CHAPTER IX

SUMMARY AND CONCLUSIONS

One of the major contentious issues between the industrialised and developing countries in recent years has been the problem of protection of IPRs, especially patents. The reasons for so much attention being paid to the issue of patents include: First, huge increases in productivity and new products through a wave of new technological and industrial developments in the fields of electronics, computer technology, biotechnology, material technology, agriculture and expanding industrial use of robots. Second, improvements in transport and communications along with production systems have caused globalisation of markets. Third, the increase in the significance of R & D for competition and the ascendancy of enterprise based R & D activity which now accounts for not only most of the inventions and innovations but also most of the world's patent grants. Fourth, the spread of industrialisation to new parts of the world has resulted in the changing competitive structure of international trade and the emergence of multipolarity in global technological leadership.

In brief, in the contemporary context, the protection of IPRs, especially patents, has become a crucial element in the trade policy of industrialised countries. These countries whose nationals file the largest number of patents every year have realised the importance of a uniform global IPR system;
it is viewed by them as an instrument for sustaining technological competitiveness at a global level. The emphasis towards universalisation of rules suitable to the patent law of the industrialised countries is reflected in the Final Act Embodying the Results of the Uruguay Round of Multilateral Trade Negotiations of 15 December 1993, or the so-called GATT World Trade Treaty which was formally signed on 15 April 1994 at Marrakesh, Morocco, by over 120 participating countries; more particularly, in its Agreement on TRIPS. The aim of the latter Agreement is to reduce distortions and impediments to international trade; take into account the need to promote effective and adequate protection of IPRs; and to ensure that measures and procedures to enforce IPRs do not themselves become barriers to legitimate trade. It also recognises IPRs as "private rights".

The need for a uniform global patent system was, however, opposed by the developing countries of the South —whose practices would be most immediately affected —on the grounds that there would be an increase in the profits of monopolistic foreign firms at the expense of domestic consumers. The challenge or opposition came from a relatively small number of higher income rapidly growing major developing countries, exporters of manufactures, whose trade performance has outpaced that of remaining developing countries. These included India, Brazil, Hongkong, Republic of Korea, Mexico, Singapore, Taiwan, China, Colombia,
Indonesia, Malaysia and Thailand. However, the developing countries were eventually left with no option but to sign the Final Agreement inspite of the bold stand taken by some of the developing countries like India and Brazil in the initial stages of the negotiations. The reasons for their being left with no alternative seem to be their desire to get concessions in other areas of textile exports, a share in the export of agricultural commodities, and their failure to take a clear-cut, definitive and collective stand on issues of common concern in the face of unilateral threats by the United States against different developing countries.

Recognising the special needs of the least developed country members in respect of maximum flexibility in the domestic implementation of laws and regulations in order to enable them to create a sound and viable technological base, the Agreement on TRIPS merely provides a transitional period of ten years from the date of application. There is no provision for a preferential/differential/special and more favourable treatment for developing countries; the only way to reduce the technological gap between the industrialised and developing countries.

A study of the genesis and growth of the international patent system helps to establish the fact that there is a close link between the level of economic, industrial and technological development of a country on one hand, and the nature and extent of patent protection granted by it on the
other. A wide variety of interests have been at play in the evolution of the patent system. The diversity of interested parties — national patent holder, patent granting country, foreign patent holder, his country and the international community indicate that there is no philosophical or practical basis on which one can suggest that all these interests are always invariably identical. In fact, conflict of interests between the monopolistic rights granted to private interests and the imperative of safeguarding public or national interest is inherent in the patent system. The demands of the developing countries in the Uruguay Round of Multilateral Trade Negotiations were in the direction of maintaining the same rules that were in force in the industrialised countries at earlier phases of their economic, technological and industrial development. In other words, the rules regarding patent protection or the nature and extent of patent protection cannot be the same in all countries and at all times, thus leaving scope for different options in the fields of patents.

The history also reveals that in the origin, enactment and revision of Paris Convention for the Protection of Industrial Property, the major role has been that of the industrialised countries. Their concern for facilitating exploitation of patented inventions at the international level has led to the introduction of modifications into the Convention so as to strengthen national legislative provisions. The minimum international standards provided under the Paris
Convention for the Protection of Industrial Property continue to be relevant because even under the Agreement on TRIPS there is a general obligation to comply with its substantive provisions. These include national treatment or equality of treatment of nationals and foreigners, right of priority, independence of patents and regulation of issues such as importation of articles, time limits and conditions for compulsory licensing and forfeiture, and the period of grace for the payment of fees. While setting these standards the Paris Convention also fully recognises inter alia the basic freedom of member states to legislate according to their national interests.

The application by developing countries of the principle of equal treatment and common standards to nationals and foreigners raises several issues. The principle of formal equality, embodied in Articles 2 and 3 of the Paris Convention can operate to the mutual advantage of parties to it only if they are approximately at the same level of development and there is genuine exchange of patent protection. The developing countries being economically poor and scientifically far behind the industrialised countries, equality of treatment can simply give the stronger party unrestricted freedom to make use of its power at the expense of the weaker party.

The effects of application of this equality principle can be illustrated by the figures of patent grants which show that
nationals of the developing countries hold a bare 1 per cent of the world total (3.8 million) of patent grants; foreigners own in the developing countries six times more patents than the nationals of these countries; and over 90 per cent of the patents so owned by foreigners are never used in production processes in these countries. Thus, the principle merely protects the rights of patent holders so far as the developing countries are concerned, and can be characterised as a reverse system of preference in the markets of developing countries for foreign patent holders. The grant of such equality in practice serves to strengthen the already strong position of foreign patent holders. Thus, there is the need to strengthen the bargaining position of developing countries through the incorporation of a preferential system on a non-reciprocal basis as was done in 1971 in the case of the sister convention to the Paris Convention – the Berne Convention for the Protection of Literary and Artistic Works.

The rule of national treatment is also of little help to developing countries in adopting a patent policy according to their needs. It may, for example, be desirable as a condition of patentability, that the novelty for certain types of patents, such as those of improvement, should be local rather than world-wide. The purpose of such patents should be to internationalise the invention, and to encourage the adaptation by local technicians of foreign technology to domestic conditions. It would be desirable to restrict such patents to nationals, for were they not so restricted, there would be still greater foreign patent participation than at present. A developing
country should be free to require for specified sectors and for specified purposes world-wide novelty for foreign patent holders and local novelty for domestic inventors, a policy option precluded at present by national treatment principle. Departures from the principle of national treatment thus differentiating foreigners and nationals can be useful in the following directions — in the form of lower fees or special administrative help in favour of domestic inventors in developing countries; providing longer duration for national patents than for foreign; and in deciding on compulsory licensing or revocation of a patent.

Some of the advantages of a discriminatory policy can be achieved without modification of the rule of national treatment. As the discussion on norms and standards in Chapter III reveals there is a prohibition of discrimination on the basis of nationality but not on the place of origin of the invention. It is thus open to a country to provide for two types of patents: one based on inventions made abroad and the other for local inventions. By means of such a distinction, many of the policy objectives of encouraging local inventive activity, greater protection for local inventions, stricter rules of working and novelty for foreign inventions as well as import restrictions can be applied. Foreigners would, of course, be eligible for patents of "local invention", but the effect would be that more of their research activity would have to take place in the developing country and thereby
resulting in more relevant inventions for these countries. It is, therefore, submitted that developing countries be encouraged to design certain types of patents whose purpose would be to foster inventive capacity, the diffusion of inventions, and their effective use in local manufacture. At the same time, the revised Convention should provide for granting preferential treatment for developing countries in some specific areas. Instead, the Convention induces all member countries to design laws which, whatever their broad contents may be, rarely differentiate between the situation of domestic and foreign inventors. This position has been kept intact in the TRIPS Agreement as the concept of national treatment provided therein is similar to that followed in the Paris Convention. Therefore, any departure from the national treatment should be on substantive matters, such as the duration of the patent protection, the conditions of novelty etc. Such an approach can help in the promotion of invention in developing countries and consequent strengthening of their domestic, scientific and technological capabilities which require different conditions and different potential rewards. However, the TRIPS Agreement has not encouraged such an approach as it lays down uniform duration for all patents.

The terms of the provisions of right of priority as contained in Article 4 of the Paris Convention are very broad. The discussion has revealed the possibility of a patentee to claim "multiple priorities" with regard to what may be broadly
considered as a single invention. Although the right of priority offers practical advantages to the applicants desiring protection in many other countries, the inclusion of multiple priorities goes against the interests of developing countries. The examples of advantages conferred are:

- Applicant is not required to present all applications at home and in foreign countries at the same time as he has 12 months to decide in which countries to request protection;
- It protects him from the loss of novelty that would occur in the case of non-simultaneous application, in all those countries which insist on the absolute rather than relative criterion of novelty;
- Publication or exploitation of an invention by anyone does not, during the priority period, invalidate or otherwise affect the subsequent filing of patent applications in other countries for which the priority privilege is claimed.

On the other hand, the inclusion of multiple priorities through broad interpretations of the Paris Convention has the effect of claiming on the part of a patentee, retrospective protection of a particular invention, thereby putting third parties who have started exploitation in good faith to hardship. In this direction the scope of multiple priorities needs to be curtailed *vis-a-vis* third parties, failing which the situation may constitute a strong disincentive to initiate research and development activities in developing countries.
In the absence of knowledge to nationals of an application made in some other country in the world, investments of time and money may even become useless and also discourage the putting into use of new inventions.

In order to protect the interests of developing countries there is also a need to make some changes in conditions governing priority. To reduce suspense and uncertainty of potential inventors and would-be users of technology in the field covered by the patent application, the priority period should be reduced. As regards the rights of nationals who may in good faith apply for a patent during the priority period claimed by a foreign applicant, possibility of granting preferential/differential/special and more favourable treatment to developing countries needs to be explored. The same can be true with respect to the duration of the priority period for inventions originating in developing countries. So as to avoid the dichotomy between the fact of application and its result, there is a need to impose an obligation on the applicant for a patent who claims priority right to indicate or inform the result of such application in other countries to the competent authorities. Concerning the result of such application, it is also necessary to provide for exchange of information among national patent offices.

It was seen that the freedom of action of an inventor has been ensured through the rule of independence of patents incorporated in Article 4 bis of the Paris Convention
according to which patents for inventions granted in member countries to nationals or residents of member countries should be treated as independent of patents for invention obtained for the same invention in other countries, including non-member countries. The discussion further revealed that by virtue of a special feature of this principle of independence of patents as contained in Article 4 bis (5), it is not permitted to deduct the priority period from the term of a patent invoking the priority of a first application. Thus, a provision in a national law stating the term of the patent for invention from the (foreign) priority date, and not from the filing date of the application in the country would be a violation of this rule. The benefits conferred on foreign applicants under Article 4 bis (5) stimulate the delay in filings claiming a priority right. The effect of the rule is that foreigners can obtain a protection that in fact may be one year longer than that available to nationals and, therefore, the former may be placed in a privileged position vis-a-vis the latter. This has been qualified as being at variance with the national interest and contradicting the national treatment principle provided in Article 2 of the Convention. In this direction, therefore, it is desirable to amend Article 4 bis (5) in order to avoid further disadvantageous treatment to nationals.

However, from the point of view of developing countries, the principle of independence of patents has unfavourable
impact on the patent granting country. In developing countries which suffer from a severe shortage of the technical staff required to engage in thorough examination of a patent application, the value of information on the granting and validity of patents applied for in a developed country would be quite high. Although the laws of many countries provide for examination as to substance, the question remains whether all those countries have the means to carry out the necessary search effectively. It is obvious that developing countries can only build up step by step the qualified staff and systematically arranged documentation which is necessary for a thorough examination of patent applications with respect to the requirements of patentability. In this context, world-wide work sharing as under the PCT - combined with regional concentration of efforts can be suggested to constitute methods of facilitating the solution of problems involved in search and examination.

To avoid the situation of developing countries being made dumping grounds for medicaments often rejected abroad in the case of so-called "fraudulently procured" patent i.e. the patent cancelled in one country continues to enjoy protection in other countries, the role of compulsory mutual exchanges of information among countries in respect of results of litigation on the validity of a patent becomes relevant in this direction. The inclusion of such compulsory
exchange of information in the Paris Convention would thus avoid an unfavourable impact of the rule of independence of patents on the patent granting country.

The rule of independence of patents is an inevitable consequence of the fact of freedom of countries to decide for themselves on matters such as patentability, life of a patent, renewal of procedures and so forth. In this regard it is consistent with the notion of each country setting its own standards as far as patents are concerned. However, now under the Agreement on TRIPS, freedom of the countries has been curtailed to decide for themselves on standards of patent protection. This becomes clear from express provisions made therein laying down uniform standards for all countries with respect to the question of patentability from both the angles of requirements of patentability and subject-matter of patentability (Article 27); term of protection (Article 33) and conditions on the patent applicants (Article 29). Thus, the rule of independence of patents has been undermined with the notion of uniform standards for all countries in the TRIPS Agreement.

The study also reveals in chapter III the relevance of two main aspects while considering the critical issue of what is a patentable invention. One aspect is concerned with the legal standards provided for in each patent law for an invention to be patentable. These legal standards have been traditionally, as also under the Agreement on TRIPS,
considered to be novelty, inventive step and industrial applicability.

With regard to the second aspect related to the subject matter of patentability most of the countries have generally excluded from patentability some specific subject matters considered of special interest such as food, medicines, drugs, inventions relating to atomic energy, new varieties of plants and animals etc. The prime considerations for such wide range of exceptions to patentability have generally been identified as national economic development, public health, defence and public interest in general. However, the approach in the TRIPS Agreement for a comprehensive coverage of patent protection as against limited coverage approach of the developing countries undermines those very considerations limiting the subject matter of patent protection. Therefore, it becomes necessary to recognise the special requirements and concerns of the developing countries in these areas which in turn requires a follow up of a special regime for patent protection in these crucial sectors. In this regard, the policy options available to developing countries should be either to exclude such vital sectors from patentability or to provide only for process patents in such sectors. In other words, the developing countries should have a discretion to follow any of these options and there should not be any rigid and fixed
standard for the grant of a product patent in each and every sector.

Moreover, the technological and historical factors also favour such an approach as discussed in Chapter VI. The blocking of new research and development locally through inhibition of discovery of more efficient and economic processes for the manufacture of the same product, makes a case against the product patent regime for developing countries who need to make their own technological capability i.e. to achieve the aim of technological self-reliance. Thus, it favours a system of process patents which helps and has helped in the past some of the highly industrialised countries of today to encourage research in the development of alternative processes in vital sectors. The focus of product patents on imports rather than local production of patented products also goes against the industrial development interests of the developing countries in having a product patent regime. In this regard the historical factor too needs to be kept in mind which reveals that in their early stages of development most of the economically and industrially advanced developed countries had only process patents in these crucial sectors and changed over to product patents only after attaining a fair degree of development. The development of the pharmaceutical and chemical industries in some of the highly industrialised countries of today
owes its origin to their deliberately adopting a legal framework that excluded or limited patent protection for drugs and chemicals.

Keeping in view the fact that the grant of a patent to an inventor is one way of ensuring a fair return on investment, the question of duration for which a patentee can retain monopoly privileges becomes relevant with regard to any patent. In this regard it was shown in Chapter III that no thorough economic analysis is possible to determine an optimum life of patents as such a determination requires not only detailed calculations of costs and returns over the period, but also a clear appreciation of the criteria by which the optimum is to be decided. Moreover, the notion of a fair return is a highly subjective one and its determination may vary from country to country, from sector to sector and from time to time.

However, despite this the Agreement on TRIPS requires that "the term of protection available shall not end before the expiration of a period of twenty years counted from the filing date." Thus, one finds a uniform patent life of 20 years prescribed for all countries and in all sectors. All this takes away the freedom of the developing countries in this regard to determine the duration as per their economic requirements and policy considerations so as to protect their national interests. A case against such a long patent term has been made out in this study (Chapter V). The
reasons attributed are:

- With rapid obsolescence of technology no patented technology will last this long.

- With other provisions of the THIPS Agreement a patent holder will have an assured world-wide market.

- A revelation of the economic results of a long term in the United States also indicates that such a term impedes rather than promotes innovation, thus causing a malfunctioning of the patent system, enabling companies to earn windfall profits, solidify market power and engage in practices which prevent new companies from entering the market.

An alternative solution, and a more feasible one, seems to recognise different stages in the duration of the patent in the following order:

First stage of a rather short period where the patentee would enjoy ample rights;

Second stage where the patent would be subject to an adequate licensing system and possibility of use by the government; and

Subsequent periods during which the patent could last if there is sufficient proof of exploitation and there is a social interest in maintaining the privilege.

At the same time there is a need to link the life of a patent to its actual working in the patent granting country, failing
which the patent should be revoked, so as to make it in consonance with working principle and not market reservation or importation of the patent by the patent holder.

The present study undertook a critique of the Paris Convention from the viewpoint of developing countries keeping in mind the fact that usefulness of patents to developing countries has remained a subject of controversy for the last two decades. The study reveals that the domestic patenting activities in developing countries are strongly influenced by multinational corporations which account for a lion's share in filed patents. This has in turn limited the usefulness of domestic patenting as an indicator of indigenous innovative activities of developing countries whose residents comparatively have a very small number of patents (not more than one per cent in patent holding) in external patenting. The study also focuses on the increased awareness on the part of the developing countries that the international patent system in its evolving form – the Paris Convention and the TRIPS Agreement – does not represent an equitable balance between the rights of the patent holder and the public interest of the country granting the patent. The concentration of patents in the hands of large and powerful multinational corporations has affected their
overall development. The following various factors/reasons/practices have been held responsible for this:

- The practice of cross licensing of patents or patent pooling - whereby patent holders mostly corporations pool together their patents for competitive products and through express agreements reshuffle their monopoly privileges in order to divide world markets between themselves and avoid competition;

- Production or importation only by the patent holder of the patented products in the country granting the patent;

- Taking of patents not in the interest of the economy of the patent granting country or with a view to manufacture them, but their main object being to protect an export market from competition from manufactures particularly those in other parts of the world;

- Non-exploitation of patents in developing countries constitute a block to technology transfer and foreign investment and also hinder possibilities for domestic research activities;

- Clauses in contracts for potential licensing and sale of technology put restrictions on the licenee's business practices.

The study further shows that the main weakness of the Paris Convention lies in its being strong on the rights of patent holders but very weak in stipulating their obligations.
There is little recognition of the public interest that is expected to be served by the system of patents. This is evident from the absence of a preamble to the Convention or an express statement regarding objectives therein which means that the Convention does not contain any general commitment to the public interest or to the economic development of the poor countries. Moreover, it contains very few remedial measures to deal with the abuses of the patent system. Therefore, in the early sixties a demand for a "new patent order" had been made by the developing countries so as to change the negative impact of the major provisions of the Paris Convention on their economic growth.

Actual negotiations on the revision of the Paris Convention with the particular aim of meeting the needs of the developing countries started within WIPO. The basis of discussion at the WIPO Diplomatic Conference called between 1980-84 was the drafts adopted and/or forwarded by the Preparatory Intergovernmental Committee, popularly known as the 'Basic Proposals' which contained amendments to provisions existing in the Stockholm Act of the Paris Convention. Matters discussed at the various sessions of the revision conference were in the following order:
<table>
<thead>
<tr>
<th>Number of Session</th>
<th>Period when held</th>
<th>Place where held</th>
<th>Matters discussed</th>
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<tbody>
<tr>
<td>First</td>
<td>4 February to 4 March 1980</td>
<td>Geneva</td>
<td>Discussion of a few matters of substance and adoption of Articles 12 bis, 12 ter and 13(2)(a) (XIV)</td>
</tr>
<tr>
<td>Second</td>
<td>28 September to 24 October 1981</td>
<td>Nairobi</td>
<td>Mainly Article 5A and also Article 1, failed to reach any conclusion.</td>
</tr>
<tr>
<td>Third</td>
<td>From 4 to 30 October 1982 and from 23 to 27 November 1982</td>
<td>Geneva</td>
<td>Adoption of Article 6 ter. Discussion on Article 10 quater and creation of a working group on this Article. Discussion on Article 5A continued, failed to reach a conclusion on Article 1 even.</td>
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<tr>
<td>Fourth</td>
<td>27 February to 24 March 1984</td>
<td>Geneva</td>
<td>Article 10 quater. Pursual of debates on Article 5A. Adopted a resolution recommending Assembly of the Paris Union to convene fifth session as soon as it saw prospects of positive results.</td>
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The four different sessions of the diplomatic conference, however, failed to achieve positive results. With the purpose of preparing for the next session of the conference a machinery consisting of six consultative meetings of up to ten representatives of states including the spokesman for each group of countries were held from June 1985 to September 1989. No agreement could be reached in this direction. Then came the new proposals of WIPO Director
General for amending the Articles of the Paris Convention. This is known as the Basic Proposal for the conclusion of a Treaty Supplementing the Paris Convention as far as patents are concerned (Patent Law Treaty) and formed the basis of discussion at the WIPO Diplomatic Conference for the conclusion of a PLT or the so called Harmonisation Treaty held at the Hague from 3-21 June 1991. This basic proposal is more in tune with TRIPS Agreement changing the course of the debate from the revision of the Paris Convention to that of harmonisation of patent laws.

The study in Chapter V reveals two reasons for shifting of patent debate to the GATT Uruguay Round of Trade Negotiations. Firstly, there is the lack of enforcement mechanism in the WIPO which as a result can only suggest guidelines for IPR regimes thus leaving discretion to the individual countries to accept and adopt these revised guidelines; and secondly, the voting system in WIPO which is unweighted and thus by nature of their numbers, places the industrialised countries in a minority.

The following observations may be noted as regards the original GATT standards:

- GATT is not only silent on IPRs and thus on patents but also does not contain a provision obliging its members to accord any particular level of protection to IPRs or to enforce them to any particular degree of effectiveness.
It is rather recognised that the signatory countries to the GATT will have their own regimes governing the issue of patents. With the mere requirement that the regulations or measures are not to be enforced in a manner calculated to be restrictive or discriminatory to international trade in goods, it does not purport or legislate international norms in regard to IPRs.

IRR related matters can be brought before the GATT and decided by its dispute settlement panels.

An analysis of the generally recognised and "timeless" principles of GATT and their comparison with the Paris Convention reveals the following:

The question of applying MFN treatment to patents does not arise because of not only some of the fundamental differences between the trade regime of GATT and IPR regime of Paris Convention but also absence of such a provision in the latter Convention. The principle under GATT is applicable to products and border measures pertaining to physical objects when compared to patents regime dealing with protection of rights of persons and intangible rights within national territories.

The national treatment rule in international trade law of GATT refers to the treatment of goods which means that in all situations there should be no discrimination between foreign and domestically produced goods. In other words, there should be no discrimination against imports while under the Paris Convention it is regarding
access to domestic protection of patents, with emphasis on the nationality of persons seeking protection rather than the works which are the object of protection.

The legal concept of reciprocity as accepted in GATT practice means that a country need not make trade concession unless it receives something in return with the only exception that such reciprocal benefits are not to be received from developing countries. Any reciprocity built into the Paris Convention is derived solely from minimum standards or from certain reservations of reciprocity set out in the Convention. Thus, resort to national treatment is without reciprocity.

The permanent feature of the basic GATT instrument in the form of differential and preferential treatment for developing countries has so far been absent from the Paris Convention because of some of its strict obligations concerning compulsory licences or forfeiture of patents for non-working or insufficient working of patents.

Analysis of the GATT provisions and its generally recognised principles clearly shows that except special and differential treatment for developing countries, GATT standards were inapplicable to IPRs. This study further reveals the following implications for developing countries in applying GATT standards to patents:

- The extension of GATT national treatment rule to patented products would grant the patent owner an inherent right to import because any provision in the patent system
restricting or prohibiting free imports can be considered as trade distorting.

The effect of substituting reciprocity for national treatment is not only to undermine the century old basic standard of the multilateral system of patents in the form of Paris Convention but also to introduce material reciprocity in international patent system as the adoption of such a standard of unilaterally prescribed reciprocity being contrary to mutually agreed global reciprocity. An example of such a trend is the United States Semi-Conductor Chip Protection Act of 1984.

The study also reveals that enjoyment of IPRs subject to reciprocity cannot be justified for the following reasons:

- Non-reciprocal national treatment under the Paris Convention does not justify the enjoyment of IPRs subject to reciprocity wherein the member countries are required to extend to IPR owners the same protection as domestic law provides to domestic owners.

- Material reciprocity is itself in conflict with the principle of non-reciprocity as enunciated in Part IV of the GATT and also with the Ministerial Declaration on the Uruguay Round.

This study further reveals that a unilateral broadening of protection at home can weaken a member state's overall competitive position which can be counter-productive in the
end on account of some benefits to be claimed by nationals of other states in its territory but without conceding comparable benefits on their own territories to nationals from that state.

From the provisions of special and differential treatment to developing countries evidently there is no obligation on the part of developing countries to correspond to the high standards of IFIs of the industrialised countries. At the same time the multilateral or bilateral approach of the industrialised countries for the application of the same norms and standards through the very involvement of reciprocity undermines the principle of non-reciprocity vis-a-vis developing countries. Therefore, in the case of developing countries acceding to the demand of high standards would definitely amount to trade concession within the bounds of reciprocity under GATT for which a concession must be received in return. It thus suggests the grant of a package of concessions which may cover the following:

— Compensation for the intellectual property itself.
— Concessions in other trade areas like agricultural products, trade in service, reliance on export of primary products.
— Concessions not technically within the international trade regime like debt moratorium or reduction program.
Chapter VI also reveals that reversing the burden of proof on the user of the process to prove that the process does not infringe the rights of the patentee is the reversal of the existing procedure under which the burden of proof lies on the patentee to prove that his patent was infringed by the defendant. Under the changed situation as stipulated in Article 34 of the TRIPS Agreement, the defendant can be ordered to prove that the process to obtain an identical product is different from the patented process. Although identical is not the same as 'same product', it rules out any substitute products to be developed and their processes patented. The reason being the unwillingness on the part of others to invest in alternative processes in the fear of being sued for infringement of the patented process as coercive power is placed in the hands of the process patentee to enforce his rights. All this unjustifiably increases the power of the patent holder in the form of a multinational company at the expense of small and medium sized enterprises and may lead to the enterprises from developing countries into vexatious litigation spending large amounts on defending their know-how rights rather than allocating resources for the development of indigenous technologies.

The study shows that the TRIPS Agreement on one hand grants transitional period of 10 years to the developing countries for implementing the product patent protection, and on the other hand, cuts short the same, virtually to
nothing, not at all benefitting the country granting to a patentee the rights, a fact that is, of course, prejudicial to the interests of the developing countries. This is evident from the following points:

- Acceptance of the patent applications for product patents for pharmaceutical and agricultural chemical products by the national authorities of the developing countries (excluded so far under their laws) after the Agreement establishing the WTO came into force on 1 January 1995 irrespective of whether their national laws provide for the grant of product patent or not.

- Application of the criteria of patentability in accordance with the TRIPS Agreement even when the national law is not amended.

- Retrospective operation of the patent term from the date of the filing of the patent although the grant of a product patent can be delayed for a maximum period of 10 years.

- Non use of such a patent due to its long life for 20 years.

- Prevention of other companies from introducing a product during the period of market protection on account of exclusive marketing rights for a period of five years for pharmaceutical and agricultural chemical products in favour of the foreign patent holders who applied for and obtained product patents. Marketing approvals for such products of crucial significance would not be in the larger public interest.
— Interdependence of international patent grants as the grant of patent in one country has been made dependent on the grant of exclusive marketing rights in another country.

— Inclusion of the novel provision of the granting exclusive marketing rights to a patent applicant go beyond any patent law in any country at any point of time as an applicant for a patent does not have any right over his invention till he is granted a patent.

— Marketing rights strengthen the rights of the patentee by granting him exclusive rights and not making obligatory on his part to disclose the information pertaining to the patent and thus leaving it to him to keep such an information as a secret.

— For all practical purposes the exclusive marketing rights would be as good as the product patent protection.

As regards aspects of covering new technologies for patentability, as yet there is no international consensus relating to the most appropriate method for the protection of biotechnology and the suitability of extending traditional methods of protection to new areas. The relationship between the incentive provided by the patent monopoly and investment in research and development in the field of biotechnology can also be questioned on the ground that most of the inventions in biotechnology took place when there was no patent protection and more so when there was opposition to patentability of living organisms. The other reason as to why
patent protection should not be extended to biotechnology is that the pace of innovation in this field outstrips the value of any individual patent. There are also a whole range of moral, ethical, environmental and other issues involved in the patenting of living things and genetically engineered microorganisms. The full dimensions of scientific and technological development in these areas are yet to be comprehended. Even in industrialised countries, the legal and other implications involved in the granting of patents in these areas are in a flux, and the wisdom of granting product patents to biotechnology and for higher forms of life is being subjected to serious scrutiny. Every country, therefore, should be free to determine both the general categories as well as the specific products or sectors to exclude from patentability under its national laws on the basis of its economic development, technology and public interest needs.

The effect of including microorganisms in the list of patentable subject matter as provided in the TRIPS Agreement is to extend the applicability of the Budapest Treaty for the Deposit of Microorganisms to all countries - to which the only developing country member is the Philippines. Moreover, the list of microorganisms under this treaty reflects new developments in the field of biotechnology by covering biological materials like plasmids, cell lines or seeds which
are strictly speaking not microorganisms. The patentability of microbiological organisms and processes means that even hybrid seeds would become patentable, and cannot hereafter be replicated without adequate compensation to the patent holder.

Similarly, attempt to protect plant varieties in the TRIPS Agreement means the extension of the applicability of the UPOV Convention to all countries, with far reaching implications for the agriculture sector of the developing countries through industrialising biology and making manipulated genes and altered plant species patentable. In fact patents for new plant species have been granted, the first for transgenic (the so-called second genetically transformed) cotton and soyabean by the European Union to Agracetus Inc, a subsidiary of the United States multinational chemical company W.R. Grace and this chemical company has been recognised as having the sole rights and exclusive monopoly over any method of genetically transforming any variety of these crops. Further, the patents on these transgenic plant species may be licenced without terms having been made public. This would in turn commercialise plant breeding research in developed countries supported by patent rights and thus harmful for plant breeding and development of food and agriculture in the Third World. This study further reveals the following implications of an IRR regime under TRIPS Agreement:
- Restriction on free flow of germplasm.
- Confining the public sector to basic research alone.
- Monopolisation of seed trade by multinational companies in developing countries.
- Increase in genetic uniformity leading to vulnerability to disease pests.
- Forcible closure of small companies or their merger into big ones.
- Propagation of specific practices beneficial to private companies.
- Increase in sale price of seeds.
- Delay in availability of seeds of new varieties.
- Elimination of breeder's right to use the genetic stocks for R & D efforts for difficult situations like biotic or abiotic stresses.
- Increase in proliferation of legal cases.
- Diversion of attention from important breeding goals towards irrelevant and superficial ones.
- Increase in genetic uniformity of crops.
- Goes against innovative approaches like multi-line breeding on account of addition of only cosmetic and morphological changes (only shuffling nature's genes from one plant variety to another).
- Separate patenting of each strain of the variety at enormous cost to the breeder.
Such a situation is in sharp contrast to that prevailing during the Green Revolution when new varieties of seeds evolved by government institutions were brought to the fields in a short span of time with very small cost to the individual farmer.

Animals other than microorganisms and essentially biological processes for the production of animals other than non-biological and microbiological processes have been excluded from patentability under the TRIPS Agreement. In Chapter VI it was seen that legal uncertainty prevails as to patentability of 'animal inventions' and a heated debate has been generated in the United States and Europe, with the grant of the Oncomouse patent in April 1988 and April 1992 respectively for the so-called transgenic animal produced by altering some physiological characteristics through genetic engineering (particularly from techniques related to recombinant DNA). Reference may be made to the conflicting approaches of the patent offices and the animal welfare groups, the former in favour of patent grant, the latter against such a grant. In Europe, however, a way has been found for patenting of animals but with the urgent necessity to define precisely the concept of animal varieties, so as to know exactly the scope of the exclusion from such protection and to lay down criteria so as to ensure that the invention is in conformity with public order and morality. However, this
negative limit is being transformed through the judicial trend into a further requirement of benefit to mankind which in the case of inventions relating to animals supplements the other requirements of patentability of novelty, inventive step and industrial applicability. Only if this requirement is met, other negative aspects of protection of the environment and natural biological evolution and protection of the animals themselves can be met.

Chapter VI also noted the inclusion of computer programs and compilations of data, or other material whether in machine readable or other form, under the copyright and related rights section of the Ti-IIPS Agreement. Protection of computer programs whether in source or object code as literary works under copyright law means the application of legal principles developed and accepted with respect to protecting works. The doubts created as to the suitability of patent protection for such type of new technologies and semi-conductors have been revealed in this study, on account of the following factors:

- The dynamic nature of the objects to be protected.
- Their intangibility.
- Abstract nature of computer software.
- Difficulty of putting them into the requirements of patentability.
- Difficulty of fixing the extent of protection of derivations and adaptations.
The choice of a copyright approach at national level was largely dictated by the strong pressure of the computer industries in key developed countries and by the difficulties in the adoption of a multilaterally agreeable *sui generis* convention as shown by the failure of the WIPO Conference in 1983 to conclude a special treaty granting *sui generis* protection outside copyright to software innovations; and failure of a joint session of WIPO and UNESCO in 1985 to achieve universal consensus on the applicability of the copyright conventions to software.

It was also seen that the grant of *sui generis* protection to computer software carries the presumption that the computer programs should remain outside the scope of the copyright conventions. Moreover, the approach of the industrialised countries in creating a new type of *sui generis* legal protection for semi-conductor chips (described as "mask works") under the Semi-Conductor Chip Protection Laws and the European Council’s Directive in this regard clearly shows their freedom to place "mask works" outside the scope of international copyright law or patent conventions. This goes against the imposition of Berne Convention on the developing countries. Moreover, it seems doubtful if the extension of copyright protection to the object code, microcode, organisation of programs or screen design and commands of the program can be accommodated within the scope of existing international copyright agreements. This suggests the need for considering a new
generation of IPRs capable of providing a simpler and more effective protection, especially as regards information and telecommunications technologies. In this context it was also noted that modifications of domestic copyright laws have not only given rise to widespread discrepancies in the scope of protection, but also appear to be undermining the traditional concept of copyright; that through abolishing fundamental notions of moral right and fair use without offering effective and durable solutions to the problems arising from new technologies.

A discussion of working of patents and safeguards against their non-working in Chapter VII revealed the general recognition that patents are granted to be effectively used or worked. It noted four basic facts as regards the working of patents in the granting country which include: rare working of patents in developing countries, even when there is techno-economic feasibility to do so; that working leads to saving of scarce foreign exchange and the lowering of prices of products especially in critical sectors of food, pharmaceutical and agro-chemicals; that without their working there can be no transfer or diffusion of technology and the promotion of industrial activity in the host country; and that without working patent protection degenerates into a mere monopoly for the importation of the patented article into the country, and a device for the reservation of the host country market by the patent owner. Although the
phenomenon of non-working of patents exists both in developed and developing countries, yet the degree of non-working in the latter group of countries is more on account of their comparative lack of technological and industrial capacity and also for the different reasons of obtaining patents which are not used in production.

The developing countries' concern for non-working of patents has been due to the fears that nationals of more advanced countries may, using their superior R & D and under the protection of equality of treatment to nationals and foreigners, take out patents merely to secure markets for their exports. Such an action not only frustrates national inventive activities but also imposes heavy burdens on the foreign exchange balance of the developing countries, through higher prices for imported products, which is a major obstacle in the economic development of developing countries. Its encouragement of inventive activity solely in a few industrialised countries can hardly be a sufficient justification for allowing non-working of patents in developing countries.

As concept of "working" has neither been defined in the revised drafts of the diplomatic conferences for the revision of the Paris Convention nor in the TRIPS Agreement, therefore, it is submitted that any future international treaty or state
legislation on patents should provide for a clear concept of working, providing for use of patents on a commercial scale in the patent granting country.

The TRIPS Agreement's express emphasis on "Right to import" as a "right of the patentee" clearly indicates the position of the industrialised countries which clearly is contrary to the trends of the recent past introduced by the developing countries in their laws specifying an express or implied requirement for manufacture so that importation does not amount to working of the patented article or towards their attempts in taking away the right of the patent holder to prevent third parties from importing the product covered by the patented products or a product manufactured by means of a patented process so as to subject the patent owner to competition by suppliers from abroad and avoid the adverse consequences of import monopoly in their economic advancement. Such an emphasis, in turn, undermines the very rationale behind exclusive rights of exploitation of the patented invention, that is, the obligation of the patent holder to work the patent which in the case of product patents, means the manufacture of products comprising the invention and in the case of process patents, manufacture of the process comprising the invention.

The negation of the obligations of the patentee to work the patent under the TRIPS Agreement also becomes clear from its liberalising the limitations on the use of rights conferred and in not specifying the grounds for taking measures against abuse of patent rights. This emphasis on the monopoly rights of the patentee from developed countries has the
effect of taking away the authority of the government of the developing countries from incorporating in their laws any provision for revoking or forfeiting a patent merely on the ground of product being imported or issuance of a compulsory licence on the ground that the patent holder is not working the patent within their countries. Moreover, issuance of such a licence on the ground of importation of that product seems to be in conflict with the legitimate interests of the patent holder as mentioned in Articles 8 and 30 of the TRIPS Agreement. In this regard, the submission is to focus more on deleting any of the provisions which regard imports amounting to working of patents. It should also be clearly stipulated that the patents are granted in order to secure that the inventions are worked in the country of grant on a commercial scale and to the fullest extent that is reasonably practicable. In other words, the grounds of exemption should be limited to cover only extraordinary situations like force majeure as justification for non-working as has been the practice in Brazil and Argentina.

This study also shows that by not making any specific provision on compulsory licences the TRIPS Agreement has virtually eliminated it as a remedy against failure to work. The discretion left to states in making provisions in their laws on such licensing has been curtailed through its strict
conditions for "other use without authorization of the right holder". On the other hand, the TRIPS Agreement nowhere limits the discretion of the patent holder to make use of such rights in the territory of the country granting the patent.

As regards the argument of little practical value of the duration of the provisions on compulsory licences (raised because of undeniable fact of their rare invocation, and if enforced, these almost never reduce subsequent investment in innovation), the submission is that the value of non-voluntary licence system should not necessarily be assessed according to the frequency of its use. In considering its effectiveness, the dissuasive function of such a system should also be kept in account, that is, the role of such a system in stimulating licensing activities of foreign patentees: the very existence of the institution of compulsory licences induces patent owners to grant voluntary licences where they would not have otherwise considered. Even the experience of the industrialised countries is supportive of this approach whereby the mere existence of the legal institution in most cases induces the patentee to grant a contractual licence and the mere threat of compulsory licensing has stimulated licensing activities. The compulsory licence is, therefore, an instrument to force the patentee to exploit patented invention in the country concerned and this is one of the surest ways to ensure that.
Further, there should be automatic grant of non-voluntary licences not subject to any administrative or judicial review. Contrary to this, the Agreement on TRIPS in taking away the rights of governments to provide for such a licence of right implies the deletion of any such provision as contained in the laws of developing countries in the fields of pharmaceuticals, medicines and food products and also for their endorsement in any field of patented technology considered important by their governments.

Keeping in view the facts of technological backwardness of developing countries and the existence of majority foreign owned patents in these countries, it necessarily requires on their part to implement the whole range of various kinds of licensing systems, automatic lapse, revocation and other action so as to have control over failure to work, i.e., non-fulfilment of patentee's obligations. Use of any one of these policy options should be independent and not conditional upon the prior or simultaneous use of any of the other remedies available as provided under the Paris Convention, where compulsory licensing is used as the initial sanction, while revocation is the ultimate sanction. Rather, it is submitted that automatic lapse and revocation should be the initial and final sanctions. Moreover, there should be no limitation of expiry of any time to invoke these remedies. Emphasis on
compulsory licences as a primary measure should be avoided and focus should be on alternative remedies so as to avoid protracted and costly delays for the promotion of direct industrial use of patent information.

The inference that the precise details of the patent law of a country needs to be designed with special reference to the economic condition of the country, the state of scientific and technological advance, its future needs and other related factors so as to reduce, if not eliminate, the possible abuses of a system of patent monopoly becomes clear from the historical setting of the Indian patent regime. The Indian Parliament, while keeping in mind this factor, enacted the Patents Act in 1970 which has been designed to meet the special requirements of India, to encourage rapid indigenous development, and to prevent monopoly situation through a well regulated patent regime. A major feature of this Act lies in seeking a balance between the rights of the patent holder and welfare of Indian people. It contains several novel features related to the purpose of the Act, definition of national interest, non-patentable inventions, duration of the patent grant, working of the patent, compulsory licences, licences of rights, revocation of patent for non-working, powers of Controller of Patents, Government's rights, procedure for the grant of patents, equal rights and international arrangements. While providing a clear definition of national
interest in terms of "encouraging inventions and securing that the inventions are worked in India on a commercial scale" with a further stipulation that the patents are "not granted merely to enable patentees to enjoy a monopoly for the importation of the patented article", it focuses on serving the interest of production in country. It is not merely an instrument to protect the monopolistic privileges of the foreign companies.

As regards operation of the patent law in India, the basic data on patents from 1972-1990 reveals the following:

- A declining trend in the number of applications which can be the effect of reforms in substantive provisions of the IPA, the backlog of applications, changes in the economy itself and collaborative arrangements obviating the need for patents.

- The total number of applications for patents from persons in India and abroad in a year are much more than the number of patents sealed. The reason for this lesser number of patents seem to be tremendous backlog of applications apart from many applications being rejected.

- The proportion of foreign patents sealed in India is consistently higher than the proportion of Indian patents sealed indicating the foreign patent dominance.

- Of the number of patents actually in force, a much higher proportion in force is foreign owned with United States, United Kingdom, Germany, Japan, France, Switzerland, Italy,
Netherlands, Russia, Canada, Sweden, Belgium, Norway, Hungary and Germany, in the order of their respective contribution.

- There is a lack of information about the kinds of patenting activity taking place in India, who owns those patents and in what sphere of economy.

- Low figures for compulsory licensing. Reasons being the lack of technical know-how, its use by the patent holder and there being nothing to compel him to impart such know-how thereby rendering compulsory licensing provisions ineffective.

- A large number of patents are not being commercially worked in India.

As regards unwillingness on the part of patent holders to impart technical know-how to licencees forced on them, a stricter provision needs to be incorporated in the Act by which patent holder can be compelled to instruct licencees. However, practical difficulties in the enforcement of such a rule can be encountered through the revocation of licence for failure to work and even in cases where a patent is endorsed as "licence of right".

It is often argued that the IPA has failed in its major objective of defending public interest. Such an argument, however, ignores the role of indigenously developed know-how in the manufacture of bulk drugs and pesticides in India while
discussing the success or failure of the IPA. This other side of the picture shows that there has been a change in the very operation of the patent system in India through some of its operative provisions like exclusion from patentability, term of patents not being the same for all kinds of inventions, not allowing product patents on food, drugs etc. Since April 1972, during its operation over the thirty years, the IPA has achieved its purpose of checking abuse of the patent system. At the same time, it has not hindered the process of technology transfer. Necessary administrative machinery has been set up to ensure availability of patent information to the public and to research and development organisations. Its success can be determined from the different types of advantages which have accrued to the Indian enterprises, manufacturers, government scientists and technologists, consumers, in growth of its pharmaceutical industry, its exports to developed countries, increase in pesticide production, export of technology from India to other developing countries, atomic energy research, encouragement of process of technology transfer, inflow of patent information for the benefit of research and industry through the establishment of Patent Information System in Nagpur which collects a wide range of patent publications from all over the world and is also getting documents from INPADOC.
A study of the IPA vis-a-vis GATT World Trade Treaty provisions concerning TRIPS reveals the difference over a quite large number of areas thus showing incompatibilities between the two; its philosophy and various provisions are in many ways different from the patent system followed in India. While India had initially not been in favour of inclusion of TRIPS in the Uruguay Round, it had ultimately gone along with the rest of the world community. This study reveals the following would-be impact on the Indian economy of the changes made under GATT World Trade Treaty:

- India has to change its patent law in order to be in conformity with the TRIPS Agreement of this treaty.

- As a result of the wide scope of the impact of changes to be made under TRIPS, the very substance and framework of the IPA would be reversed which will serve private interests of the multinational corporations instead of safeguarding the interest of the Indian people. The changes which may be identified in this context are:

  - Establishment of import monopolies as against encouragement of use of patents at home.
  - Patentability of everything including agricultural and biogenetic inventions as against the freedom of India to exclude certain sectors.
  - Extension of patent protection to products as against processes.
Extension of a uniform patent life of 20 years as against India's approach of reduced life.

Shifting burden of proving innocence on the defendant would undermine the Indian legal and juridical framework as contained in the Indian Evidence Act.

Virtual elimination of compulsory licences as against strong compulsory licensing system.

Abolition of licence of right as against strengthening it.

Adoption of a new PBRs system will have serious long term consequences for agricultural development.

As per Article 70 of the TRIPS Agreement, India was obliged to ensure that on or before the date of coming into force of the WTO Agreement (1 January 1995), there was amendment to the IPA as regards the following two substantive aspects:

Establishment of a mechanism for receipt of applications for product patents for pharmaceutical and agricultural chemical products and their examination for eventual grant of such patent protection as soon as the product rather than the process patent is incorporated in the IPA.

Exclusive marketing rights for a period of five years for pharmaceutical and agricultural chemical products in favour of foreign patent holders who have applied for and obtained product patents and marketing approval for such products in other member countries after the WTO Agreement comes into force.

In compliance with the above-said Article, the President of India promulgated an Ordinance on 31 December 1994 to effect the necessary amendments to the IPA.
Although transitional period of at least five years is available to bring the domestic laws in tune with the TRIPS Agreement yet the Government of India has hastened to finalise the draft of the proposed Plant Varieties Act which is likely to be introduced in the Parliament in March 1995. Renunciation of availability of transitional period for devising a legislation on the protection of plant varieties and seeds does not seem to be a step in the right direction on the part of India, as it will have adverse implications for the Indian farmers in respect of seeds, plant varieties and their marketing. Through adoption of new PBRs system, it will not be possible to adopt any new variety developed elsewhere by either making selections or through genetic engineering and a host of other techniques. And the only option available would be to cross with other varieties which could take much longer time. By preventing others from even adapting the new variety, the new PBRs system ensures much stronger monopoly rights for multinational corporations when compared to the current technological developments from the Green Revolution when the new seeds could be adapted and multiplied freely. This all would ultimately lead to increase in seed prices, lack of adoption of imported technologies and total dependence on multinational corporations. It would, in turn, weaken the independent technological base for plant breeding and undermine the long term growth prospects for agriculture.

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