Chapter Six

PATENTABILITY:
EVOLVING LEGAL FRAMEWORK
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1. Introduction

Although efforts have been made, with substantial success, by the developed countries to evolve a strong patent regime at the Uruguay Round, the essential ingredients of a patentable subject matter will have to be constituted within the framework of domestic legal system. It is generally recognized principle that a patent for an invention should be granted only when it fulfils the following criteria, namely, it is (a) new; (b) involves an inventive step; and (c) industrially applicable. Where the invention for which a patent is applied for fulfils these three conditions, the invention is termed "patentable". These three conditions are usually referred to as the "substantive" conditions of "patentability". They are identified as "substantive" because they concern the essence, the technical content of the solution claimed to be an invention in the patent application.

1Background Reading Material on Intellectual Property (Geneva: WIPO, 1988), p.80; In Bishwanath Prasad Radhey Shyam Vs. Hindustan Metal Industries, 1979 ALL.L.J.290 at p.294, Sarkaria J. stated that "the fundamental principle of patent law is that a patent is granted only for an invention which must be new and useful. That is to say, it must have novelty and utility. It is essential for the validity of a patent that it must be the inventor's own discovery as opposed to mere verification of what was already known before the date of the patent".

2Ibid., p.81.
Before filing the patent specification, the inventor has to satisfy himself as to the patentability of his invention. Although the patent legislations of various countries provide more or less uniform standards while defining the patentable subject matter, a degree of variation may arise in the emphasis accorded to each criteria involving a considerable amount of subjectivity. This subjectivity concerning patentable subject matter varies with the competence and effectiveness of patent agents who describe the invention in the complete specification, patent examiners who examine them, and the patent offices and courts which look into its legality.

Nevertheless, novelty, inventiveness and industrial utility constitute the core of the patentability criteria. The identification of these elements in an invention may be undertaken at different stages of patenting. For example, questions concerning these may arise during the administrative review of an application for the patent; or as a ground upon which such an application may be opposed; or at a later stage in a proceeding for the revocation or cancellation of an issued patent; or in suits for patent infringement where the validity of the patent is disputed by the person charged with infringement. Apart from these substantive requirements, the thoroughness with which the patent office examines the patent specifications depends not only on the operative language of the patent legislation but also on the extent to which it is adequately equipped to undertake these search and examinations.

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4*The Role of the Patent System in the Transfer of Technology to Developing Countries*, UN Doc.E/3861, Rev.1, March 1964, p.32.
II. Patentable Subject Matter: Definitional Concerns

In simple terms, patentability is attributed solely to an invention which is patentable. But all kinds of inventions are not patentable. This presents a picture which is a contradiction in terms. In such a situation, it may be appropriate to consider the definition and scope of an invention itself. The patent laws in force in many countries generally describe the categories of inventions which could be patented or those which are excluded from patentability. The Indian Patent Act, for example, defines an "invention" as "any new and useful (i) art, process, method or manner of manufacture; (ii) machine, apparatus or other article; (iii) substance produced by manufacture and includes any new and useful improvement of any of them, and an alleged invention."

Chapter II of the Indian Patent Act, on the other hand, incorporates host of exceptions specifying what inventions are not patentable. The exceptions are very crucial in many ways. A sector of industry which is not well developed may be excluded completely from the purview of patent laws so as to achieve fast and effective diffusion of technological knowledge. The categorizations of exclusions of patentable subject-matter differ from one country to another, depending upon the expediencies of economic growth and

Section 2(j), Indian Patents Act, 1970.
development. The Indian patent law, despite its similarities with the patent laws of U.K. has uniquely balanced both the interests of the individual and society.

A. Exclusion of Certain Inventions

Generally, the national patent laws, including the Indian Patent Act, seek specific exclusion of some or all of the following: substances produced by chemical methods; medicines; foods; and mere mixtures of foods as medicines; invention which is frivolous or which claims anything obviously contrary to well-established natural laws; an invention the primary or intended use of which would be contrary to law or morality or injurious to public health; the mere discovery of a scientific principle or the formulation of abstract theory; and a method of agriculture or horticulture.

A brief reference should be made to the need to exclude only certain sectors. The exclusion of chemical and pharmaceutical sectors is explained by the virtue of their usefulness and greater utility to the public. The reasons advanced for the non-patenting of these products is primarily concerned with their importance in daily use and their

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For instance, the interpretations regarding the patentability of mathematical algorithms underwent constant change in tune with the evolving technology. This aspect is discussed in greater detail at the latter part of this chapter. Also see Howard T. Markey, "Patentability of Mathematical Algorithms in the United States", IIC, vol.2 (special Issue) (1991), p.986.


Chapter II of the Indian Patents Act, 1970 in Section 3 provides for these exclusions.
essentiality to the health of the community. The necessity to exclude methods of agriculture or horticulture stem from the consideration of economic growth and the idea that fruits of inventions and the consequent innovative activity in these sectors should reach everyone concerned. For this reason, developing countries whose predominant foreign exchange earner being primary commodities in the agricultural sector may not afford patenting in this field. One of the major drawbacks of patent institution, particularly in a developing country, is its creation of monopoly and its curtailment of smooth and broad diffusion of technology. The creation of monopoly for a limited period could be termed as one of the contradictions in the objectives sought to be achieved by the patent system. As mentioned in Chapter Two, patents for new and useful inventions are granted with a view to encourage inventive activity; on the other hand, being a monopoly right it should guarantee returns to the inventor and also to the innovator both of whom have invested their resources to make the invention workable and viable. In developing countries patent grants tend to stultify the growth and devolution of technology for reasons which are primarily rooted in the monopolistic use of the patent grant itself. In the process, society is deprived of the utility generated by the invention for a definite period. So, it is necessary that patent laws should balance both these opposing interests. Accordingly, the factors which influence the decision to include or exclude patentable subject-matter in any patent law generally evolve through the above

The issues concerning the patentability of plants and seeds, particularly life-forms will be discussed in Chapter Seven.

See Chapter Two; it discusses the aspects relating to the justification of IPRs.
mentioned broad parameters.\textsuperscript{11} For example, in the case of foods and drugs exclusion from patentability is based on the consideration that the grant of patents could have adverse effects on the general availability and the price of these goods.\textsuperscript{12} In the case of technology relating to nuclear energy it is mainly the special importance of such technology to national defence (and possibly also to energy supply).\textsuperscript{13} The patent law of Japan, 1959, for instance, before its revision in June 1975, had provided that inventions relating to food, medicine and chemicals were unpatentable notwithstanding that the requirements for patentability were met. Subsequently, this law was amended based on the recommendations submitted by the Industrial Property Council, an advisory committee to the Japan’s Ministry of International Trade and Industry (MITI). The amended law allowed patent grants for inventions relating to food or drink or of an article of taste and inventions relating to substances to be manufactured by a chemical process. The recommendations of the Industrial Property Council of Japan are notable. It justified exclusion of inventions from patentable subject-matter on the ground of "a policy to protect interest of the consuming public as well as to protect domestic industry

\textsuperscript{11}It should, however, be noted that the balancing of monopoly features of the patent with the societal interest is one side of the argument. On the other hand, exclusion from patentability is to allow certain sectors of the industry to evolve indigenously, resulting in greater self-reliance; See, \textit{The Role of the Patent System in the Transfer of Technology to Developing Countries}, 1975, TD/B/AC.11/17/Rev.1.

\textsuperscript{12}Ibid.

\textsuperscript{13}Ibid.
from foreign enterprises with dominant marketing power and superior technology". These justifications, particularly to meet the requirements of competitive market were put forward by other developed countries as well.15

Justice Rajagopala Ayyangar Committee which was constituted in 1957 to review thoroughly the Indian patent laws in its report considered the grant of patent monopoly in the interest of national economy. These were dependent primarily on the two factors,16 namely, (a) the country must be technologically advanced to maintain the rate of invention which is brought forth by the promise of a reward. This in its turn would depend upon (i) the degree of diffusion of scientific and technological education and the number of persons reaching high proficiency by such education; (ii) appropriate industrial production which could absorb the products of the education and develop the instinct for research and direct it to useful and productive channels; (iii) the amount of speculative capital which is forthcoming for being risked in investment in new ventures and for profitable utilization in such industries; (b) The patented invention must be worked in the country which grants the patents. These aspects, in a sense, formulated the basic justifications for a viable and effective criteria for patentability.

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15See *IIC*, vol.2 (Special Issue) 1991, pp.993-1009.

However, the components which actually constitute the criteria are to be decided by the language embodied in the domestic legislations. So, for an efficacious patent regime subserving the interests of national economy an interpretative matrix was envisaged which was essentially subjective. In other words, courts which handled the issues concerning patentability provided the subjective elements. It is said that "subject matter" or "obviousness" is "always the most uncertain issue in patent cases depending as it does upon the temperament and experience of the judge". In the following analysis we shall briefly consider the factors which constitute and influence the patentability criteria.

(B) Novelty

The legal aspects of novelty primarily take into account qualitative aspects of disclosure of a new invention. The attempt of law in these cases is to preserve the features of novelty so as to facilitate the conferment of patent rights. In other words, invention must teach those skilled in the art something which they did not know from prior publications or experience: if the invention does not appear to be already part of the "state of the art", the invention is termed "new". Generally speaking, "state of the art" is defined as "the sum and total of human knowledge which has at any time been made available to the public anywhere in the world and in any way". The grant of

17Ibid., p.20.
18Crespi, n.3, p.77.
a patent monopoly is thus the price which the public pays for disclosure to it of what was not previously known to it.\textsuperscript{19} It is, however, difficult to say very precisely as to how much knowledge fulfils the criteria of prior publication as use. The patent laws do not generally lay down any clear guidelines in this regard.\textsuperscript{20} Because, the factors which constitute the elements of novelty depend on varied subjective assessments. To substantiate this argument, illustrations can be drawn from the specific provisions of the European Patent Convention (EPC). In Article 54, it \textit{inter alia}, defines the "state of the art" as "everything made available to the public by means of a written or oral description, by use, or in any other way, before the date of filing of the European patent application".\textsuperscript{21} The British Patent Law in its Patents Act, 1977 defines the limits of "state of the art" more specifically. According to it the "state of the art" comprises all matter (whether a product, a process, information about either, or anything else) which has at any time before the priority date of that invention been made available to the public (whether in UK or elsewhere) by written or oral description, by use or in any other way.\textsuperscript{22} According to this formulation "state of the art" refers to more than

\textsuperscript{19}Ibid., p.39.

\textsuperscript{20}Background Reading Material, n.1, p.82; The WIPO Model Law for Developing Countries on Inventions proposes the so-called universal or worldwide definition of novelty, which includes knowledge from all over the world as long as it stems from a "publication in a tangible form".

\textsuperscript{21}Article 54, European Patent Convention (EPC); The EPC entered into force on 7 October 1977. It is not a single document. In addition to the Convention which has 178 articles there are the Implementing Regulations (106 rules) and the Protocols.

\textsuperscript{22}Article 2, U.K. Patents Act, 1977.
information about the invention disclosed by the inventor himself or by someone who has access to it. The contribution of British case law to the evolution of this provision is noteworthy. Indian courts have not dealt with these issues as there was no occasion to deal with these aspects as there was less emphasis on the creation of exclusive rights through patents. \(^{23}\)

\(\text{i. Defining Novelty}\)

For courts, novelty essentially involves factual investigation. In other words, it is important for the courts first to find out whether the invention has already been made public. Before considering other complex factors involved in the 'novelty' criterion, it may be worthwhile to quote British cases which generally show the features of "novelty".

In *Van der Lely Vs. Bamford*,\(^ {24}\) a patentee had claimed a hayracking machine in which the rake-wheels were turned not by engine but by contact with the ground. The patent was held to have been anticipated by a photograph in a journal which showed a hayrake with this feature. The factual issue which was in question was whether the photograph was clear enough to reveal the invention to an informed person. The other

\(^{23}\)For a brief survey of Indian cases relating to patents decided by the High Courts and the Supreme Court from 1970 to 1994 see the Tables 6.2 to 6.5 at the end of this Chapter. The cases decided by the Indian Patent Offices have been published, on the other hand, until 1984 only.

notable case was *Fomento Vs. Mentmore.* In this case the patentee claimed a ball-point pen in which the housing around the ball had a groove running in ring below the equatorial plane of the ball; this produced a smooth flow of ink. The alleged anticipation in a patent specification was found to describe a method of enclosing the housing around the ball by "peining" i.e., by hitting the open housing with a tool shaped like a candle-snuffer. Before there could be anticipation, however, it was necessary to show that peining would inevitably produce the desired ring-like groove in the correct position; and the earlier document, it was held, only gave instructions that "might well" produce this effect.

In cases relating to chemicals and pharmaceutical, the options available to a patentee are many. So, features of novelty in these cases needs more definite formulation. In one of the cases, for example, a patentee had claimed a petrol with three additives, namely, a lead anti-knock component (one of a class of chemicals), an ordinary scavenger and an additional scavenger in certain proportions. The scavengers were added to prevent the fouling of spark plugs and corrosion of exhaust pipes. One of the elements of these chemicals had been identified in one of the anticipated document, without really knowing as to whether it could create the same results as envisaged in the above mentioned product. Nevertheless, the patentee was obliged to leave aside this one instance and save the remaining part of his specification. So, it is pointed out that in

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cases where anticipation can not be shown, there is no room for an attack on the grounds of obviousness.26

These examples, mentioned above, introduce some of the conceptual features of novelty, namely, anticipation, publication and use, and obviousness. There is however, a close interrelationship between all these concepts. Novelty in a patent specification requires that the elements of an inventive process must not have occurred to anybody else. In other words, an invention must not be "obvious". Although inventiveness forms a separate criterion, it is, however, difficult to discuss novelty in isolation from the topic of inventiveness for there is often only a thin line of difference between the two. Novelty is essentially concerned with the question whether what is claimed in the specification is fully disclosed and add something new to the prior act. Inventiveness, it should be noted, relates the claims made in the specification and what is already there in the public domain.27

ii. Anticipation and Novelty

Prior publication, use or working of an invention create conditions which could be termed as "novelty-destroying" or "anticipation". Anticipation may be defined as "a description of a prior document or use which discloses or involves the totality of the


27Crespi, n.3, p.76.
invention which is being claimed. An important aspect of novelty in the context of anticipation relates to its possible time-frame. Could anticipation be taken back in time indefinitely? The answer for this is in the negative as the compulsory search for novelty cannot be done in terms of indefinite period. In India, the Patents Enquiry Committee had recommended in 1949 that the scope of the compulsory search should be limited to Indian patent specifications published during fifty years preceding the date of application or since 1912 whichever was later. The basis for this recommendation was stated to be its proximity and similarity to British Law.

The Indian Patents Act, 1970 in its Chapter VI deals however with the features of "anticipation". Section 29 of the Act provides that

(1) An invention claimed in a complete specification shall not be deemed to have been anticipated by reason only that the invention was published in a specification filed in pursuance of an application for a patent made in India and dated before the 1st day of January 1912.

Further, it provides for situations in which an invention claimed in a complete specification may be stated to be not anticipated. It may be worthwhile to note these situations. These are: (a) where the title was derived and published without the consent of the patentee or applicant; (b) where the patentee or the applicant for the patent

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28Ibid., p.84.

29Justice Ayyangar Report, n.7, p.43.

30Section 29, Indian Patents Act, 1970.

31Ibid.
or any persons from whom he derives title comes to know about the publication before the date of application for the patent, such prior knowledge is not considered anticipated; (c) where a complete specification was filed in pursuance of an application for a patent made by a person being the true and first inventor or deriving title from him, an invention claimed in that specification would not be deemed as anticipated by reason only of any other application for a patent in respect of the same invention made in contravention of the rights of that person, or by reason only that after the date of filing of that other application the invention was used or published, without the consent of the person, by the applicant in respect of that other application, or by any other person in consequence of any disclosure of any invention by that applicant; (d) where previous communication was made to the Government to investigate the invention or its merits, such a communication concerning an invention claimed in a specification was not deemed anticipated; (e) where the invention was displayed at an industrial or other exhibition with the official consent of the Government; (f) where the description of the invention in a paper read by the true and first inventor before a learned society or published with inventor's consent in the transactions of such a society.

Apart from these specific exceptions to the principle of anticipation, the Indian Patent Act also provides for the working of the invention for the purpose of reasonable

\[32\] Section 30, Indian Patents Act, 1970.
\[33\] Section 31, Indian Patents Act, 1970.
\[34\] Ibid.
Such working, if it is reasonably necessary would not be deemed as anticipated. In addition to these broad categories regarding what actually constitute exceptions to anticipation, few finer distinctions were made as regards public disclosure not amounting strictly to "anticipation". Patent laws do not always incorporate these distinctions into the statute itself and our understanding of it must be formulated from particular cases considered primarily by courts and patent offices.

Before considering specific cases, it may necessary to look into the relative limits of anticipation. The principle that for the purposes of constituting anticipation public knowledge should be confined to knowledge within the country or outside is now settled. Patent laws provide for the application of "world-wide search" principle for determining the limits of prior knowledge, use or anticipation. The Indian Patents Act, for example, authorizes the examiner to initiate investigation as directed by the Controller for the purpose of ascertaining anticipation in India or elsewhere. Although the application of this rule is *sine qua non* for reasons of technological advancement, it may create certain difficulties for less-developed countries. Firstly, these countries may find it

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36Section 32, Indian Patents Act, 1970.

37Section 13(2), Indian Patents Act, 1970.

3Justice Ayyangar Report, n.7, p.44; Justice Ayyangar in his report elaborately deals with the possible infrastructural problems such as, availability of books and literature etc. At the same time he notes "...a provision removing the geographical limitation would take note of the fact that the world has shrunk in size, thanks to the rapid means of communication and will prevent those who visit foreign countries or get acquainted through foreign periodicals with the inventions which are published abroad from obtaining patents on the basis of the invention being "novel" in this country".
impossible to, in the absence of necessary infrastructure. acquire regularly the required information. Secondly, filing of patent applications in these countries is stated to be low due to factors like meagre flow of foreign investment, unsteady technology base, and dominance by multinational companies. Although there is enough uncertainty as regards the relationship between patents and economic development, the criteria of effective "world-wide search" presupposes some of these requirements. In view of this, there are limitations as regards the extent of search and for majority developing countries all "search" is a compromise between time and money on the one side and completeness on the other. In other words, the intention of the examiner would be to aim for a reasonable search but not to guarantee a comprehensive one.

iii. Determining the Concept of Novelty

The courts have treated the features of novelty both as a question of law and fact, depending largely on the circumstances of the case. For instance, the Courts, both in India and elsewhere have generally treated prior publication or prior use as the

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*For example, lack of inventive step is not a ground for refusal of the patents by the French Patent Office; it may only be taken into account as nullification of the patent by the French courts. See Joanna Schmidt-Szalewski. "Non-obviousness as a Requirement of Patentability in French Law", *IIC*, vol.23, (1992). no.6, p.725.*
principal objection to the validity of a patent.¹⁴ In the Fomento case, mentioned above, the question was whether the prior uses of certain ball point pens by three individuals to whom gifts of them were made in circumstances which left the recipients of the gifts free to use the pens as they wished, amounted in law to an anticipation of the invention.⁴² The court, while treating this question as equivalent to the question whether giving of the pens had been a publication which made available to the public means of knowledge of the invention inter alia, stated: "...the knowledge of any one here was enough to give the public the possession of the invention...if those few pens came to the hands of ...(the three recipients) in circumstances which left them free at law and equity to do whatever they liked with them and what they discovered from them...then it would appear to follow that the plaintiffs in this case fail."⁴³ The presumption in certain other circumstances would be different, even if the idea is publicly known. In other words, mere publication is not sufficient to establish public knowledge. For instance, a thing may be publicly known without being published in a document when it has been publicly used.⁴⁴

¹⁴Ibid; Section 29 of the Indian Patents Act, 1970, provides grounds for such objections.

²Fomento Industrial S.A., n.25.

³Ibid.

⁴"It is, however provided in a "note" to section 25 of the Indian Patents Act, 1970 that "The only prior public knowledge or prior public use and not mere knowledge or use of an invention in India should operate as an objection to the grant of a patent for the invention"."
For the purposes of deciding the "novelty" features Indian courts have relied on the British precedents. As early as in 1871 Lord Hatherly in Cannington Vs. Nuttall, briefly outlined the requisite features for a test of novelty in the following way:

It is quite apparent ...that the cooling thing, the current of air, was nothing new -- it is as old as the fables of Aesop -- it is as old as the man blowing his soup in order to make it cool. But so it is with every invention -- the skill and ingenuity of the inventor are shown in the application of the well known principles. Few things come to be known now in the shape of new principles, but the object of an invention generally is the applying of the well known principles to the achievement of a practical result not yet achieved. And I take it that the test of novelty is this: Is the product which is the result of the apparatus for which an inventor claims letters patent, effectively obtained by means of your new apparatus, whereas it had never before been effectively obtained by any of the separate portions of the apparatus which you have now combined into one valuable whole for the purpose of effecting the object you have in view?

If there is a requirement for specialized knowledge, the Courts have held that it is sufficient that the thing is known among workmen skilled in the particular art. In Neiveli Ceramics and Refractories Ltd. Vs. Hindustan Sanitarywares and Industries Ltd., for instance, it was held that such questions should be considered from the angle as to how all the persons in the particular type of business were likely to make out from the catalogues and diagrams the contents of the patent specifications. A "use" by a skilled person has different dimensions. However, it has been pointed out that in the recent formulations of legal principles concerning novelty, it had lost its independence.

*Quoted in Lallubhai Chakubhai Jariwala Vs. Samaldas Sankalchand Shah, AIR 1934, Bom.407, at p.413.

*(1976), IPLR 66.
as an objection to validity. The new formulation emphasizes more on the completeness of the state of the art. In other words, an invention is new if it does not form part of the state of the art; and the state of the art comprises all matter made available to the public before the priority date of the invention "by written or oral description, by use or in any other way". However, in certain types of cases, particularly chemical substances and mixtures some exceptions as regards the prior disclosures are made. For instance, where a class of things is already known from a general description of some kind, claims have been made for specific things within that class or a sub-class. These kinds of claims are allowed only when it is shown that these show distinct features over the class as a whole. The House of Lords decision in the case of Du Pont's (Witsiepe) Application allowed one such claim, creating an exception to the rule of "disclosures".

In this case a co-polymer comprising three chemical elements, including as its second 1, 4- butanediol was claimed for its quality as a rapidly hardening plastic. A much earlier specification had claimed a similar plastic for its capacity to absorb dye. Its second element had to be one of list of nine possibilities, including 1,4-butanediol; but this was named only as a prospect on paper. the


"Ibid."Use", it is pointed out, is a protected act irrespective of who the user of the patented product is, and for what purpose patented product is used. However, 'use' before the granting of patent right may not essentially affect the novelty. Novelty, on the other hand, is dependent on the prior art. In other words, novelty should emerge as an offshoot of the state of the art. See. Background Reading Material, n.1, p.81.

"Ibid., p.124."
experiments recorded having been with other substances on the list. In its decision the House of Lords refused to treat this disclosure as one which precluded the possibility of selection of Du Pont's co-polymer for the newly discovered purpose.

In recent years the European Patent Office (EPO) has been attempting to determine difficult conditions in which the state of the art could be stated to be made available to the public. In a recent decision it stated that a document is not made available to the public merely by being addressed to a member of the public and placed in a post-box; it must be delivered to the addressee. The same decision also stated that the fact that a document in a library would have been available to anyone who requested to see it is sufficient to establish that the document was made available to the public, whether or not any members of the public actually knew it was available and whether or not any member of the public actually asked to see it. In another decision, the EPO held that a magnetic recording medium defined by a magnetic recording layer of a particular thickness was novel because prior publication consisting of a patent application included claims which stated that the thickness should be smaller than the earlier one which was generally known. In the view of the EPO the statement made in prior publication did not dissuade the person skilled in the art from using a thickness of the recording layers below the prescribed measurement. So that the range under

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9Ibid., p.933.

5Ibid., p.935.
consideration, i.e., thickness below the prescribed measurement was to be regarded as novel. Although the situations faced by the EPO for the determination of novelty are many and varied, the concept of novelty by no means is absolute. It is pointed out that the constant process of adjustment is largely dictated by the desire, to extend in the general interest, the economic and social benefits of patent protection to an ever wider circle in a technical area which is continually expanding.3

C. Inventiveness

The patent laws generally require that patentable technical information be both new and inventive. Novelty by itself is insufficient. If it were sufficient, it is argued, inventors might produce innumerable number of technological variations and claim that each new invention is patentable. Patentable invention is measured against the state of the art and is granted protection only if it is of some relevance in the context of its technology.

i. Content and Meaning

The Indian Patents Act refers to "inventiveness" as one of the requisite grounds for opposing patent grants. It provides, "...that the invention so far as claimed in any

claim of the complete specification is obvious and clearly does not involve any inventive step". Another reference to inventive step can be found in section 64 as one of the grounds for the revocation of patents: that is, "...that the invention so far as claimed in any claim of the complete specification is obvious or does not involve any inventive step, having regard to what is publicly known or publicly used in India or what was published in India or elsewhere before the priority date of the claim." For the U.K. Patents Act, 1977 "an invention shall be taken to involve an inventive step if it is not obvious to a person skilled in the art, having regard to any matter which forms part of the state of the art..." All these efforts to define inventiveness go to show that the requirement to establish the quality of inventiveness or non-obviousness is a legal one but clearly the ascertainment of whether this is satisfied will depend upon an essentially scientific comparison of the invention claimed against the existing state of the art in that technology. The notional person skilled in the art, on the other hand, would be someone who is familiar with the particular technology within which claims to inventiveness have to be made. Nevertheless, a reference to "someone skilled in the art has definite legal connotations; it means, a person to whom the new technical information is addressed and who understands all technical literature in the technology but who, on the

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55Section 25(1), Indian Patents Act, 1970.
56Section 64, Indian Patents Act, 1970.
other hand, would not have the capacity to create or invent new technical information".58

The Japanese Patent Law of 1959 provides specific guidelines as to what the notional person skilled in the art should do to find out inventiveness. These guidelines require the examiner to compare the applicant’s invention with the prior art in purpose, construction and effect, and to refuse patent on the applicant’s invention if the examiner finds that: (i) it consists of an easily accomplished aggregation of known technology; (ii) it consists of an easily accomplished conversion of known technology; (iii) it consists of a mere replacement of known technology; (iv) it consists of an easily made change of use of known technology and its effect could be anticipated; (v) it consists of an easily made change in the form or arrangement of known technology and its effect could be anticipated; or (vi) consists of a readily accomplished change of measurement, temperature, quantity etc., of known technology and its effect could be anticipated.59

However, ‘obviousness’ is a question of fact and it will have to be established by evidence from those skilled in the art whether or not what is claimed would have been obvious to the reasonably skilled worker. In this regard, courts and patent offices

58Ibid. Also see Background Reading material, n.1, p.84. The person whose judgement is needed is that somewhat mysterious person, "the person having ordinary skill in the art". His skill, or the skill that he has to apply in making his judgement, must, according to many laws, be "ordinary". In other words, the skill may not be extraordinary, i.e., the skill of the greatest expert in the world in the given field of art.

consider the opinions of experts. The decisions rendered by courts constitute an important source of precedents i.e., by enunciating principles which could be extended to other instances of similar nature.

ii. **Criteria as Evolved through Judicial Pronouncements**

The practice of the courts is to generally treat "inventive subject-matter" and "non-obviousness" as largely synonymous with "inventive step". And they have always held that if nothing useful was being added to the sum of human knowledge there ought to be no inventive step. A WIPO study has clarified this question in the following way:

The expression ‘inventive step’ conveys the idea that it is not enough that the claimed invention be new, that is, different from what exists in the state of the art, but that this difference must have two characteristics: it must be inventive, that is, the result of a creative idea and it must be a step, that is, it must be noticeable. There must be a clearly noticeable distance between the state of the art and the claimed invention.

The British case law on the question of objective assessment of inventive step has produced different interpretations. It is pointed out, for example, that certain paraphrases of "obvious" carry the implication that the threshold for an inventive step is a very low one: "very plain, ...the obvious and natural suggestion of what was

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60 Background Reading Material, n.1, p.84.

61 Cornish, n.20, p.127; There is a long list of British cases covering this area; however, two important cases decided by the British Courts were: *The General Tire and Rubber Company Vs. The Firestone Tyre and Rubber Company Limited and others*, R.P.C., 1972, pp.457-517; *Technograph Printed Circuits Ltd., Vs. Mills and Rockley (Electronics Ltd.),* R.P.C., 1972, pp.346-63.
known...a mere workshop adjustment....an idea that would....in effect suggest itself". In view of this difficulty courts have always attempted to adopt a more pragmatic approach. Even the patent laws in Europe till recently did not adhere to a uniform definition of "inventiveness". The European Patent Convention has found it difficult to reconcile the stringent test of "inventiveness" which prevailed in the Netherlands and Switzerland with the slightly liberal test adopted in Germany. However, the courts have made attempts to outline an objective test which consists mainly of the assessment of the (a) state of the art; and (b) what the patentee claims to have invented. With a view to bridge the gaps in relating these two features of "inventiveness", the courts had taken recourse to materials such as notes and other documents concerning research. This, it is said, may assist the defendant in cross-examining the inventor and other witnesses, in obtaining expert evidence of what a skilled man would or should have done, and in comparing what was actually done with the state of the art on the priority date.

The objective relationship between the skilled technician and the prior art has other crucial dimensions. For instance, it is asked: was it for practical purposes obvious

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62 Ibid., p.128.

63 Schmidt-Szalewski, n.40, p.725, French law, on the other hand, has always treated the inventive step as a condition for patentability consisting of non-obviousness of the invention for a person skilled in the art. Accordingly "non-obviousness" may be defined either by subjective criteria, taking into account inventor's intellectual efforts or by objective ones based on material features of the invention.

64 Ibid.
to the appropriate skilled technician, armed with all the specific information and general
knowledge deemed relevant, that he could or should do what the patent proposes? This
question was first formulated by Sir Stafford Cripps in Sharp and Dohme Vs. Boots.6 It came to be known as the "Cripps Question" and was adopted by the British Courts subsequently. It basically contained a reference to the object of the alleged invention in this way: Was it obvious...to any skilled chemist...that he could manufacture valuable therapeutic agents by...? This formulation of the question had two exceptions, namely, (i) where it was allegedly obvious to do the thing for a different purpose; and (ii) where at the date of the prior art, what was proposed in it had allegedly no usefulness at all.

In recent times "the purposive approach" as enunciated in the "Cripps Question" has been replaced with the "problems-and-solution approach". This approach was laid down in Beecham Group's (Amoxycilin) Application followed by Bayer's (Baatz) Application.66 This approach basically examined the prior art to see how far it suggested answers to the problem. While outlining this approach, Cornish makes the following distinction:

There will be the situation where the uninventive but skilled man has a particular problem or need in mind, in which case the testing carried out by him may amount to no more than obvious verification, though it could be inventive if the result is unexpected in-kind rather than degree. Equally there will be the case where the skilled man has no particular problem or need in mind. then, selecting a particular course for further research


which provides unexpected results is likely to be inventive, for he is then on 'a voyage of discovery' rather than 'a mere exercise of ingenuity'.

In Beecham Group's case the Court was prepared to treat the level of inventiveness as a 'voyage of discovery' although the prior art indicated that work should be done on six further substances in the search for better semi-synthetic penicillin.

There is one more approach followed by the British Courts which is termed as 'mosaicing'. In this approach obviousness is judged by viewing the invention as a whole against the state of the art as a whole. In other words, cited documentations with the patent specification will not be treated in isolation. These documents will be considered as a whole in the light of the state of the art. It is otherwise termed as "mosaic" of extracts.

The available case law treats the obviousness in terms of its physical verifiability. For instance, the British courts have addressed the unique problems set by the availability of prior publication or use and its accessibility to the average skilled worker.

57 Cornish, n.47, p.131.

58 Ibid., p.132.

59 Ibid. The House of Lords in Technograph Printed Circuits Ltd., Vs. Mills & Rockley (Electronics Ltd.), 1972, R.P.C., p.346 at p.355 stated that, "To whom must the invention be obvious? It is not disputed that the hypothetical addressee is a skilled technician who is well acquainted with workshop technique and who has carefully read the relevant literature. He is supposed to have an unlimited capacity to assimilate the contents of, it may be, scores of specifications but to be incapable of a scintilla of invention. When dealing with obviousness, unlike novelty, it is permissible to make a "mosaic" out of the relevant documents, but it must be a mosaic which can be put together by an unimaginative man with no inventive capacity" (emphasis added).
In Woven Plastics Vs. British Ropes, for example, the court had to consider the problem of publication in a different language and its usefulness to a notional skilled worker. \(^7\)

In this case, specifications were in Japanese and the court treated this as known. In view of these kind of cases, it is said, "in the new world of supra-national patenting [...] the notional technician presumably has acquired, at least passively, the gift of tongues". \(^7\)

In a recent patent invalidation case in China the Chinese Patent Office sought to assess the patentability requirements by working at the purpose, technical solution, and objective effect of an invention, rather than considering the activities of the applicant or patentee. \(^7\) The invalidation request was against a utility model entitled, "Apparatus for promoting the growth of height of youth". The request was based on two grounds, (a) the lack of practical applicability; and (b) its detrimental effect to public interest. In addition to this, it found that there was no inventive step as the apparatus described in the claim was identical with the existing prior art. The Patent Office clarified its decision by saying,

...If an inventor finds out a new use of an existing product without any variation in its structure or composition, he can only draft a use claim which belongs to the category of process or method invention. In accordance with the regulation of the Chinese Patent Law and its Implementation Regulations, method invention cannot be protected by a patent right for a utility model, and a method for treatment of a disease is even excluded from the protection of a patent right for an invention.

\(^7\)Ibid., p.133.

\(^7\)Ibid.

For this reason, the features concerning the particular acupuncture points must be disregarded in assessment of inventive step.\footnote{Ibid., p.519.}

In another recent case the Beijing Municipal Higher People's Court refused to confirm the invalidation of patent on the ground of lack of inventiveness.\footnote{Decision of the Beijing Municipal Higher People's court, March 4, 1992. Case No.(1992) Gao Jing Zhong Zi No.9, IIC. vol.24, no.5, 1993, p.651.} In this case a Hong Kong Company dealing in art products was granted a patent, entitled, "A Gate of Crazy Tongs Type", for the invention of a sliding latticed door. Upon a request made to it for invalidation the Patent Reexamination Board examined two references and revoked the patent on the grounds that the invention did not contain inventiveness since it did not involve any prominent, substantive features as compared with existing technology before the date of registration. The Hong Kong Company as holder of the patent appealed to the Beijing Municipal Intermediate People's Court against this decision of the Patent Reexamination Board. In its decision, the Court set aside the revocation decision of the Patent Reexamination Board. The Patent Reexamination Board appealed against this decision to the Beijing Municipal Higher People's Court which dismissed the appeal and confirmed the decision at first instance.

This process of appeal and the subsequent confirmation of the patent grant shows the availability of legal machinery for adjudicating substantive features of a patent grant in a developing country. Similar appealing procedures are also available in India and in many other developing countries. The Chinese courts have maintained an uniform
interpretation of substantive aspects of patentability criteria. In the above case, it was finally held that "the question whether an invention is based on inventiveness, i.e., contains prominent, substantive features, involves not only the technical solution contained in the invention but also the task and result of the invention. These three factors must be evaluated in their entirety." In other words, it was pointed out that the general purpose i.e., the problem to be solved as referred to in the reference documents differed from that of the invention at issue. However, this has raised the questions of defining adequately in each component of the invention the purposive aspect. It was also pointed out that the technical solution itself, as described in the specifications, remained an objective reality that was not altered by the fact that the purpose and advantages claimed for it by the author were different. For this reason, it is noted, it is irrelevant whether the task of an invention is described correctly and precisely. On this reasoning the Beijing Municipal Higher People's Court set the rule for the evaluation of inventiveness by stating,

We should not ignore the value for the evaluation of inventiveness of specific technical information that is set out objectively in a known document as part of the state of the art, merely because the technical effects or the function of relevant components are not particularly emphasized or because the purpose of the use of these components is not contained in the general purpose as described in the document.  

According to the provisions of the EPC an invention is considered as involving an inventive step if, having regard to the state of the art, it is not obvious to a person

75Ibid.
76Ibid.. p.658.
skilled in the art. Non-obviousness is linked to the state of the art. Further, it is stated that the inventive step should be assessed objectively, the assessment being based on facts and not on purely subjective and arbitrary elements. Nevertheless, these factors are difficult to be identified in an exact manner. Even within the EC the uniform standards envisaged have to cope with the prevailing national practices. These national practices, however, differ from country to country. This difference in the national evaluation of criteria has given rise to certain unique problems. Although some of them are reconcilable, some differences touch the fundamental issue itself. For instance, in *E.I. du Pont de Nemours and Company Vs. Akzo N.V.* a case decided in 1988, the Federal Patent Court of Germany dealt with three main issues, namely (a) in view of the legislative history of the EPC and the German Patent Act it must be assumed that the definition of non-obviousness in Article 56 of EPC and Section 4 German Patents Act should be identical; (b) although no interpretation rules have been adopted for the application of Article 56 of EPC, unanimity existed among interested circles that a uniform average standard should be applied which was to correspond to the definition of non-obviousness in German case law; and (c) since the EPO usually applies a standard that differs markedly from the German standard and thus the intended uniform standard is lacking, the German standard should be the basis for determining the inventive step under Article 56(1) EPC in revocation proceedings of European patents.

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77 Article 56, European Patent Convention.

In the United Kingdom, the substantive issues concerning anticipation and priority were examined by the House of Lords in the case of *Asahi Kasei Kogyo K.K.'s Application.* In this case the House of Lords had to consider not only the U.K. Patents Act 1977, but also the provisions of EPC and the Paris Convention concerning primarily the priority aspect. While doing so, it briefly clarified the point concerning supremacy of the national law. In its view, the decisions by the Board of Appeal of the EPO concerning the interpretation of provisions which had been implemented into national law were not binding in the U.K., but they carried considerable persuasive authority and the desirability of avoiding divergent jurisprudence on the interpretation of such provisions. The reasons for the restrictive interpretation of the decisions of the EPC could be found in its efforts to broaden the scope of substantive aspects of the patentability criteria, particularly concerning the inventive step. The decision of the Technical Board of Appeal of the EPC in *Linde Akiengesellschaft and Svenska Silikatforsknings institute Vs. N.I. Industries, Inc.* could be cited as an example. In this case, the assessment of the "state of the art" was broadened to an unimaginable extent.

It, *inter alia,* said:

A person skilled in the art who is confronted with a technical problem in a specific technical field would consider consulting another technical field where the same problem is well known to the general public owing to widespread debate here on, even if this other field is neither a neighbouring field nor a broader general field provided that there exists

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a relationship between the kinds of materials used in the specific field and those used in this other field.\(^*\)

It is, however, possible to see that national courts have continued to interpret the scope of the substantive aspects of the patentability criteria in Europe.\(^1\) A matter of immense importance came before the Court of Justice of the European Communities in the case of *Commission of the European Communities Vs. United Kingdom of Great Britain and Northern Ireland.*\(^2\) In this case the question was as under:

The Commission of the European Communities brought an action under Article 169 of the EEC Treaty for a declaration that by providing for the grant of compulsory licences where a patent is not worked in the U.K. to the fullest extent that is reasonably practicable or where demand for the patented product in the U.K. is being met to a substantial extent through importation, the U.K. has failed to comply with its obligations under Article 30 of the EEC Treaty.\(^3\)

Although U.K. was held to have failed to fulfil its obligations under Article 30 of the EEC Treaty, the larger question, however, was the compatibility of the national provisions at issue with Article 30 of the Treaty.

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\(^1\) For instance, the decisions of the German Federal Supreme Court in two cases namely, "Fixing Device II" and "Polyester threads" considered these interpretations. See *IIC*, vol.23, 1992, p.111.


\(^3\) Ibid.
D. Industrial Applicability

The third criterion of patentability merely requires that the invention must be capable of industrial production or exploitation which is interpreted broadly as "producing a vendible product". The interpretation is so broad that it goes beyond even the mere production process. In other words, it may also include a product, a way of making it, a testing method, a way to control manufacture or way to prevent deterioration. These are termed "vendible products" as these could be sold to those who operate production processes. Considering this requirement, it should be noted that ideas, concepts or notions cannot be patented per se. On the contrary, technical information incorporating ideas, notions or intellectual concepts become patentable to the extent that these are embodied in some practical, technical and industrial application as well as satisfy the previous criteria of being new and inventive. The reasons for not granting patent protection to merely ideas, theories and concepts could be explained in terms of the absence of direct industrial utility. It may be argued that it is quite feasible to grant patent protection to ideas as it could have the advantage of a possible recouping of expenditure on their creation and generation; however, weighed against this is the likelihood that giving such protection would prevent access by others altogether to certain areas of research. This would act as a restraint rather than stimulus to research, investigation and the creation of ultimately useful, practical and valuable innovation.

84 Tamara S. Eisenschitz, n.39, p.49.

85 Black, n.57, p.13.
National patent laws provide for the "industrial applicability" criteria in different contexts. The Indian Patents Act, for instance, merely mentions about the "usefulness" of an invention. It employs this expression while defining an "invention" under section 2(j) and while providing for the grounds for invoking "surrender and revocation of patent" under section 64(g). According to section 4 of the U.K. Patents Act, 1977 "an invention shall be taken to be capable of industrial application if it can be made or used in any kind of industry, including agriculture". However, it excludes in clause (2) an invention relating to method of treatment of the human or animal body by surgery or therapy or of diagnosis practised on the human or animal body from the purview of industrial application. Similarly, the Japanese patent law of 1959 (as amended) specifically refers to "industrial utility" by saying, "any person who has made an invention which can be utilized in industry may obtain patent for such an invention". The judicial pronouncements in Japan or in other industrialized countries were formulated very early. Japanese courts had held in 1950s that an invention to be patentable must be technically or industrially workable. For example, the Japanese courts had held that telegraph codes, which consisted of a combination of letters of the alphabet, numerals and certain symbols were unpatentable since "there was no apparatus or means which employed natural force to operate". Teruo Doi, n.14, p.14. In the area of chemical inventions, the Japanese practice is to treat a new chemical process as patentable if it has the possibility of being
utilized in the future, even though the level of technology at the time of filing an application does not allow the capability of using it.\textsuperscript{87}

The term "industrial application" would be too restrictive in its meaning and application. With a view to overcome this narrow interpretation, patent laws in some countries provide for the term "industrial utility". Although this is a matter of interpretation, at a given occasion it could pose difficulties. So, the United States' law which granted patents to the one who could prove that he was the first to grasp the idea of invention had requisitioned certain additional conditions. Under the United States patent law of 1952 it is not sufficient for an inventor merely to have an idea, he must also put the idea into practice.\textsuperscript{88} For example, in many research organizations numerous ideas are generated whether in the field of pure research or when applied in the creation of a specific product; these institutions in the course of time create valuable scientific data or knowledge; but these wealth of knowledge becomes unpatentable as majority of them would be industrially and commercially unviable at that point of time. It, however should be noted that a significant exception in the United States patent law in which utility is required but does not have to be of an intrinsic industrial character.\textsuperscript{89} This reference to "utility" in the United States patent law has brought into

\textsuperscript{87}Ibid.

\textsuperscript{88}Section 102, U.S. Code (Title 35); The first U.S. Patent Law was enacted in 1790. It was subsequently amended several times. The present law was enacted in 1952.

\textsuperscript{89}Crespi, n.3, p.100. The US approach is basically evolved through the pronouncements of its Supreme Court, particularly in the case of Diamond Vs. Chakrabarty. For detailed (continued...)
focus many new areas in the field of science and technology which will be dealt in greater detail in the next section.\textsuperscript{90}

III. Patentability of Mathematical Algorithms

Generally, a mere discovery of a scientific principle or the formulation of an abstract theory is non-patentable. This, for example, is specified in the Indian patent law.\textsuperscript{91} Patent legislations of some countries, however, provide for ambiguous provisions and consequently conflicting interpretations. The United States, for instance, provides under section 101 the subject matters that could be patented as "Processes, machines, manufactures, or compositions of matter". This listing of subject matter has given rise to bunch of case laws with varied interpretations. In Gotschalk Vs. Benson, decided by the U.S. Supreme Court in 1972, "mathematical algorithms" themselves were held to be not the type of "processes" intended by the statute.\textsuperscript{92} Ten years later, the Supreme Court in Diamond Vs. Diehr, reversed its decision by holding that a process for moulding rubber could be patentable, notwithstanding the use of a mathematical equation

\textsuperscript{90}(...continued) treatment of this case see Chapter Seven. For the European law, Article 57 of the EPC provides "to be susceptible of industrial application means that the invention can be made or used in any kind of industry including agriculture".

\textsuperscript{91}Section 3, Indian Patents Act. 1970.

as a process step." In an earlier case, *In re Walter*, a Federal Circuit Court had attempted an outline of a guideline to include or exclude the patentability of mathematical algorithms in the following way: "Once a mathematical algorithm has been found, the claim as a whole must not be further analyzed. If it appears that the mathematical algorithm is implemented in a specific manner to define structural relationships between the physical elements of the claim (in apparatus claims) or to define or limit claim steps (in process claims), the claim being otherwise statutory, the claim passes muster under Section 101".*

The direct application of mathematical algorithms became subject of controversy at the Federal circuit in the United States during 1989. *In re Grams*, Claim 1 comprised steps which required the performance of clinical laboratory tests on an individual to obtain data for the involved parameters." The remaining steps analyzed that data to ascertain the existence and identity of an abnormality and its possible causes. These steps were essentially a mathematical algorithm. The Court in its decision while recognizing that "inclusion of a mathematical algorithm in a claim can render it nonstatutory if the claim in essence covers only the algorithm", noted that mere recital of an algorithm, "does not automatically render a claim nonstatutory".* The reasoning of the Court


*Quoted in Markey, n.92, p.987.

*Ibid.

*Ibid., p.988.
in arriving at this conclusion could be termed as unique. It began its reasoning with the critical question: "What did the applicant invent?" In answering this, it stated: "each invention must be evaluated as claimed: Yet semantogenic considerations preclude a determination based solely on words appearing in the claims. In the final analysis under Section 101, the claimed invention, as a whole must be evaluated for what it is".  

The Federal Circuit, however, had to face a complex task in re Iwahashi. In this case, the claims had elements which were expressed entirely in mathematical algorithms. The Court stated: "The claim as a whole certainly defines apparatus in the form of interrelated means and we cannot discern any logical reason why it should not be deemed statutory subject matter as either a machine or a manufacture as specified in Section 101. The fact that the apparatus operates according to an algorithm does not make it nonstatutory. We therefore hold that the claim is directed to statutory subject matter". Considering the decisional parameters of these cases at least three basic guidelines have been identified. Firstly, the claim must not be drawn to the mathematical algorithm itself, i.e., the claim must not be such as would enable the patentee to preclude use by others of the mathematical algorithm in contexts different from that of the claim. Second, the mere presence of a mathematical algorithm will not exclude a claim that contains other matter subject to patenting. Third, each claim must be separately and

*Ibid.

*Ibid.
thoroughly analyzed as a whole to determine whether it falls in the first or second category.

Notwithstanding these guidelines, the practice followed by the U.S. Patent and Trademark Office does not seem to have any uniformity. For instance, in May 1988 it issued a patent for "Methods and Apparatus for Efficient Resource Allocation" which is popularly known as "The Karmarkar Algorithm". This has raised many crucial questions which even cover the question of patentability of computer programmes. At the same time, some of these mathematical problems are directed to finding the optimum solution for a series of simultaneous linear equations which equations are widely used to model the behaviour of many real-life systems. 99 The solutions of these equations, it should be noted, are most often directed to minimizing some values, such as time, or transportation costs, or storage space or some other consumable resource. 100 Nevertheless, the difficulty concerning algorithms has been the issue whether they constitute a patentable "process", particularly when they are computer-implemented processes. The patent granted for the Karmarkar Algorithm contained 36 claims which were directed to methods of: efficient allocation of telephone transmission facilities, allocating user resources, optimizing a controlled process, optimizing physical

100 Ibid., p.32; It is pointed out that although the modelling of real-life behaviour with linear equations had long been known, effective methods of solving more complex sets of equations were surprisingly recent with the best known method, the Simplex method, having been developed (by George B. Dantzig) about fifty years ago.
technological and industrial resources, or to a linear programming system for optimally allocating physical resources. It also contained a well-written specification outlining the newly developed algorithms and discussed in detail useful embodiments of the invention, especially its use in the allocation of available telephone communication facilities."

All this has become patentable as this use was found important to the assignee of the patent, the American Telephone and Telegraph company. The pure research value of the Karmarkar Algorithm in the normal course should have helped freely to assess new mathematical methods.

The legal position under EPC, however, is distinctly different. As mentioned already, Article 52(1) clearly provides that patents should be granted for all inventions which are susceptible of industrial application, which are new and involve an inventive step. But Article 52(2) describes the subject-matter and activities which are not regarded as inventions, such as (a) scientific theories and mathematical methods; (b) schemes, rules and methods for performing mental acts, playing games, doing business and programmes of computers and presentations of information. According to a widely held view this categorization of non-patentable inventions create no barriers for the expansion of the patentability definition. Although the EPC makes no attempt to define what is meant by invention, this list of non-patentable subject matter as well as the legal history

of the provision clearly show that an invention in order to be patentable must have a *technical character*.102

It is not clear as to how in a given case the features of a "technical character" could be determined. It could be a subjective decision altogether, depending upon the degree of emphasis accorded to the existence of the technical character. The patentability of software-related inventions is justified on these grounds. Mathematical algorithms with leading technical features and industrial applicability by this logic will have to be patentable. American position expressed in case laws, as we have seen, is almost identical with this interpretation.

**IV. Patentability of Software-related Inventions**

The term "computer software" is understood to mean computer programmes and other material prepared in connection with the use of computers.103 The fundamental question with regard to computer programme concerns whether it constitutes an invention. Until recently, computer programmes were protected by invoking provisions relating to copyright law.104 For example, the consensus recorded in the Report of

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103 Background Reading Material, n.1, p.363; This includes programme descriptions and explanatory materials concerning the application of computer programmes, for example, problem descriptions and user instructions.

104 For a brief evolutionary account of the computer technology, see K. Gopinath.
the Second Committee of Governmental Experts of Copyright Problems Arising from the Use of Computers for Access to or the Creation of Work - convened by WIPO and UNESCO in June 1982 had supported the protection under copyright law, irrespective of the form of the output, such as (a) a hard copy printout; or (b) a fixation in machine readable form; or (c) a transmission from the data base of one system into the memory of another system (with or without an intermediary fixation); or (d) making the work available to the public by audio or visual images present on a screen. It is further argued that inventions are generally understood to be solutions to a technical problem, employing scientific principles; computer software, on the other hand, are in the form of instructions and are not normally categorized as inventions. A number of national legislations therefore contain an express provision excluding computer software from patent protection. Nevertheless, in cases where computer programme or software forms an integral part of a process, the software could be considered as forming part of the process and the patent protection would be accorded subject to the fulfilment of

105Background Reading Material, n.1, p.364.

106Existence, Scope and Form of Generally Internationally Accepted and Applied Standards/Norms for the Protection of Intellectual Property (Geneva: WIPO: 1988). p.97; Computer programmes are specifically excluded from patent protection in the following countries: Australia, Austria, Belgium, Brazil, Canada, Cyprus, Denmark, EPC, Finland, France, Germany (now United Germany), Ghana, Hungary, Israel, Italy, Japan, Kenya, Mexico, Norway, OAPI, Poland, Portugal, South Africa, Spain, Sweden, Switzerland, Thailand, Uganda, United Kingdom, United Republic of Tanzania, Yugoslavia (former).
patentability criteria. Uncertainty, however, exists as regards the protection of commands of a language in a computer software. The dichotomy existing within the copyright law could be briefly summarized as "...ideas may not be protected. only the explicit expression thereof". Patent law, on the contrary, has no such "idea or expression" dichotomy. The information which is processed under a patent grant should be novel, original and non-obvious. There is also a suggestion that more tractable protection for computer software would be by way of trade secrets. There is also a *sui generis* approach which had been considered by the WIPO initially. In this category of protection software inventions were sought to be protected through an independent system of protection i.e., a protection different from copyrights and patents.

The UNCTAD's *Trade and Development Report. 1991* briefly outlines the dilemma, particularly for the developing countries, as regards the patent protection of computer software. While noting the fact that copyright protection of software has become more controversial than ever, it stated:

> In reality, despite the fact that many developing (and developed) countries have followed the initial United States position of recognizing copyright law as the primary vehicle for software protection, the trend in the United States now favours concurrent patent protection for those computer programmes that satisfy the requirements of patentability. This poses the question as to whether the developing countries ought to be locked into

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108 The difference between the copyright, patent and *sui generis* system as regards the protection of computer software will be discussed in the following pages.
copyright law at all, with all the laden risks of overprotection, when the major world producer in this field has still not clearly resolved the issue of whether copyrights or patents are the appropriate legal framework for software protection.\footnote{109}

Even the existing consensus as regards the copyright protection for computer software, as noted in this Report, depended mainly on fears that the developing countries may not otherwise agree to provide adequate and effective levels of protection.\footnote{110} Some authors feel that copyrights, though distinct from patents, also require careful consideration as "many copyrights are disingenuously being attempted to be defended in courts as "patents"."\footnote{111}

From the above discussion it is clear that the mode of protection of software inventions -- whether by patents or copyright -- has become a crucial issue.\footnote{112}

Integrated circuits and plant varieties, for example, were protected under the \textit{sui generis}
system so as to create an effective network of protection. One of the reasons for needing such a special protection could be attributed to the nature of the software invention itself. Software inventions are generally easily copiable and possess a very high rate of diffusion and dissemination. In view of this, the extent of protection and mode of working within a definite time frame has assumed lesser importance. More importantly, the adaptability of new generations' software inventions in a developing country needs greater consideration. So, the protection envisaged particularly for the software inventions in developing countries should take into account such concepts as innovation, adaptability and copiability including in certain cases measures to regulate restrictive and anti-competitive trade practices.

Considering the special features of the software inventions, it was initially decided to evolve a *sui generis* system of protection. It should be noted that in 1983 WIPO had convened a conference aimed at the conclusion of a special treaty granting *sui generis* protection to software inventions. However, one of the reasons for choosing copyright protection has been summed by the conclusions of the Group of Experts on the Copyright Aspects of the Protection of Computer Software in 1985 as "some countries seemed not to have decided yet which way they wanted to choose, while a smaller

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113 It should be noted that the protection of computer programmes has been on the agenda of various WIPO meetings since 1971. In June 1974, an Advisory Group of Experts on the Protection of Computer Programmes was convened, which later met three more times. With the assistance of that Group, the International Bureau of WIPO drew up and published in 1978, "Model Provisions on the Computer Software", See Existence, Scope and Form of Generally Internationally Accepted and Applied Standards/Norms for the Protection of Intellectual Property, n.106, p.16.
number of countries were in favour of a *sui generis* solution outside copyright".  

The United States, in 1980, following recommendations made by its National Commission on New Technological Uses of Copyrighted Works (CONTU) extended copyright protection to computer programmes. The preference for copyright protection, it was argued was prompted by the U.S. decision to opt for it in 1980. Although there is no evidence to prove this, in early 1980s majority of the countries preferred to legislate providing for copyright protection to computer programmes.

A. Copyright Protection for Softwares

The adoption of the copyright protection to computer programmes in 1980s generated questions such as whether copyright protection extends to operation as well as application systems, to source codes as well as to object codes and software fixed on

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115In the 1980 amendments, a definition of "Computer Program" was added to section 101 of the U.S. Copyright Act of 1976 and a new section 117 was added, limiting computer-program copyright holders' exclusive rights. The owner of a computer program may make another copy or adoption of that program if the copy is needed for a specific step in using the computer program or if the copy is for archival purposes; See. Finding a Balance, n.112, p.60.

116Soltysinski, n.114, p.28.
read-only memory chips.\textsuperscript{117} The latter part of 1980s saw what could be termed as the "second generation cases". The major issues dealt by these case laws were concerning the copyrightability of the computer's organization and structure, the protectability of computer audio-visual interface elements, the enforceability of "shrink-wrap" licences and the legality of reverse engineering.\textsuperscript{118}

One of the basic premises of the Copyright law -- the idea-expression dichotomy -- was challenged in \textit{Whelan Associates, Inc. Vs. Jaslow Dental Laboratory, Inc.}, (1986).\textsuperscript{119} In this case the plaintiff developed a programme for running a dental laboratory. The defendant gained lawful access to the plaintiff's source code by participating in a joint-venture to develop Whelan's programme. Subsequently, the defendant Jaslow "rewrote" the plaintiff's software for use on another computer. The Court, it is noted, admitted that the adoption was not comparable to the literal translation of a book since it required a study of the basic source code and that a substantial portion of the plaintiff's education into the ways of how dental laboratories work came from the

\textsuperscript{117}Ibid., p.6; One of the important cases which addressed these problems was \textit{Apple Vs. Franklin} (decided by the Third Circuit in 1983) 714 F2d 1240 (3rd Cir.1983). It specifically addressed the question whether a copyright can exist in a computer program expressed in object code as well as source code. The Court described source code as usually written in a higher-level programming language and object code as the version of the program in which the source code language is converted into (binary or hexadecimal) machine language. The court determined that both the source code and the object code are copyrightable; also see, Finding a Balance, n.112, p.68.

\textsuperscript{118}Ibid., p.8; For the European perspectives, see, \textit{Green Paper on Copyright and the Challenge of Technology - Copyright Issues Requiring Immediate Action: Communications from the Commission} (1988, Commission Office, European Commission).

\textsuperscript{119}797 F.2d (1986) 122; also see Finding a Balance, n.112, p.70.
defendant. The Court, nevertheless, held that it was an actionable copying as there was substantial similarity in the two programmes, in their overall structure and organization. Although this case was hailed as strengthening the Copyright protection to software inventions, the main criticism arose from the extent of protection granted. In other words, the court in order to strengthen the copyright protection to software extended protection to non-copyrightable elements of the work.

With the rapid developments made in the software industry, the U.S. case Law relating to copyright law found new ways of accommodating new situations. The recent times have seen rapid proliferation of computers in homes, offices and schools. The models of computer hardwares are also becoming increasingly small. Software inventions, with the increasing functional utilities, are becoming obsolete in no time. Due to this high rate of diffusion of software inventions, and the tremendous reach it has acquired, the competition is also increasing unimaginably. Numerous software companies, even in developing countries, work relentlessly to outsmart each other by evolving new formulations. Overlapping of ideas and expressions, in these instances, is common. This has given rise to number of litigations, particularly in the U.S. and Europe questioning the prevalent idea-expression dichotomy in the Copyright Law. Reference should be made to what is termed in the U.S. as "cumulative technological progress" in which multiple innovators at the same time attempt to achieve the same goal.120

120Finding a Balance, n.112, p.188.
In this scenario, the application of Copyright Law to software inventions is being questioned. According to one extreme view,

> It is now almost commonly agreed that a major fallacy in the legal literature has been to classify software as a species of artistic, literary or scientific creativity. Functionally, computer programming constitutes a modern art of engineering". \(^{121}\)

Initially, the copyrightability of computer software was justified on the ground that it prevented others from "acquiring the functionality of the programmed computer if it is obtained by copying the "expression" in the program code". In other words, the protection sought by the software inventions were limited to program codes. In later years, software designs became more complex by including many other extraneous factors. Accordingly, with the *Whelan Assocs. Inc. Vs. Jaslow Dental Laboratory, Inc.*, the scope of the copyright law was extended to the "substantial similarity" of computer programs when the similarity exists in the structure, sequence and organization of the program. In *SAS Institute, Inc. Vs. S&H Computer Systems, Inc.*, (1985) the third circuit found that S&H infringed the copyright held in a program called SAS 79.5, which was written to run on IBM and IBM-compatible computers by converting it to run on Digital Computers. \(^{122}\) This case particularly referred to the "literal, near-literal and organizational copying" of structural detail and nearly exact duplication of the SAS structure and organization. It also referred to the idea of merger of idea and

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\(^{121}\)Soltysinski, n.114, p.12; also see Branscomb, n.107, p.47.

\(^{122}\)Finding a Balance, n.112, p.70.
The broadening of copyright concept while applying it to software inventions began with the above case. There are number of cases reported in the United States on this aspect. One of the important features of these cases related to the protection of "ideas" itself through the application of copyright law.

The increasing technical feature of software inventions has brought it under the ambit of patentable subject-matter. Copyright, according to one view, covers all "ordered expression of thought"; it protects "personal intellectual creations" which are aimed at "qualified human communication." Computer softwares are increasingly becoming mechanical and need a machine to finally operate. So, they no longer always remain "personal intellectual creations". The technical features of a software and its operation has been summed up in the following: "Although software engineers write their programs instead of designing new hard-wiring, the main function of such works is to operate a

123Ibid.

124A few important cases could be cited. *Q-Co. Industries, Inc. Vs. Hoffman* (1985): In this case defendant's program was written to run on an IBM PC in Pascal and IBM Assembler language. The Court found that the defendants program did not infringe plaintiff's program, written in Basic and Atari to run on an Atari 800-XL, in spite of similarities in the structure, sequence, and organization of the program, in addition to similarities in the program text between plaintiff and defendant's programmes; In *Healthcare Affiliated Services, Inc. Vs. Lippany*, it was held that the result of very general creative decisions were not protectable structure, sequence, and organization. Similar decisions could be found in *Plains Cotton Cooperative Association Vs. Good pasture Computer Ser., Inc.; NEC Corp. Vs. Intel Corp.* (1989). See Finding a Balance. n.112. p.70; Soltysinski. n.114. p.8.

125Ibid.
machine rather than to communicate with human beings. Although many forms of software (e.g., program descriptions, source code etc.) are perceptible to an expert, the final recipient of the program is always a computer."  

This argument, as mentioned above, is not altogether new. During 1950s and 1960s, at the time of evolution of computer technology, patents were granted to the computer hardware. At that time functional utility of the software was not completely identified. In the 1970s, with the evolution of software technology and its varied uses, a search began for the appropriate mode of protection. Copyright was thought to be the appropriate protective mechanism for the burgeoning software formulations. By late 1980s, it was realised that the software inventions were assuming more and more technical features. It became almost impossible to defend the protection granted by copyright law. There was a feeling that copyright law may not be suitable for the adequate protection of software technology. So, the question of patentability of computer software once again became the crucial issue.

B. Patents and Software-related Inventions

During 1960s, patent offices, particularly in the U.S., were not sure about the patentability of software-related inventions. For instance, in 1964 the U.S. Patent Office

\[^{126}\text{Ibid.}\]

\[^{127}\text{Branscomb, n.107. p.47.}\]
denied the patentability of programs, characterizing them as "creations in the area of thought." This period also saw constant tussle between software developers and the US patent office which continued to deny the protection. In order to clarify the existing uncertainty it published a guideline in 1968 in which it stated that computer programs, however claimed, were not patentable unless combined with an apparatus which caused the physical transformation of matter.

The EPC, on the other hand, specifically excluded "programs for computers" from the purview of patent protection. There was, however, an exception. This exception emerges from the actual practice of the EPO. Although the EPC makes no attempt to define in Article 52 (2) what subject matter constitutes an invention, the Guidelines for Examination in the EPO make it clear that invention within the meaning of Article 52(1) must be of both a concrete and a technical character. The EPC

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129 Finding a Balance, n.112, p.45: The Court of Customs and Patents Appeal (C.C.P.A). In re Prater, 415 F.2 1393 (C.C.P.A. 1969) stated that "Patent protection for a process disclosed as being a sequence or combination of steps, capable of performance without human intervention and directed to an industrial technology -- a "useful art" within the intendment of the Constitution -- is not precluded by the mere fact that the process could alternatively be carried out by mental steps". This ratio was followed in C.C.P.A's two other cases namely. In re Bernhart, 417, F.2d 1395 (C.C.P.A. 1969) and In re Musgrave, 431 F.2d. 882 (C.C.P.A., 1970).

130 Finding Balance, n.112, p.46: The legal theory on which this guideline was based related to what could be termed as doctrine of "mental steps" -- i.e., if the process could be carried out purely in one's mind, the invention was not patentable.

131 Article 52 (2) of the EPC.

132 Kolle, n.102, p.661.
Guidelines do not define the concept of "technical character". It is, however, pointed out that some assistance to define this concept could be drawn from Rules 27 and 28 of the EPC which *inter alia*, seek that a patentable invention (a) must relate to a technical field: (b) must be concerned with a technical problem; (c) must be characterised in the claims by means of technical features; (d) makes a technical contribution to the art (i.e., a contribution which goes beyond pure programming art or pure scientific theories and so on): it is not excluded from patentability, irrespective of whether a computer program plays a role in the claimed subject-matter.\(^\text{111}\)

The Japanese Patent Law is too specific in this regard. It, for instance, provides definition of "invention" as the "highly advanced creation of technical ideas by which a law of nature is utilized." Further, it provides "any industrially applicable invention may obtain a patent therefor".\(^\text{133}\) As regards the practice of the Japanese Patent Examination Standard concerning particularly computer programs provides that

the eligibility for invention of the subject-matter relating to a computer program is determined as to whether the procedure implemented by a computer program as regarded as a creation of technical idea utilizing laws of nature; -- if the subject-matter relating to microcomputer applied technology is regarded as an apparatus comprising means for implementing specific functions provided by microcomputer, said subject-matter is eligible for apparatus invention; -- in determining the patentability of computer-related inventions no distinction is made as to

\(^{111}\)Ibid; also see, "Patentability of Computer-Related Inventions : A Comparative Study Prepared by the EPO in September 1989 in Connection With the Trilateral Cooperation Between the EPO, JPO and USPTO", *IIC*, vol.21, (1990), p.821.

\(^{133}\)Ibid., p.818.
whether a data processing operation is implemented by means of a computer program or by means of special circuitry.”

The United States Manual of Patent Examination Procedure Provides that "an invention must be in the technological arts". If this basic criteria is fulfilled it makes no distinction between computer-related inventions and any other statutory subject-matter. It also seeks to make it clear that "the examining approach for a claim involving a computer programs algorithm or the like is the same as for any other type of invention".

From the above categorization, it is clear that major software-manufacturing countries grant patents to software-related inventions provided they fulfill the basic

\[134\text{Ibid., p.820;} \]
Following subject-matters have been specifically excluded from patentability by the Japanese Patent Office: (i) programming languages (which are man made rules for the purpose of describing program); (ii) data to be dealt with by computer (which merely express various phenomena, e.g., social or natural phenomena, with combinations of figures or symbols); (iii) documents as such (they are merely the permanent records which can be read by man or machine); (iv) law of nature itself; (v) subject-matter utilizing laws other than laws of nature (e.g., economical laws or laws of social phenomena) like a method for doing business; (vi) subject-matter utilizing mental activities (reasoning or memorizing), like a calculation method using mathematical formula derived from mathematical activities or an advertising method to attract public attention; and (vii) subject-matter contradictory to laws of nature like a perpetuum mobile.

\[135\text{Ibid., p.819;} \]

\[136\text{Ibid. It further adds that "subject-matter otherwise statutory does not become non-statutory simply because it uses a computer program". And it also outlines the subject-matter which may be non-statutory. These are general exceptions to the patentability and are identical to Japanese procedures.} \]
criteria of a "technical character". In the Indian context, although its patent law does not define an invention in terms of a "technical character", in section 2(j), any new and useful and mechanically-dominant software-related inventions should be patentable. There is nothing in section 3 which outlines specifically what inventions are not patentable excluding any form of software-related inventions. So, in India, patentability of the software-related inventions are, as in Japan and EPO, dependent on the procedures adopted by the patent office to determine the "technical character" of the invention.

The first case which considered directly the issue of patentability of computer software was Gottschalk Vs. Benson in the United States. The issue before the court was one of converting "binary coded decimal number representation into binary number representations". The U.S. Supreme Court while considering this question stated, "Here the "process" claim is so abstract and sweeping as to cover both known and

137Section 2(j) provides the definition of an "invention" as "any new and useful -- (i) art, process, method or manner of manufacture; (ii) machine, apparatus or other article; (iii) substance produced by manufacture, and includes any new and useful improvement of any of them, and an alleged invention."

138The judicial determination of the aspects relating to the patentability of software-related inventions, unlike in the US and Europe, have not yet taken place in India; see the survey of a Indian cases at the High Courts and Supreme Court in Tables 6.2 to 6.5.

139409 U.S. 63 (1972); This case was initially decided by the U.S. Court of Customs and Patents Appeal (C.C.P.A) in 1972; see Finding a Balance, n.112, p.47.

140Ibid.
unknown uses of the BCD (binary code decimal numbers) to pure-binary conversion. The end use may (1) vary from the operation of a train to verification of drivers' licenses to researching the law books for precedents and (2) be performed through any existing machinery or future-devised machinery or without any apparatus.141 The Court characterized the Benson method as a "mathematical formula" and went on to rule that process are not patentable if they only claim or "preempt" a mathematical formula.142

The second major case addressed by the U.S. Supreme Court concerning the patentability of software-inventions was in Parker Vs. Flook.143 In this case the issue before the Court was concerning a method for updating "alarm limits" during a catalytic conversion process, in which the only novel feature was the use of a particular mathematical formula. The Court addressed the issue of "whether the identification of a limited category of useful, though conventional, post solution applications of such

141Ibid.

142Ibid., p.48. Before Benson's Case, the C.C.P.A. had to deal with this question in number of cases, such as In re Bernhart (1969), In re Musgrave (1970), In re Mahoney (1970) and In re MacIlroy (1971).

143437 U.S. 584 (1978). Until this case was decided the C.C.P.A had to deal with issue of software patentability in the following cases: In re Deutsch (1977), In re Richman (1977), In re de Castelet (1977). In re Freeman (1978), and In re Toma (1978). All these cases were concerned with various claims concerning software. For a brief note on each of these cases refer to Finding a Balance, n.112, p.50.
formula makes respondent's method eligible for patent protection. The Court answered this in the negative and stated that the subject matter before it was unpatentable. However, it left open the possibility of patenting computer programs and recognized that "a process is not unpatentable simply because it contains law of nature or mathematical algorithm".

In 1981 the U.S. Supreme Court decided in a 5 to 4 decision the case of Diamond Vs. Diehr. The patent claim in question was related to a process of curing synthetic rubber. The process included use of a known mathematical formula to determine the time for curing, and a programmed digital computer to determine the proper length of time for curing the product and automatically opening the mould. While granting patentability to this claim the Court stated that "the claims must be considered in their entirety." It also stated that the incorporation of a computer in the process claimed

144 Ibid.

145 Ibid. The C.C.P.A considered few cases based on this "Flook Principle". These cases were: In re Johnson (1978), In re Walter (1980), and In re Bradley (1979).

146 450 U.S. 175 (1981); It is however, pointed out that this decision did not conclusively determine whether a computer program, standing alone, may be patented. In order to overcome this uncertainty the U.S. Patent Office issued guidelines based on the decisions rendered so far (These guidelines have been briefly outlined already). The C.C.P.A continued to decide the cases relating to software-related inventions with some uncertainty. These cases, all decided by C.C.P.A in 1982, were In re Pardo, In re Taner, In re Abele and In re Meyer. Till the decisions in the cases of In re Grams and In re Iwahashi by the Court of Appeals for the Federal Circuit (established on October 1, 1982) in 1989, there were no decisions by any other lower court; see Finding a Balance, n.112, p.50.
in the application does not render the process as a whole to be unpatentable subject matter.

_In re Grams_ decided by the Court of Appeals for the Federal Circuit in 1989, involved claims that combined a mathematical algorithm with data gathering steps. Similar aspects were involved in the case of _In re Iwahashi_ the court decided that the claimed process was non-statutory subject matter because the step of performing lab tests "merely provides the data for the algorithm". In the case of _In re Iwahashi_, the Court found that the "mathematical algorithm was physically implemented to define structural relationship between physical elements of the claim". So, it was patentable.

In the European context, the issue of software patentability is less controversial. One reason for this is that the EPO Guidelines clearly outline the extent and scope of patentability. There are, however, a few cases decided by the Member States of the EPO. The EPO Boards of Appeal, on the other hand, has decided number of cases concerning software-related inventions which had come before it either on appeal or in the process of opposition. These software-related inventions which had come before the EPO

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147Ibid., p.54; Also see Soltysinski, n.114, p.6.

148Ibid.

149For a brief narration of facts of the cases decided by the EPO Boards of Appeals, see Kolle, n.102, p.665.
Boards of Appeal could be categorized as, (i) Computer Related Inventions; (ii) Document Abstracting and Retrieving; and (iii) Text processing. In these cases EPO has primarily taken into account the technical character of the invention, to decide whether patentability should be accorded or not.

The Federal Supreme Court of Germany dealt with the issue of patentability of computer programme in 1976. The case which is known as Disposition Programme case addressed the issue whether software-related inventions such as algorithms or computer programs constituted patentable subject matter. The Court stated that these subject-matter become patentable only if they disclosed a new, unobvious structure of hardware or taught how to use hardware equipment in a new and unobvious way. The two recent cases are notable as they offer some guidelines. In the Seitenpuffer case, decided in 1991 by the German Federal Supreme Court, it was made clear that for the test of software-related inventions formulated in Disposition Programme case i.e., the question of whether or not the subject-matter claimed was of a technical character, it does not entirely matter whether it involved an advance in the art. In other words, it sought to emphasise on the aspect that the subject-matter should teach how to use the components of data processing system in a specific way when operating the system. This case was followed by Chinesishe Schriftzeichen in which the Court had to deal with method

\[150]Ibid., p.670.

\[151]Ibid., p.672.
for inserting Chinese characters into a program-controlled processing system. In this case also the Court laid emphasis on the "technical character of teaching". These cases broadly outline the emphasis to be placed on the technical character of the software-related inventions. Similar approach could be seen in the cases of the United Kingdom's Court of Appeal's decision in the *Merrill Lynch's Application* (1989). In this case the Court had to deal with the program-controlled data processing system. The Court held that such a system in order to be patentable subject-matter, must produce a new technical result and that the result must not itself be an item excluded from patentability.

So, it is clear from the perusal of case laws that the patentability of computer software is dependent on the extent to which it exhibited the "technical character". In addition to this, it should also be new and inventive. In India, although case law on the patentability of software is non-existent until now, the patents Act, 1970 does not specifically exclude the patentability of such software inventions which provide a "technical character" in the ultimate operation.

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152 Ibid.

153 Ibid., p.673; It has been pointed out that the same line of reasoning was followed by the Court of Appeal in a recent case, namely. *In re Gale* (1991).
C. *sui generis* Approach

As could be seen from the above discussion, both the copyright approach and the patent approach have not completely succeeded in addressing all the issues thrown up by the software-related inventions and its protection. Technical feature of the software-related invention is the only primary yardstick to identify the nature of a protection to be granted. In view of this uncertainty, initially a *sui generis* system of protection for the software-related invention had been envisaged. That, however, was not followed up in the proper perspective. In fact, WIPO had brought out Model Provisions on the Protection of Computer Software in 1978 which could be termed as a sort of *sui generis* system. The main features of this Model Law need to be considered. According to one WIPO study the Model Provisions had essentially adopted a copyright type approach (for example, they determined the originality of computer programs -- in the sense that they should be the results of their creators' own intellectual efforts -- as a criterion for obtaining protection and contained minimum standards which, in many respects, were close to the minimum standards under the Berne Convention). The term of protection envisaged in the Model Provision was shorter; at least 20 years from the date of the first use or the first commercialization of the program and, at most, 25 years from

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154Existence, Scope and Form of Generally Internationally Accepted and Applied Standards/Norms, n.106, p.16.
the time when the program was created. Considering the fast diffusion rate of Computer software, even 20 years term appears now to be very long.

In order to examine specifically the appropriate measures for the protection of computer software a Committee of Experts met under the auspices of WIPO in June 1983. A draft Treaty for the Protection of Computer Software had been prepared by the International Bureau for the consideration of the Committee. This draft treaty defined computer software as including computer programs, program descriptions and supporting material.\footnote{"WIPO : Legal Protection of Computer Software", \textit{Journal of World Trade Law}, 1984, p.537; also see Existence, Scope and Form, n.106, p.17.} Computer program was defined as "a set of instructions, capable, when incorporated in a machine-readable medium, of causing a machine having information-processing capabilities to indicate, perform or achieve a particular function, task or result". This draft treaty had also defined the extent of protection granted to computer software.\footnote{Ibid. Article 4 of the draft treaty provided for the "Protection Against Unlawful Acts".} However, majority of the developed countries represented on the Committee favoured copyright protection to software internationally. Both United States and Japan, referring to their domestic legal developments in the case of software-related inventions, sought to maintain the then prevalent mode of protection i.e., copyright.\footnote{In Japan, it should be noted, two attempts at introducing a \textit{sui generis} type of protection were made. The most recent one was the 1984 unpublished draft of a (continued...)}
application of computers and the growth of new kinds of software. Most of them felt that a *sui generis* approach could only be considered if copyright was not sufficient.

Australia, on the other hand, presented a different argument. It pointed out that a computer program resulted from an inventive idea and from the transformation of that idea into the actual program. About 25 per cent of the work involved related to the idea, and 75 per cent went into the actual writing of the program, its debugging and finalizing. According to Australian viewpoint copyright laws could protect only the final program but not the underlying idea. Moreover, it is pointed out, since copyright protected only against reproduction, a problem existed with respect to the use of the program in controlling the operation of the computer. In its view, the duration provided under the copyright law was certainly too long; ten to twenty years would be sufficient. In addition, copyright did not promote disclosure of works, but only provided for an encouragement and reward for the creator.

157(...continued)

"Program Rights Act" prepared by the Ministry of International Trade and Industry (MITI). This attempt, it has been pointed out, was at once challenged by the 1984 draft to amend the Copyright Act prepared by the Cultural Affairs Agency. This draft became law in 1985; see Zentarō Kitagawa, "Legal Protection of Computer Programs in Japan: One Aspect of Technology Law" in Regional Forum on the Impact of Emerging Technologies on the Law of Intellectual Property for Asia and the Pacific (Geneva: WIPO, 1990), p. 73.


159Ibid., p. 540.

160Ibid.
In this regard, one of the studies prepared for the U.S. Congress by the Office of Technology Assessment, entitled, "Intellectual Property Rights in an Age of Electronics and Information" makes a finding that "the present system of copyright law, which evolved under the model of print publication, may no longer serve to determine the boundaries of ownership in computer-based methods of creation and dissemination "and that "neither copyright law nor patent law has successfully accommodated works of function, such as computer programs. Copyright law may provide either too much or too little protection for them."161

The subsequent meetings in the WIPO found that the majority of the developed countries, and also some developing countries were in favour of copyright protection of computer software.162 Nevertheless, a sui generis approach needs consideration in view of the tremendous developments which have taken place within the software industry. Recent times, for instance, have seen rapid proliferation of computers in homes, offices and schools. This has created a large market for different kinds of operating system software. Large number of users are already there even in developing countries. A sui generis system of protection for computer software needs a reassessment on the strength of developing countries' capability to undertake "reverse engineering".

161Kitagawa, n.157, p.75.

162Group of Experts on the Copyright Aspects of the Protection of Computer Software (Geneva, 1985); The Executive Committee of the Berne Union also discussed this aspect in its meeting in June 1985 and June 1987; see Existence, Scope and Form, n.106, p.17.
For developing countries, "reverse engineering" techniques offer a fastest way of assimilating technology.

The term "reverse engineering" was stated to be used for the first time in U.S. Semiconductor Act, 1984, constituting a restriction on semiconductor protection law. According to this *sui generis* law a protected mask work in a semiconductor chip may be reproduced for the purpose of analysis and evaluation of the concepts contained therein, and the results of such an analysis may be incorporated into a new mask work which may possibly have originality.\(^{163}\) The process of analysis creates certain difficulties when applied to computer programmes particularly when they are protected by copyright law.\(^{164}\) A simple instance is where the object code has to be translated back into source code in the so-called "decompiling process". The process of decompilation simply means "to understand how the computer programme works". To elaborate briefly -- there are three different types of programming languages: machine language, assembly language and high-level language. Machine language programmes can

\(^{163}\)On May 26, 1989 the Treaty on Intellectual Property in Respect of Integrated Circuits was adopted by the Diplomatic Conference convened under the auspices of WIPO. This was a *sui generis* system of law to protect semiconductor chips; For the text of the Treaty see, *International Legal Materials*, vol.28 (1989), no.6, p.1477: The United States and Japan voted against this treaty on account of their disagreements concerning dispute resolution mechanism and the provision relating to "non-voluntary licensing".

\(^{164}\)Karl H. Pilny, "Legal Aspects of Interfaces and Reverse Engineering -- Protection in Germany, the United States and Japan", *IJC*, vol.23, (1992), no.2, p.209; it is notable that while reverse engineering of computer programmes is frequently considered to be admissible in the U.S. and in Japan, the German interpretation is not yet definite, particularly with regard to decompiling. These questions under German law fall in the domain of copyright law. Accordingly, difficulties arise when the analyzed programme is stored or when a hard copy of it is made.
be executed directly by the computer, but are relatively difficult to write and understand. Assembly language programmes and high-level language programmes are easier to write and understand, but cannot be executed directly by the computer. For this reason, programmes are usually first written in assembly language on a high-level language, and then translated into machine language so that they can be executed on the computer.163

From the developing countries’ point of view analytical use of computer programmes is important to the creation of competing products.166 Few developing countries, including India, have taken to software development in a big way. According to a study conducted by the National Association of Software and Service Companies (NASSCOM), the Indian software industry would gross a turnover of Rs.15,000 crores by the year 2000. On exports, NASSCOM has stated, the current financial year i.e., 1995-96 is expected to gross Rs.2,100 crore.167 The factors for such a growth lie in the cost factor at the time of setting up the software industry. The cost of entry is low and man

165Finding a Balance, n.112, p.7; According to a widely held view the "decompilation" issue had arisen because of the efforts to translate a machine language programme.


167The Times of India (New Delhi), 7 June 1995. The study points out that the Indian software industry recorded a total revenue of Rs.2065 crores during the last fiscal year. The Indian Computer hardware industry has also grown tremendously by selling 250,000 units in 1994-95. This is a jump of about 66 per cent over that of the year before when the total PC sales amounted to 150,000 units; see The Times of India (New Delhi), 22 May 1995.
power training is the crucial aspect in sustaining the competitiveness. It is pointed out that although sophisticated software tools were being used for software development by the industrialized countries, with appropriate manpower training even this deficiency could be bridged. The entry of multinational companies into this set up, particularly in developing countries may hamper their status of self-reliance. These companies may use the developing countries' resources in the form of auxiliary markets thereby affecting the existence of a competitive domestic software industry.

In addition, there are also problems concerning expensive litigation jeopardizing in the process the economic interests of smaller companies. Reference also should be made to the difficulties faced by the small software houses which do not possess the clout of larger organizations like IBM to enter into cross-licensing. For developing countries sustaining software research and development is very crucial considering the fact that the development of complex software is an unique evolutionary process. This is possible, particularly in India and other few developing countries such as Brazil, Thailand and Republic of Korea where skilled manpower costs are not that high.

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169 Ibid. An organization called the League of Programming Freedom has been in existence to fight these kinds of battles in the U.S. There are also institutions like Free Software Foundation (FSF) which believes in making certain kinds of software free so that users are free to study, copy, change and improve the software.
D. India and Software Development: Some Issues

The development of software industry has an important role in the economies of developing countries as it involves low cost of entry, though it requires intense manpower training. While in majority of the poor developing countries presence of skilled manpower is nearly absent, in India, due to various policies pursued by the government, particularly by the Department of Electronics, the scenario is quite different. The policy of establishing "software technology parks" by the Government of India has created not only new avenues of opportunities, but also certain unique problems. With the entry of numerous multinational software companies India may become a cheap supplier of software services.

Another notable point which goes in favour of developing countries as regards computer software is - the low cost of maintenance. In recent times, for instance, India has emerged as a good code writing country coupled with capabilities in systems analysis. In addition, its emerging software export market has earned $330 million during 1993-94 and is expected to cross the $1 billion by 1997.\footnote{\textit{The Economic Times} (New Delhi) 19, June 1994; it is also pointed out that compared to a mere seven companies five years back which exported software of over Rs.1 crore, their number had jumped to 131 in 1994-95. Similarly, 30 companies today export software of over Rs.15 crores, as against three in 1991-92; also see \textit{The Times of India} (New Delhi), 7 June 1995.} According to one report, now the Indian software companies have been taking a major brunt of the pirates attack. Although Indian companies have ventured into developing packaged software for the
domestic users, they have been increasingly finding it difficult to compete with pirated foreign software.\textsuperscript{171} The following Table shows the extent of worldwide software piracy in which one can see greater number of developing countries with their emerging markets facing similar problems as developed countries.

Table 6.1: Worldwide Software Piracy (1992)

<table>
<thead>
<tr>
<th>Country</th>
<th>% of Piracy</th>
<th>Losses</th>
</tr>
</thead>
<tbody>
<tr>
<td>Argentina</td>
<td>80</td>
<td>038 million</td>
</tr>
<tr>
<td>Australia/</td>
<td>45</td>
<td>160 million</td>
</tr>
<tr>
<td>New Zealand</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Brazil</td>
<td>80</td>
<td>091 million</td>
</tr>
<tr>
<td>Chile</td>
<td>75</td>
<td>028 million</td>
</tr>
<tr>
<td>Columbia</td>
<td>85</td>
<td>018 million</td>
</tr>
<tr>
<td>France</td>
<td>73</td>
<td>1.2 billion</td>
</tr>
<tr>
<td>Germany</td>
<td>62</td>
<td>1.0 billion</td>
</tr>
<tr>
<td>India</td>
<td>58</td>
<td>025 million</td>
</tr>
<tr>
<td>Italy</td>
<td>86</td>
<td>550 million</td>
</tr>
<tr>
<td>Japan</td>
<td>92</td>
<td>003 billion</td>
</tr>
<tr>
<td>Korea</td>
<td>82</td>
<td>648 million</td>
</tr>
<tr>
<td>Mexico</td>
<td>85</td>
<td>206 million</td>
</tr>
<tr>
<td>Singapore</td>
<td>41</td>
<td>024 million</td>
</tr>
<tr>
<td>Spain</td>
<td>86</td>
<td>362 million</td>
</tr>
<tr>
<td>Sweden</td>
<td>60</td>
<td>171 million</td>
</tr>
<tr>
<td>Thailand</td>
<td>99</td>
<td>181 million</td>
</tr>
<tr>
<td>UK</td>
<td>54</td>
<td>685 million</td>
</tr>
<tr>
<td>United States</td>
<td>35</td>
<td>1.9 billion</td>
</tr>
<tr>
<td>Venezuela</td>
<td>85</td>
<td>091 million</td>
</tr>
</tbody>
</table>


\textsuperscript{171}Ibid. While the Indian industry estimated the percentage of piracy in India at 58 per cent in 1992 accounting for a revenue loss of $29 million, the Washington based Software Publisher Association put the figure at $69 million in 1993 jointly for India and Pakistan. Notably, these statistics reflect losses to American companies only.
Table 6.1 clearly shows losses occurring to a number of developing countries, namely, Argentina, Brazil, Chile, Columbia, India, Mexico, and Venezuela. All these countries, except India, belong to Latin America. However, the significant losses are also noticeable to the Newly Industrialized Countries (NIC), namely, Korea, Singapore and Thailand. Among developing countries, including the NIC, the highest pirated loss is recorded in Mexico and Korea. The loss recorded by the developed countries, although huge, is comparable with the loss incurred by developing countries. In other words, the software market in few of the developing countries is also growing at a faster rate.

With a view to restrict piracy majority of the developing countries have brought about changes in their copyright laws. Notably, enforcement measures in these countries have been made more stringent. For example, the Indian Copyright Act, amended on 11 May 1994, in section 62B punishes any person who knowingly makes use of a computer of an infringing copy of a computer programme with imprisonment for a term which shall not be less than seven days but extendable to seven years with a fine ranging between Rs.50,000 and Rs.2,00,000. However, certain acts will not constitute the infringement of copyright namely, (a) the making of copies or adaptation of a computer programme by the lawful possessor of a copy of such computer programme, from such copy - (i) in order to utilize the computer programme for the purpose for which it was supplied; or (ii) to make up back-up copies purely as a temporary protection against loss, destruction or damage in order only to utilize the computer programme for the purpose
for which it was supplied.\textsuperscript{172} Even then, the problem of good-faith users need special treatment. In other words, there may be users who may not be aware that they are using pirated software. So, the Indian software companies are increasingly trying to offer efficient aftersales services with other facilities to combat piracy. Considering all these developments it is expected that the Indian software industry would gross a turn over of $5 billion in the next five years.\textsuperscript{173} Considering the fast growth rate of Indian software industry, it is necessary to examine the question whether it should adopt a \textit{sui generis} system of protection for the software or should it continue with the copyright protection. The technical nature of the evolving software products even in India may create a need to consider the protection of softwares by patents. It would be appropriate, in our view, to adopt the EPO practice in which technical nature of the invention would conclusively decide the nature of protection. A \textit{sui generis} approach is feasible only when all the other countries seek to protect software inventions in that system. Otherwise, the international protection of software-related inventions may pose problems for the Indian software manufacturers.

\textsuperscript{172}Section 62B of the Indian Copyright Act.

\textsuperscript{173}The Times of India (New Delhi), 7 June 1995.
V. Summation

The patentability criteria, namely, novelty, inventiveness and industrial applicability essentially fall within the domain of municipal law. In other words, these criteria are decided by the assessment of the patent examiner at any given point of time. Subjectivity in his assessment cannot be altogether excluded. Definitional concerns regarding patentability criteria, for these reasons, need periodic consideration. As shown in our study, the domestic courts which interpret these criteria in the context of evolving new technology find it trifle difficult to stick to a uniform definitional standards. It is also shown in the study that these criteria are not pure legal concepts in the sense that their application is dependent on factors such as the technological development, innovation, skilled manpower and so on. For developed countries an expanded interpretation of the patentability criteria serves the purpose of protecting new and emerging technologies. The same is, however, not true with the developing countries. The evolving concept of patentability in developing countries has to consider aspects which are basically economic in nature. An expanded interpretation may only serve the interests of few of the largest MNCs operating in developing countries. For instance, the concept of novelty is a relative one. Inventiveness, on the other hand, is dependent on the definition of "state of the art". The consideration of a "state of the art" in any country is a question of fact. So, the objective assessment may not always be possible.

In this light, the study focused on certain important cases decided in India, UK, USA, China and Europe. The problem becomes compounded particularly while assessing
the patentability criteria of new and sensitive technologies such as software-related inventions. There is still no certainty as to what form of protection should be granted to software-related inventions. Although copyright protection to software is preferred in most of the countries, there is an increasing preference for patent protection also. The reasons for such a preference could be found in the nature of the evolving technology itself. Its high-rate of diffusion and quick obsoleteness does not make copyright protection a viable one. With the increasing claims to show technical character in the software-related inventions patent protection is being offered as an alternative. An approach which is gaining ground is the *sui generis* approach. This approach proposes to take a path which can bridge lacunae existing in copyrights and patents. For India and other developing countries this evolving conceptual framework has immense importance. Any protection granted should not hamper the process of "reverse engineering". India, for example, is evolving as a major player in the arena of software development at the international level.

In recent times, the issues relating to patentability have been posing unique problems. New technological innovations are bringing in new forms of subject matter under the ambit of patentability. For instance, the developments in the biotechnological field have been raising controversial questions. At one level, the patentability of life-forms itself needs consideration in the light of new formulations emerging in the area of biotechnology, genetic engineering and plant varieties. The next chapter will consider some of these aspects in greater detail.
Table 6.2: A Survey of Indian Cases Relating to Patents Decided by the Supreme Court and the High Courts During 1970-75.

<table>
<thead>
<tr>
<th>No.</th>
<th>Name of the Case and Citation</th>
<th>Primary Issues</th>
<th>Major Findings</th>
<th>Decision</th>
</tr>
</thead>
<tbody>
<tr>
<td>I.</td>
<td>Payasha Industries Co. Ltd., vs. Dy. Controller of Patents and Designs (AIR 1975, Calcutta 178).</td>
<td>Opposition to an application for patent for an invention under Section 9(d) of the Act of 1911. Subsequently, a similar plea under the new Patents Act, 1970, Section 25(e) was raised. The scope of the provisions were at issue.</td>
<td>The Court held that it would not give any finding on the question of whether invention was publicly used or publicly known. Instead, it would allow the agitation of the question whether the alleged invention was an invention at all within the meaning of the Patents Act, 1970 in appropriate proceedings.</td>
<td>Appeal dismissed</td>
</tr>
<tr>
<td>II.</td>
<td>Ram Naran Kher vs. M/s Ambassador Industries, New Delhi (AIR 1976, Delhi 87).</td>
<td>Suit for infringement of patent pertaining to air cooler. Injunction sought. Defendants sought revocation under Section 64(1) for insufficient disclosure.</td>
<td>The Court stated that it would be reluctant to grant an interim injunction if the defendants dispute successfully the validity of the patent grant.</td>
<td>Although injunction was vacated, defendants were directed to maintain correct and regular accounts and file a copy regularly to the Court during the pendency of the suit.</td>
</tr>
<tr>
<td>III.</td>
<td>Raytheon Company, vs. The Controller of Patents and Designs (AIR 1974, Calcutta 336).</td>
<td>Central Government's opinion as to whether the patent in any way touched inventions relating to atomic energy operations. And the Central Government opined that patent should not be granted.</td>
<td>The Court refused to entertain any other grounds such as Section 65 (revocation) and Section 80 (exercise of discretionary power). Section 4 of the Patents Act, 1970 was primarily considered for the decision.</td>
<td>Appeal dismissed</td>
</tr>
</tbody>
</table>

Note: 1970 Act refers to the Indian Patents Act, 1970. Act of 1911 refers to The Indian Patents and Designs Act, 1911. AIR refers to "All India Reporter".

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<th>Major Findings</th>
<th>Decision</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Imperial Chemical Industries Ltd. Vs. Controller General of Patents, Designs and Trade Mark (AIR 1978, Calcutta 77).</td>
<td>An appeal filed under the Section 116 of the 1970 Act against Controller’s order under Section 88 (3) (terms of licences of right) of the 1970 Act. The case partly related to a chemical process. The question was also whether the claims in the patent specification could be bifurcated.</td>
<td>Salient features of the patent grant under Section 2(m) were: (a) patent must be for an invention not for a discovery; (b) one invention to have one patent only; (c) patent could be for substance or for a process; (d) not possible to bifurcate a patent and state that one relates to the substance and the other to the process; (e) sufficient and clear disclosure; (f) it is the claims and claims alone which constitute the patent.</td>
<td>The review of the settlement of terms of the licence was, although preferable, in view of the patent in question was due to expire in July 1977, the Court felt that this was an exercise in futility. Accordingly, appeal was dismissed.</td>
</tr>
<tr>
<td>II.</td>
<td>M/s Bishwanath Prasad Radhey Shyam Vs. M/s Hindustan Metal Industries (1979 ALL.L.J. 290) or (AIR 1982 Supreme Court 1444)</td>
<td>Whether the patent in question was inventor's own discovery as opposed to mere verification of what was already known. Whether an alleged invention involves novelty and an &quot;inventive step&quot; is a mixed question of law and fact, depending largely on the circumstance of the case.</td>
<td>The fact that the Controller has granted patent does not give rise to presumption in favour of the validity of the patent...As far as possible the claims must be so construed as to give an effective meaning to each of them, but the specification and the claims must be looked at and construed together.</td>
<td>The patent in question neither a manner of new manufacture nor a distinctive improvement involving any novelty or inventive step having regard to the scientific knowledge existing in the country.</td>
</tr>
</tbody>
</table>
### III. Aluminium Company of America, Vs. Joint Controller of Patents and Designs (AIR 1979, Calcutta 210)

| Patent claim related to a process of desublimation resulting in the production of Aluminium Chloride in solid lobular form. Though the final process of desublimation was a physical process, the earlier stages involved chemical process. Whether Section 5 (b) of the 1970 Act was applicable? | The entire process must be looked into and that involved the chemical process. The grant of patent to the applicant would, therefore, be barred under Section 5(b). | Accordingly, appeal was dismissed. |

### IV. M/s National Development Corporation of India, Vs. The Delhi Cloth and General Mills Co. Ltd. (AIR 1980, Delhi, 132).

| A case concerning assignment of a patent under Section 68 of the 1970 Act. | An assignment of a patent reduced into writing and containing all the terms and conditions of the transfer is a valid compliance of the requirements of Section 68 of the Patents Act. Principles governing grant of temporary injunction under the Section 108 of the 1970 Act; that there was a *prima facie* case; that the patent was valid and infringed; that the balance of convenience was in favour of the injunction being granted. | Confirmation of the *ex parte* injunction and restrained the defendants from infringing the plaintiff's patent. |

**Note:** 1970 Act refers to the Indian Patents Act, 1970. Act of 1911 refers to the Indian Patents and Designs Act, 1911. AIR refers to "All India Reporter".
Table 6.4: A survey of Indian Cases Relating to Patents Decided by the Supreme Court and the High Courts during 1981-85.

<table>
<thead>
<tr>
<th>No.</th>
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<th>Major Findings</th>
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<tbody>
<tr>
<td>I.</td>
<td>Anup Engineering Ltd. Vs. The Controller of Patents New Delhi and Others (AIR 1982, Gujarat 250).</td>
<td>The right to lodge objections or opposition to grant of any patent under Section 25 of the 1970 Act. The maintainability of the petition on the grounds of improper jurisdiction was also considered.</td>
<td>Without entering into the question whether or firs appeal or a special civil application was maintainable in the Court, the Court considered it a fit case even having regard to the powers under Article 226 of the Constitution, that the necessary relief must be given to the petitioner-company whose only grievance was that it must be heard before the grant of any patent to respondent.</td>
<td>Directed the Controller to decide the application of the petitioner-company in accordance with law.</td>
</tr>
<tr>
<td>II.</td>
<td>Bayer Aktiengesellschaft of Leverkosen, Federal Republic of Germany Vs. Controller of Patents, Government of India (AIR 1982, Calcutta 30).</td>
<td>A compound, namely &quot;Chlorothio-N-Phthalimide&quot; was stated to be wrongly classified as &quot;drug&quot; and period of patent was fixed at 7 years under Section 53 of the 1970 Act. Hence, the application for rectification of the register by deleting 7 years and inserting in its place 14 years by invoking Section 71 of the 1970 Act.</td>
<td>On the merits, a plea was taken to distinguish between the scope of the word &quot;herbicidal&quot; used in the complete specification and &quot;weedicide&quot; mentioned in Section 22(1) (1) of the 1970 Act.</td>
<td>It was held that the Controller had correctly classified the product and had fixed the term of the patent in accordance with the provisions of Section 53 (1) (a) of the 1970 Act.</td>
</tr>
</tbody>
</table>
### III. Ajay Industrial Corporation Vs. Shiro Kanao of Ibraki City (AIR 1983, Delhi 496).

- **The scope of "revocation" and its procedure considered under Section 64 of the 1970 Act.** The main question was whether it was necessary to seek revocation only by way of a counter-claim.
- That there was no statutory requirement that in a case where a suit for infringement is pending, revocation of the patent could be sought for only by way of a counter-claim and not by way of a separate and independent application. The "person interested" within the meaning of Section 64 of the 1970 Act should have a "direct, present and tangible commercial interest".
- Appellant failed to prove the grounds of "revocation". Accordingly appeal dismissed.

### IV. Press Metal Corporation Limited Vs. Noshir Sorabji Pochkhawala and another (AIR 1983 Bombay 144).

- **Application for registration of patent for invention relating to an "improvement in or relating to Mufflers or Exhaust Silences for Internal Combustion Engines".** Objections were raised under sections 25(1) (b) and 29 on the ground of prior publication, and obviousness (Sections 25(1) (e) and (f)).
- No hard and fast rule to consider what is the new and useful method or manner of manufacture. It need not necessarily be any product i.e., need not necessarily be a new article. "It may be any physical phenomenon in which the effect be it creation or merely alteration may be observed".
- Held that the alleged invention was no more than workshop modification and it was no invention at all. Moreover, it was obvious, there was no invention.
Guest Keen Williams Ltd., Vs. Controller of Patents and Designs (AIR 1985, Calcutta 334)

The scope of evidence by affidavits under the provisions of 1970 Act. The concerned provisions were: Sections 6, 77, 79 and 116.

The limits of Controller's discretionary authority relating to call for evidence were determined. The question as regards whether a party could claim as a matter of right to call for oral evidence and cross-examine was also considered.

Held that the High Court in exercise of its writ jurisdiction (Article 226 of the Constitution) not to interfere with the discretionary order passed by Controller on interlocutory application.

Note: 1970 Act refers to the Indian Patents Act, 1970. Act of 1911 refers to the The Indian Patents and Designs Act, 1911. AIR in the Citation refers to "All India Reporter"
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<tr>
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<tbody>
<tr>
<td>I.</td>
<td>Monsanto Company Vs. Cor-amandal Indag Products (P) Ltd. (AIR 1986 Supreme Court 712).</td>
<td>Infringement of patent was alleged in respect of the active agent used in the patented product, a herbicide. Defendant claimed that the formula for the herbicide was known and the process used was also well-known. He sought revocation under Section 107 and 64 of the 1970 Act.</td>
<td>The scope of Section 64 considered. To satisfy the requirement of publicly known, it is not necessary that it should be widely used to the knowledge of the consumer public. It is sufficient if it is known to the persons who are engaged in the pursuit of the knowledge of the patented product or process either as men of science or men of commerce or consumers.</td>
<td>Held that the plaintiffs were merely camouflaging substance whose discovery was known throughout the world and trying to enfold it in their patent specification. That patent, therefore, was liable to be revoked.</td>
</tr>
<tr>
<td>II.</td>
<td>Falcon Corporation incorporated in USA, Vs. Industrial Engineering Corporation (AIR 1987 Allahabad 338).</td>
<td>Suit for infringement of patent. In this defendant raised the plea that patent set up by the plaintiff was invalid. Was it a counter-claim? If yes, should the High Court entertain the suit?</td>
<td>Defendants plea against the validity of the patent was only for the defence. It was not a counter-claim.</td>
<td>Held that no transfer envisaged under proviso to Section 104. So revision failed and was dismissed.</td>
</tr>
</tbody>
</table>
### III. M/s Scooter India Ltd., Vs. M/s Jaya Hind Industries Ltd., and another (AIR 1988, Delhi, 82)

An application for patent was to be made in the form prescribed and filed in the appropriate patent office. In this case the patent application was filed in the patent office, Bombay. It would follow therefore, appeal against Deputy Controller’s order should be filed in the Bombay High Court. The question was: Could the "appeal" be filed in any other High Courts under Sections 116 and 117 of the 1970 Act.

Reference to Section 2(1)(i) of the 1970 Act which defined a "High Court" made. Once the application was filed as prescribed under Section 7 of the 1970 Act, the jurisdiction of the High Court to which an appeal would lie was also fixed. The court discussed the scope of "appealing" provision and its requirements.

Held that the Court had no jurisdiction to entertain the appeal.

### IV. Thomson Brandt Vs. Controller of Patents and Designs (AIR 1989, Delhi 249)

An appeal under Section 116 of the 1970 Act against the order of Controller rejecting the grant of patent in respect of a process of manufacture.

References were made to the Sections 2(1)(j), 3 and 5 of the 1970 Act. A distinction was drawn between the "process of manufacture" and the "substance produced by the manufacture".

The Controller has not enquired into the truth, correctness or usefulness of the claim and had further gone wrong in assuming that a process of manufacture unconnected with the product of manufacture could not be patented.

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**Note:** 1970 Act refers to the Indian Patents Act, 1970. Act of 1911 refers to the The Indian Patents and Designs Act, 1911. AIR in the citation refers to "All India Reporter".