly former members of the French Community and the law of the Union is patterned on the French law.<sup>13</sup>

The case of the former British Colonies is even more pathetic. In the British Commonwealth the patent law of Australia, Canada, Ceylon, India, Malawi, New Zealand, Pakistan, Rhodesia, United Kingdom and Zambia

Provide for independent patenting. Apart from these, no new patent legislation has accompanied independence in the ex-colonies. The only means available for obtaining patent protection in these countries is to register the British patent there. The United Kingdom Patentee or his assignee must apply for such registration. Registration of such a patent in a country confers on the applicant, privileges and rights subject to all conditions established by the law of that country. The privileges and rights date from the date of the United Kingdom patents and continue as long as the United Kingdom patent remains in force in the United Kingdom.

Local courts can revoke the rights conferred by the certificate of registration on any grounds *Mutatis mutandis* upon which United Kingdom patent may be revoked.

For the former Federation of Rhodesia and Nyasaland, the first patents Act was enacted by the Queen's most Excellent Majesty by and with the advice and consent of the Federal Assembly in 1957 as Act No.13 of 1957. This Act was based on the British Patents Act of 1949. The law required that all applications pertaining to patents had to be

filed in the Federal Patents Office situated in Salisbury. At this time no separate offices existed in Zambia and Malawi. The Salisbury office had two types of registers namely Federal and Territorial Registers. This privileged status enjoyed by the Federation of having a comprehensive patent legislation as opposed to other areas of the British Empire could be attributed to the extent and nature of the economic activities in the region at the time. The mining Industry had become a very important source of revenue for the metropolitan coffers as well as for the Federation purse by the turn of this Century. A lot of United Kingdom based companies such as Mineral Separation Limited<sup>14</sup> and firms in South Africa for example A.L. Spoor Agent for Patents, Designs and Trade marks of Johannesburg<sup>15</sup> were making huge profits as agents dealing with transfer of mining technology to this region.

Unlike most economic activities in Colonial Africa, like cotton growing in Uganda, Sudan, Tanzania or coffee growing in Kenya and similar activities based on subsistent agriculture which did not require any high technology worth protecting through patent grant, the mining industry was and continues

to be the largest consumer of modern highly sophisticated technology.

The desire to encourage increase and improvement of inventive activities in mining technologies, and a wish to have inventors share in the lucrative exploitation of the minerally rich Federation engendered the urge to promulgate patent law for the Federation.

The Federation broke up into its Constituent parts in 1963 viz. Rhodesia (formerly Southern Rhodesia) Zambia (formerly Northern Rhodesia) and Malawi (formerly Nyasaland). With minor modifications the patent Act became effective separately in each of these three territories. In the case of Zambia, these Modifications were effected by General Notice No.185 of 1964 and Statutory Instrument No.175 of 1965 which amended the Federal Act and transformed it to the present patents Act Chapter 692 of the Laws of Zambia. The Republic of Zambia acceded to the Paris Union as revised at Lisbon with effect from 24th October 1964 by General Notice No.1751 of 1965. At the break of the Federation, Rhodesia took (as she did with all other Federation assets) the facilities of the patent office in Salisbury for herself. That

office continued to function normally. Zambia the 'orphan' of the Federation however had no immediate patent office established. Under an agency agreement, the patent office in Salisbury continued to process patent applications for Zambia. These applications were lodged in Rhodesia which after considering them would issue letters patent. Application fees and renewal fees for the patents continued to be accepted in Salisbury. The agency was created by Northern Rhodesia (Zambia) notices Nos. 185-6-7 of 1964 of the 10th April, 1964 by which the Zambian Government appointed the Rhodesian Registrar of Patents, Trade marks, and Designs as well as his Deputy and Examiners as Registrar, Deputy Registrar and examiners respectively for Zambia. The notices also provided that the Rhodesian Patent office would operate as <sup>the</sup> Zambian Patent Office.

However, many difficulties soon caught up with this arrangement as per J. Grant, the Registrar in Salisbury Patent Office, "The applicants from Zambia could not have their applications processed because the Zambian Government had failed to honour arrangement to pay nominal agency fee to the Rhodesian Government and had failed to communicate with the Rhodesian Government on the matter".<sup>16</sup>

After the Unilateral Declaration of Independence (UDI) by Rhodesia, the relationship between the two states worsened so much so that the operation of the patent office in Salisbury for their joint interests became impossible. Yet the regulations of the Federation of Rhodesia and Nyasaland on registration of patents continued to apply in Zambia. The state of law governing patent rights in Zambia was confused. Because of the confusion, a suggestion that clauses contained in Patent Pooling Agreements for the Mining Companies and referring to the laws of England 'in matter of the Arbitration Act should be amended to incorporate the Zambian Patent Act and Laws of Zambia could not be adopted and was rejected. Goulter, group Legal Advisor for the Mines, wrote to the Secretary of Roan Selection Trust on 13th April 1966 to explain the uncertain state of affairs. "... In my opinion the agreement should remain subject to English Arbitration Law at least for the present. The whole question of patents in Zambia at the moment is in a state of confusion. Salisbury will no longer act as a register (and I think there is even a blacklog there of Zambian applications) and despite much talk there are no signs yet of a Zambian register being set up.

This being the case, I feel it is much safer to rely on the clear English Law and procedure at least until the Zambian position has been clarified".<sup>17</sup> In other words Zambian Patents Act was not yet a self-contained national legislation. It has to depend on operational regulations and facilities on the Rhodesian as well as English Laws. The Act was at best "a white elephant" on the statute book.

In 1968, however, Zambia took remedial step by establishing a Patents, Trade marks and Designs office whose duties were to register Patents, Trade marks and Industrial Designs Independent of United Kingdom or Rhodesian Patent Office.

There was still difficulty for Zambia to get her share of patents registered in Salisbury. There was absolutely no co-operation from Salisbury in the request to transfer some records of specifications to Zambia. Even when the United Nations and WIPO stepped in Zambia could get no more than a handful of photostat copies of patent specifications for the then Northern Rhodesia. Those copies were without explanation necessary to understand what they were and as far as the Infant Patents Office in Lusaka was concerned they were no records at all. The Lusaka office started to keep some clear patents record only

in 1969.<sup>18</sup>

The patents registry in Lusaka is concerned with form rather than substance. It does not examine applications as to novelty and inventive ingenuity. The office is unable to examine the substance <sup>of</sup> in the specifications before issuing patent monopoly because it is not able to establish an office with such facilities.<sup>19</sup> Like many LDCS Zambia simply does not have the know-how or personnel to examine application as to novelty and inventive quality.

PART II

Under a Patent Law such as Zambia's an inventor, that is one who has developed something not previously known and which is quite out of the ordinary and not likely to be developed in the run-of-the mine *mining* activities of individuals skilled in the particular art receives the assignable right to exclude others from the use of the invention for a specified period of years.<sup>20</sup>

S29 of the Zambian Act provides for 16 years, while the United Kingdom provides for 20 years from the date when the patent issues.<sup>21</sup> This period can be extended. By implication, the patentee also has the correlative duty to refrain from excluding others, for instance by licensing them to use the invention.

For the purpose of this dissertation, therefore, a patent may be defined as a statutory privilege granted to inventors and to other persons deriving their rights from the inventors for a fixed period of years to exclude other persons from manufacturing, using or selling a patented product or from utilizing a patented method or process.<sup>22</sup>

At the expiration of the time for which the privilege is granted, the invention is available to the general public or as it is sometimes put, falls into the public domain.<sup>23</sup> We pointed out in part one of this chapter that basically there were four objectives behind the grant of patent monopoly. These objectives were based on natural law theory, reward theory, incentive theory and theory of disclosure. Presently, a realization has matured that whatever historical or legal reasons are given as justification for patents the justification of patent protection is primarily economic in nature, emphasizing the encouragement either of disclosure of secret technology, or of incentive and innovative activities.<sup>24</sup> Michel put it bluntly that "Patent systems are not created in the interest of the inventor but in the interest of the national economy."<sup>25</sup> The idea that the granting of patents is not a matter of private but of public convenience was tacit in the Statutes on Monopolies of 1623 which sanctioned their issuance only on condition that they be not contrary to the law, nor mischievous to the state, by raising of the price of commodities at home or hurt of trade or generally inconvenient.<sup>26</sup>

Further evidence of superiority of public interest can be found in the denial of patents in most countries on medicines, articles of food and preclusion of inventions whose exploitation would be contrary to law, morality, public health and national security. The policy behind those provisions is to show that the dangers of monopolistic retardation are intolerable in areas so closely affecting the public interests. Several countries provide for compulsory licensing of all patents vital to public welfare, such as those on foods, drugs and chemicals. Compulsory licenses whenever, "public interests" require appears in the laws of many countries amongst which are Switzerland, Holland, Austria, and Germany.

Today, therefore, there cannot be serious challenge that a patent system's primary purpose is the advancement of the public interest. The system must be evaluated in this light. Courts too have recognised this.<sup>2</sup>

In other words, though remuneration of genius and useful ingenuity is a duty incumbent upon the public the rights and welfare of the community must be dealt with and effectively guarded. Considerations of Individual emolument should never be permitted to operate to the injury of these. In full compliance with the above view, a discussion of the more orthodox

justifications for patent grant shall not be undertaken here. We shall, however, discuss the disclosure as well as the incentive theories. It is deemed appropriate to review them as the underlying rationale of the patent system in order to appreciate the extent to which that rationale is or is not well founded.

A. DISCLOSURE THEORY

The theory is based on an arrangement akin to a contract between the society and the inventor in which an exclusive privilege granted to an inventor has a correlative duty that he discloses the invention immediately and fully to the public. Patent application must contain clear and complete technical information sufficient for a person with relevant skill to carry out its industrial application. This requirement is incorporated in a number of laws. For instance, Article 83 of the Convention of the Grant of European Patents signed at Munich, 5 October, 1973 lays down such condition. The Indian Patents Act of 1970 goes further. It provides that the description must be comprehensive and simple enough for an Indian with average ability in the working of the invention to exploit it. In

other words, the Indian Provision takes into account the level of local technological development and skilled man power availability. It is therefore not enough that a specification is comprehensive for any person skilled in the art. The test is one of a reasonably skilled Indian.<sup>28</sup> This is logical because the usefulness of an invention to a society is the major consideration for the grant of patent protection for that invention by the society in question. It must therefore be easily interpreted by the people of that society into practical realisation beneficial to the improvement and advancement of their political economy. If no sufficient and useful information is disclosed then a major consideration for patent right is breached.

There are numerous advantages which can spring from adequate disclosure of information in a patent specification. The public is able to know the most recent state of technological development, the most relevant and effective technology for their particular purpose. Unfortunately this advantage is not of practical significance to the LDCS which suffer from low level of technological analysis. Even when a comprehensive

information can be obtained from the registered specification, they do not have technological awareness to assimilate such information. As far as they are concerned such disclosed information can only be an abstract advantage of no relevance to them.

In Zambia for instance, hardly any Zambian goes to inspect specifications in the Patent registry or read the gazettes. Infact many people do not know that patents office exists and what it does. Even top officials in Ministries directly concerned with technology can hardly reveal even a rudimentary knowledge of patents. To keen researchers, however, a comprehensive patent specification can help in warning themselves against the danger of trespass on the patentees rights. This would enable them to avoid a possible infringement suit or a waste of resources in areas already patented.

Looking at cost#benefit analysis of this "Social contract deal" we may pose a question as to whether or not we get enough in benefits towards advancement in technology development, sufficient disclosure of inventions and exploitation of invention which would otherwise lie dormant

to make the grant of exclusive right within a specified period worth while. What price do we pay and what benefit do we get from the patent system?

It should be noted that when computing cost to the society of patent monopoly it is not only the exclusive right say for 16 years that the society pays for. There are other substantial advantages a patentee may get, for instance, he can extend his monopoly duration thus keeping the invention away from the society for longer period than had first been granted. Even more handy to a patentee is to stretch the patent to cover areas, activities and fields which lie outside the limits of the patent claims. Also through institutional and industrial development exclusive right can be made to persist long after the patent has expired.<sup>30</sup> Detail discussion on such extra costs and practices appears elsewhere in this dissertation.

The test of sufficient disclosure is that a national skilled in the relevant art concerning the invention in question should be able to

set out the necessary mechanisms to exploit it. This is easier said than done. It is extremely difficult if not impossible to verify especially in LDCS where those working in the patent offices do not have the skill, knowledge and facilities necessary to effectively check on the extent of the disclosure of information in the patent specification. Yet very frequently inadequate disclosure extends the degree of monopolistic control of the patentee and carries the monopoly to domain not originally foreseen by the granting authority.

The United Nations ~~Under~~ Secretary General for Economic and Social Affairs, Mr. Ph de Seynes, declared at the opening of New Delhi Conference of the United Nations Conference on Trade and Development (UNCTAD) in 1968 that, "The patent system can be of great benefit in the industrialization of the LDCS provided that they are able to protect themselves against the abuses often inherent in the monopoly position created by the patent. Many countries simply do not have the **know** how or personnel to examine applications

with these criteria in view. Consequently many patents are issued without justification and impose unfair restrictions on imports and production."<sup>31</sup>

Personnel handicap coupled with the general experience that not much detail is normally disclosed in a patent<sup>32</sup> to enable a person of reasonable skill in the area exploit it, puts the LDCS into double tragedy. Gilfillan expresses the same horror as Plant when he observed that it is also possible and often done despite the law to write patents most obscurely, and to leave out essential details such as which catalyst is the best among many listed as usable.<sup>33</sup>

Common knowledge has it that many LDCS including Zambia do not examine patent applications as to novelty and industrial applicability: The examination stops at formality which does not question the fulness and accuracy of the specifications. The LDCS cannot be blamed for this short coming although they take the full load of its repercussion. Lack of detail scrutiny of patent specifications gives the unscrupulous

foreign patentees opportunity to register bogus, incoherent and totally unworkable inventions for which they reap benefits from the LDCS.

The fact that most foreign patentees do not fear threat of compulsory licensing of their inventions but attach great importance to the furnishing of know-how in licensing agreements is testimony to the inadequacy of disclosure of such patents. Without the know-how which is sold separately to the licensee the disclosed information cannot lead to the exploitation of the invention. In majority of cases such disclosed information falls short of the statutory requirement, and unless the LDC can have access to the unpatented or unpatentable know-how which only the patentee can supply the patent will never be worked. Melman indeed argues that the patent system encourages secrecy and incomplete disclosure of technological information. This is the very opposite of its intended effect. His well documented argument points out that companies discourage publications and discussion of research in process until patents have been issued. Most applications he says are designed

to disclose as little information as possible. The publication of complementary information is prohibited even after the patent has been issued.<sup>34</sup> In other words the contribution of a patent system in persuading inventors to disclose information they have is quite often exaggerated. Melman argues further that companies often keep secret whatever they can and only patent what they cannot. This lends a lie to the argument that there would be greater degree of silence in the absence of a patent system.<sup>35</sup>

The conclusion one can draw in a situation like this is that the patentee gets paid without satisfactorily performing part of his contract.

Machlup points out that the profits earned by various inventors under protection of patents are little correlated with either relative costs and sacrifices on the one hand, or the social value of their respective contributions on the other.<sup>36</sup>

This state of affairs leads to the existence of many spurious patents and when one notes that

patent litigation is notoriously expensive, complicated cumbersome and slow, as we shall demonstrate, the graveness of the situation is obvious. The combination of the two deficiencies that is the existence of a large number of spurious patents, and the practical difficulty of demonstrating their spuriousness creates a sad picture comparable to the oppressed who cannot redress.

As to whether or not the theory of disclosure is worth the price the society pays for it is very debatable because the patent system cannot be simply described as black or white. It is more involved than that. In a monograph submitted in 1958 Machlup concluded as follows: "No economist, on the basis of present knowledge could possibly state with certainty that a patent system, as it now operates confers a net benefit or a net loss upon society .... None of the empirical evidence at our disposal and none of the theoretical arguments presented either confirms or confutes the beliefs that patent

system has promoted the progress of technical arts and productivity of the economy."<sup>36</sup>

In favour of disclosure it is usually argued that if a piece of invention is kept secret unto the inventor himself for fear of it being stolen in the absence of patent protection then the invention is useless to the society and is buried with the inventor when he dies. It is further argued that without special inducement there would be under investment and low disclosure of knowledge. The private assessment of risk in such a situation would exceed the social ideal as the private reward for the production of the- knowledge would fall far short of its value to the economy as a whole.<sup>37</sup>

A similar argument is advanced that without legally protected rights, some knowledge would be kept longer than it otherwise would. Such information would not be available for use directly or as a base for further research. Even the inventor himself will only use such invention when he knows that such use would not disclose the knowledge behind the invention. There seem to be

strong arguments in favour of patents as leading to disclosure of invention.

However, it is possible to argue that the society makes a bad bargain if it grants exclusive patent monopoly in consideration for its disclosure because of a number of reasons:- First, the very idea of patent implies that soon or later, someone may come by the same idea. An inventor therefore runs to the patent office because of the fear that someone else may beat him to it. This suggests that it is difficult to keep such information secret for ever.<sup>38</sup> This is particularly true when we note that science has developed so much especially in the industrialised and technically advanced countries where most of the inventive activities take place, that most inventions and innovations are predictable by a lot of people. The question is more of a race to get to a known destination than invention in the traditional sense. If a man does not start on this or that enquiry, thousand others would. If he were to await reward or guarantee before he discloses others would. In other words the classical justifications of the patent system have lost validity. Similar to the foregoing, is the argument of the social

inevitability of inventions. This is the suggestion that even if the inventor could keep his secret the fact is that inventions are called for by the needs of society and made possible by the state of technique and consequently, with rare exceptions others would soon hit upon the same idea and make the same inventions.<sup>39</sup> If demonstrative evidence for the above category of inevitable inventions were necessary, we would find an answer in military technology. The super powers especially the USSR and the USA build up their arsenals with the most deadly military hardware mankind has never contemplated but their arms race has nothing to do with the traditional incentives behind the patent monopoly. The race and its tempo is determined by the need of socio-economic, political and military survival of these powers. Put differently, one has a goal to begin with, be it economic advancement, military supremacy or political influence. This goal then determines and propels the wheel of scientific research in order that it is achieved and achieved in the shortest possible time.

When we look around us we are able to see that the dynamic world economy is one which thrives upon rapid production of innovated trade values. In many situations therefore, a research is a matter of competitive necessity. It is a make or die. He who lags in inventive and innovative progress will find himself driven from the market. Even without the benefit of statutory protection the inventor will often, if not usually benefit from a head start, full imitation lagging well behind. Technological innovation is being sought as a solution to such problem and to escape the sharp sword of modern competition where it is practised. It would therefore be madness to keep such formula secret until a patent protection is offered instead of exploiting it as soon as possible to give you the necessary lead.

This argument would seem not only to discredit but destroy the concept of disclosure as being a justification for patent monopoly.

We would therefore wish to conclude that the LDCs in no way benefit from the theory of disclosure as to justify them granting patent protection to inventors in their countries.

B. PATENT AS INCENTIVE TO INVENTIVE AND INNOVATIVE  
ACTIVITIES

For the purpose of this dissertation, 'invention' means any new and useful art (whether producing a physical effect or not); process, machine, manufacture or composition of matter which is not obvious or any new and useful improvement thereof which is not obvious capable of being used or applied in trade or industry and includes alleged invention.<sup>40</sup> The aim of advocates for patent system is to make inventing pay better for the inventors. Those who are not at any rate inventors hope for more inventions to follow. This would yield an overall progress in science.

In furtherance of a constitutionally recognised goal - to promote the progress of science and the useful arts for instance <sup>the</sup> American Congress adopted a constitutionally authorised means, securing "... to inventors the exclusive right to their respective... discoveries."<sup>41</sup> This provision is in recognition that without legal subsidization and protection the quantity of innovation forthcoming would or

might be less than optimum. We must now conduct a brief enquiry into the soundness of the supposition. In order to do this we ought to first examine what considerations determine the volume and influence the nature of inventions. There are a number of factors which could be suggested as contributing directly or indirectly to the quantity and quality of inventions in a country.

It is put forward that the ability of nationals of a country to invent and innovate is dependent to a very large extent on the level of education in general and skills in the technical and scientific field in particular; and what degree of research enthusiasm such nationals possess. This is to say that the rate of growth of scientific knowledge is a very vital if not indispensable prerequisite for serious effort at inventive activities by a country. Specialization and division of labour is equally important. This makes it possible the detail consideration of technological processes and inventions of new processes which do arise out of such continuous and intimate consideration of detail. A man who has many things in his mind or

or has a lot of various duties to perform may not be able to render serious and concentrated effort which scientific research requires to yield any reward.

The next important factor is the availability of capital for research and development.<sup>42</sup> Lack of capital inhibits small inventors and investors in LDCS. Even when some of them get as far as turning out a vital invention they are often forced to sell their rights to take patents for such invention to giant corporations in the industrialised countries even for very meagre consideration so that innovation may be carried out. In the circumstances it can be said that the lottery of the patent system awards but one price and that is monopoly while those who subscribe most of its value may be precluded from qualifying for a price.

On lack of capital being very serious obstacle to inventive activities, Vaughan declared, "Undoubtedly the greatest obstacle to the average patentee is lack of capital in developing and defending his invention. A patent covers an invention of

unknown value and therefore can not be financed through banks and other regular channels. Consequently the patentee whatever the intrinsic value of his invention is apt to suffer from insufficient capital and in addition perhaps from the practices of the unscrupulous promoters".<sup>43</sup> This comment made with reference to the American Society is relevant to the LDCS. If an American inventor would find capital scarcity a serious handicap in his effort, a small inventor in LDC would probably feel the weight of this ten or more times that felt by his American counter-part.

Contrary to the traditional conviction of patent advocates, patent protection is not the magic formula to volume and nature of inventions. It would be stated here boldly that the presence or absence of a patent law is not the principal determinant of a country's technological progress. Vaughan for instance gives an impressive list of alternative methods of inducing invention other than those stemming from the patent system. Some of them have little relation to the matter of material reward. The list includes instinct of contrivance or workmanship, reputation, the desire

for fame and the sense of altruism as well as intellectual enquiry and curiosity which lead to discoveries.<sup>44</sup> One other author in apparent agreement with Vaughan says that what is needed is a stress on technical and scientific training and not a law on the protection of inventions.<sup>45</sup> Further evidence in support of the above view is the fact that there are areas where patent protection plays not a significant role in inventions. In *the* fashion trade for instance, inventions are always at their highest but no patent protection is behind this. Similarly medical practitioners use very little of patent laws but medical inventions do go on. Much research as in the universities and similar institutions is relatively unaffected by the profit motive. In any case research activities have continued to rise very steeply but patent application per capita levelled off in the latter portion of the 19th Century and have declined sharply since the 1920s.<sup>46</sup> This means that the ratio of patented to non patented invention has declined attesting to diminishing importance of the patent for invention. Military technology too, defies the law of supply and demand and other market forces; and economic considerations are very

remote in decision pertaining to it. This is an area where scientific enquiry is controlled by decision making bodies such as Governments and justified by the need for security, law and order. There is a strong political control over military technology designed to provide the maximum control over rival or opposing political forces within national boundaries or in international arena. We get example in the United States decision to develop chemical and electronic weapons and other sophisticated conventional types of weapons for use in Indochina in the 1960s and early 1970s. Steven Rose remarked, "These applications of science are not neutral, neither are they inevitable nor are they accidental, they are the result of a set of deliberate and specific choices about the types of weaponry and the cost effectiveness of their use."<sup>47</sup> In other words the consideration to produce the weapons used in Vietnam was not based on reward incentive or recovery of cost of production of the innovators. It was social values and military strategy which dictated the need of such weapons and therefore

determined the resultant technological sophistication. It is very possible that this argument is wider in application than areas strictly concerning military wares. It is the whole technological base of modern society. The fact that the characteristics of modern culture is the increasing concern on the part of every country for the development of scientific knowledge as the basis of its future progress and security was stressed by the Director of the office of scientific Research and Development in his report to the President of the United States. "Progress in the war against disease depends upon a flow of new scientific knowledge, new products, new industries and more jobs require continuous additions to knowledge of the laws of nature and the application of that knowledge to practical purposes. Similarly our defence against aggression demands new knowledge so that we can develop new and improved weapons. This essential new knowledge can be obtained through basic scientific research."<sup>48</sup>

With the foregoing serious note, it is

unlikely that inventive and innovative activities will be left to the fortunes of patent legislation in most modern states. This probably explains why as Mukubwa observed, "In the United States, for example, the Federal Government finances 61% of the inventions including 15% through tax benefits and the loan inventors 2% and others 4.2%"<sup>49</sup>

We have all along been adducing evidence to show that abandonment of patent system would not stifle the inventive to invent and exploit.

Professor Clark is perhaps the most staunch advocate of the patent system as a stimulant of invention and development.<sup>50</sup> The argument advanced is that the inventor needs encouragement to concentrate on his work and the capitalists must have incentive to commit their money in innovation risk.

Khan argues that even where an invention is said to be inevitable it can only come out after certain set of facts are satisfied "..... it must especially be understood about the laws of inevitable invention It does not operate in the vacuo....we cannot reason that since inventions are inevitable we need no system for rewarding inventors. Any given invention may be

regarded as inevitable only given a certain set of social conditions among them, the prior art, the amount of social encouragement, the social need .... Other things being equal when the state of the industrial arts is adequate and when the need is perceived by a number of people the required invention will be forthcoming. The patent system is one of these 'other things'<sup>51</sup> This view suggests that particular inventions though they appear inevitable often await the right combination of creative vision and action and that radical innovation usually calls for new men, new firms, new money for whom the patent system provides an indispensable protection. However, from the discussion we have had, it is shown that even if the idea of incentives for inventions were accepted it need not take the form of patent grant monopolies.

There is in fact no clear evidence that the patent monopolies are better motive than those advanced by Vaughan as driving force behind many of the modern inventive and innovative activities. It would be contended here that it is highly

Doubtful if the incentive theory still holds good if it ever did, since most of the inventive and innovative activities are now being carried on by large multinational corporations (MNGS) which do not carry out this research as a result of patent protection and benefits. We have seen too, that lack of capital by individual and small firm. inventors makes patent protection an ineffective device to arouse their inventive enthusiasm.

We have further seen, that most of the lone inventors normally are forced to sell away their patent monopoly rights to big firms because of lack of resources to complete his inventive and innovative initiatives. Quite a lot of those inventors are on salaries

and therefore will never be entitled to take up patent in their own names.

Buch for instance, had to surrender his right to patent monopoly in relation to improvement in the process of elimination of bismuth in Copper Mines Limited in 1957.<sup>52</sup> The reason for this was because Buch was not financially able to work the invention. Investors therefore had to take over the patent right in their own names. As a matter of fact therefore, the patent system now favours and benefits the investors and not the inventors.

The patent system can, in fact, discourage inventive activity.

A patent invests its holder with an unjustifiable strong position at the expense of his competitors. Such a monopoly does not only hinder late inventors with the same idea 'duplicate invention' from enjoying the patent privilege but also prevents them from using their independently arrived at invention. In this regard it can be argued that patents discourage inventive activity. A potential researcher will have to think deeply before engaging in an expensive research project whether

or not someone somewhere has not 'fenced in' or 'fenced-off' the area, or is not working ahead of him in the same premises. Such a researcher will also have to mind about what stage of research that someone has reached. This is because he might be beaten to the invention while he has himself reached advanced stage, or worse at the patent office.<sup>53</sup> If this happens, he has to shelve his effort permanently, notwithstanding the colossal costs in money, equipment, material, time and effort he might have invested in the venture. The alternative would be to risk a more deadly consequence, an infringement suit. This fear of the unknown could be disheartening to many would be inventors.

Patent monopoly far from being an incentive to inventive activities can and is often used to control adversely such activities and as we shall later discuss the production and markets of product or processes of an invention. It is therefore difficult to treat patent monopoly as a serious catalyst for inventive activities. On the contrary, it is submitted that granting of patents to

foreigners constitute no major incentive to foreign inventive activity including the allocation of research funds and it is no incentive to local inventive effort either. If anything, such patent monopoly fore closes the effort of the LDCS from developing their own technology. This is especially true because not only do residents or nationals of the LDCS hold very few patents within the LDCS and abroad, but the few they have are the backward or insignificant ones which contribute very little if any to the industrialization. Such backward technology does not create a base for the expansion of indigenous technology.<sup>54</sup> The patent system created and sustains the technological dependence of the LDCS on the industrialised nations and their MNCS as we shall attempt to demonstrate in the next chapters.

CHAPTER TWO

TOWARDS A MODERN PATENT THEORY

We have not seen sufficient evidence that patent grant, will induce inventions and encourage disclosure of vital information contained in such inventions to the public in both the Developed and the Less Developed countries. We did attempt in the preceding chapter, to demonstrate that the traditional rationale behind the patent system was very weak. In search for modern justifications of patent monopoly, we shall discuss the two possible motives, namely, the encouragement of foreign investment, and the transfer of technology to the LDCs.

First, it is time we said something about what technology means. Dickson has attempted to define the term technology. He explains that technology is an abstract concept, embracing both the tools and machines used by a society and the relationship between them implied by their use. He goes on to say, that machines and tools are objects selected or fabricated by man as a means of changing the state of his material environment.<sup>1</sup> The concise Oxford Dictionary,

gives the meaning of technology as "Science of the Industrial arts", and Galbraith uses the word to refer to the systematic application of scientific or other organised knowledge to practical tasks.<sup>2</sup> All the above definitions, are regarded as complementary and are fully endorsed in this dissertation.

For our sake, a reference to technology does not mean patented technology only, but includes unpatented or even unpatentable technical know-how. It is to be found embodied in physical assets, machinery, skill manpower services, patented and non-patented technologies. Technology, can be viewed as a language of social action. To look at it in abstract, is to employ a positivist interpretation of the practice of science. But here, we have to take a part, the various components of technology, to reveal the socio-economic reality that lies beneath. A society's technology can never be separated from its power structure. It is a pre-requisite to material prosperity, or even the very survival of the dominant class in any society. This covers economic, social, political as well as military survival. When technology remains in the hands of dominant

class or the MNCS, then it is an instrument of defending power structure. In other words, technology is not politically neutral. Consequently, our aim is to bring this discussion within the context of the LDCS experience.

The approach adopted in this chapter, is to examine the whole question of whether or not technology is transferred and through what mechanisms and by whom. We will then examine, what role the patent system in particular, plays in this transfer. Our first task is, therefore, to lay down the political economy within which our discussion shall be conducted.

#### A. POLITICAL ECONOMY OF LESS DEVELOPED COUNTRIES

The record of history demonstrates that to eliminate a country's techno-economic backwardness, it is necessary first of all, to diversify the pattern of the economy by equipping it, with the latest machinery and utilizing modern technologies and techniques of production, and sustain high velocity of industrialisation. Industrialisation, is the key to restructuring the economy, and a major medium through which the LDCS strive to attain a standard of living for their population.

The hub of industrialization, is the development of manufacturing. The UN Committee for Industrial Development had this to say about industrialization,

"Industrialisation is a process of economic development in which a growing part of the national resources, is mobilized to develop a technically up to date diversified domestic economic structure, characterised by a dynamic manufacturing sector, having an effective means of production and of consumer goods and capable of assuring a high rate of growth for the economy as a whole and of achieving economic and social progress."<sup>3</sup>

However, the definition of industrialization is not easy. It is multifaceted process. It is by no means the same for all countries at all times for all socio-economic conditions. Bearing this caution in mind, we can take the above definition, and state that, the wide introduction of highly efficient means of production in the national economy, is a major feature of industrialisation in LDCS.

To carry on this, a country may acquire substantial external resources, through foreign trade or investment. But, this cannot be a long term basis, either for independent economic development,

or key large-scale re-equipment of the national economy as a whole, unless that country builds and extends its own basis for industrialisation.

In an ideal situation of a perfect competition, a country starting on industrialization, should be able to catch up using technology and technical know-how developed by others. However, the 'ideal' can hardly be obtained, thanks to the cunning manipulations through patenting, licensing, trade marks - copy rights designed, to warp the industrialisation process in the LDCS, and give to them scale, form, and speed which would be compatible with the expansionist interests of the Developed Countries and their continued grip over the LDCS.

It is no longer true, therefore, to assert that backward country, drawing on experience and achievements of others, without exploration and mistakes, should cover the same distance of industrialisation, in much less the time within which the pioneers covered the period. The gaps, that these backward countries have to bridge on the other hand, are many times greater than that ever surmounted by any industrially developed countries, and instead of narrowing, the gap is widening with

alarming speed unprecedented in history. Industrialization makes demand of large capital investment, continuous flow of large quantities of raw material and fuel (energy) skilled workers, vast and effective markets for the sale of the output, and scientific and technological revolution.

While the need for imported technology can hardly be over-stressed, the actual effect and repercussions and the role such a technology plays in the socio-economic development of LDC, may not be so obvious, and an answer would seem to be conditional to a number of considerations viz: the socio-economic environment in which the technology is developed, the kind of socio-economic structure in the LDCS where it is sought to be employed and the system intended to be changed, and more important, the ultimate goal to be achieved. This implies that there must be clear evidence of development strategy, leading to a desired social, economic, political, legal and cultural infrastructure in the LDCS.

In other words, the issue of the transfer of technology to LDCS, is inseparably linked with the economic and political background of the country

receiving the technology. It is, therefore, impossible to treat the subject as an exclusive legal domain. This is because, the intellectual property system is an intrinsic part of a system of property ownership and its role in development, is extricably tied up with the part the whole system plays in the growth of the LDCS. The subject involves a consideration of both economic and legal factors. Godenhielm, recognises such interdependence when he explains, "However, desirable it would be from the point of view of the inventor-patentee, that he acquired a legal protection through the Convention (Paris Convention) comprising a uniform organically united regulation in the various countries, he is here often confronted with the economic policy of the particular country, putting the whole question into a wider context, in a close relation to the customs, policy of that country."<sup>4</sup>

It is suggested, therefore, that a brief comment on the general aspect of the LDCS political economy, is obligatory even if only as a 'take off' point, prior to discussing the issue of technology transfer to LDCS, because one can only understand the nature and effects of the technology developed

or imported in any society, by relating it to the patterns of production, consumption, and general social activities that maintain the interests of the dominant section of the society.<sup>5</sup> A particular reference, will also be made of the Zambian political economy to high light some glaring aspects of the LDCS.

The LDCS, have many and intricate obstacles in their attempt to narrow the economic and trade gap with the more developed economics of the industrial nations. A detail assessment of these 'iron curtains', is beyond the perview of this dissertation; and it is submitted that only a bird view attempt is plausible. Most of the LDCS economies, are based on primary commodities since the colonial powers valued them only as a source of raw materials for their industrial expansion, engendered by the industrial revolution and also as a market for industrial output. In any case, it is true, that capitalism everywhere, generates wealth at one pole and poverty at the other. This law of capitalist development, which is equally applicable to the most advanced metropolis and the most backward colony, has of course never been recognised by

bourgeoisie economist. Such economists, would rather propagate apologetic notion, that a leveling-up tendency is inherent in capitalism.<sup>6</sup> Meanwhile the neglect of the industrial development of these colonies, has led to over-dependence on the primary commodities, whose unstable prices (save for petroleum oil) are subjected to a frequent cause of economic instability. The primary products, which account for about 33% of all the LDCS primary (non-fuel) exports, have exhibited price fluctuations as severe as 10%-15% in some of the commodities. Even worse short-term sharp price swings for some of the commodities, have been as large as (200-600)% in a four year period during 1973-7<sup>7</sup> Most of these fluctuations, are a result of economic manipulation by developed capitalist nations and their multinational corporations (MNCs), to squeeze these nations in order to enhance their profit margins, increase rich and the poor gap, ensure and perpetuate the LDCS economic dependence on their supremacy.

All the LDCS, save the few endowed with petroleum oil, experience increasing deterioration

in terms of trade. This is due to unfair rate of exchange for primary products, with manufactured goods of the industrial nations.

In order to escape this precarious position, the LDCS, strive to broaden their economic base including setting up of industries. But, the effort of import substitution industrialisation to save foreign exchange, has not been useful. Most of these import substitution activities, have very high import content and exhibit high production costs. In most cases, the attempt at import substitution, is abandoned in preference to exports expansion to earn foreign exchange. But, the manufactured goods of the LDCS, are not competitive with that of high quality, but cheaper equivalent goods produced in the developed countries.

When import substitution and export stimulation fail, temporary reliefs are sought from loans, aids, and grants from capitalist countries as well as the international lending institutions. This leads us to the consideration, of the burden of debt-servicing and repayments which makes saving impossible and, therefore, no investment to expand exports. The problem of ever increasing public debts owed to the Developed nations, is a very

acute one. Some of these debts, are borrowed to finance imports. Infact, between 75% and 80% of the U.S. bilateral aid budget, is tied up to the purchase of American goods and services. Even the untied multilateral assistance, is believed to give the American economy \$2 for every \$1 the US contributes to the International Financial Institutions.<sup>8</sup> Surely somebody must be paying for these huge profits! The situation, is not very much different with other donors and since most of the LDCS imports are consumer goods and not capital goods for investment, the debts can not pay for themselves.

The result is a vicious circle which is very difficult to break. These countries, have to continue to borrow more to finance imports and to pay for earlier debts, as well as accumulated interests on the same. It is an open secret, that there have been wide spread defaults in meeting debt obligations to the extent that millions of dollars worth of debts, have to be either rescheduled or written off by some 'more considerate' lenders. Canada had to write off huge debts of some LDCS in 1976, and Zambia had millions of

Kwacha worth of loan) from the World Bank rescheduled in April, 1978.

The big problem is that the experience has resulted in a general decline in development aid to these countries. The Developed Nations and International Institutions, such as the IBRD, IMF, OECD which are controlled by and operating primarily in the interest of the West, are reluctant to commit more money to the LDCS.

It is contended here, that the debt liabilities of the LDCS, cannot be alleviated by gestures of charity. There must, be something more of a structural change, or a new international economic order. But, there is no doubt, that the West has so far rejected the demand for the new economic order. This came out unequivocally during the United Nations Conference on Trade and Development (UNCTAD IV) in Nairobi, 1977. It is equally unlikely, that much hope is being raised by the current discussion of UNCTAD V in Manila. On the contrary, it appears as if the LDCS are now being told bluntly, that there is nothing the Developed Countries, can do to help them. The West German Economics Minister, echoed the position of the Developed Countries when he spoke at the current

conference. "It is not very helpful .... to voice politically unjustified accusations as has been the case repeatedly in International forums .... Criticism is legitimate and it is needed, but we will not accept criticism, if it is incorrect in the circumstance and beyond that, is expressed in an offensive way."<sup>9</sup> The Minister warned, that if the poor nations continued to attack the industrialised powers, democratic governments, would find it harder to convince their own people, that the sacrifices needed for aid were justified.

Meanwhile, what has been done for the last 25 years, towards social justice, has resulted in increase of the poor people. World Development Report, shows that aid policies and development strategies evolved by the west have failed. The number of absolute poor has risen from 500 million 25 years ago, to 800 million individuals, trapped in absolute poverty, a condition of life so characterised by malnutrition, illiteracy, disease, squalid surrounding, high infant mortality and low life expectancy.<sup>10</sup> To make matter worse, is the fact that there is virtual complete reliance upon

other countries for services such as shipping and insurance. This means that the LDCS, do not share in the lucrative trade from these 'invisibles'. That, however, is not the end of the matter. Their dependence exposes them to overcharges for these services. They have to pay higher rate on their imported manufactured goods, while the Developed Countries pay relatively much less on the primary products exported to them. And yet the organization and the running of these services, are at the convenience of the industrialised shipping nations and quite often, ignore trade requirements beneficial to the LDCS.

Political instability since independence, coupled with economic hardship, make the LDCS unattractive to foreign investors. But, most of these countries, lack capital and technology of their own to develop their economies. They, therefore, have to accept foreign investment, on terms which lead to the control of vital economic projects in the hands of the foreigners; thus perpetuating the dependence relationship inspite of the formal independence resulting from political nationalism. Restrictive practices, are also very

serious constraints on the LDCS economies. It is ironical that the West which 'believes' in the virtues of free market system, literally takes refuge in protectionism. The North American Labour Movement, Trade Unions in Europe, along side governments and MNCS of the West, fear that cheaper imports from the third World, will result in loss of jobs, power, political and military and general influence over the third world.

These protectionist measures by most industrial economies, are one of the major causes of the sluggish growth in the LDCS exports. Some of the restrictions, imposed by the western industrialised countries against traditional or newly diversified exports of the LDCS, affect textiles, clothing, footwear, iron, steel, electrical appliances, wood product, frozen and canned food, fruits, vegetables, alcoholic beverages, livestock and meat. The restrictive measures have ranged down to tariffs, quotas, import licensing, 'voluntary' export-restraints, minimum export prices, health and measurements standards, anti-dumping duties, countervailing levies, 'orderly' market sharing arrangements and others. The loss of export

revenues due to the western protectionist measures, has been estimated to be between 5% and 8% of the total LDCS Gross National Product (GNP). This, represents some several hundred million dollars a year for some of the LDCS.<sup>11</sup>

The fear behind this protectionism is unfounded. It can be argued, that long term future growth of the West, must depend to a very large extent, on the expansion of markets in the third world, where today, about  $\frac{2}{3}$  of mankind does not have adequate purchasing capacity, especially so for manufactured goods, a speciality of the more developed economies. This obvious economic expediency, is apparently being ignored in preference to a short-term exploitation of the backward economies of the LDCS. Thus, the difficulty in earning foreign exchange through primary commodity exports because of price inelasticity of demand, competition from synthetic substitutes and protectionist practices especially in agricultural policies of rich states, put the economies of the LDCS, into such thick iron cage that would require a near miracle to break out of.

For LDCS, to make some positive progress, we need a basic principle, which recognises the need to ensure a sustained expansion in their export-earnings, a share in the growth of international trade, commensurate with the needs of their economic development, and, to that end, developed countries, should permit increased access in the largest possible measure, to their markets, under favourable conditions for processed and manufactured products from the LDCS. The LDCS economies at the moment, are characterised by unbalanced nature of growth, and a very slow tempo of economic development. There is increasing maldistribution of domestic income, a widening gap between urban and rural livelihoods. There is excessive concentration on import-substitution, and a weakness in competitive exports in the world markets. The result is the 800 million very poor inhabitants.

Economic issues, are linked up with all other problems the world faces today. They are inter-dependent. For instance, economic collapse can destroy the atmosphere of international

co-operation and cause the collapse of governments and societies with the net sum of breakdown of law and order. Most of the LDCS troubles, notably the violent and unlawful removal of governments, are related and in most cases direct results of their poor economic performance in international economic circuit. Ramphal has warned that, ".... the collapse of countries and economies in Latin America, Africa, Asia won't be the concern of their peoples alone. The effects are going to spill over the centres of the north."<sup>12</sup> This warning is unfortunately, not being taken seriously by the developed nations. On the contrary, under contemporary conditions, neo-colonialism accumulates, as it were, all the basic aspects of imperialistic strategy and tactics, with respect to LDCS and at the same time, is one of the manifestations of the attempts being made by imperialism, to adapt to new situation in the world and dwarf the aspirations of LDCS to economic independence and self-determination.

When, therefore, a serious threat arises to the capitalist domination, the defenders of capitalist empire (the industrialised nations and

and MNCS), are prepared to trample, upon the sovereignty of states and upon all legality, to say nothing of humanism.

One needs no apology, to assert that countries of the third world, are being subjected to coercion which holds them in a condition of economic dependence and subordination and nullifies many of their undertakings, and aimed at keeping them (the Third World) in economic orbit of the industrial powers.

Let it be recorded here, that the economic independence advocated, in no sense implies economic autarchy and isolation. On the contrary, it suggests the establishment of an equitable, mutually beneficial economic co-operation, based on a fair international division of labour. This, would promote a balanced economic and progressive restructuring of the LDCS economies. It is an attempt, to rectify, the conclusion arrived at by the UN Industrial Development Organisation (UNIDO). The finding was that the structure of industry in LDCS, has serious short-comings determined by the fact that attention, was concentrated on the production of consumer goods and lately, to some extent also of consumer durables,

while the manufacture of capital equipment, specifically heavy engineering, lagged even when their production did not require excessively intricate technological processes.<sup>13</sup>

### THE ZAMBIAN EXPERIENCE

Since this study puts a special reference to the Zambian case, it must dig a bit deeper into her political economy, bearing in mind, of course, that Zambian problems are not unique but are the problems of the LDCs in general.

Zambia is one of the most dependent economies, when measured along the contribution of a single dominant industry to export and raise government revenue.<sup>14</sup> An appreciation of the structure and strength of the Zambian economy, inevitably begins with emphasis upon the dominant position occupied by the copper industry. Copper contributes 95% of Zambia's exports, 55% of the revenue, 40% gross domestic product, and 15% direct employment. Income from copper, therefore, determines Zambia's capacity to import both capital and consumer goods. The affluence of the

ruling class and its ability to perpetuate its control, are very directly and closely linked to copper. The economy was healthy as long as copper was doing well on the market and it did account for huge foreign exchange surplus in the few years after independence.

### MAN POWER

However, copper mining is an industry which demands substantial skilled man power behind some sophisticated technologies. But, Zambia like most LDCS, was seriously handicaped by acute manpower shortage. This shortage, was so extensive in comparison with that in other developing countries that, Zambia's experience serves as the pathological conditions from which to study the symptoms of acute scarcity of manpower in the process of development.<sup>15</sup> The situation was a crisis as it was not merely obstacle to economic expansion, but even a danger to political stability. Independence and nationhood mean little, if the reins of government are not taken up effectively by local hands. Zambia had not been prepared for this. In 1963 for instance Zambia had in total

under 100 Zambian University graduates. In terms of high level man power, the UN economic survey Mission in 1964, found that Zambia was one of the least educated countries. 75% of African males and 93% of females over the age of 16 years, were illiterate in the sense that they did not complete 4 years of primary schooling by 1963.<sup>16</sup>

"Skilled and educated manpower, stated Kaunda in 1966 "Is Zambia's scarcest resource".<sup>17</sup> Zambian under development, therefore, had its origins in the pre-colonial, colonial and settlers periods of the history of Central Africa. In spite of comparative wealth in Zambia, African education never received the serious concern it deserved. It was a territorial responsibility until 1963. This meant that it was cut off from the federal revenue, marshalled from Zambia, Malawi and Rhodesia. It relied solely on the inadequate and poorly administered local funds. There was no money from the federal coffer, because even article 95 of the Federal constitution, authorising the Federal Government to extend direct financial assistance to its members, remained a dead letter. The revenue from copper and taxes constantly flowed out of Zambia either to

metropolitan U.K. or to its Southern Rhodesian satellite. The latter, spent most of these revenues on whites education and within southern Rhodesia which hosted the capital, had most whites whose livelihood was the responsibility of the federal government. Being the most developed within the federation, Southern Rhodesia had almost all major institutions of the Federation such as the University College, Bank of Rhodesia and Nyasaland the supreme Court, and seats of most of the public servants. The bulk of federal investment was consequently concentrated in Southern Rhodesia.

Various racial discrimination and practices during the colonial era, also hindered the African participation in job apprentices and practical experiences and responsibilities in many types of works. The crucial step of crush programme for education and training taken in other countries, within a decade before independence was never taken in Zambia. In this regard, Zambia was less prepared than most African states for independence. The copper wealth was wasted. It never generated the badly needed indigenous skilled manpower which Zambia needed to man, not only the copper industry,

but manufacturing sector as well as the infra-structural services.

In the period between 1966 and 1975, the University of Zambia, the chief supplier of educated and to some extent skilled manpower requirements of Zambia, awarded 1300 first degrees in various disciplines and 10 post graduate degrees in different schools.<sup>18</sup> This is definitely a better performance than what the British had been able to show in about a century rule of the country. Unfortunately, even this great stride forward, has not been able to offset the deficit created by the colonial administration. It has not been able to arrest the tempo of development.

The sad result is that up to now, about 80% of Zambian population is a primitive rural society. It is, therefore, no coincidence that Zambian political philosophy of Humanism, like Ujamaa of Tanzania, stems very largely from a conception of rural society.

THE EFFECTS OF SCARCITY OF INDIGENOUS SKILLED  
MANPOWER

Lack of skilled manpower brings about wasteful use of raw material; inadequate maintenance and repair of capital goods, excessive imports, neglected entrepreneurial opportunities, poorly cultivated land etc. Along the main road from Tanzania to Zambia for instance, one would find mishandled and damaged vehicles as rusting reminder of the enormous cost of skilled manpower shortages.<sup>19</sup>

There is also disproportionate growth and development. In Zambia, economic growth was concentrated along the line of rail especially in a few urban centres on the copperbelt and Lusaka.<sup>20</sup> Agriculture and the rural areas were neglected.

The scarcity of skilled manpower, points obviously at the indispensibility of external manpower requirement. In the Zambian Case, this means the reliance on the aristocratic labour force. There are a number of problems ensuing from this dependence.

There is the problem of draining capital and foreign exchange. This is through a high outflow of 'invisibles' in the form of profits, expatriate remittances of salaries, allowances,

dividends, capital transactions, insurance royalties and debt servicing. This was estimated by Ann Siedmann in the case of Zambia at about K620 million per year.<sup>21</sup> This, is a big loss to Zambia, in terms of the technology and other resources that could be exchanged for the money.

Economic programme must rest on political assumptions and objectives of increase employment, raising of living standard, equality between the urban and rural incomes, equal attention to the rich and poor and racial harmony especially amongst the European and African population in the country. However, the expatriates attitudes have been contrary to that of the majority of Zambian population, especially with regards to political situation in Southern Africa. They advocate economic imperatives of detente in Southern Africa. They underline their preference with conspiracy of political and economic sabotage against Zambia, making her weak and vulnerable to all pressures, intrigues and manoeuvres, flowing from such dependence. For instance, the commercial farmers, who dominate agricultural output are largely whites having links with the white south. They have been a soar throat to the Zambian nation.

On a number of occasions they have threatened to quit the country and demanded to be armed for their 'protection'.<sup>22</sup> They have harboured deadly weapons used to undermine the country's security.<sup>23</sup> More recently, the Commercial Farmers Bureau (CFB) insulted Dr. Kaunda with its editorial in the 'Productive Farming Magazine' attacking Zambian support for ZAPU Liberation Movement. He ordered Bill Kerrigan, the executive secretary of the Bureau, out of Zambia immediately.<sup>24</sup>

Shortage of manpower too, means that many jobs are chasing few skilled persons.<sup>25</sup> The results are rapid turnover rate, leaving few people to stay in one job long enough to gain experience or be productive. Employers, desperate for additional staff, up-grade the jobs and salaries, inflating the number of persons in high grade, giving a fraudulent picture of such manpower availability. This practice meant that salary structure for senior government jobs, miners and parastatals, was not realistic vis-a-vis the state of economic development but, rather on what was necessary or essential to attract the Europeans to come. This aggravates incomes inequalities and makes wage stabilization more

difficult to carry out. Infact the salaries of the labour aristocracy, especially in the parastatals, the mines, energy and communication sectors have multiplied since independence, far outstripping, yet accelerating the rate of inflation.<sup>26</sup>

Following the drop in copper price and deteriorating terms of trade, Zambia, became heavily dependent on external funds to fuel her development. There is thus a great reliance on external sources for technology, manpower, and finance for Zambian industrialization and above all economic survival. Zambia, is therefore, a classic case of dependence and underdevelopment. Her major economic features reflect the following:-

1. High levels of consumption particularly of imports for the petty bourgeoisie.
2. The economy is 'foreign' in orientation, origin and ownership.
3. Export trade is concentrated in one product with a few and unreliable markets.
4. The dependence on foreign credit and exchange or orthodox assistance.

5. The national economy is not autonomous or internally intergrated and relies on foreign technology and skills.<sup>27</sup>

The above characteristics define Zambia as a part of the periphery of the world capitalist economy.

Since independence, there has been internal class formation equating internal and international inequalities. The ruling class wield significant internal power and has very influential external associations with international capitalism. This alliance and economic collaboration, between the petty bourgeoisie and international Fiance capital, has thwarted the Zambian Philosophy of Humanism. This, has led one academician to ask question on the apparent contradiction in the roles of the President and the ruling class. "..... are they the entrepreneurial national bourgeoisie ..... who play, despite themselves a progressive role in the uplifting of their society, or are they a passive and parasitic elite masking their pursuit of power and greedy consumerism under a rethoric

of modernization and development?"<sup>28</sup> The ruling class is able to maintain its domestic control and to increase its affluence through the association with external interests, elite taste, choice of technology, priority of development and co-operation with foreign entrepreneurs to exploit the local resources for their benefits. Meanwhile, the relationship of local branch of transnational capitalist class, is ensured by keeping the local branch perpetually dependent on foreign capital and technology.

The problem continued and became more pronounced after the Mulungushi Declaration of 1968, the 1969 Matero Reforms, 1970 and 1973 Lusaka Reforms. These Declarations, were attempts at correcting the inequality in the ownership of property, through partial nationalization of the major industries in order to bring public and Government participation in these enterprises.<sup>29</sup> This participation, however, is a mock one of merely majority holding of company shares and representatives on the board of directors. A real participation as we shall see while discussing MNCS, must mean actual and effective

participation in the decision making of the concerns. But, because of lack of skilled manpower and experience, in the field of industrial management, real and meaningful participation by the country, will remain a dream for a time to come. Meanwhile, the Declarations brought in state capitalism. That serves only the interests of the petty bourgeoisie. The economic policy since then, has not indicated genuine willingness to reduce domestic inequalities; or to redraw the obsolete colonial economic structure.

Initially, the Zambian leadership saw mixed economy as a transitory stage.<sup>30</sup> But then there has been welcome and active encouragement to private enterprises, increasing rather than phasing them out. "..... we are not against foreign capital perse. Therefore, to those who may wish to invest in Zambia again, they are welcome..... we are building socialism here as an instrument of establishing a Humanist state."<sup>31</sup> The same confusion, led to the enactment of an Act<sup>32</sup> to encourage foreign investment. Since the passing of the Act, industrial and investment policy has moved more towards private capitalism. There have

been removal of price control over most products and a promise of greater economic freedom to, parastatals and private sectors to augment the incentives provided by the Act.<sup>33</sup>

Granted that Kaunda is honest about Zambian Humanism values, we can say that he is not able to confront effectively the petty bourgeoisie. The poor urban and rural peasantry, who could support him have not the modern arsenal. So that, "Bureaucratic and technocratic elitism, nurtured by the state has arisen to challenge the democratic ideals of the United National Independence Party (UNIP). Either the Party will restrain the pretensions of technocratic elitism, or technocratic elitism sheltered by the influence of MNCS, will transform the populist party into a willing instrument for capitalist development. The struggle between elitist and popular power looms as the central issue of Zambian political development."<sup>34</sup>

The diversification effort of the economy is being attempted amongst and not away from the capitalist economies. Such economies, remain highly vulnerable to the International economic

fortunes and any independent economic planning becomes elusive.<sup>35</sup>

Other factors affecting the Zambian economy, are global inflations and recession leading to decline in both the demand and price of copper. The high cost of oil, capital and food imports conflict in Angola and congestion in East Africa ports, have led to difficulty in importing and exporting Zambian goods and have damaged severely the externally oriented economy.

As the influence of copper export slackens, industrialization must be of increasing and dynamic significance. But, industrialisation exacts a lot of favourable factors. There must be greater unification in the market of Zambia itself and equality of income distribution. This is at the moment difficult because skill is scarce and externalised. There is serious unemployment leading to low purchasing power amongst the African population. This limits the market which is a stimulant to industrialisation. The whites who earn more, either externalise their savings, or prefer imported goods of higher quality, mainly from Rhodesia and South Africa at the expense of local industries.

Economic intergration with neighbouring countries, is also a must for Zambian industrialisation effort. To achieve this, there must be machinery to co-ordinate development plans to ensure the compatibility of various policies persued. All the above needs manpower, especially committed skilled manpower. The scarcity of skilled and educated persons, can hold back growth and distort its pattern and may render purposeless the importation of high technology.

Dependence on global capitalist economy, is the political-economic set-up within which we shall examine the patent system and transfer of technology. But, immediately we have to discuss the MNCS as controllers of technology.

B. MULTINATIONAL CORPORATIONS (MNCS)

Transfer of technology is tied up with the activities of MNCS. The MNCS have accumulated immense reservoir of technology. They own the patented and the unpatented technology and technical know-how. They provide and control effective mechanism of transfer of technology between the Developed countries and the LDCS. Most of these transactions are carried on through contractual arrangements such as investment through wholly owned subsidiary or joint venture, licensing or direct transfer, which is outright sale of the technical knowledge. The commonest and the most important ones as medium of technology transfer are the contractual arrangements. Technology may be merely 'transported' and used in the LDCs where a foreign MNC operates, or it can be transferred when technical know-how is absorbed by the transferee, hence the need for local manpower to absorb the technology. We shall turn to this issue later.

It can be argued that co-operation of the patentee, is needed for successful transfer of patented technology because the unpatented know-

how is not possessed in the LDCS. Even if technological information were disclosed, no LDC is in the position to copy it because it lacks the required knowledge necessary to apprehend such disclosed information. It is also conceded that, patentee co-operation would be difficult to come by unless the LDCS give patent protection. When these two propositions are held true, then one can argue that technology transfer is patent dependent.

At this point, however, there is a need to focus attention on the institutions and channels which govern the transfer so as to enable an appreciation of the issue of transfer of technology and development. What then are MNCS? The definition given by the United Nations is very appropriate. "The term Multinational Corporation ..... in the broad sense (covers) all enterprises which control assets, factories, mines, sales offices and the like in two or more countries."<sup>36</sup> Turner, gives a similar understanding of MNCS. He defines it as a firm which has a number of directly controlled operations in different countries and which tends towards a global perspective.<sup>37</sup> In other words, the

MNCS are commercial octupuses whose activities are geared towards global economic supremacy. Historically, most firms first moved outside their home markets by exporting and arranging licensing agreements with foreign firms. However, most firms graduated to MNC status by transferring their processing, Assembly Plants, packaging and technology in industries outside their home. This was done for various reasons and through various forms such as joint venture, Assembly Plants, full operation or wholly owned subsidiary. We can mention briefly, some of the reasons leading to a decision for a firm, to become global especially for its involvement in a LDC.

In their quest for diversification of the economy, the LDCs work out means of protecting their infant industries. These include tariff barriers, quotas, or controls on wide range of imports. Because of these and transport costs, some foreign markets were only profitable when the goods were produced inside the country. This leads directly to economic invasion and occupation of such a country. Linked inseparably to this, is the desire to take advantage of various

regional markets, acquire global commercial intelligence and marketing expertise.. This begets another advantage that of forestalling competition from rival oligopolies. Direct production in the LDCS, may also bring about advantage of low labour costs where the venture is unskilled labour intensive. This in combination with being nearer the source of supply for raw materials implying low transport expenses, reduces the production cost, hence maximising the profits of these firms.

As we shall illustrate later, the firms can decide on joint venture, with either the government or public corporations, to avoid nationalistic reaction leading to hostility and paving way to outright nationalisation.<sup>38</sup>

As the subsidiaries of the MNCS increase, their Headquarters see more need to control operations, make allocations of resources, markets and activities. Control is secured and continued by keeping monopoly over technology, markets and supply of capital goods. The Headquarters become internationalised, and their decisions become global in vision. The MNCS are extremely powerful business empires. Servan-Schreiber declared,

"In fifteen years, the third industrial power, after the U.S.A. and U.S.S.R. could well be not Europe but American Industry in Europe."<sup>39</sup>

Financial strength of MNCS, can be indicated by the report of Judd Polk. Mr. Polk, giving figures on U.S.A. MNCS activities abroad, to the U.S.A. Council for International Chamber of Commerce, stated that U.S.A. MNCS subsidiaries, produced goods worth about \$120 billion in 1966, a sum which was slightly more than GNP of West Germany and Japan.<sup>40</sup>

President Kaunda of Zambia, acknowledges the strength of MNCS when he made comments about them on his visit to Tanzania in July 1974. He identified MNCS, as structures of exploitation, with potential to control African states and charged that they were invisible opposition parties.<sup>41</sup>

The modern MNCS, are 'foot-loose' and not tied to any location for investment but tends to concentrate in region with huge potential of market growth. Modern effective global operation, is now made reliable and efficient through development of sound transport and communication

network. The MNCS spend generously on sending out personnel from their Head offices to tour, inspect and supervise their overseas empires. An average travel bill for the area managers of 13 MNCS surveyed, was \$10,000 per annum. One middle manager spent up to \$25,000 in one year.<sup>42</sup>

Most countries which receive foreign investment, attract subsidiaries of those powerful business empires. These subsidiaries, maintain particularly close links with the investor parents and nurture a relation of an extended family. In a computer market, for instance, US firm, IBM manufactures around 65% of all computers sold in the non-communist world.<sup>43</sup> Through the MNCS, the economies of the LDCS, are linked to the international capitalist pattern.

MNCS, act as conduit pipe in this relationship for siphoning off surplus. Rweyemamu gives an empirical analysis of the Tanzanian experience between 1961 and 1968 as shown below, table A

TABLE A

Outflow of International Investment Income gross and Inflow of private long term capital (net 1961-68)

YEAR	PROFIT OUT FLOWS (millions of shs)	CAPITAL IN FLOWS (millions of shs)
1961	-71.2	+ 50
1962	-73	+ 58
1963	-123	+155
1964	-93	+ 79
1965	-110	- 6
1966	-114	+138
1967	-159	- 66
1968	-114	+ 76
TOTAL	-857.2	+484

SOURCE: ShiVji Issa, "Class Struggles in Tanzania" Tanzania Publishing House, Dar-es-Salaam 1975, p.164. See also pp. 163-164 for comments on the table on the next page.

The table shows a net loss to the country's economy of 373.2. This amount must be taken as only a part of the outflux of capital, because there are other mechanisms as we shall see, through which further and more funds are drained from LDCS by MNCS. This, obviously creates a vicious circle which reinforces the dependency of the LDCS on the industrialised economies.

Partnership between MNCS and Public or Government enterprises in LDCS, is either voluntary or forced through partial nationalisation. A number of reasons could be given for nationalisation moves in LDCS. First, there is a widely held view that the LDCS are excessively dependent on foreign companies. It is further accepted that these companies, export resources and take disproportionate share of profits out of the country. The companies generally exercise undue influence over governments and lives of peoples through their economic power. Most LDCS leaders, are very responsive to this sentiment which finds additional fuel in the self-reliant attitude necessitated by frustrations over trade and aid issues. There is also a serious concern on the

part of the LDCS to protect their infant industries against competition with foreign firms, because the latter have easier access to foreign capital and technology. Economic nationalism too, seeks to increase control over the economies and reduce the role of the foreign firms. This, results in steep friction between the LDCS and the MNCS. To the LDCS, the political consideration that is the immediate stability of the country, outweighs economic advantages.<sup>44</sup>

The foreign partner involvement in most cases, deals with management, that is; service Agreement Agency Agreement, Consultancy Agreement, Licensing Agreement, Marketing and Sales Agreement, Purchasing Agreement and so on. Remuneration of the agents or the foreign partner would take inter alia:-<sup>45</sup>

- (1) commission fees
- (2) a percentage of net sales or turn over
- (3) percentage of profits after taxes
- (4) a percentage of profits after taxes and depreciation,
- (5) fixed fees
- (6) tied up purchasing of machinery and equipment from the foreign partner's sources,
- (7) payment of travelling, board and lodging expenses,
- (8) royalty for patents and trade mark usage.

Such payment, is often wholly or partly in a named foreign currency and is in most instances grossly exaggerated to the expense of the local partner who must meet the bills and suffer the constraints imposed on its foreign exchange reserves or allocation.

In a country like Zambia, such terms are too common in contracts involving MNC and local companies. An illustrative case is that of the DEMAG Compressors - Resident Servicing Engineer (1977) Contract, RCM/NCCM/DEMAG. By this contract, DEMAG Industrial Equipment Limited (DEMAG) incorporated in London, was to supply to the two Zambian Mining Companies, Roan Consolidated Copper Mines Limited (RCM) and Nchanga Consolidated Copper Mines Limited (NCCM), a specialist engineering service pertaining to compressors and blowers and air-driven equipments owned by DEMAG and supplied by them from any of their International Sources. This agreement, was valid for 12 months upon among others the following considerations:-

The Mines Companies had to pay an initial flat rate of Deutschmark, DM88 per hour up to a total of 1,040 hours worked. 10% of this was to be

invoiced in Kwacha (K) at a fixed rate of K1=DM3. The remaining 90% was to be invoiced in Deutschmark. After the 1,040 hours, a flat rate of DM66 per hour was chargeable against the companies and this was all to be invoiced in Deutschmark. 1040 was the minimum hours guaranteed for the 12 months during the life of the agreement. Taking this minimum hours assured, the companies were obliged to pay a minimum sum of (1040 x 88) DM to the supporting engineer in foreign exchange. This is about DM 91,520. Other remunerations included K320 per calander month to cover the engineer transport costs, a sum of K250 payable on the first day of every month to cover his accommodation expenses and a further sum of K50 to be paid at the beginning of each month for hospital bills. A rough estimate, would indicate that this supporting engineer, who had merely to supervise duties of competent local engineers, would have cost the companies a minimum of DM 113,840 out of which about DM91,520 was to be paid in foreign exchange.<sup>46</sup> This, was during the period that both companies were not making profits.

Further malpractices of the MNCS, can be seen in the experiences of the two mining companies, which were born after partial nationalisation of the two giant copper holding companies-Roan Selection Trust Limited (RST) was partially nationalised in 1970, with 51% of the shares going to the Government and the Company was renamed RCM. RST obtained 10 year Sales and Management contracts. Similarly, Zambia Anglo American (ZAMANGLO) was taken over and renamed NCCM with similar terms. Both have since been turned over to the Mining Development Corporation Limited (MINDECO) a wholly owned subsidiary of Zambia Industrial and Mining Company Limited (ZIMCO) as far as the 51% of the Government shares are concerned. It has emerged from this arrangement that the parties to this partnership, are not of equal strength and bargaining might. This is true of such similar arrangements. The LDCS, lack entrepreneurial and technical skills necessary to efficiently run the ventures taken over from the MNCS. They continue to rely on the very MNC allegedly locked out or its kin.

In the instance at hand, Faber and Potter

point out that the partial nationalisation took place in the world context of shortage of skilled mining engineers. As a result, the Government's bargaining position was severely weakened by the inability to call upon alternative sources of technical knowledge.<sup>47</sup>

In general the monopoly of technology, the large size, huge financial resources, long term plan, military might and political leverage of the states in which they are incorporated, give the MNCS far greater bargaining power viz-a-vis the LDCS. They do not need control of ownership of finance capital in the host country as vividly stated by Beatty, the Vice President of Chase Manhattan Bank, "Most successful projects have been achieved without hard and fast requirements for certain rigid percentages of stock ownership. The important element is that there be a meeting of minds at the beginning as to who does what .... Under these circumstances a minority share holder can infact functionally not only manage but control the enterprise."<sup>48</sup> Shivji demonstrates by documentary evidence from spokesmen of the most powerful capitalist countries and MNCS that nationalisations in LDCS have been taken very calmly by these

capitalist powers, not withstanding their occasional hostile and hypocritical outburst.<sup>49</sup>

In fact, the MNCS, always gain financially from such participation. It also enables them to obtain more readily a nationalistic cloak, through Government or Public Corporation participation within the host countries. Some of the benefits ensuing to the MNCS are tariff protection, duty and tax concessions, priority in awards of government contracts, smooth outlet for the products of the partnership, government pressure in having necessary business requirements done in place and time, and even more important, political security against high wage demands and strikes. President Kaunda banned strikes and froze wages for mines when he partially nationalised the mines.<sup>50</sup>

P. Jalee commenting on the Moroccan case illustrates the point, "Foreign capital knows that the enterprise is viable only on the basis of foreign patents, foreign materials, foreign technical capital. Although in the majority, the indigenous capital is the prisoner of its foreign partner. Mixed investment is perhaps the worst form of neo-imperialist exploitation for it ties

up the indigenous capital and the host country and denationalises it."<sup>51</sup> Other evidence in hand suggests that the interest of the MNC is to cut down the 'pay back' period when nationalisation is announced. Baranson, investigated a joint-venture between Cummins Desel (a US firm) and Kirlo-skar (an Indian firm) and cited one of the major conflicts in a conflict ridden venture to have been on dividends. Cummins wanted an early return on capital invested while the Indian partner was primarily interested in growth.<sup>52</sup> Similar conflict was shown in nationalisation of copper mines in Zambia. Compensation was based on the book value of assets at the end of 1969 with repayment spread over 12 years in one case, and over 8 years in another case. In the event of sharp rise in price of copper, repayment was to be speeded up.<sup>53</sup> It is interesting to note that there was no provision for a slowing down in repayment of dividends in the event of a sharp fall in the price of copper. This agrees with Baranson because the companies were restrained by low copper price, but would have preferred a shorter pay back period.

Such are, therefore, blood sucking contracts on the part of the LDCS. This is contrary to what Banks would like us believe when he contends that, "On the basis of evidence that seems to be accumulating at an accelerating rate from every corner of the world, it becomes more and more difficult to avoid the conclusion that when the multinational firm climbs into the ring with a national government, any national government, it does so with the unhappy knowledge that when the battle is over it will almost certainly be designated the loser.

I am sure the Anaconda, Kennecott, Roan Selection, Union Miniere and very large number of oil companies will support me in this matter."<sup>54</sup> While there is a great urge to endorse this conclusion, it is very doubtful whether the result would be described as a victory to the LDCS. If at all it is to be called a victory, then it certainly must be a pyrrhic victory or perhaps a mock one, because it is only that type of victory, which leaves the vanquish better off than the victor.

In a situation obtaining in Zambia, where parastatals and public companies go into partnership

with private foreign capital, the drained surplus may take varied forms, besides profits and dividends, management and technical assistance fees, payment of royalties, over invoicing, unfavourable 'terms' of 'trade' between the Zambian subsidiary and its foreign parent based in the metropolis.

One of the mechanics for siphoning of capital is the MNCs manipulation of accounting procedures to ensure optimum benefits. Zulu, the Governor of Bank of Zambia lamented about this, "Before Mulungushi they minimised profits in order to pay less taxes. Now they maximise profits to get them out of the country".<sup>55</sup> This came about when President Kaunda declared that foreign companies could not repatriate profits in excess of 50% after the partial nationalisation of the copper industry. We shall explain further in the next chapter, that payment of technological expenses and overpricing of raw materials, machinery, equipment and spare parts supplied by MNCS at very high inflated rate, are some of the lucrative channels for capital exportation from the LDCS.

Besides the loss of fund to the MNCS, there are some serious economic implications this partnership has for the LDCS. MNCS Investment activities, usually do not take into account the LDCS aspirations to independent and integrated economic development as one of their business priorities. Their projects are determined almost exclusively by profit motivation, strongly defended, firmly and precisely executed by the management which is normally supplied by the foreign partner. The local representatives in the management, are either educationally and technically not able to counter argue the foreign agents, or being petty bourgeoisie cherish more the activities of the MNCS than the national interest of the host country.

We would pause a little here, to consider more the link between the petty bourgeoisie and the MNCS, because it is relevant both here and for later discussion: MNCS as commercial octopuses, are behind most educational institutions for the third world. These institutions, are geared towards producing culturally relevant manpower in order to consolidate economic dependency of these regions. The second linkage,

concerns the expansion of the market for western consumer goods to satisfy the demand pattern of the petty bourgeoisie thus, guaranteeing markets in the LDCS for such goods. This is a serious problem in Zambian market where the petty bourgeoisie, combine with expatriates to flood the market with imported goods.<sup>56</sup>

Infact, one of the tenets of the dependence School of development economists is that, some of the major problems with the pattern of growth now taking place in the LDCS, are created by alienated consumption patterns of their petty bourgeoisie.<sup>57</sup> This, does not only offend against moral judgment about ostentations and luxury consumption in very poor countries. It may also have demanding effects on health and physical welfare. For instance, the promotion campaigns of baby food manufacturers in LDCS, has affected poor and illiterate mothers in such a way that unknown thousands of babies, are being fed over diluted milk from unsterialised bottles. This, exposes the babies to disease and malnutrition.

The MNCS, in connivance with the local Lords, therefore, work out investment preferences of their own at the expense of the bulk of the

population. Additional or further investment in LDCS, may be taken to provide market for foreign partner's other products:- machinery, equipment or raw materials and not necessarily because such investment, would be useful to the LDCS economic aspirations; This alliance will show up again when we discuss what kind of technology is imported into LDCS.

At this point, we can claim that there exists cogent evidence that MNCS are deadly economic monsters, which constantly devour any effort the LDCS show towards their economic advance and independence. This conclusion, is not in line with Banks opinion, which holds that much of what is now offered as impartial research on the subject, is actually no more than resentment and distilled envy of academics and journalists, who take the privileges and imagine power of top managers of these companies, as a calculated insult to their own modest place in the scheme of things.<sup>58</sup> Banks, thinks that most of the literature on the MNCS, is not impartial but bias exploitation of the MNCS opponents. But these so called bias critics, do give some empirical evidence to indict the MNCS,

while he offers none to exonerate them or justify his counter criticisms. His argument, raises suspicion that he is on the pay roll of the MNCS and cannot bite or suffer to be bitten the hands that feed him. In fact, even a country relatively developed, experiences severe MNCS fever in her economy. Australia for instance, suffers 30% of her manufacturing industry and 62% of the mineral industry in foreign ownership.<sup>59</sup> This, means she too, feels the sharp blades of the MNCS business transactions.

We should keep those facts about MNCS fresh in mind when we discuss their role as patentees, transportees or transferees of patented and non-patented technology to LDCS.

#### PATENT AND INVESTMENT

We would now have to examine the extent to which it can be argued that patent protection offered to patentees win their co-operation and thereby influence their investment tendencies. This has always been advanced as a justification for the LDCS to grant patents protection to those who are in the position to reciprocate with investments relevant to the patented technology.

It is true there are various practical problems in the transfer of technology without direct co-operation with a private firm especially in industries using sophisticated technologies. The bulk of modern technology, can not be sold directly on its own even from one MNC to another. Certainly, not to an inexperienced LDC firm, because in industries using sophisticated technologies, the pertinent know-how, is most often not vested in a single person but in a group of persons. In these industries, effective transfer of technology, can only take place through a team of persons whose skills are complementary; who can work well together. It is very difficult for a development assistance agency, to recruit an entire such team at the same time and even if it is possible, such a team is handicapped by not being able to obtain technical advice from a parent company in a developed country. This situation, does dictate joint-venture with a foreign technology

supplier. To that extent, the patented technology may induce an investment through the joint-venture mechanism. The second aspect is true to some extent. Because, technology whether product design, production techniques or pure know-how, is a treasure protected and kept secret by patents or trade marks. They are parted with only for a price and a good price. That price, is the benefits of a patent monopoly.

However, to appreciate the role patent system plays in inducing investment from developed countries to LDCS, we must first examine the factors that underline foreign investment. Historically, foreign investment is tied up with Industrial Revolution engendering Industrial Development in Europe. The Industrial Development, brought about the overthrow of the feudal system and led to urgent need for markets for both industrial outputs and raw materials for the industries. This, brought about the opening of markets and Empires building outside Europe to strengthen the capitalist system, since production in a capitalist system is conditioned by the demand of the market.

There was also evolution of alliance among similar industries, to marshal a lot of resources and monopolise trade in a particular field. Monopolies, lead to economies of scales and this in turn, engenders surplus of finished products, which raises the problem of export of both capital and consumer goods to maximise profits.

Capital and commodity problems, necessitated acquisition of virgin markets or where similar products were available these were destroyed. Britain had to destroy the Indian textile industry, leaving her as supplier of raw cotton and consumer of imported finished cotton or textile goods produced in Britain.

Colonialism and empire building, was to secure the markets and defend them from other competitors as well as insuring internal peace in these markets. The capitalist, controlled the instruments of states in these areas, as a maximum security against interference with their markets.

The continued rapid industrial expansion, brought about a crisis of capital and consumer goods Overshooting the local markets of many European national states.

This crisis, could not be solved by internal planning and there was no option but to seek solution beyond the frontiers. The Berlin Conference of 1885, was an attempt to partition the markets in the third world, among the major European Industrial States. Unfortunately, this conference did not resolve the rivalry once<sup>4</sup> for all because among other things, some of the capitalist states, notably Britain and France, got very lucrative markets, especially in Africa and Asia than others like Germany. Japan, did not participate in the Berlin Conference and had no colonies yet. She, too, had the surplus crisis. This, led to her invasion and occupation of East Asia.

Continued capitalist growth and rivalry for markets, led to armed conflict, the First World War of 1914.

Even after the first world war, problems were not solved. Germany, lost most of her markets. Japan had inadequate markets. Italian<sup>4</sup> colonies were poor. Britain and France were very jealous of their colonies and did not allow

traders of other nations. The USA at that time, had a very large domestic market and did not mind about market outside, and in addition, she shared Latin America with some European states. In any case, most investments in USA, were British which could share markets in the British Colonies.

The struggle for redistribution of markets, led to yet another armed conflict and the outbreak of the Second World War in 1939. After the Second World War ended in 1945, most colonies were vigorously agitating for Independence. The USA, now emerged and supported anti-colonial struggle for a number of self-centred reasons:-

After the war, the USA became the strongest Capitalist nation because war never destroyed her economic system, on the contrary, her industries grew very favourably during the war to keep Europe fight the war.

However, she did not have colonies, therefore, no markets for the output capacity after the war. She, of necessity, lent support to a fight for self-determination for the colonies which was incorporated in Article 2 of the United Nations Charter for a number of considerations. The U.S.A., knew that she would get markets from

independent states as her industries were far superior after the war, than any other, and she would dominate and gain most from free world trade hence her policy of "open door trade". It is, therefore, no idle coincidence, that the U.S.A., is now more present in most new states than former colonial masters of these states.

We have seen, when discussing the MNCS activities, that modern investment, is more skillful and scientific, although it has not lost its basic historical pattern discussed above.

Most industrial countries now don't aim their guns from far, they now take their production nearer the market through the setting of MNCS all over the world. Capital investment, is located in areas determined by the desire to maximise profits from the input. Profit maximisation is, therefore, number one code transcending national ideology. It entails market strategy, securing and defending the markets against competitors and nationalist policies, even under very difficult conditions. This, is behind the colonial domination of the LDCS and the continued struggle of these

countries against economic exploitation. The biggest victims of foreign industrial nations, are the economically lucrative areas, like Southern Africa, Rhodesia, Mozambique, Angola, Zambia and Zaire. This, is evidence of the strength of market defence force. The intervention of Western Countries in Zaire, especially in 1978 under the pretext of protecting their nationals, was really a defence of their markets, because Zaire is a country endowed with vast natural resources, vital for the blood circulation of Western economies and there is already vast amount of Western Countries' Investment in that country. We now recount briefly the factors we have earlier put forward as reasons for investment:- As part of market strategy, most MNCS came to Zambia from Rhodesia after the latter's UDI and when the Political riddle created, put their market in Zambia at stake. They could not remain and operate from Rhodesia, and yet keep the Zambian market. Some business enterprises, extend their operation abroad to stake out market for obsolete machines and or spare parts; for cars or tractor assembly to mention but a few. Such

plants, are often integral part of parent industries and has no independent existence. This, also ensures maximum profits because more profits are realised from sale of various components of the assembly, than from operating the plants in the host countries. In fact, Italian Fiat Company, gets more from sales of spare parts to Livingstone Motor Assembly Plant in Zambia, than from the operation's sales.

Cheap labour, we have mentioned, is another factor raising the investor's profits return. There is abundance of cheap labour in LDCS. It is, as has often been said that unschooled girls in an LDC, can do just as well to assemble complex T.V. components, as High School graduates of a developed state; and yet the former demand very low wages. Other firms, may invest abroad to avoid increasing environmental regulation at home. Paper industry is an example of this kind of investor.

Participation in upstream profits is another weighty consideration to invest. Pan-American World Airways, a Travel and Tourism Industry, for example, set up the Inter-Continental Hotels

Corporation Ltd. to share in profits from tourist operations and management payments, especially in the Less Developed Countries.

At this point, the brief discussion of factors leading to a decision to invest, has not shown the role patent grants play in a foreign firm deciding whether or not to invest abroad. In fact, there is no evidence that patents lead to investment. This is contrary to List view, when he argues that, "the granting of patent privileges offers a price to inventive minds and that the hope of obtaining the price arouses the mental power and gives them a direction towards industrial improvement. Capitalists are thus incited to support the inventor by being assured of participation in the anticipated profits."<sup>60</sup> According to List, patent encourages inventor to invent and the capitalist to invest, as a result, the patent system, promotes industrial development through investment.

Various empirical researches have, however, drawn conclusions against the view that patents induce investment. Prof. Vernon, stated after a study conducted for the Committee of the judiciary of the U.S. Senate, that, ".... It would

seem..... that although investors and their patent attorneys may wish for better patent protection if it can be had, the nature of that protection is rarely a significant factor in the ultimate decision whether to invest."<sup>61</sup>

Bangs, makes the same finding and concludes, that a number of companies when asked whether industrial property consideration was a determining factor in their decision to engage in joint venture with foreign companies, replied that it was not.<sup>62</sup> Penrose, commenting on similar finding, stated that, the evidence does seem to support the proposition that, in by far the greater number of cases, the willingness of a country to grant patents on inventions already patented and worked abroad, is of no great importance one way or another, as inducement or obstacle to foreign investment.<sup>63</sup>

The extent to which patents are worked in the LDCS, would also provide evidence against patents being significant catalyst to investment in these countries. Five-sixth of patents currently in force in LDCS, are held by foreigners and are the products of research conducted out-

side the LDCS as Viatos put it, "When we talk about patents in developing countries we really mean foreign patent holding."<sup>64</sup> The same would appear evident from Table B below. At least 95% of patents in LDCS are never used in domestic production. This, means that there is no technological innovation and investment on the basis of these patents.<sup>65</sup>

In 1972 for instance, there were about 200,000 patent grants in LDCS. Only 16% of these were in the hands of the nationals and only 10,000 or under 1% was utilized. Most of these patents, are taken out so that goods produced elsewhere, but protected under the patent grant, can be imported. Instead of encouraging investment, patent is being used here to prevent productive exercises, and to reserve the market of the patent granting country for the benefit of the patent holder. This, demonstrates why in LDCS, there is such extremely low level of utilization of patents generally and of patents owned by foreigners in particular.

A study of Tanzania, placed utility of foreign held patents below 1% of patents grants.<sup>66</sup>

The situation in Zambia, is very much the same. Peru, registered 4872 patents between 1960 and 1970

TABLE B

U.N. Report on Patent of Foreign Origin versus Domestic Origin.

Selected Developed and Less Developed Countries  
1957 - 1961

Country	Foreign Patents as of % of total Patents granted	Ratio of domestic acceptance rate to foreign acceptance rate
<hr/>		
Developed Countries		
U.S.A.	15.7%	1.32
F.R. Germany	37.1	.80
Japan	34.0	.62
France	59.4	.97
Italy	62.8	1.08
Sweden	69.3	
Switzerland	64.8	1.01
Netherlands	78.9	1.01
LDCS		
India	89.4	.68
Ceylon	83.4	.82
Cuba	76.8	.48
Pakistan	95.7	na
U.A.R.	93.0	.16
Turkey	91.7	n.a.
Lebanon	77.1	n.a.
Trinidad & Tobago	94.1	n.a.

SOURCE: UN, the role of patents in the transfer of technology to developing countries, 94 - 5 Sales No.65 11.B.1 (1964).

but only 54 or less than 1.1% were exploited and only 10 or 0.3% of patents granted in Columbia in 1970 were exploited.<sup>67</sup> In Argentina, Chile and Mexico, utilization rate is estimated at between 5% and 10% and yet Latin America counts for over 66% of all patents held by LDCS.<sup>68</sup>

We ought to note that, even the technology which is transferred or transported to LDCS for production, only very low percentage of it is patented. Most of it is unpatented or unpatentable technical-know-how. Indeed, the Indian estimate, shows that patented technology, is no more than 5% of the foreign technology in India.<sup>69</sup>

It is also contended here, that there is no evidence to show that foreign investment in LDCS, would have been less than it is without the International patent system. On the contrary, it is now accepted as not an over generalisation that investments in LDCS, are dependent to the greatest extent on "Investment Climate" of political and economic considerations as had been mentioned. It is only when the two considerations do not impose serious non-business risks, will legal factors amongst which is the patent protection,

be of serious consequence. T.O. Elias, has the view when he concludes "ultimately the surest guarantee that a developing country could offer to the foreign private investor is clear evidence of its political stability and of its riches in resources both material and human."<sup>70</sup> In any case, a sound policy of encouraging investment, must be flexible and selective to the need and priority development of LDCS and not based on rigid, generalised system of far-reaching protection to foreign patentees. It is possible to argue for the patent system, that protection of patent, may contribute to creating the desired over-all "investment climate" and induce sale of unpatented technology and technical know-how. But, as pointed out, even this humble contribution, would be subject to political and economic weather being bright for investment. In other words, an investor would insist on patent protection, only after he has decided to commit his capital in order to maximise the profits from his investment. This is because the grant would then give him monopoly of the business from which he would reap monopolistic profits. As a system, however, patent monopoly has very insignificant,

if any inducement to invest in LDCS.

Investment is an issue over which both the investors and the investees, have no choice or option. Investors have excess capital and they must invest it to earn profits even under difficult conditions. The recipients too, regardless of their political independence and ideology, need capital for the development of their backward economies. They can't do without this. The only attempt is to get both investment and maintenance of some degree of independence and territorial integrity. Both sides, therefore, only try to secure better terms other than outright damnation of investment, or subjecting it to rigid patent legislation.

#### D. PATENT AND TECHNOLOGY TRANSFER

There are two modes by which technological progress could take place in LDCS. They are transfer from abroad and production locally. The second will remain insignificant for some time, though it is where a real hope of independent and meaningful vertical and horizontal development lies for the LDCS. It must, there

fore, receive all attention and encouragement necessary to stimulate its growth.<sup>71</sup> Until the indigenous technology is sufficiently developed, the LDCS must for a considerable stretch of the future, depend on imported technology which they must shop for and choose around the world. But the phrase 'shop for and choose appropriate technology' is in itself misleading, as it presupposes that there is a perfect market and equality between the MNCS and LDCS for such bargaining. On the contrary, the market for industrial technology is, fragmented, oligopolistic, highly technical and very complex.

The 'Seller' the MNCS, equipped with the knowledge, experience, expertise and know-how, are placed in a much better position to bargain for the price as well as the terms and conditions of the sale. While the 'buyers' the LDCS, have never united in the deal nor have they been adequately equipped with the finesse required for the transactions. It is typical of any imperfect market, that the price the LDCS have to pay for technology 'transfer', can be and is prescribed by the MNCS.<sup>72</sup>

The MNCS, use their superiority of bargaining, to protect and extract maximum profit for their technologies, whether product design, production techniques or pure know-how. Propelled by profit maximisation, the MNCS do not quite often agree with the LDCS, whose quest for imported technology, is engendered by an overall development strategy. The LDCS aspirations, are too nationalistic for the liking of the MNCS who, view them as threats to their world wide operation. They recommend the type of technology which will be most convenient to them in many respects.

But, technology to be imported by the LDCS, must put emphasis on industry which could utilize labour. It must, however, be pointed out that though in abundance, the bulk of this labour force has no education, no skill and can be a liability in combination with wrong technology. An intermediate technology, which would draw a line between autarky and lopsided specialisation, with due consideration for an optimum pattern of international division of labour, would be the

most appropriate; for among others the following reasons:-

1. It is easily absorbable and consequently effectively transferred to the recipient.
2. It is likely to strike a balance between labour and capital involvement in the enterprise, thereby create more jobs, a serious need in LDCS.

But, the MNCS, export in most cases technology which along together with its products, are inappropriate for the factor endowments, income levels and socio-economic structure of the host country. It could perhaps be argued, that once exported, such technology could be modified and adapted within the LDCS. Such argument, would first have to answer the big question as to who would carry out such adjustment. The MNCS are definitely not interested, while the LDCS have not the knowledge to carry out the modification.

One academician points out that, it is a myth that MNCS, once they become established in foreign country, transfer technology and know-

how. It is equally a myth, to think that they are ever eager to transfer the right kind of technology and know-how to ensure the development of LDCS. "The truth is that they are more concerned with protecting their secret processes and securing their monopoly portions above all else."<sup>73</sup>

It is illustrative to examine instances of export of inappropriate technology to LDCS.

A number of Tanzanian cases, tell the consequences of the improper choice of technology for a particular economy. Two textile mills in Tanzania, Mwanza Mill and Friendship Mill, have the same production capacity of 24 million square yards of cloth annually. The Chinese built the Friendship complex at a cost of £2.5 million and the Mill employs 3000 mostly local people trained by the Chinese. The Mwanza Mill, was built by a French Company at a cost of £4 million but employs only 1200 people and has so far registered losses, while the Chinese project recorded profits.

The semi-automatic bakery built by a Canadian fund, is another very high capital intensive venture. When the project was ready, 200 unskilled jobs were lost to a few skilled workers and expatriates.<sup>74</sup>

Next, is the case of the cashew-nut factory built by Italian firm Oltremare. The Tanz<sup>2</sup>anian Government, provided loan for purchasing the machinery. The report in Jenga makes a sad revelation about the machinery, and it states, "The machinery for cashew processing at Tanita is what may be called first generation machinery and it has taken the company time to adjust it in order to match it to the peculiar characteristic and shapes of the cashew-nut!"<sup>75</sup> The joint venture for rubber products in Malaysian firm,<sup>76</sup> further demonstrates the problem. In that case, the machinery and equipment were imported from country of origin of the parent MNC. Fees of various kinds - technical management, engineering, legal services, etc. were paid. Under 'tie-in clause', products were sold only to foreign partner. After a few years, the machinery and equipment broke down. Investigations revealed

that equipment was old, obsolete and had been written off by foreign partner. It was too late to do anything because the foreign partner share, had been sold to the Government. This, was no transfer of technology but a finding of market for scrap machinery in order to change to new machines in its parent company. Malaysia became a dumping ground for obsolete machinery and equipment.

Wells, in his study of 50 Industrial Plants in Indonesia, came out with astonishing revelation. He found out that often the technology selected in any one instance, was not the most appropriate to the prevailing economic aspects of the relevant productive process. There was apparent built in bias of foreign managers and engineers in favour of capital intensive and advanced technology. In most cases, the catalogue issued by European or US exporters of technology was still the prime source of technical assistance to LDCS in making 'choice' for the type of technology to be imported.<sup>77</sup> There is also the practice of the MNCS, of suppressing or burrying relevant technology, so that LDCS do not have it. The fear is that

simpler and more relevant technology if allowed to grow independently, and used by LDCS, will undermine and undercut the parent technology hence lead to loss of markets and profits. <sup>4</sup>In America for instance, a certain Owens invented a machine which revolutionised the manufacture of bottles. The German bottle manufacturing Cartel, purchased Owen's patent, but pigeon holed it and refrained from utilizing it. <sup>78</sup>

Quite often, it is stated that when the MNCS invest in countries, they carry out Research and Development (R and D) with a view to bringing about local innovations. This is very questionable. Recent survey interviews with 50 US and European companies involved in major industries of pharmaceuticals, chemicals and electrical goods in Latin America, revealed that those companies made almost no contribution to local research and development operations. <sup>79</sup> Others have even claimed worse practices, that the MNCS, often discourage their branches from applying technological resources to solve LDCS technological problems. "... thus US owned sugar firms in Pre-Revolutionary Cuba,

conducted little research into the problems of raising cane-yields and increasing the sucrose content of cane or mechanising the harvest. Again US Aluminium companies in Jamaica, spend nothing on iron separation techniques, even though Jamaican bauxite has a high iron content. On the other side, the same companies finance research into the problems of recovering aluminium from high alumina clays in the U.S."<sup>80</sup>

It is also doubtful, as to how much the LDCS would benefit from such R and D if it ever takes place. Lall, argues that the merits of patent system in the early days of industrialisation are amply established in history that it encourages innovations. But, he points out, that it is unrealistic to expect much innovations to emerge in LDCS from the present capitalist cobweb. The MNCS subsidiaries in LDCS, may carry out the R and D but pass the results and benefits to the parent MNCS. He also cautions that, if the LDCS were to give preferential treatment similar to infant industry concession or protection to their firms, they would run into trouble with international

capitalists as this would threaten their global monopoly.<sup>81</sup>

In fact, there is non-reciprocity in the exchange of research finding contained in contractual agreement with 'grant back' provision. The finding of R and D by MNC financed by LDCS through payment of fees, royalties etc. are not available to them. While it is obligatory for a subsidiary in LDC, to turn over or 'grant back' their findings on unilateral and frequently on unremunerated basis. A restrictive clause that should technical change emerge from the subsidiary operation, the property right over it will be held by the Head office and the subsidiary would pay royalties to the Head office for the use of the technology which itself developed, appeared in a Spanish contract.<sup>82</sup>

This kind of contractual obligations, allows modifications and adaptations of sophisticated technology, to revert to the parent MNCs who may decide to shelve them. It thus kills the incentives for the subsidiaries in LDCS or the LDCS themselves, from transferring sophisticated ideas into a more relevant and useful

technology to the kind of socio-economic structure obtaining in a particular host country.

It is conceded, that a lot of technology does come to LDCS from developed countries. But, it ought to be pointed out, that most of it is irrelevant to the development needs of the LDCS. The bulk of this technology, is merely 'transported' for use in the exploitation of natural resources and other economic advantages in LDCS by the MNCS. It is, therefore, not correct to say that such technology is transferred.

Indeed, very high and sophisticated technology exported by MNCS, would demand equally highly skilled manpower to set up the plants, run and maintain them and carry out all activities incidental thereto. The manpower to do this comes from outside the LDCS. At the early stages of LDCS development, this is inevitable and vital to orientate and run the enterprises in the LDCS and provide personnel training for local manpower. But, this reliance on expatriates, must be corrected immediately otherwise, that technology is not only irrelevant but becomes a liability to the LDCS economies. The

question is, the amount, the duration and the speed of the replacement of these foreign elements.

The present experience in LDCS, is that the extent of skilled imported is too minimal because the foreign partner, in control of management and through technical consultancy agreements, prefer to employ expatriates rather than train indigenous personnel. The number of expatriates employed, is often exaggerated beyond that necessary for the business.

There are various reasons which are suggested why the majority of foreign firms, do not want to train local personnel to take over the operation of the technology so transported to LDCS.

There is a built in bias in a number of developed nations, that nationals of the LDCS, are not capable of responsible positions in any modern establishments. This is, of course a colonial relic.

Perhaps a more sound reason could be the fear on the part of the MNCS, of losing effective control over the investment in LDCS and the fear of having their employees rendered

superfluous and forced out of the very lucrative management business. There is also a fear, that patented technology would leak through indigenisation. This is groundless because the LDCS, do not possess the knowledge to take advantage of and use such information even if it leaked. But, whatever the true reasons, there are, it is true that the MNCS, try as much as possible to resist training local manpower for their enterprises. Even where the host country makes it imperative by statutory provision, imposing financial penalty, on employer who employs foreigners by asking him to pay a certain percentage of foreign employees salary as levy,<sup>83</sup> the MNCS have flouted such provision.

In fact, even where locals are employed, they are made to work machines like robot without understanding how they operate and most local employees are given the pure managerial seats, while the technical and operational areas are filled and refilled by expatriate staff.

A case often cited in this connection is that of Kilimanjaro Hotel in Dar-es-Salaam. Hallmarks Limited, had undertaken to train

Tanzanians to take over management of the hotel. As events transpired, however, it was learnt that after several years of 'training' Tanzanians, that even the head waiter was still an expatriate.<sup>84</sup> There is also a general public outcry that the effort of Zambianisation of most jobs in the country, is being frustrated by expatriates in managerial and training of personnel positions. In 50 years of mining in Zambia, for instance, the NCCM and the RCM, have so far elevated only three Zambians to the position of underground manager.<sup>85</sup> The position is very much the same in other industries. The alleged transfer of technology from developed countries to LDCS, is supposed to occur as part of and through foreign investment. Patents are supposed to promote the transfer of such technology from abroad and to provide local R & D and technical know-how. We failed to find a justification that patent plays significant role in inducing foreign investment into LDCS. In any case, it has been demonstrated elsewhere, that most patents protected in LDCS are not worked, therefore, they can not lead to transfer of

technology.' Even where a patent is worked by a local entrepreneur under a licence, the possibility of effective technology transfer to LDCS, will depend on the relationship between the licensor and the licensee. That relationship, we have seen, is not very conducive to such arrangement. We have, therefore, no reason to conclude here, that opportunity for MNCS obtaining LDCS patent does influence the course of technological progress in LDCS.

There are thus difficulties in finding cogent justifications for patents in LDCS. Numerous reasons could be suggested why patents are found in LDCS:- There are subtle pressures from Developed countries and MNCS, to protect their interests as stated by the Chairman of the International Chamber of Commerce. He called in countries not yet parties to Paris Convention, to adhere to it and to give by their law, effective protection to inventors and patentee in order to secure normal development of industry and trade on world basis.<sup>86</sup>

But, the Chairman, did not explain what he meant by normal growth or which standard he applied and for whose benefits this growth has

to be realised. Certainly, one has ample reason to believe in non-equality and inequitable distribution of such growth. The essential elements of inequalities in the present world economy, have been gone over by many stethoscopes and the doctors are comparatively in close agreement. The statement of the chairman, could only come from a patent bar which has acquired vested interest in chaos in a World where freedom of monopoly runs riot.

Another reason could be pure pride of being modern as Habachy remarked, 'The nations of the Middle East are beginning to take pride in keeping up with the Joneses and in not being out-distanced by the more advanced nations.'<sup>87</sup> Yet another reason could be that most LDCS have been concerned with more urgent problems of nationhood, and had no time to go through the list of inherited colonial laws to evaluate them and make decisions. This is a weighty reason, looking at some of the infamous colonial laws, still in force in most newly independent states.

It is also possible that most LDCS, are not really sure whether or not patent system benefits them due to lack of clear information as to the advantages and disadvantages of the system vis-a-vis the race for industrialisation and economic progress. They thus want to play a game of wait and see.

But, whatever justifications there are for the LDCS to have patent laws, linking them to international patent system, the effects on them are exacting as we shall see in the next chapter.

CHAPTER 3

ECONOMIC IMPLICATIONS OF PATENT MONOPOLY  
TO LDCS.

It has been argued that patents could be used as economic policy instruments to strengthen national technological capabilities and promote the transfer of technology under fair and reasonable terms. But the economic value of patent system to LDCS has often been questioned albeit with no clarity in most of the thesis. Even a known academician like Edith Penrose, shows ambiguity on the issue. In the economics of the International Patent system 1951 she claims at page 136 that the present International Convention goes along way toward preventing, "the exploitation of the weaker Industrial Countries by the stronger". At page 233, however, she asserts that foreign patents tend more to restrict than to advance the industrial techniques of non industrial countries so they should be exempt from any international arrangement.

Patents should be viewed in terms of public interest, not only in the theoretical sense, but also in the practical judgment of what are likely to be the consequences of specific legal provisions for the national economy and its future development. In this connection an attempt to appraise the value of patents in LDCS is a difficult task..

However, to properly assess the economic value of any public policy, one must compare its social costs and social benefits to see if the benefits outweigh the costs<sup>1</sup>. Consequently the approach adopted here would be a cost/benefit analysis, leading us to a balanced sheet from which we can draw a conclusion as to whether or not the patent system benefits the LDCS. Alleged benefits of patent system include the argument that more invention and innovation is desirable and sooner than would occur in the absence of special inducement<sup>2</sup>, and that the grant of patent monopoly for a fixed period is the best method and form of rendering such special inducement.<sup>3</sup>

However, we have so far not seen any relationship between the amount of inducement and

the increase in invention turnover. We have also come across the suggestion that patent brings directly foreign technology which serves LDCS economic interests. But not much merit has been found in this theory either. It has also been argued that protected sales in LDCS may encourage development of new products and help import industries to take shape. Tied to this argument is the assertion that patent brings about new production methods which would reduce costs of production. This is argued to mean cheaper import for LDCS in the case where goods are produced outside the LDCS. Cheap import price would improve the overall trade term of the LDCS. But the contrary will be demonstrated to be true. From our previous discussion and the discussion to follow in the following pages, it is possible and justifiable to conclude that the benefits of patent system to LDCS are highly suspect and not capable of practical demonstration.

We shall now examine the costs side of the scale. We would however try to avoid presenting a laundry list in an analytical void.

Consequently we shall examine the most telling costs if only to illustrate the truth. Under the cost we would include what are referred to as abuses of the patent system.

Machlup states that "In general one speaks of an abuse of the patent monopoly when the social objectives which it is supposed to serve are not promoted but rather jeopardized by the way it is used. This would be most possibly asserted when the temporal functional or material limits of the monopoly intended by the patent grant are over stepped and the actually achieved monopolistic control is extended in time, in scope, or in strength"<sup>4</sup>.

Machlup discusses jeopardy-through wrong use. We will discuss the same but first we examine the abuse of non-use. The principal determinant of the social value of an invention is the extent to which it is useful and used. It is through practical implementation or industrial utilization of an invention that the society gets consideration for the reward it confers on the inventor. A committee report recognised that the basic aim of a patent system and indeed its effect

is to encourage the successful industrial application of inventions.<sup>5</sup> But it has been demonstrated elsewhere in this dissertation that a very small percentage of patents granted in LDCS is utilized. Non-use of the patent means the absence of production within the country or failing to meet demand to an adequate extent or on reasonable terms by production within the host country. Importation and distribution of the patented product or process, Nevertheless may take place; effected either by the patentee himself or by a licensed distributor. There are a number of reasons suggested why registered patents may not be used.<sup>6</sup>

First it could be suggested that the power conferred by patent grant includes the prerogative to withhold exploitation especially when the exploitation of a particular invention would entail the scraping of an existing investment which would bring loss to the firm, the patentee and proprietor of such an investment.

A patent may also not be worked because it is of insufficient economic exploitation or it may be of potential economic value but due to inadequate level of economic and technological

development of the patent granting country, it couldn't be worked. Lall tries to minimise the cost of non-use to LDCS. He says that it is only likely to raise an eye brow when local production is proved to be beneficial on economic grounds, but is actually being prevented by the patent holder either for another MNC or a local firm. If, however, local production is not beneficial and non-use is not standing on a potential producer way, the cost of non-use may be very small.<sup>7</sup> These arguments lack objective merits. The patented goods or processes are assumed to have economic relevance and value to LDCS. This ought to be the consideration for granting patent, otherwise why would an LDC confer a patent monopoly for an invention which is non-economic as far as her stage of development is concerned.

Another reason why an invention may not be worked is that inventors can not be expected to work their inventions in many countries. There would seem to be good reasons to follow. If a patentee works his invention in one of the

Union Countries it might be cheaper for consumer elsewhere to pay less by importing the articles. In any case production in every country where there is a patent may not be viable due to the limitations arising from the size of the market; but it would lead to diseconomies of scale. Moreover the idea of production in selected areas could be justifiably based on high degree of economic and trade liberalism, full employment of resources on comparative advantages based on international division of labour. In other words an LDC may not conceive it economical to set up a manufacturing industry within its territory.

It may, however, wish to take advantage of the International division of labour and import its requirements of the patented product from abroad. These are sound economic arguments but when looked at objectively and critically viz-a-vis the International position of the LDCS we find a number of reasons why they should be rejected.

First, if the LDCS are going to import the patented goods then why should they find it necessary to grant patent monopoly in the first instance. Is it possible to say that a patent

grant would be a pre-condition to importation of such goods? The answer must be negative otherwise it would be a contradiction.

Second, as we shall soon see import of patented goods can hardly be called an advantage to LDCS because such product is often very expensive as a result of over-pricing and other practices of the manufacturers. In any case free trade and comparative advantage must entail the notion of equal partners. Leaving legal or political equality a part, we can not even suggest that highly industrialised nations would be considered partners, let alone equality of partnership with the LDCS in so far as International trade is concerned.

Third, whatever and however sound economic values are advanced, they must be compromised with the need of the LDCS to avoid their industrialisation and developmental effort being stifled by the importation of patented products. This means that when an LDC decides to make a patent grant it ought to use a set of cost and benefit calculations different from the private profit-cost calculations of the foreign patentee. Such

calculations are likely to lead to the conclusion that it would be desirable to have the patent worked in the country other than import its product.

The economies of scale would enhance the monopolistic power and increase the profits of the MNCS. This would mean a different story for the LDCS. They would benefit less as a few of their nationals get patent protection abroad while they pay more for granting protection to foreign export industries.

One writer has commented on this issue and stated, "No doubt the imported product might be cheaper, but even if the cost of the article manufactured in the country might be considerably higher it might in the long run prove an advantage to the national economy".<sup>8</sup> Ayyangar continues to argue that such calculations should take into account possible gains such as the saving of foreign exchange, the absorption of surplus labour, the utilization of the country's Scientific and technical talent, the utilisation of indigenous material, the increase in technical knowledge, the utilisation of by products, and greater security particularly in emergencies, and economic independence. He concludes that if the problem were viewed as one of balancing gains and losses to the

economy of each nation, it would not need much argument to show that the costs to a LDC far exceed any possible gains from non-working of patent in the country.

There is thus a need for the LDCS to insist on patentees to work their patents in the host country. This is particularly so when the establishment of the industry making the patented product or using the patented process is an explicit part of the development plan of the LDCS.

Perhaps the most weighty argument behind the non-use of a patent in LDCS is that such patents are taken out so that goods produced elsewhere but protected under the patent grant can be imported. In other words they are used to secure markets for the patentees and not for economic benefits of the LDCS.

Even the the small percentage of the patents in use in LDCS imposes substantial costs through transfer pricing, restrictive clauses in licensing agreements and many other malpractices. Most of these are indirect costs not borne by the inventor but his monopoly device imposes on society.<sup>9</sup> Greer discusses many of those monopoly costs to the society.<sup>10</sup>

There is a great cost of administering the large subsidy, patent office personnel, patent solicitors, lawyers, judges, secretaries, clerks and buildings where they work. Zambia for instance runs a full time patent office with a number of salaried employees. The various fees collected are not sufficient to meet the expenses.<sup>11</sup> In this sense, Zambia and other LDCS are subsidizing an administrative service operated almost entirely for the benefit of foreign corporations. To justify the subsidy would require that the patents yielded sufficient benefits to the economies of the LDCS.<sup>12</sup> This is unfortunately not the case. There are also costs of figuring out whether one has patentable invention and cost of avoiding infringement on other patents.

We have the opportunity cost of other social activities and utilities, medical, education etc not achieved because of resource diversion caused by patent monopoly attracting more research fund and attention than is necessary. This leads to greater amount of equipment being discarded and large labour displacement as a result of more rapid obsolescence of existing processes.

The monopoly over the invention decreases the incentives of innovators other than the initial patentee to engage in further research within the field covered by the monopoly. Any improvement discovered will be subservient to the initial patent and useless in the hands of anyone but the initial patent holder; and in dealing with initial patentee, the subsequent holder occupies weak bargaining position since he faces a monopsonistic buyer<sup>13</sup>. We ought to note that this power is in the hand of not individuals or small firms but MNCs whose enormous powers have already been noted. The fact is that most serious monopolistic consequences of patents arise not so much from the possession of individual patents by individual innovating Companies as from the concentration of control over numerous overlapping patents or the combination of patents with pre-existing monopoly. This practice is based on piling patents which are not the exclusive effort of the companies concerned. It has thus been observed that, "though the patent system today still serves the basic purpose of stimulating individual inventiveness, it tends

to funnel the major benefits of the monopolistic privileges it creates into the hands of large corporations which find those grants useful as an adjunct and aid in restraining competition.<sup>14</sup>

The MNCS have realised the fact that the power derived from a number of patents is greater than the sum of the powers conferred by each individual patent. These MNCS therefore amass large number of patents which wield enormous powers for them. These powers are then used for strategic reasons to enhance their position, stifle competition and control markets.

In LDCS a few MNCS hold up to 90% of patents with significant industrial application<sup>15</sup> some of these patents are acquired in order to bury them so that others don't come to use them. This practice can be made absolutely prohibitive when accompanied by the practice of fencing-in. This is a practice where a MNC beside patenting a process or product to be exploited also tries to patent as many alternatives or combinations as they can possibly work out with the result of blocking competitors from inventing around.<sup>16</sup> It would then threaten smaller competitors with

infringement suits which may not be well founded. For fear of financial and business repercussions of an expensive and uncertain litigation the smaller firms or LDCS do take a licence under the terms dictated by the MNC. " big corporation, working from a base comprising as many as 10,000 patents can usually .... find a basis upon which to persue any competitor."<sup>17</sup> Indeed more time, money and energy have gone into this kind of war fare than ever went into the original technological development. This reign of terror is against the alleged infringer as well as his customers who are treated as contributory infringers.

Dr. Baekeland summed up, the effect of patent litigation on a 'poor' inventor, "Woe indeed to the poor inventor who tries to enforce his rights against wealthy infringers aided by skillful lawyers, his well engraved US patent parchment may then become his certificate of entrance to the poor house or to the lunatic asylum. All this tends to discourage invention by independent individuals and paralyse the

stimulation of invention our constitution intended to promote by the patent law."<sup>18</sup> This is a serious disincentive to any inventive and innovative venture in LDCS.

Similar device to fencing-in is fencing off. This is a practice where a very resourceful and powerful MNC limits the usefulness of an invention by a smaller firm or LDC by patenting all possible combinations which can make such invention practicable. The weak economic structure of LDCS makes them vulnerable to pressure from various interests and makes it difficult for them to assert their rights.

The radio industry offers an example of the impossibility of a new entrant in a field fenced off or fenced-in. Although most of the basic patents expired a long while back yet no modern radio set or transmitter can be put together without the risk of a suit under thousands of patents held by grants of the Industry viz: A.T and T., General Electric, Hazeltine Corporation, R.C.A. and Westinghouse.<sup>19</sup> According to a Government complaint the International Business

Machines (IBM) has also "systematically acquired developments, inventions and patents made or owned by others relating in any way to tabulating machines."<sup>20</sup> No new comer can therefore break into this business.

To increase their influence, the MNCS form Patent Pooling Agreements. The parties to such agreement pool together their patents by extending licences to other members. A typical example of patent pooling is that of Copper patents in then Northern Rhodesia (Zambia).<sup>21</sup> A frequent clause in such an agreement concerns the limitation on the use of patent held by outsiders; thus hindering outsiders from:- increasing their patent holding and enhancing their bargaining power in order to challenge the pool. The members of the Pooling Agreement may contract to include all their future inventions in the exclusive cross-licensing within the group. At one time for instance, Hartford Empire Company, with patents covering a full line of mass production machinery combined with six of the biggest U.S. glass containers producers and glass machinery makers to hold 96% of industry firmly.

Its licences specified how many and what kind of glass containers a Company could make. One Company was to make a fixed number of glasses and for distribution to specified states, and one was to make only blue pharmaceutical bottles.<sup>22</sup> By using such agreements as shield MNCS can restrict the inventors choice by offering him only one buyer for his invention. This is a a very weighty consideration especially when it is noted that most inventions are not exploited by patentees because invention is now a very small portion of the actual cost of innovation. An individual or a small research unit in LDC there fore will have to grant his patent right to MNC or license it with the purpose of carrying out innovation. This practice increases the number of patents held by MNCS and does not help the small firms or individual inventor and patentee but seriously hinders the flow and exploitation of technological knowledge, especially through the operation of patent cartelisation.

We shall briefly examine International patent cartels and their effects on LDCS economies. Many authors prefer their own definition of

cartelisation but the definition adopted is that of R. Whittlesey," A cartel is an association of independent enterprises in the same or similar line of business which exists for the purpose of exercising some sort of control over competition.<sup>23</sup> The main feature of industrial cartels were the reservation of home markets and the division of markets in other countries.<sup>24</sup>

International Cartels based on patent agreements are either patent pools which we have seen, or licensing agreements. The essential difference between patent Cartels and other industrial cartels is that traditional cartel agreement seeks directly to eliminate or reduce competition in vendible commodities. Technical agreement seeks the same result indirectly by reducing on agreed system of control the requisite technical information embodied in production or design.<sup>25</sup> But here emphasis will be laid on aspects of International patent Cartels that relate directly to the exchange of patents and other technological knowledge. The reason for choosing the exchange of patent rights as the legal basis for an International cartel is that in this way,

arrangements under the cartel are easily enforceable. This is because the property rights obtained in various countries can be enforced And unlike other agreements cartel arrangements have not been successfully challenged by anti trust legislation. This is why it is thought that about 90% of all Cartel agreements between the US firms and foreigners are in the form of patent cartels.<sup>26</sup>

There are a number of major effects International patent cartels have on the LDCS. They restrict trade, investment in new Industries, limit the spread of technology and restrict the development of new or future technology.<sup>27</sup> The restriction on International trade considered here is that which reveals itself in the limitation on competition actual or potential.

When the dominating competitors (the MNCS) form themselves patent wise into a United front against outsiders the public interests of the outsiders suffer seriously<sup>28</sup> LDCS get parcelled up amongst the cartel members and they have no option but to submit to the control of the cartel members assigned to them. Terrill estimates that only 10-15% of all technical agreements

between the U.S.A. and foreign nations do not contain market sharing provisions<sup>29</sup>. It can be argued that such is the situation with other International patent cartel arrangements.

Cartel arrangement increases the power in the hands of patent monopolists. They can restrict investments in that they may disapprove what they consider 'unwise' investment. This is normally decided in light of previous investments. It means that if LDC was to want to open a business enterprise which would 'injure' the established interest of cartel members assigned to its market, such would be unwise investment and would not be recommended or supported by the cartel members.

The basic effect of policies on a patent cartel on the spread of technology is that the total technology of the members of the cartel is kept for the exclusive benefit of the cartel. A cartel member can not by contractual obligation sub-licence to third parties which are completely and effectively locked out from acquiring any technology. This is ironical because a patent system is said to be a mechanism for the transfer of technology. The practice is especially serious for most LDCS which are not

part of any cartelised industry. It is obvious that this exclusive and secret sharing of technology is contrary to the objective underlying patent law and the system of international patent protection; allegedly of particular benefit to the LDCS as a vehicle for bringing to them technology. The arrangement forecloses even future hope of LDCS acquiring technology. This is because the terms of Cartel do not often limit the use and application of existing technology, but agree to the exclusive use by cartel members of their future research result. This would have the effect of extending limited monopoly grant under patent system which could result in perpetual and effective exclusion of LDCS from ever building indigenous technology or acquiring foreign technology on favourable terms.

Having marshalled all important patents and secured continued monopoly of future research results the MNCS inflict a lot of costs on their technology clients; through various restrictive licensing.

#### Market Cartelization

The creation and development of the World market as a sphere of commodity exchange is

indissolubly linked up to the process of development of capitalist commodity production and International division of labour. The Commodities of the LDCS form part of the total international commodity circulation while markets of various countries become components of the global market. Thus external market must play a major role in the process of economic industrialization of the LDCS for a number of reasons.

There is a close interrelationship between the rates and level of industrialization and the size of market. The larger the market the larger is the size of plants or combination of plants; and therefore the lower the costs of production bringing about the benefits of economies of Scale. Due to the narrowness of domestic market in LDCS only expansion of foreign market can help. Expansion of foreign market of manufactures leads to increase demand of local products which will enlarge domestic market through increased incomes and employment, generated in the export sector. Increase exchange earnings through exports of manufactures can finance purchase of more advanced machinery and equipment for industrialization.

Therefore as many LDCS have moved from import substitution to export promotion policies, attention is being focussed on clauses restricting the scale or area of exports in patent licences. The Andean Pact Studies showed that export restrictions are serious in Latin America. Out of a total number of 247 contracts in Bolivia, Colombia, Ecuador and Peru, 200 had a total prohibition on exports and a further 12 permitted exports only to certain areas while only 35 allowed free exports of out put<sup>30</sup>. The position is the same in most LDCS where the majority of know-how agreements for export production are tied up with export restrictions either general or to specified areas. This can be done by specific and direct agreements not to compete in areas where parent country or another subsidiary is operating.<sup>31</sup> The following examples found in licensing and agency agreements are indicative of the arrangement.

'The Distributor shall not directly or indirectly sell the manufacturer's ..... and .... parts to buyers outside his territory'.<sup>32</sup>

In another contract the following provision appears, 'The licenses herein granted are for the countries of ..... only; and specifically exclude

any right to manufacture, assemble, distribute or sell in or export to any other country'.<sup>33</sup>

Market restrictions are used along side other restrictions. Where direct licences to produce under a patent can not specify the strictest restrictions viz production quotas, price fixing, field of use and others, the MNCS take elaborate care to license only 'responsible' (i.e. long established) manufacturers who have common interests with them. "We have to rely on our verbal assurances", writes a representative of Rohm and Hass Co. Inc; "and our experience with DuPont during the last fifteen years has proven that they can be relied upon to live up to arrangement of this kind."<sup>34</sup>

Rohm and Hass denied the implication of the document before the Committee of anti-business restrictions arguing that such a statement was torn from its context and economic back ground. But no one could be left in doubt as to what the passage implied, a sinister restrictive business licensing.

Wendell Berge has pointed out that using patents as an excuse, monopolists have sought to determine who shall be given permission to manufacture to buy, and sell. They have determined what prices should be fixed and in what markets sales

may be made. He goes on to argue that in illegally wielding their patent power such groups have completely squelched free enterprise. "Such control is regimentation and bureaucracy in an extreme and vicious form..... the independent businessman who falls victim to this system of control is without recourse".<sup>35</sup> We can fit the LDCS into the description of Mr. Berge's individual businessman and stress that they too have no effective redress against the various patent abuses'. Fox however, argues very strongly against this view. He says that the loudest opponents of the patent system are usually those who are not only completely unfamiliar with the internal operations of modern competitive Industry, but are unsympathetic to the entire system of private enterprise.<sup>36</sup> Fox argues that abuses of patent system are either non-existent or in most cases exaggerated, and those which do occur can be adequately remedied by legal provisions such as compulsory licensing: The abuses are very rare, ".... In other words in twenty seven years, it was found that the exclusive rights granted under patents had been abused in four cases or at the rate of one case

of abuse every seven years. That appears to me to be a fairly reasonable vindication of the patent system and a complete answer to the charges and innuendos of abuse of monopoly being so freely brandied about these days."<sup>37</sup>

Fox bases his vindication on evidence of how much abuse has come to court. This is a simplification of the issue. The complex legal, corporate and technical setting with which cartel agreements for instance are surrounded and the extent to which monopolistic excrescences may develop from such technical agreement can be too intricate for the naked eyes of the lawyers especially of those in the LDCS. Such agreement is like a closed shop in that only members participate in the latest and most complete arrangement.

It is like a closed union in that other companies can not join without prior permission. This makes it difficult for others to study the malpractices with a view of legal action to correct them. In any case we have seen how high and discouraging the costs of litigations could be. For these and many other reasons many serious abuses may never come to court. It is thus misleading to ground vindication of patent abuses on how many such abuses appear in Courts.

The Titanium Pigments case<sup>38</sup> was apparently not looked at by Fox. The case involved American, British, Canadian German, Norwegian, Japanese, French, Italian and Czechoslovakian concerns. In the instance two dominant companies in an industry used patents as a barrier which would-be competitors could not overcome. Neither one challenged the patents of the other and the result apparently was a large number of invalid patents. Contrary to what Fox advocates such economic power discourages independent inventors and prevent the general use of inventions. There is restraint on competition. There is economic dominance rather than opportunity.

For the purpose of remedying the restrictions imposed on domestic and International trade, the court decreed the cancellation of the restrictive agreements and arrangements. It also ordered the opening of the defendants existing patents or patents applied for or obtained within five years to non-exclusive licensing on a reasonable royalty basis. A provision was also made that if an applicant for such licenses also had titanium patents,

he must give a reciprocal licence to the defendant companies. While the defendants were also required to disclose to the licensee for a period of 3 years, all know-how used in connection with the patents in question.<sup>39</sup> It is submitted here that such cases which are undetected or looked at with 'I can't help it' attitude are the order of giant corporations practices secured by the arsenals of patent monopoly. Yet Fox would insist and firmly argue "... the obvious answer is that serious abuse of monopoly or of patents does not exist except in the nebular and clouded imagination of the ivory tower...."<sup>40</sup> Mackeigan ) commenting on Fox's thesis disagrees with it. He sees serious abuses of patent monopoly.<sup>41</sup> In this work we endorse his view in preference to the dogmatic approach of Fox. There are others too who share the same view. Black J. in Hartford-Empire,<sup>42</sup> exhibits disgust of patent abuses." The history of this country has perhaps never witnessed a more completely successful tyranny over any field of industry than that accomplished by these appellants. They planned their monopolistic programme on the basis of getting and using patents which they dedicated to the

destruction of free competition in the glass container industry." Commenting on the same case judge Evans throws away judicial polity and stings, 'The Stench arising from the glass cases ..... would drive a starving bear from the garbage barrel".<sup>43</sup>

These are experiences and greviances in the developed countries. When the LDCS are brought into the picture, we find that a foreign patentee for several reasons will have very strong position in negotiating licence conditions. His knowledge of the necessary non-patented technology, his management know-how, his access to necessary components, captital or markets and the possession of protected brand name give him such advantage even where he might be threatened with compulsory licence. It must be realised too, that the royalty paid<sup>44</sup> will be only one dimension and possibly a very small one of the total bargain in which the foreign patentee might be involved. In Poland for instance the purchase of a license leads to import 6 to 8 times the original out lay on the licence.<sup>45</sup> When this happens

the licensor using the proceeds of the licence embarks on new project thus widening the gap between importer and exporter of technology and increases heavy technological dependence.

MNCS patent monopoly on the one hand and technological dependence of the LDCS on the other, leads the latter to suffer serious monopolistic evils. The cartel behaviour resting on tacit Collusion or the mutual eschewal of competition characteristic of oligopoly, enables the patentee to have profits in excess of the worth of the patent.

The most notorious of patent license restraints is that which leads to price manipulation and over pricing of many goods bought and consumed by LDCS. This can be done in a number of ways. It can be achieved by output limitations. In other words the license will specify the quantity of a particular goods to be produced under the licence. This is harmful in that it virtually eliminates price competition, quality and other forms of competition among the patentee and his licensees.

A field of use restriction is another device in the hands of a patent monopolist. He

wants to preserve the monopoly of his invention in order to extract maximum value of the patent in each of its various applications. He thus restricts the field to which a particular licensee may put his invention to use. He issues out to other licensees different fields in which the invention may be exploited at later date when more information is available. Different royalties are then charged for these various licences. This enables a patentee who himself exploits the invention to protect the field of use he puts his invention to by setting prohibitively high royalties for such use.<sup>46</sup> This practice can and has been used to effect a cartel-like division of markets where patentees parcel out product monopolies by giving series of exclusive or highly limited number of licences in each particular field of use.

The tremendous increase in the price of imports due to the fact that the products or processes are patent protected is clearly the cost of granting patents to foreigners. Products and processes covered by the patents give exclusive

permits for foreign producers and deprive the country of alternative and in most cases cheaper prices.

An empirical investigation conducted by Vaitos shows that the prices of patented pharmaceutical products imported into Columbia in 1968 were extremely high compared to the prices of the same products offered by sellers who were not restraint by patents. He states that similar over pricing existed in Chile and Peru. Giving figures to illustrate his investigation in Colombia he showed over pricing figures ranging from 74% to 5647%.<sup>47</sup> A summary of recent UNCTAD studies goes a long way to demonstrate effectively the extent of over pricing under patent monopoly.

√ In the Colombian pharmaceutical industry a sample taken indicated that the weighted average overpricing of products imported by foreign-owned subsidiaries amounted to 155% while that of national firms was 19%..... smaller samples taken in the same industry in Chile indicated an over pricing of imported products in excess of

500% while for the majority of them the range was between 30% - 500%. Similarly in Peru samples in the same industry presented over pricing that in most cases ranged between 20 and 300%. While in the case of some products over pricing exceeded 300%. In all 3 countries the over pricing noted in the imports of foreign-owned firms..... was considerably higher than that of nationally owned firms. Earlier studies undertaken only in Colombia showed a weighted average of 40% over pricing in the imports by foreign-owned subsidiaries in the rubber industry and zero over pricing for nationally-owned firms. Also smaller samples in the Colombian chemical Industry indicated weighted average over pricing that ranged between 20% and 25%<sup>7.48</sup>.

The level of over-charging by Swiss Pharmaceutical Co. of Hoffman-La Roche in its sales to the British national Health Service of the druggs librium and valium illustrates what can happen to a developed country. The LDC with weaker technological information and economic base is likely to be even more vulnerable.

The British monopolies Commission made enquiries and found out that Roche Products a British Subsidiary of the World's leading Drug Company Hoffman-La Roche A.G. of Basel was paying the parent Company \$925 per kilo gram for one substance that could be bought in Italy (where these products are not under patent protection) for \$22.50 per kilo gram, and \$2,305 per kilo gram for another substance which could be bought in Italy for \$50 per kilo gram.

The over charging amounted to 41 times the cost of alternative supply in the former instance, and 46 times in the latter. The British Government acting on the advice of these monopolies Commission ordered Roche Products to cut its selling prices for the tranquilizers by 60% to 75% and to refund \$27.5 million for over charging.<sup>49</sup>

In Zambia due to strict secrecy in business deals amongst the MNCS, there is yet no empirical evidence on the extent of over charging. However, the clear and conclusive evidence obtaining in other countries would show no reason to conclude that Zambia is not affected adversely. In fact all circumstances would point that she is a more

ready victim. The study of Simwinga<sup>50</sup> would seem to point strongly to the existence of over charging in Zambia.

In Tanzania for instance there is a widespread belief that the country was being over charged. This led to the employment of a Swiss Company to work with the Central Bank and Customs in monitoring prices paid for imports. In the case of Kenya it has been estimated that 1% rate of over pricing of inputs would lead to an increase of 105% in profits and 10% increase in in put prices would raise profits by 288%<sup>51</sup>. Logically a percentage increase in the price of final goods will have a greater effect on profits than the same percentage increase on any in put. Most of these increases were effected on patented products.

#### Foreign Exchange Remittances

The cost of technology as we have seen can't be limited to royalties. It must include payment for over priced equipment, and machinery, remittances of expatriates personnel, repatriation of profits, amortization and interest payment abroad, management charges and many others (all of

which could be quoted at the whim and fancy of the MNC supplying the technology. Most of these items would have been included in the contract through tie-in-clause. The practice of using tie-in-clauses in contract of transfer of technology is a very deadly device in the hands of the capitalist and MNCs in stifling competition and undermining LDCS effort for any meaningful development. By this device a licensor may compel the licensee to exclusively use certain un patented materials in connection with the exploitation of the patent. This often refers to agreement to purchase raw materials, spare parts, intermediate products, Capital equipment and technical know-how from the technology supplier.<sup>52</sup> Payment of monopoly prices for these items is a loss in terms of both capital accumulation and foreign exchange. When the effects of transfer accounting are added the picture is very grim for the LDCS as importers of technology. We note that the relationship between technology suppliers and subsidiaries host-partners and host-state is characterised by a multifarious flow of

goods and services from one party to another counter balanced by a returning flow of payment. In competitive system, such goods would be available in World market and at negotiable price. But ".... It is often extremely difficult ..... to estimate a true arms-length price for the type of goods moving between members of a monopolistic and multinational system and in the case of royalties, and management fees the problems may be insuperable".<sup>53</sup> This means that an agreed price should be used for those goods and services. The practice of determining these prices may be called transfer accounting<sup>54</sup>. Chudnousky estimates that if account is taken of the use of transfer pricing the effective profit of 13 firms in Colombia rose from 16.4% (which was declared) to 44.4%.<sup>55</sup> In this respect foreign investment because of price monopoly becomes a drain and disaccumulative for LDCS economies.

The cost of over charging may be offset, wholly, partly or not at all according to the extent to which a particular country itself exports products that have patent protection abroad. Otherwise the terms of trade of importing country is

worsen viz-a-vis that of a large exporter of patented goods. A transfer of real resources (purchasing power) would have occurred from the former to the latter sparking out other economic activities thus widening not only the technological gap but that of general development as well resulting in a vicious circle perpetuating technological and economic dependence of the LDCS on the Developed countries.

We have seen too, that a great percentage of technology imported is not very appropriate for use in the economic set up of the LDCS. As a matter of fact, the many social and economic benefits which technology has helped to bring about in LDCS are being increasingly counterbalanced by social and economic problems associated with the use. Some of these are oppression, manipulation of individual countries, mass poverty, starvation and International conflicts. Major decisions about particular technological development is taken on the commercial viability and financial prospects in a World market. Rarely does public opinion or social desirability play significant role, in technology choice.

The LDCS are meanwhile told that the only hope for the future is to initiate the pattern of industrialization already followed by the developed countries. This is given to them as technical necessity. The consequences of not passing through stages of industrial revolution are grave according to the Western World, "There are today on the plains of India and China men and women, plagues ridden and hungry, living lives little better in outward appearance than those of the cattle that toil with them during the day and share their places of sleep at night. Such Asiatic standards and such unmechanised horrors are the lot of those who increase their numbers without passing through Industrial revolution."<sup>56</sup>

This traditional prescription to development ignores a lot of contemporary factors. It does not take into account change of circumstances, taste, change in time, and more so change in World economic structure. It should be seen as a deliberate effort to keep the LDCS trailing behind the developed countries and have their development checked and their dependence on the developed nations enhanced.

Blind industrialization can not be equated with development or modernisation. We have seen that the type of technology behind industrialisation in LDCS causes displacement of traditional labour intensive techniques, unemployment, political and social instability as well as environment problems.

It is agreed that employment of foreign technology leads to industrialisation in the LDCS. However, this is not accompanied by structural changes in the economy and social development which system still largely reflects colonial or neo-colonial relationship in terms of ownership, processing, marketing, and distribution. It is indeed a scandal of the age that there is no move towards egalitarianism as in large sector, production is still at subsistence level with profits overwhelmingly going to foreign interests and the petty bourgeoisie. The rural poor are irrelevant to the process of industrialisation and any claim about democratic choice of technology has a very hollow ring about it. Caves explains the situation when he says, "The long-term rise in Standards of living tends to bias the search for new

consumer goods toward those which will be highly ranked and thus consumed initially by high income countries and groups .... The search for new producer goods is biased in just the same way towards innovations which initially are chosen by entrepreneurs facing high costs of labour relative to capital..... This results from the long-term rise in the value of labour-time; the counterpart of increasing real income per head."<sup>57</sup>

A technology supplier is normally interested in maintaining a loyal and co-operative working force in the host country. He pays high salaries to local employees but passes these high costs to consumers who in uncompetitive market created by patent monopoly have no way out. These high salaries lead to urbanization and uneven development in the country. Consequently, the biggest indictment of rapid industrialisation is the failure to solve and in many cases have only exacerbated the social problems of poverty, malnutrition and low standards of living which it is meant to solve. Accounts of the horrors faced by English working classes during the industrial Revolution bear testimony to the poverty

stricken, culturally bankrupt, socially dis-oriented inhabitants of major cities especially the suburbs of industrial cities in the LDCS. The Zambian case is very pathetic. Those who live in major cities especially in the Industrial Copper-belt are considered lucky, with very high taste. While those who live in the 'compounds' that systematically ring every high class residential area, live in deject poverty. Industrialisation is not helping this. On the contrary it does everything to widen the gap and emphasize the exploitory nature of the relationship between the groups.

LDCS have not been immune to adverse environmental repercussions of some of the technology transported to them. The effects of pesticides in the Canete valley of Peru are examples in point. The use of organochroine and organophosphorous pesticides gave rise to highly resistant super-pests whose ravages made cotton production un commercial, until the pesticides were abandoned and equilibrium was restored. In Malaysia and elsewhere the use of pesticides brought heavy attacks by pests on oil, palm, rubber and crops. There have been human casualties too. In 1972

a shipment to Iraq of 80,000 tons of imported wheat and barely coated with organic mercury fungicide caused the death of at least 400 persons and the hospitalisation of another 5,000. The fungicide whose domestic use had already been banned in the country of export had worked slowly by entering ecological cycles and food chains eventually reaching people through poultry, meat, river fish, and bread.<sup>58</sup>

It is true that it is not possible to quantify the gains and losses of a country from the operations of the International patent how much World welfare is increased nor is there equipment to measure incentive effects of patent system on inventive and innovative activities of export system in exporting countries.<sup>59</sup>

But one thing is certain that is that whatever advantages there are they do not offset the disadvantages and are not shared equally or equitably amongst the countries of the world. The LDCS get virtually nothing from the system but bear heavily all the losses arising from it. Harry Johnson explains apparent economic implication of patents to LDCS. "It can be argued ....

that for most of the countries in the World and especially the LDCS, the contribution that the opportunity to earn a profit (from patents) in their markets makes to the encouragement of investment in the creation of new commercial knowledge is negligible so that any profit they allow to be earned from the command of advanced technology is for them short-run loss with no compensating long-run gain from encouragement of technological progress."<sup>60</sup>

Although most of the costs involved in the transfer of technology are not only due to patents but include those of others like trade marks, know-how etc, nevertheless patents inherently augment market power and thereby beget the kinds of social costs under our review. However, the issues involved in the transfer of technology are inexhaustible. The more one makes investigation and gets information, the more issues one will be able to identify. We did not set out to list all the cases of abuses of the patent system; What we have attempted to do in this chapter

is to demonstrate by examples that the adverse effects of the patent system dwarf any alleged benefits of the system especially where the LDCS are concerned. In the next chapter we shall discuss attempts at trying to rid the LDCS of these economic constraints.

CHAPTER 4

ATTEMPTS AT REMEDIES OF THE ABUSES  
OF PATENT MONOPOLY.

Any agitation of LDCS to have the patent system changed is not without justification. First of all, we have to keep in mind that the patent system which is now in force in all industrialised countries and in many LDCS, was designed for other economic circumstances than now prevail. Stedman explains the situation, "The plain fact is that our economic society in which the patent system plays a highly important part bears little resemblance to the economic society in which the system was born. It is doubtful whether the Founding Fathers, if this is important ever visualised a situation in which the patent system would be anything other than what it was at that time - a simple device for introducing invention and exploitation at a time when both were difficult and greatly needed in an economy of

scarcity—a system under which the patentee would exploit his patent to its fullest advantage through actual production and with none of the overtones we have today wherein it becomes an instrument which seriously affects entire industries, world activities and the whole broad competitive economy."<sup>1</sup>

It is true most LDCS resemble the simple and largely agrarian economy which some of the industrialised countries had when their patent laws were enacted. But the problems the LDCS face in their development effort are not the same with those that the industrialised countries once faced. The application of the International patent system and similar national patent legislations based on it can not be reciprocally beneficial to both highly industrialised countries and the LDCS. This is due to inequality in development, and bargaining power in all conceivable fields.

The Paris Convention and the practices developed under it are basic to the whole structure of the pre-World War II economies.

Like so many International agreements of this type, the differing economic positions of the industrialised countries and the LDCS do not afford the reciprocity required to make the convention fair and equitable to both blocks of countries. Such a treaty is frequently a one way street with all the benefits running to the industrialised countries while the LDCS become members only to their economic detriment. "Thus to accord the same legal treatment whatever the defacto position may be is in practice to sanction inequality".<sup>2</sup> The LDCS through various means have all along been telling the developed nations that much truth.

1. THE AGITATION AT INTERNATIONAL FORUMS

When in November 1961, Brazil introduced a draft resolution in the Second Committee of the General Assembly of the UN<sup>3</sup>, several critical references to the International system of patent were made viz:- access to technical knowledge was limited by the system, patents

were taken out by foreigners without the intention of local exploitation, license agreements often contained harmful restrictive provisions, royalty payments constituted a heavy burden on the balance of payments which were further aggravated by import of patented products with inflated prices. These references were not limited to only patented technology but touched on the unpatented and unpatentable technology as well. This is because 'trade secrets' and exclusive know-how are not patentable their inclusion in patent licensing agreements may give them the same position as if they were patented. The practice in LDCS shows that unpatented technology is used mostly in conjunction with patented technology and that restrictive practices in LDCS are closely related to patents and the connection is suggested as the principal reason for the dominant market position of the supplier.

There was thus a call for International Conference to examine the terms of the International patent system and its relevance to LDCS needs. However, this received as serious

opposition from the developed countries and some International organisations as did the call to summon a conference and establish UNCTAD; and other International forums more sympathetic to the LDCS. One delegate even accused the sponsors of the draft resolution of setting the interests of patentee in opposition to the needs and peculiarities of the economies of the LDCS and of doing less than justice to the patent system.<sup>4</sup> So although various International organisation including the United Nations bodies have dealt with the problem of International patent system vis-a-vis the needs of the LDCS<sup>5</sup>, not much improvement has come by. In fact the views of some of them especially the developed countries are to attempt to convert the LDCS to the present International patent system than to amend the system to their needs.

The International Chamber of Commerce (ICC) Chairman reacted to the Brazil resolution by stating that, "There were grounds to fear that the report requested ..... might challenge hitherto unchallenged principles and

adopt certain inaccuracies which underlay the Brazilian point of view, and that it was the ICC's duty to finalise a text which the combined action of all the ICC organs could put up in opposition to the point of view which meant the whole foundation of the system for the International protection of patents."<sup>6</sup>

The LDCS, however continued to raise their views. At the Fourth session of the Trade and Development Board of UNCTAD in July 1966 the LDCS pointed out that patent legislations of developed countries dated back to the (19th and there was need to adapt them to the requirements of modern technology and its economic importance especially to LDCS. The concern was continued in Algiers when a large number of the LDCS gathered to map a common strategy for the Second UNCTAD meeting in New Dehli in 1968. The 1967 meeting came out with Charter of Algiers where the LDCS called on the developed countries to encourage the transfer of knowledge and technology to them by permitting the use of industrial patents on the best possible terms which would enable products manufactured in LDCS to compete effectively in

World markets.

There was also some attempt to borrow a blue print Solution from the Japanese experience. This experience emphasises the role of government as initiator of transfer of technology agreements in earlier stages of development, and as permanent watch-dog over the relevance of specific transfer agreement to economic development policy of the country and the need to develop, stimulate and speed up indigenous research activities. Japan's superiority in labour organisation, rationalisation of production, application of technological innovations, the use of new sources of electrical power, coupled with entrepreneurial abilities, and the high discipline of the workers educated in the spirit of paternalism contributed to Japan's unprecedented rate in the history of industrialisation. In other words Japan had well developed infrastructure of indigenous technology as effective base for the receivability and adaptability of foreign technology.<sup>7</sup> The Japanese experiences are unfortunately not very relevant to most LDCS because they are not as resourceful as Japan.

Individual LDCS because of sparse population, and low income per Capita can't offer effective demand for industrial Consumer goods which could act as incentive for establishment of modern industry which consumes modern technology. They have no effective access to developed countries' markets. Initial way out would seem to be in the increased trade among them. They can then play the tune of comparative advantage among themselves. Industries would be located where they are best suited within the region while the population of other states would sustain their growth so that the benefits of economies of scale would be reaped. This would also lessen the problems of restrictive licensing of products produced under patent license from the developed countries and enhance the free circulation of goods within the LDCS. Trade barriers within such customs Union or Free Trade Areas should be removed or at least minimised. At present the existence of numerous different patent systems in the LDCS implies substantial barriers to the free movement of patented goods. The process of trade liberalisation in the LDCS would be immensely

encouraged by the introduction and general utilisation of regional or continental patent system where the LDCS are located. This patent territory would foster technology exchange amongst them. Because of the LDCS proximate uniformity in economic growth, technology developed in one part would be more relevant, practicable and useful for wide based structural changes in economic development of another state, than technology imported from highly industrialised nations.

Once such a frame work is built, then the LDCS could advocate for preferential treatment which can either be made for a fixed period or on selected industry basis depending on the importance of a particular industry to the particular LDCS or group of LDCS. This would enable them to improve on their technology and expand their export earnings. The justification for such preferential treatment is inequality between the LDCS and the developed Countries. The idea to abandon the concept of most favoured nation principle as a concession to development needs of the LDCS is not being suggested out of the blue.

UNCTAD has secured preferential treatment for the LDCS manufactured goods.<sup>8</sup>

However, solidarity between sovereign nation-states is difficult to achieve. This is particularly difficult when it comes to taking joint action in negotiations with MNCS, for example not competing in granting tax concessions, common rules on repatriation, technology, local participation and so on. Solidarity is difficult to achieve because the more effective a cartel or a cartel-like agreement the greater is the reward for any one member to break the agreement. The fear that any one may break it will make those prepare to adhere to it to be ready for the break up.<sup>9</sup> Because sticking to an agreement while others abandon it will make those who stick to it worse off than when they had no agreement. This is the position the Copper producing Countries find themselves in trying to agree on cutting back production so as to push the price up. Zambia has accused the other LDCS producers of undermining the effort by seeking individual gains.<sup>10</sup> This kind of individual egoism was the biggest single factor in the

break up of a once cherished regional co-operation, the East African Community.

There has also been suggestion that a World body be it the UN or other International Institutions should organise International Centre for dissemination of information on industrial technology.<sup>11</sup> The arrangement implies World fund to be contributed to by the developed countries either through money donation or assigning patent rights granted by them to the fund and the patentee would receive royalties from the fund according to how much the invention is being used. This would be similar to the USSR and other socialist states practice of issuing of authors certificate. Patent Bank has been recommended in this respect.<sup>12</sup> It is to be established by treaty to which LDCS could be parties. The Bank would accept applications for special patents issued by it, which would automatically be effective in the territories of all member states of the Bank.

The Bank is to collect technologies of expired and existing patents and collect technologies from various patentees. Member states

have to register their patents and technical know-how with the Bank. The Bank could be given prerogative to develop and make modifications to existing technologies transmit up dated and appropriate technologies suitable for the recipient countries.

The problems with this suggestion are intricate. First of all, most patents are held by individual or firms and are considered private property. It would not by any means be easy for governments or International Institutions to acquire them without being suspected of design to socialise property and overthrow private enterprises. This is a feeling which can not be even thought of in the Western capitalist countries. Such acquisition can only be possible with invention which are results of Government or public sponsored research but, most of the vital industrial technology is being held by the multinational Corporations.

Second, there would also be a problem in raising sufficient fund for such project. The complex and technical nature of the Bank is unimaginable, so would the costs of establishing and maintaining the Bank. There would be

increased expenses as the Bank must be paid for its services. It is very doubtful whether the Bank would be a necessary middleman.

At the moment there are number of International financial institutions such as the IBRD, IMF and so on which suffer from insufficient capital to meet the needs of the borrowers. We can not expect any miracle for the proposed Bank in this respect.

The question of who will control the Bank is very crucial. The LDCS have criticised the developed nations for controlling and directing the World Bank and other financial Institutions against their aspirations. Is the position likely to be different with the proposed Bank? The answer must be negative.

First, most employees of the Bank are likely to be from the developed countries as the Bank will deal with highly technical matters. Such employees will definitely maintain their identity and interests at work. LDCS will not qualify for the service on the Bank staff. Even those LDCS which can provide some competent persons would miss them dearly at home. In fact the opportunity cost may not

justify such sacrifice.

Consequently the Bank will be in the control of the developed nations who also have the technologies. They would constitute the majority of account holders in such a Bank. In that position, they would decide how much of their technology will be deposited in the Bank, and who will benefit from these deposits. This brings the LDCS to square one, that of the present technology market which they are trying to avoid.

However this time they are worse off because they have to feed the Bank too which means additional expenditure votes. Another problem is that like most International institutions such a Bank will have to work on pure gentleman understanding since there would be no organised sanction against breach.

The question of how much a piece of technology should be paid for may present formidable task and one which may poise discontent and friction between the donors and the borrowers. The mechanism and procedure for determining the beneficiaries of the Bank's technology is far from being clear. If the LDCS

were to buy the technology from the Bank, the exercise would favour the richer of the LDCS. If they were to acquire them free then the question of how and who determines which LDC takes a particular technology must be answered. There is no satisfactory answer anticipated here.

Further problems are exposed when we consider whether or not a technology acquired from the centre would be exclusively used by a particular LDC or if it shares with others how the ratio of each share can be ascertained. Would the beneficiary or beneficiaries of such technology in the LDCS be free to export their products if so what would be the market arrangement between them. What is the possibility of the developed countries opening the door to their markets to products produced under such advantageous arrangement? The answer is likely to be 'zero' possibility; because of the present protectionist policy in developed economies.

Administrative bureaucracy and expenses are likely to make the project either impracticable or too costly to be recommended

especially for the LDCS. The project of establishing a patents Bank for LDCS is to be judged as an interesting attempt at a solution of some difficulties which have prevented industrial property from playing vital role in the industrialisation process of the LDCS, but one which has yet to find a clear and practical expression. Meanwhile the efforts of the LDCS to have remedial measures taken at International forums have so far hit a dead end. Any meaningful change in the position is unlikely to occur for some years to come. We can now turn our attention to examine some legal remedies under the International Paris Convention.

2. LEGAL REMEDIES UNDER THE INTERNATIONAL PARIS CONVENTION

The methods of asserting and protecting the public interest may with some over simplification be classified under two headings:-  
Issuing and enforcing patents and substantive limitations on the legal scope of the patent privilege, including provisions for modifying or rescinding it if need be.

There are various means provided by different legal systems to control abuses of the patent monopoly. These include Compulsory licenses, obligation to work, licenses of right, revocation, use by Government-provisions and instrument to control abuses in licensing arrangements for example through patent laws, describing specific practices and avoidance of certain restrictive conditions in contract involving the importation of technology.<sup>13</sup>

The International Convention to which Zambia belongs imposes sanctions of compulsory working requirement and licensing, as well as revocation to curtail the far reaching monopoly of the patented.

The exclusive right that is granted to a patentee can only be legitimately recognised on condition that he himself effectively works his invention and that it is made to benefit the Country in which he has obtained the patent.<sup>14</sup> The theory that patents should be worked within the country that granted them arose when encouragement of industrialisation was the

chief aim of the patent system. The priority was the establishment immediately of a new industry for industrial development; and not a serious buss of inventors' rights. The evolution of the Paris Convention since its signing in 1883 especially of article 5<sup>15</sup> by introducing sanctions against non-exploitation of a patented invention marks an increased awareness of the importance of the Society's interest-in the patent system.

Even today, the obligation to work the patent is rationalised in the economic necessity of feeding the national industry.

This requirement is heavily contested by most patentees on the grounds noted in Chapter three of this dissertation. How effective is the demand for obligatory working of patented inventions? The question can only be answered when we examine some of the means by which it is intended to secure the working of patented technology. Compulsory licensing is regulated by Article 5 of the Paris Convention, but relevant provisions appear in most national patents laws. S 37 of the Zambian patents Act provides for compulsory licensing. Under this

provision, a patent is ordered by a competent authority normally a patent office to any person who has successfully proved abuse by patentee. The economic rationale of Compulsory licensing is to encourage exploitation in the host country and avoid social costs and importing patented products.

Edwards and Penrose have stressed the merits of the compulsory licensing system as the most effective and flexible method to enable the state to control most of the more serious restrictions on industry.<sup>16</sup> This it is argued can restore competition and lessen the conflict in the use of latest technology. In other quarters, however, compulsory licensing has been attacked as a violation of private property rights and nothing more than unauthorised redistribution of personal property in violation of constitutional rights.<sup>17</sup> These controversies are due to conflict between the interests of the national economy as a whole and the interest of the individual patentee in obtaining the maximum return from his patent. It is suggested here that the individual

patentee who fails to work or utilize his monopoly to benefit the society which grants it to him should not be heard to complain when he loses it because he has not shown that he deserves it. One does see a need therefore for a provision in patent law of every LDC that patents of importance for development policy should be exploited immediately they are granted. If they are not, they should be subjected to compulsory licensing or revoked.

Unfortunately, this is easier said than practiced. For a number of reasons, compulsory licence is not sufficient to redress against non-working. Even in developed countries the enforcement of such provisions is complex and precludes their effective utilisation notwithstanding the developed countries abundance of knowledgeable officials and highly refined legal systems.<sup>18</sup> There is a serious difficulty in finding licensees especially in a LDC like Zambia who can exploit the patent once it is placed under compulsory licence. This is of additional problem when accompanying know-how is not free in the market or even disclosed in the patent. A foreign patentee can ignore the

threat of compulsory licensing because nobody can work his invention without his assistance in the provision of accompanying unpatented know-how.

The inducement effect of compulsory working requirement through compulsory licensing is also uncertain. If domestic producers can not work the invention the patentee will not fear their competition and would not take the trouble of producing under what to him are unprofitable conditions in order to maintain his patent.<sup>19</sup> The legal processes for obtaining compulsory licenses can be very slow and costly. Under S. 37 of the Zambian Patents Act, an applicant for compulsory license can only apply after 3 years subsequent to the date on which that patent was sealed or 4 years subsequent to the date on which the application in respect thereof was lodged whichever period last expires. Every application under this Section should set out fully the nature of the applicant's interest, the facts on which he bases his claim and the relief he seeks and has to be accompanied by affidavit verifying the facts set out in the application. Such application would

be refused if the patentee justifies his inaction by legitimate reasons. In terms of time factor we note that application having been lodged four years after a patent has been applied for, may take some more time to wind itself through bureaucracies before it is finally determined. The applicant may then get a compulsory license five or more years after the application for the patent was first registered. Considering the present rhythm of growth of new technology it would be inadvisable to insist on such long period because the speed of obsolescence will render any advantage of compulsory license as a sanction a lost price. The process could also be very costly to the applicant without business justification in the end.

The intention of compulsory licensing of unworked or insufficiently exploited patent is very good. But the practical significance is played down by subjecting the operation of the provision of S 37 upon application of a person who seeks a licence. It is questionable how many people would be aware that a patent is

not being worked let alone on commercial scale. It is doubtful too, how such information come to the public especially with the present lack of educational and technological infrastructure in Zambia and indeed in other LDCS. This could explain the fact that inspite the low percentage given for utilized patents in LDCS, compulsory licensing has not been frequent. In fact there has so far been no patent placed under compulsory licensing in Zambia.<sup>20</sup> There is total unawareness, lack of interest and facilities amongst the population in general and potential patent exploiters in particular which makes it difficult for anyone to come forward to apply for compulsory license.

Perhaps the initiative could be entrusted to a body such as a patent tribunal. This body could make investigation into:- the number of patents in the country, how many are being worked at commercial scale and how many are not. The same body would then condemn the latter group to compulsory licenses and advertise the facts and invite the applications from members of public. This idea is very tempting but it

has its short coming too. Most LDCS would not raise the kind of personnel with the skill required to man such a board. The administrative beaucracy will mitigate against the effectiveness of such a board. But even more disheartening is the fact that while the board's work will add more to the expenses of administering the patent system, they may not break the technological barrier in order to sufficiently arouse the interest of the general public to the task of working patents. The difficulties mentioned are quite hard to go pass and they do make the compulsory licensing provision impotent as they frustrate the license granted to any firm or an individual in the LDCS.

Another remedial measure of patents abuses is revocation. Revocation of patents is provided for in Article 5A of the Paris Convention and identical provision appears as Section 50 of the Zambian Patents Act. When a patent grant is revoked the knowledge therein falls into the public domain and anybody can exploit it. This measure is considered too extreme and a violation of fundamental freedom of individuals

to own and use their own property. Most technologically advanced nations have very vigorously advocated its removal during most of the Revision Conferences of the Paris Convention.

But most countries especially the LDCS have the conviction, and if the foregoing paragraph has anything to go by, reasonably so, that compulsory licensing was insufficient as a remedy against non-working of patents. This belief often led to equally vigorous teaming up of smaller and less developed countries in opposing any suggestion to abolish revocation as a sanction against non-working of invention. For instance, during the Revision Conference of London in 1934, Poland sharing the Stand with Czechoslovakia Spain and Yugoslavia declared that they must support their industry and that they could not accept importation of patented products in cases where it was proved that the costs of local production would be covered by national demand. They argued that in order to prevent abuses detrimental to their local industry, they could not accept the abolition of revocation. The Czechoslovakian delegation commenting on the proposal by the Bureau especially the one recommending the

abolition of revocation declared, "One must not lose sight of the fact that this improvement entails a weakening of the economic position of nationals to the advantage of foreigners. Given the proportion that exists between the manufacturing trade of small countries such as Czechoslovakia on the one hand, and foreign competition on the other, it is to be feared that the advantages will far from compensate for the disadvantages of the national economy if the Bureau programme was adapted."<sup>21</sup>

The Revision Conference of Lisbon, 1958 saw the same stand in this respect by countries such as Austria and Italy which affirmed that they would not support proposal to abolish revocation because such measure would risk delay in working of patents in small countries and therefore prejudice the industrial development of the countries in that bracket. Consequently the sanction of revocation has remained in the Paris Convention up to today and has been incorporated in a number of national patents laws of various countries.

Revocation can be very handy sanction against non-working of patent especially when it entails the loss of market to a foreign

competitor when a patentee loses his patent. If the market is vital or has vital potential or strategy, a patentee will be forced to set up a plant to exploit the invention in the host country when faced with this threat. Revocation therefore can benefit a local economy. But this is only possible when alternative technology or import can be obtained.

However, considering the process and time lapse before one can invoke revocation as a sanction, one finds the effectiveness of it a suspect and it is unlikely to be of much use. Noting that under s. 37(1) of the Zambian Patents Act Compulsory licence can not be obtained for three or four years after the deposit of patent application, and that two more years have to elapse as per S. 50(2) of the same Act before the patent may be revoked, we conclude that revocation as a sanction can not be used until after at least 6 years from the deposit of the patent application.

If we remind ourselves of the present rate of technological progress we would realise that most patented, inventions would be superseded long before the shortest of the above

periods expires. Considering the global operation of the MNCS and their co-operation in conspiracy to exploit the LDCS, the effectiveness of revocation as a redress against non-exploitation of patents can only show in exceptional cases. Otherwise it is justified to assert that revocation, just as compulsory licensing it is supposed to supplement is totally bankrupt in practical sense to remedy some of the abuses of the patent monopoly in LDCS.

### 3 OTHER ATTEMPTS

#### A. SUBSTITUTION OF STRAIGHT AWARD FOR PATENT MONOPOLY.

There is now increasing feeling to curtail the discretionary power of the patentee. This casts open doubt on the concept of exclusive rights conferred on the patentee. Is it still rational as one feature of the general economic set up of the entire globe which has changed its composition and its infrastructure since the Paris Convention was signed?

An American Committee had this to say in 1941, "Any future patent should be available for

use by any one who may desire its use and who is willing to pay a fair price for the privilege in order to eliminate the use of patents. in ways inimical to the public policy inherent in the patent laws."<sup>22</sup> This policy favours a system in which inventors would be paid a federal reward for worthwhile discoveries and all inventions thrown open to encourage the free growth of industry. Oddly enough the only country in the World today which has adopted anything approaching this is not the USA but Soviet Russia and a few Socialist states. The Socialists have not failed to make their usual Russophilic recommendation that patents being of the nature of private property and therefore of monopolistic in character should be abolished in favour of a system of graduated rewards and honours. The patents Laws in USSR and other socialist countries have tried to achieve this goal. An inventor is given inventor's Certificate in which he is named the inventor. He is required to make public the invention. Once this happens he has no right

to exploit or license the invention because these rights are then conferred on the State which is obliged to work the invention as far as it is economically possible. The inventor then receives remuneration calculated on the basis of the economic effects of the invention.<sup>23</sup> With all its difficulties the system is perhaps the better as far as a small inventor in the LDC is concerned. To him this is an incentive.

Even in developed countries the practice is very close to straight award to the inventors. This is because most inventors are now employed by either the Governments or MNCS on salaries. What rights have these employers to take up patent monopoly in their names. Why can't they take some reward for these inventions just as they give to their employees who actually turn over the inventions? We may venture to say that there is no satisfactory answer anticipated in favour of such employers.

However, there are other problems with the theory of straight reward. There is a great difficulty of means and method of assessing what

amount to fair price. It has to be an arbitrary formulation from which an inventor may have no remedial appeal. It is also feared that growing discontents of inventors as to the adequacy of the rewards or bonuses, if unchecked will be counter productive. It may lead to apathy in the field of inventive activity.

The suggestion would have to solve the problem of insufficient public or individual funds for paying what might be considered a fair price for a piece of technology. This problem is acute in LDCS where accumulation of capital, private or public is very minimal and often insufficient to start any viable economic project.

There is further set-back. The system is likely to roll in corruption and favourism and misallocation of resources. These evils are already too numerous in LDCS and it would be ridiculous to recommend any scheme likely to increase their occurrence. We need not mention the bureaucracy and costs of administering the scheme especially in a non-centrally planned economies, found in most LDCS. The straight award theory is no answer to the ills of the patent system.

B. NATIONAL LEGISLATION

Modern patent legislations do deal with some of the aspect of restrictive practices but these have not been very effective. The LDCS have recognised that few patent connected transfers are patent-dependent and the monopoly powers created by extending patent protection to the majority which are not patent dependent are very costly. Most LDCS have kept their patent system but instituted various regulatory policies in hopes of minimising or eliminating the social costs without reducing the presumed benefits.

The introduction of screening procedures or compulsory registration of agreements envisaged in an earlier stage to control balance of payments, have been enlarged to cover the control of possible abusive practices.

A number of governments have therefore stepped in to regulate on behalf of their Citizens contracts for transfer of technologies.<sup>24</sup> The usual role of such governments is to pass a law providing that a contract for the transfer of technology would not be registered when the

price or counter-service is out of proportion to the technology acquired; or constitutes an unwarranted or excessive burden on the country's economy. These national policies authorise the refusal of contracts by means of which patentees attempt to expand the effective scope of their monopoly-tying sales, leases, licensing of patented products or process to the purchase of unpatented goods or services. They also approve of the denial of application or subsequent declaration of invalidity of a patent for insufficient disclosure and other abuses.

Countries which have enacted such laws include Mexico, Zambia, the Andean Group Countries (Bolivia, Chile, Colombia, Ecuador, Peru and Venevuela). It is proposed to discuss some of these laws in some detail in order to discover their objectives and assess their effectiveness.

The Mexican Act<sup>25</sup> concerning the registration of the transfer of technology and the use and working of patents, trade marks and trade names came into force on January 30th 1973. We find the introduction to the bill so

relevant that we are forced to comment on a substantial part of it here. In the introduction, a number of observations are made. First, that while the importance which attaches and will in future continue to attach to the import of technology by national industry is fully recognised, it is necessary to stimulate and promote the creation of an indigenous technology as an essential means of achieving the Country's economic independence. It is further stated that the examination that has been made of contracts or agreements through which domestic industry acquires technology has led to the conclusion that those contracts and agreements have been the channel for the transmission of the technology useful to and important for the Country's industrial development. But at the same time, the technology acquired is often obsolete inadequate or already available in the country. Moreover such contracts contain abuses through which the technology supplier unduly increases the technology buyer's production costs, obliges him to acquire obsolete or costly goods at

excessive prices, prohibits or limits his exports, curtails his scope for expansion or for developing technology of his own. The technology supplier intervenes in the management or marketing processes of the buyer and requires disputes about the interpretation or performance of contracts to be brought before foreign Courts or tribunals. The drafters of the bill concluded that "Far from stimulating the national economy these and other similar clauses damage it, hinder the healthy development of industry increases the production costs of undertakings run counter to industrial development policy laid down by the Federal Government, place an undue burden on the balance of payments and make the country's industry subservient to technology suppliers."<sup>26</sup>

The Mexican Government found it essential therefore to establish rules to which the transfer of technology must conform, and to adopt a policy enabling maximum benefit to be derived from the acquisition of technology. The rules were also to ensure that adverse effects of the

import of technology on the balance of payments were reduced, the negotiating position of national buyers of technology to be strengthened and the access of industry to the best technology available in the home market and International markets to be facilitated in optional conditions of suitability, quality and cost.

Article 6 provides that no instruments of agreements or contracts which are not registered in the National Register of Technology Transfer would have any legal effects. While Article 7 prohibits the registration of any instruments, agreements or contracts which transfers technology which can be obtained locally, or which the price and other consideration constitutes an unjustifiable burden on economy; or contains clauses enabling supplier to control or intervene in the management of the buyer or which imposes restrictions on research or technological development of buyer or contains tie-in-clause where buyer must obtain equipment, tools, parts or raw materials exclusively from a specific source; where

exports of goods, services by buyer are restricted or prohibited contrary to national economy's interest.

The Article also outlaws condition prohibiting the use of supplementary technology, and those which provide that goods produced by buyer be sold exclusively to technology supplier; buyer to use on permanent basis, staff supplied or specified by technology supplier. The agreement which imposes limit on production volumes, sales or resales prices put on buyer's export or production, or where period of validity of agreement is too long is also invalid. The buyer can not be bound for more than 10 years and all disputes arising from technology transfer arrangement were to be settled under the Mexican law.

The Zambian Act,<sup>27</sup> is very identical to the Mexican one. It is "An Act to provide for the licensing and control of manufacturing enterprises; to provide incentives for investment, to regulate transfer of foreign technology and expertise to enterprises operating in Zambia; and to provide for matters connected

with or incidental to the foregoing."<sup>28</sup> The Act aims at reducing the country's reliance on foreign technology, raw material and Capital as well as promoting export of manufactured goods and bringing about a more equitable sharing of the benefits of industrial development. From a legal point of view this package is a great assurance of proper climate for economic development. But evaluated within socio-economic context these values are suspect. In effect the Act does the opposite of what is declared in the Zambian philosophy of Humanism. It benefits the foreigners and restores to them the confidence which might have been destroyed by the Mulungushi and other similar Declarations. It stresses Zambian dependence on foreign Capital and technology.

What the Act asks for is the co-operation of the MNCS which control both capital and technology. The enumeration of incentives<sup>29</sup> reflects the price the MNCS are prepared to exact for this 'Co-operation'.

All agreements dealing with the transfer or hiring of technology have to be registered

to be brought under close surveillance of the authority.<sup>30</sup> Such agreements must contain provision for technical personnel, full instruction in clear and comprehensive English explaining the operation of any equipment, the continued use of the technology by the transferee, after the expiration of the agreement and the supply of:- raw material and spare parts up to five years after the agreement expires if the transferee so requires.<sup>31</sup> This last provision again emphasises the dependence position of Zambia on foreign inputs for her industries.

A number of restrictive business practices are outlawed from the technology agreements. These include clauses which restrict:- (1) Use of competitive techniques by the licensee or transferee; (2) the manner of sale or the licensee production or the export of such product to any country, (3) the source of inputs, (4) the volume or structure of the transferee production, (5) Control of management of the transferee enterprises, (6) limit the ways in which any patent or other know-how may be used by the licensee and (7) a clause

which provides for payment of royalties outside Zambia or foreign currencies without prior approval of the Central Bank.<sup>32</sup> The spirit of this section is very good and offers great legal assurances against abusive practices of a technology supplier. But in this game the problems lie beyond the pure legal niceties.

First we have great administrative problems in trying to effect the provisions of the Act. The Zambian Act confers wide discretion on the administrators. If this discretion is to be exercised reasonably, then considerable input in terms of expertise in different areas of technology and economics is a must. But where the Government is not acquainted with the business of technology or is handicapped by lack of experienced manpower to process and complete negotiation with the necessary speed, the danger of cumbersome and slow witted bureaucracies are likely to make the whole exercise both undesirable and unbusiness like with more inefficiency being added to the costly transaction.

Indian businessmen had to complain more about screening procedures than the restrictions

these procedures were supposed to control. "This was one aspect on which the executives interviewed were very vocal as could be expected. More than the nature of restrictions it was the delay involved in the processing of applications for collaboration that came under fire.... Most firms reported that the gestation period involved in getting a collaboration agreement finalised was between 2-3 years."<sup>33</sup>

The ability to assess, evaluate and determine the relevance or appropriateness and fair price of technology is itself a high technological commodity. This valuable technology is in serious shortage in the LDCs. The constraint of this lack of ability is even of more grave concern to LDCs than shortage of any other technology<sup>34</sup> for a number of reasons.

First an LDC can not work out in advance the appropriateness of a technology it desires; to import vis-a-vis its economic structure and stage of development.

Second, it is not possible to bargain effectively as it lacks necessary and correct data about such technology or its substitutes

or alternatives, a knowledge which is a vital determinant of the price and general terms of the contract of transfer of such technology.

Third, it leads to a reliance on the assessment and pricing of such technology given by the supplier which needless to say, is quite often guided by the requirement of its bottomless coffer. This frustrates the operation of such Acts we have seen. The supplier normally does not give reasons or break down of figures for the terms of contract. Even where they are given, they are clothed in such sophisticated technological language the understanding of which requires that expertise, skill and experience which only those who speak the technological monopolistic language of the supplier have.

The alternative to reliance on the dictates and taste of the technology supplier may be too ghastly to be contemplated. It means the LDC will have to hire the service of another assessor, a service of a middleman who quite often turns out to be a member of the supplier's cartel. The result is that the terms of the

contract concluded by the middleman will be very identical to that of the supplier. In this arrangement the buyer is worse off because he has to pay for the services of this agent as well. This payment can be astronomical. A more nationalistic LDC may attempt to carry out the technology appraisal all by itself. But in light of lack of skilled personnel for such business, the exercise would be futile. In such a case it would be a miracle if the right decision on price, nature, duration, appropriateness etc of the technology was made by the LDC. Otherwise the LDC will in the circumstances come out with the worst bargain possible for which it has only itself to blame.

The two Acts we have discussed and similar ones are very constructive in objectives and legal techniques. However, in socio-economic context they are but legal myth. In reality they are supposed to control MNCs which experience, power and activities transcend their national jurisdictions. The monopoly position of the technology supplier could well

render domestic law a myth. By pulling strings on external but related connections, the supplier could achieve results he can not directly obtain because of such law. For instance Zambia may by legislation remove restriction on production and export but she can not in effect export to countries where patents have been taken out for similar products.

C O N C L U S I O N

Patents can only be properly evaluated within the context of World capitalist system. It is one of the devices used by MNCS as technology merchants to maximise profits and accumulate wealth. Most of this is done at the expense of LDCS as we have seen. Contrary to what has been advocated, patent monopolies neither induce invention nor investment. They are not essential to growth. There are industries and Countries which have shown economic progress without patent. In Switzerland chemical and textile dyeing industry developed very well without patent protection, between 1887 and 1902; and in Netherlands the birth and growth of two great industries - Margarine, early 1870s and incandescent lamps, early 1890s took place during the "patentless" period (1869-1912). The Sudan has no patent law but the growth of the economy is between 5%-6% per annum above the African average growth rate. The same is true with Indonesia.<sup>35</sup>

Patent is not essential for the spread of knowledge and skill either. In fact history

shows that skill left on its own multiplies and propagates universally, some where on the globe an impulse towards a certain development is triggered. The development starts and rolls on irresistibly not only where it originates but beyond geographical borders. On its way it gives birth to other developments which by similar propagating sets up a chain reactions. This has been true with religion, political opinions, music styles and so on. However, whenever, a natural development trend has been artificially and forcibly checked or caged for any extended period of time, it has caused various repercussions even turning evolution into revolution and co-operation into opposition. Patent system is thus artificial check on the technological spread and has produced the results mentioned above.

Some LDCS, Zambia, Mexico etc have taken firm measures to solve by legislation some of the most serious abuses involved in the transfer of technology. This too we have seen remains impotent in the face of monopoly wielded around the patent theory by powerful MNCS.

It is regrettable that this dissertation should end in a pessimistic note, but it is the only conclusion which one naturally draws from the discussion in the foregoing pages.

The only recommendation we offer here is that of abolition of patents. This would enable the LDCS to strengthen their bargaining position, enhance their export opportunities and minimise bureaucratic burden.<sup>36</sup>

But this too, would be of little help as far as the whole subject of technology transfer is concerned, without a change of attitude from the developed nations and their MNCS to adopt a serious policy of establishing a New Economic order which can uplift the standard of living of the people in the LDCS. At present, however, it would not be at all unfounded to suggest that the Industrialised capitalist nations believe that unrestricted flow of Western technology to the LDCS would enhance the strength and militancy of these countries. Some advanced technology such as the processing of nuclear atomic energy could directly be transferable to military productivity.

But a more obvious area of serious concern to the West is the fact that their advanced technology and technical know-how would catalyze and accelerate the exploitation of huge potentials in the LDCs, resulting in rapid economic development. This would herald the collapse of their economic empire just as their political kingdom collapsed under the weight of economic nationalism. The West is not prepared to jeopardize their supremacy as yet. But this is a selfish and short sighted view. We would contend that a long-term index of World prosperity and peace points not to the state of belligerency between the developed and the LDCs, but rather at co-operation in economic sphere which is the nucleus of mankind activities.

Until this attitude comes around, the embargo or restriction on the flow of appropriate technology on reasonable terms coupled with patent protection will continue to make the assimilation of the Western technology

very difficult in the LDCS. This is justifiably interpreted in the LDCS as a sinister conspiracy to frustrate their effort at industrialisation and apply stiff brakes on their technological upsurge.

At the moment imported technology has high cost in royalties, fees for technical advices and high prices for equipment and manpower training. There have been negative impacts of technology transfer involving MNCS. One of the LDCS concerns is that the failure to adopt imported technologies to meet local conditions has led to costly products, high dependence on imported elements and mismatching of product to market. In other words much of the technology from industrialised World is not well suited to economies of developing countries. It is too big; It is too expensive and it does not create jobs needed to absorb rapidly expanding labour forces in countries that have already abundance of labour.

The technology is not appropriate for use on very small farms and in very small business enterprises that make up so much of economic

activity in the LDCS. To make sense and to enable them to participate in economic development, the LDCS must have access to tools and machines that are suited to labour intensive production methods and fit their small firms, business enterprises and incomes. The people of the LDCS should also have access to technology that is neither primitive, so that it offers no escape from low production and low income nor so highly sophisticated that it is out of reach for the poor people and ultimately uneconomic for poor countries.

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