

**THE TRIPS AGREEMENT  
A GUIDE FOR THE SOUTH**

**THE URUGUAY ROUND AGREEMENT  
ON TRADE-RELATED  
INTELLECTUAL PROPERTY RIGHTS**

**SOUTH CENTRE**



## The South Centre

In August 1995, the South Centre became a permanent intergovernmental organization of developing countries. In pursuing its objectives of promoting South solidarity, South-South co-operation, and co-ordinated participation by developing countries in international forums, the South Centre has full intellectual independence. It prepares, publishes and distributes information, strategic analyses and recommendations on international economic, social and political matters of concern to the South.

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## **Foreword**

This document is intended as an introductory overview for developing countries of the Agreement on Trade-Related Intellectual Property Rights (TRIPs), which was negotiated as an integral part of the Uruguay Round. In addition to highlighting some of the central issues for the South, the document draws attention to the aspects to which policy makers and technical personnel should pay special attention when formulating policy and legislation in this field. In particular, the document suggests that maximum advantage must be taken of those areas where the Agreement leaves some scope for choice in determining national legislation, in order to ensure that this is formulated in a manner that helps countries to achieve their development objectives,

In view of the potentially negative impact of the Agreement on industrial and agricultural development in the South, its implementation requires careful monitoring by developing countries and an exchange of experience. In addition, it is suggested that there are a number of areas in which developing countries could co-operate to great mutual advantage, both in relation to the formulation of national implementing legislation and to the planned reviews of the TRIPs Agreement.

The document is based on a draft by Dr. Carlos Correa and colleagues of the Centre for Advanced Studies at the University of Buenos Aires, Argentina and has benefited from discussions with and comments from a number of people from different countries of the South. It forms part of the programme of work carried out by the South Centre as contribution to the Economic Agenda for Priority Action 1992-1995 of the Non-Aligned Movement at the request of, and with the financial support of, Indonesia which chaired the Movement during this period. Pre-publication copies of this and other studies prepared for NAM were made available to NAM member states taking

part in the Eleventh NAM Summit, held in Cartagena, Colombia, 18-20 October 1995. It is part of the continuing programme of work by the South Centre on an assessment of the Uruguay Round Agreements and the “in-built agenda” of the WTO from the perspective of developing countries.

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## **List of Abbreviations**

DSB	Dispute Settlement Body
DSU	Dispute Settlement Understanding
FAO	Food and Agricultural Organization
GATT	General Agreement on Tariffs and Trade
IPRs	intellectual property rights
NICs	newly industrialized countries
OECD	Organisation for Economic Co-operation and Development
OTA	Office of Technology Assessment
R&D	research and development
TRIPs	Trade-Related Intellectual Property Rights
UNCTAD	United Nations Conference on Trade and Development
UNESCO	United Nations Educational, Scientific and Cultural Organization
UPOV	International Convention for the Protection of New Varieties of Plants
WIPO	World Intellectual Property Organization
WTO	World Trade Organization



## Preface

One of the main results of the Uruguay Round negotiations concluded in 1994, with the establishment of the World Trade Organization (WTO), was a comprehensive international agreement on intellectual property rights (IPRs). The Agreement on Trade-Related Aspects of Intellectual Property Rights ('the TRIPs Agreement') is the most far-reaching international instrument ever negotiated on intellectual property rights. It establishes minimum universal standards concerning patents, copyrights, trademarks, industrial designs, geographical indications, integrated circuits and undisclosed information (trade secrets), supplementing with additional obligations the previously established Paris, Berne, Rome and Washington conventions in their respective fields.<sup>1</sup> This means that the obligations set forth in these conventions apply not only to countries parties to them but to any country which is or becomes a party to the TRIPs Agreement. Under the new rules, therefore, most developing countries are bound to amend their legislation in order to introduce higher standards of protection for intellectual property or extend protection to new areas, including the protection of some living forms.

The standards adopted in the TRIPs Agreement mirror those in force in the industrialized countries, particularly those of the United States. Indeed, the Agreement comprises a major instrument designed to universalize the levels and forms of intellectual property protection existing in the North. Such standards significantly reduce the scope of countries in the South to devise systems of IPRs protection suited to their own conditions and development needs. While, as a result of

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<sup>1</sup> This means that Members cannot provide a level of protection lower than the one provided for by those standards. At the same time, they cannot be obliged to provide a higher level of protection (Article 1 of the TRIPs Agreement).

negotiations, some limited room has been left for modelling IPRs legislation in accordance with different levels of technological and economic development, national laws will have to conform to a number of binding rules, which would be enforceable within the WTO.

The new framework of rules governing IPRs is likely to affect adversely access to, and use of, technology, and therefore the patterns of industrial and technological development in developing countries. Strengthened IPRs are likely to increase the level of royalty payments demanded by technology-holders, if they agree to transfer their technology at all, and also to create or reinforce monopolistic positions in the market. Under the Agreement, reverse engineering and other legitimate methods of imitative innovation are restricted, thereby making it more difficult than before to catch up in the technological field.<sup>2</sup>

The implementation of the TRIPs Agreement should not be viewed, therefore, as a matter of interest only to IPRs specialists. It has considerable implications for technological and industrial policy, as well as for policies and legislation dealing with competition and consumer protection. The present document is also therefore addressed to policy makers, managers, and other people in the South interested in issues relating to industrial and technological development, as well as to those in the North concerned with development issues and policies in developing countries.

This document aims to contribute to an understanding of the factors that prompted the proposals for the TRIPs Agreement, to outline certain aspects of the Agreement thought to be particularly important for developing countries, and to point to some of the implications for these countries. It also aims to highlight those areas in which countries are left some room for choice in formulating national legislation that

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<sup>2</sup> 'Reverse engineering' is a method of evaluation of a product in order to understand its functional aspects and underlying ideas. This technique may be used to develop a similar (or even identical) product.

accords with the TRIPs Agreement and to assess the extent to which this provides significant room for manoeuvre for developing countries.

Part I briefly describes the different components of this changing field of legislation. It then outlines the factors that inspired the reform and international standardization of the intellectual property system, as crystallized in the TRIPs Agreement, and analyses some of the main shifts in the conceptualization and operation of the system. The asymmetries which characterized the process of negotiating the Agreement area also briefly discussed.

Part II summarizes some of the Agreement's principal provisions and the briefness is deliberate. For those interested in more technical aspects and detailed commentary, Part II is supplemented by an Annexe commenting on selected provisions of the TRIPs Agreement.

Part III points out some areas in which, despite the harmonization brought about by the TRIPs Agreement, there is apparent room for action at the national level. This section is not exhaustive and is only intended to indicate what kind of decisions can be taken at the national level.

Part IV examines some of the implications of the TRIPs Agreement for developing countries. Given its broad scope and the different impact of various IPRs in different sectors and industries, it is impossible in a short document of this nature to carry out a full analysis of all the implications. For this reason the issues are illustrated by examples taken from three key areas: pharmaceuticals, plant varieties and computer programmes. Though the level of freedom to legislate in these areas is limited to different degrees by the TRIPs Agreement, the document shows the kind of analysis that developing countries should carry out in order to consider the implications of the Agreement and possible policy options.

Part V contains the main conclusions of this overview of the TRIPs Agreement.

The Annex examines the contents of the TRIPs Agreement and possible ways of implementing its provisions with respect to a selected number of issues.

## **I. Trade-Related Intellectual Property Rights. A New Regime**

### **An introduction to intellectual property rights**

Intellectual property confers on individuals, enterprises or other entities the right to exclude others from the use of specific intangible creations. The peculiar feature of such rights is that they relate to pieces of information that can be incorporated in tangible objects. Protection is given to ideas, technical solutions or other information that have been expressed in a legally admissible form and that are, in some cases, subject to registration procedures.

Though the content of intellectual property is the information as such, intellectual property rights are exercised -- generally as exclusive rights -- with respect to the products that carry the protected information. For example, the owner of a patent can prevent the manufacture, use or sale of the protected product in the countries where the patent has been registered. This explains why intellectual property rights may have a direct and substantial impact on industry and trade. Those who create a certain intangible may, through the enforcement of such rights, regulate the use of the creation (e.g. a musical work) and the commercialization of the product (e.g. compact disk) that contains it. The control over an intangible asset therefore connotes the control over products and markets.

'Intellectual property legislation' relates to the acquisition and use of a range of rights covering different types of creations, including creations of an aesthetic character (e.g. artistic works and industrial designs), technologies (e.g. patents) as well as information and signs of a purely commercial value (e.g. trademarks). Intellectual property rights include the following categories: copyright and related rights,

**Box 1**  
**Categories of Intellectual Property Rights**

**Copyright and related rights.** Unlike a patent, copyright protects the expression of an idea, not the idea itself. This means that, in principle, protection is only extended to the form in which an idea is expressed (e.g. the particular writing of instructions in a computer programme), but not to the concepts, methods and ideas that are expressed. Copyright protection is provided to the authors of original works of authorship, including literary, artistic and scientific works. Copyright has also been extended to protect computer software and databases. "Neighbouring rights", that is, rights which are related to copyright, are accorded to phonogram producers, performers and broadcasting organizations. The owners of copyright can generally prevent the unauthorized reproduction, distribution (including rental), sale and adaptation of an original work. Protection generally lasts for the life of the author plus fifty years or for fifty years or more in the case of works belonging to corporate bodies.

**Trademarks.** Trademarks are signs or symbols (including logos and names) registered by a manufacturer or merchant to identify goods and services. A valid trademark allows the owner to exclude from commerce imitations likely to mislead the public. Protection is usually granted for ten years, and is renewable as long as the trademark continues to be used.

**Geographical indications.** These are signs or expressions used to indicate that a product or service originates in a particular country, region or place. There are different types of geographical indications. They are called 'appellations of origin' if the characteristics of the products or services can be attributed exclusively or essentially to natural and human factors of the place in which the products or services originate.

**Industrial designs.** An industrial design normally protects the ornamental or aesthetic aspect of an industrial article. Industrial designs are characterized by their appeal to the eye. There is a wide variety of requirements and modalities of protection pertaining to industrial designs. In some countries, protection is based on novelty, while in others on originality. Further, in some countries specific protection for an industrial design coexists with or can be 'accumulated to' copyright or trademark protection for the same design. The term of protection generally ranges between five and 15 years (including renewal).

*continued on next page*



<p><b>Patents.</b> Patents are granted by a government authority conferring the exclusive right to make, use or sell an invention generally for a period of 20 years (counted from the date on which the application for the patent was filed). In order to be patentable, an invention usually needs to meet the requirements of absolute novelty (previously unknown to the public), non-obviousness (containing sufficient innovativeness to merit protection) and industrial applicability (or usefulness). Patents may be granted for all types of processes and products, including those related to the primary sector of production, namely agriculture, fishing or mining, etc. Patent-like protection is conferred for functional models and other ‘minor’ innovations under utility-models (see definition below).</p>
<p><b>Layout designs of integrated circuits.</b> The protection of the layout (or topography) of integrated circuits is conferred in most industrialized countries. It is a <i>sui generis</i> form of protection introduced for the first time in the USA in 1984 -- limited, like copyright, to the design as such -- that allows the owner of the design to prevent the unauthorized reproduction and distribution of such designs. Reverse engineering (see footnote 2) is generally allowed, in accordance with the industry's practice. The duration of protection is shorter than under copyright (typically ten years).</p>
<p><b>Trade secrets.</b> Confidential business information, such as lists of clients or recipes, can be an enterprise's most valued asset. Civil and criminal actions are provided for in most legislation against the unauthorized disclosure or use of confidential information (of a technical or commercial nature). In this case, there is no exclusive right, but an indirect type of protection based on a factual characteristic of the information (its secret nature) and its business value. Unlike patents, trade secrets are protected as long as the information is kept secret.</p>
<p><b>Breeders' rights.</b> This is a <i>sui generis</i> form of protection conferred on plant varieties that are new, stable, homogeneous and distinguishable. Exclusive rights, as a minimum, include the sale and distribution of the propagating materials for around 20 years. Unlike patents, breeders' rights permit the use by other breeders of a protected variety as a basis for the development of a new variety (the ‘breeders' exemption’) and for the re-use by farmers of seeds obtained from their own harvests (the ‘farmer's privilege’).</p>
<p><b>Utility models.</b> Protection is given to the functional aspect of models and designs, generally in the mechanical field. Though novelty and inventiveness are generally required, the criteria for conferring protection are less strict than for patents. The term of protection also is shorter (typically up to 10 years). Utility models – which are concerned with the way in which a particular configuration of an article works -- are distinct from industrial designs, which are only concerned with the aesthetic character of an article.</p>

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trademarks, geographical indications, industrial designs, patents, layout designs of integrated circuits, trade secrets, breeders' rights, utility models. A short description of these categories is provided in Box 1 above.

The TRIPs Agreement negotiated during the Uruguay Round sets minimum standards on all the categories described above, with the exception of utility models and breeders' rights. The absence of these two categories may be explained by the relative lack of interest on the part of the major industrialized countries (and the industrial lobbies that actively promoted the TRIPs negotiations) in these categories. The fact that they are not covered by the Agreement means that countries, in formulating and implementing national laws on utility models and breeders' rights, are not bound by any of its provisions.

The relevance of different categories of intellectual property rights varies from country to country, depending on the level of technological and economic development. For example, utility models may be of special importance for developing countries, for the rights attaching to them protect the kind of 'minor' innovations that predominate in the innovative process in such countries. Technological developments which may qualify as 'inventions' are rather rare in developing countries; generally most patents granted there belong to foreign companies and only a few to nationals.

There are also differences across sectors, accounted for by different degrees of R&D intensity and the rate and nature of innovative activities. Table 1 summarizes the subject matter of various categories of intellectual property rights and indicates the main sectors and activities that are affected by the availability and enforcement of the rights.

**Table 1**  
**Subject matter and main fields of application**  
**of intellectual property rights**

<b>Types of intellectual property rights</b>	<b>Subject matter</b>	<b>Main fields</b>
Patents	New, non-obvious, industrially applicable inventions	Chemicals, drugs, plastics, engines, turbines, electronics, industrial control and scientific equipment
Trademarks	Signs or symbols to identify goods and services	All industries
Copyright	Original works of authorship	Printing, entertainment (audio, video, motion pictures), software, broadcasting
Integrated circuits	Original layout designs	Micro-electronics industry
Breeders' rights	New, stable, homogeneous, distinguishable varieties	Agriculture and food industry
Trade secrets	Secret business information	All industries
Industrial designs	Ornamental designs	Clothing, automobiles, electronics, etc.
Geographical indications	Geographical origin of goods and services	Wines, spirits, cheese and other food products
Utility models	Functional models/designs	Mechanical industry

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While some categories, such as trademarks, have an impact throughout all sectors of production (excepting commodities production), others, such as patents or geographical indications, have a particularly strong incidence in certain sectors. There are also some categories (breeders' rights and layout designs of integrated circuits) which apply to very specific matters.

With respect to industrial and technological policies, the relevance of IPRs for a particular country will largely depend on the type of goods and services that it produces, and particularly on the nature of the innovations that it generates (Table 1 illustrates this clearly). However, in terms of competition and consumer protection policies, most or all the areas may be of significance, to the extent that protected goods and services of foreign origin are sold within the national territory.

### **The TRIPs Agreement**

#### *Asymmetric negotiations*

A number of international conventions on intellectual property have been adopted since last century covering different areas of industrial property, copyright law and other specialized matters (such as breeders' rights). The World Intellectual Property Organization (WIPO) and UNESCO are responsible for administering the main conventions in force. WIPO, a United Nations specialized agency, has been particularly active in the development of new forms of protection (layout designs of integrated circuits), as well as in the application to new technologies of patents (e.g. biotechnological inventions) and copyright (e.g. computer programmes).

Notwithstanding the existence of a number of international conventions, and the specialized role of the organizations referred to above, the recent TRIPs negotiations were conducted within GATT, and the

provisions of the resulting Agreement are enforceable within the framework of the WTO -- a forum without any tradition of work in the field of IPRs.

There are two major reasons which explain why industrialized countries which pressed for these negotiations chose the organization setting rules for world trade as the forum for negotiation and implementation of an agreement on intellectual property rights. First, while developing countries in the WTO have agreed to liberalize trade by reducing or eliminating their tariff and non-tariff barriers, developed countries, through patents and other protective instruments, are provided with the possibility of exporting products incorporating innovations under exclusive or monopolistic rights, that is, technology-holders can exclude competition from domestic producers in importing countries or other foreign firms.<sup>3</sup> Second, an agreement within GATT/WTO facilitates recourse to cross-retaliation for non-fulfilment of specific obligations. In other words, countries failing to comply with TRIPs standards could be subject to trade retaliation if the dispute settlement mechanism of the WTO has determined the existence of a case of non-compliance with the TRIPs Agreement.

In general, the process of drafting the TRIPs Agreement can hardly be considered to have been a real 'negotiating' process, for the exercise hardly involved any give and take. The developing countries made considerable concessions in agreeing to the higher levels of protection of intellectual property rights demanded by industrialized countries, but they were not in any way compensated by advantages in this or other

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<sup>3</sup> Recent econometric studies indicate a significant increase in United States exports to countries where intellectual property protection has been reinforced (mainly as a result of the pressures of US Government). See Pamela Smith, "International patent protection and United States exports: evidence in the data", paper submitted to the Conference on International Relations of Intellectual Property: Challenges at the Turn of the Century, The American University, 24-25 April, Washington D.C., 1995.

areas of the Uruguay Round negotiations.<sup>4</sup> The main concessions gained by developing countries was the provision in the Agreement for transition periods of four years for developing countries and eleven years for the least developed to bring their legislation into line with the TRIPs Agreement. Indeed, the discussion of the texts and the negotiations were essentially an asymmetric, non-transparent and autocratic process.

The asymmetries were reflected, first, in the determination of the negotiating agenda. The introduction of IPRs as one of the 'new issues' in the Uruguay Round was approved at the Ministerial meeting held in Punta del Este in 1986, but limited in principle to the issue of trade in counterfeit goods, i.e. goods infringing trademarks or copyrights. The industrialized countries' proposals concerning matters for negotiation were later extended to standards on practically all aspects of IPRs. Until 1989 developing countries refused to enter into detailed negotiations on standards. But the threat of unilateral retaliatory trade sanctions played a role in changing the stand of many developing countries on the matter. For example, China, Brazil, India, Taiwan and Thailand were "investigated" under the 'Special 301' section of the US Trade Act<sup>5</sup>, and many other countries (e.g. Argentina, Andean Group countries) were repeatedly threatened with trade sanctions in order to obtain changes in their IPRs regimes.

The negotiating capacity of developing countries was not only weak due to their vulnerable economic position, but also because of the considerable difference in the specialist knowledge available to them in

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<sup>4</sup> For an assessment of the limited gains obtained by developing countries in tariff reductions, agriculture and textiles in the Uruguay Round, see Agosin, M. and Tussie, D., *Developing countries and the Uruguay Round: y la nave va? An evaluation of the changed institutional balance*, FLACSO, Buenos Aires, 1994.

<sup>5</sup> Section 301 empowers the US Government to apply commercial sanctions (e.g. an import ban or quota) to countries that are deemed as not respecting adequately the intellectual property rights of US firms.

the conduct of extremely complex discussions. While developed countries were able to mobilize teams composed of top specialists in the various areas dealt with, developing countries lacked the necessary technical support.

In practice, the actual drafting process was confined to a very few countries. The main discussions took place in a so-called 'five plus five' drafting group composed of five developed and five developing countries.<sup>6</sup> The agreements reached in this group were later on referred to a broadened 'ten plus ten' group convened in accordance with the presiding officer's directions. With the exception of the members of these groups, the remaining countries had little real opportunity to influence the outcome of the drafting groups' work. Moreover, during the negotiations the co-ordination of developing countries' positions was, in general, weak, though some regional groups -- like that of Latin America -- were on the whole able to articulate their negotiating position.

Furthermore, in line with general practice within GATT no record of the TRIPs discussions was made, unlike the situation with respect to negotiations relating to existing intellectual property conventions. The various proposals have no recognized source and only the participants directly involved know how and why certain provisions were adopted or not as the case may be. Hence, the TRIPs negotiations can be considered the most non-transparent negotiations conducted to date on IPRs. The result is that the contracting parties now lack the background information necessary for interpreting the proposed rules or for understanding better the background, premises and intent of the adopted text.

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<sup>6</sup> Developing countries that participated in this drafting group in general included Brazil, Argentina and India; representatives of other Latin American or Asian countries were called upon according to the issue at stake. Developed countries included, as a rule, the European Community, USA, Japan and Canada.

Finally, the composition of each working group was decided at the discretion of the presiding officer rather than as the result of a consensus or of a search for a balanced representation of countries at different levels of development.

It is important to appreciate that the TRIPs Agreement itself has built-in asymmetries. The section on patent rights includes high and detailed minimum standards, the adoption of which will force changes in legislation in most developing countries. The copyright section reflects in many respects US legislation that, in some specific aspects, provides less protection to authors than does European law and that of many developing countries. Nevertheless, in some areas developing countries have succeeded in preserving some latitude for implementing their own solutions, including the possibility of regulating some key aspects such as compulsory licensing and the scope of patentability of biotechnological inventions. The extent of the room for manoeuvre on these matters is discussed later in this document.

#### ***Changes in the IPRs system***

Since the 1970s the availability and enforcement of intellectual property rights have become a major issue in international economic relations. During that decade, largely based on work by UNCTAD, developing countries promoted changes aiming at adapting the IPRs system to different levels of development and needs. In the 1980s, however, industrialized countries took the lead and reversed the direction of change from greater flexibility towards a tightening of the system. Several underlying factors explain their efforts to orientate intellectual property rights in a new direction.

First, technology is increasingly recognized as a key factor affecting competitiveness, particularly in the production of and trade in technology-intensive goods and services. R&D expenditures have shown a steady increase since the 1970s in industrialized countries, the private sector accounting for a growing share of total R&D



expenditures. In many of these countries, half and more of R&D expenditures is funded by enterprises themselves.<sup>7</sup> OECD countries account for 74 per cent of world R&D expenditures and are the origin of most innovations which reach the market.

Second, US leadership in manufacturing and technology was challenged by the catching up of Japan and a few other countries, including NICs, which became aggressive competitors in consumer electronics, micro-electronics, robotics, computers and peripherals, as well as in various services (e.g. engineering and construction). These challenges were perceived in the United States as resulting from too open a technological and scientific system which allowed other countries to imitate US innovations and which gave rise to the proliferation of counterfeiting and piracy.<sup>8</sup> This perception, and the strength of some industrial lobbies (particularly of the pharmaceutical and semiconductor industries), explain the active role played by the US Government in calling for a reform of the international intellectual property system. The monopoly positions conferred by strengthened intellectual property rights were seen as an instrument for neutralizing in part, and even reversing, the relative loss in competitiveness of US products and services and for preventing further catching up based on imitative paths of industrialization.

Third, it was clearly in the interest of all industrialized countries to reinforce their dominant position in research, technological innovation and industrial production, *vis à vis* other countries by strengthening IPRs and pressing for a worldwide system. A stronger and enforceable global system of IPRs would give 'actors' in developed countries the power to decide when and how innovative products were to be used and

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<sup>7</sup> See National Science Board, *Science and Engineering Indicators*, Washington D.C., 1993

<sup>8</sup> See, for example, Michael Gadbow and Timothy Richards, *Intellectual Property Rights. Global Consensus, Global Conflict*, Westview Press, Boulder, Colorado, 1988.

by whom, thereby making it less easy for new NICs (newly industrialized countries) to emerge. Concurrently, developed countries were also pressing for a more open world trading system which would open up markets for their R&D intensive exports in particular.

Fourth, for developed countries the combination of strengthened IPRs and open global markets would provide scope for them to choose to trade rather than to diffuse their technology. Indeed, industrialized countries have actively sought to eliminate the obligation to exploit patents locally -- one of the conditions that developing countries often stipulate in order to strengthen their industrialization efforts.

Fifth, there was also a strong interest on the part of industrialized countries in a more robust and forceful IPRs system in order to help their enterprises recoup the costs of their R&D efforts and to strengthen their appropriation of the results of R&D.

Sixth, the application of new technologies has given rise to a number of new situations and problems, particularly in the field of information technologies and biotechnology. These are of key importance for understanding the changes under way in the intellectual and industrial property system. For example, large-scale software producers pressed for the protection of computer programmes under copyright law, in order to obtain automatic and quasi-universal protection, despite the conceptual difficulties of applying copyright to functional works. In the field of biotechnology, as a consequence of the Chakrabarty case decided by the US Supreme Court in 1980, there was a wave of claims to patent living forms of all kinds.

These factors taken together are causing substantial changes in the system regarding intellectual property -- changes with regard both to the way that the system is conceived, as well as to many of its fundamental principles. For example, in the field of patents, the rights of governments to lay down conditions with a view to using patents as a means of promoting industrial development have been curtailed. Under

the new international rules, patents are an instrument for retaining and increasing industrial capabilities in developed countries while also controlling the commercialization of protected goods and services in the rest of the world.

The aim of industrialized countries is to ensure that patents remain in force in the country where they have been granted while not actually being exploited. Accordingly, foreign patent owners may keep all their rights while simply exporting the protected products to the countries where they have obtained patents and where they can enjoy monopolistic rights in the selling of the goods. Since the market may in that way be controlled without any transfer of the technology or productive facilities, one of the reasons for investing overseas or licensing disappears.

A new notion is also gaining currency in the field of copyright, originating mainly in the US courts and in discussions in the United States on the matter. There is a fundamental shift from a system based on non-commercial considerations -- the benefits that society will derive from creative authorship and the dissemination of ideas -- to a legal regime whose ultimate objective is the appropriation of rents generated by creative works. "Whatever copyright may have rested upon in the past, the primary goals of copyright are now economic considerations."<sup>9</sup> The same applies to patents and other IPRs.

According to this new idea, which focuses on the interests of enterprises rather than of society, it is assumed that, by making the products available (something which is deemed would not occur in the absence of protection) and by stimulating research, society is fully compensated for the monopoly it grants.

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<sup>9</sup> See Barry J. Swanson, "The role of disclosure in modern copyright law", *Journal of the Patent and Trademark Office Society*, vol. 70, No.4, 1988, p.224.

For these new notions to be accepted at the international level it requires changes in many of the basic principles of the legal system, as developed by international conventions and national legislation. Some of the changes required include the expansion of the subject matter of protection to new areas (e.g. biotechnology, integrated circuits), the universalization of standards of protection, and the strengthening of enforcement mechanisms.

## **II. Main Provisions of the TRIPs Agreement**

### **General principles**

In accordance with Article 1, countries are free to determine the 'appropriate method' for implementing the Agreement within 'their own legal system and practice'.

The Agreement reaffirms the well-established principle of 'national treatment', which means that the nationals of any country member of the Agreement are to be treated in the same way as nationals of the country where protection is granted. It also extends to IPRs the 'most-favoured-nation clause', that is, the obligation to extend, with some limited exceptions, to any member the advantages granted to any other member or members. These principles are meant to end discrimination, both between foreigners and nationals and between nationals of different countries, which arises when IPRs are granted only to the nationals of the country that pressed for them (as for example in the case of the recognition of pharmaceutical patents in South Korea).

Article 6 allows member countries to provide for the international exhaustion of rights and, therefore, to admit parallel imports if they so wish.<sup>10</sup> This principle can be crucial for the protection of consumers'

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<sup>10</sup> The international exhaustion of rights means that the title-holder cannot prevent the importation of a product on the grounds that its importation has not been consented to by the title-holder or the title-holder's licensee. Thus the importation of such a protected product which has been put on the market elsewhere in a legitimate manner can be considered as legal. The application of this principle permits, for instance, the importing of a (legitimate) product from a country where it is sold cheaper than in the importing country, thereby helping to prevent market fragmentation and price discrimination by title-holders.

interests and for ensuring access to industrial or agricultural inputs (if protected by IPRs) at competitive prices.

Two other important principles are established in Article 8 of the Agreement, which states:

1. "Members may, in formulating or amending their laws and regulations, adopt measures necessary to protect public health and nutrition, and to promote the public interest in sectors of vital importance to their socio-economic and technological development, provided that such measures are consistent with the provisions of this Agreement.
2. Appropriate measures, provided that they are consistent with the provisions of this Agreement, may be needed to prevent the abuse of intellectual property rights by right holders or the resort to practices which unreasonably restrain trade or adversely affect the international transfer of technology."

These provisions of Article 8 facilitate legislating limitations to exclusive rights, as well as the enactment of legislative provisions concerning the compulsory licensing of certain IPRs.<sup>11</sup> In particular, the grounds mentioned in Article 8.1 are relevant for the granting of compulsory licences in for example the pharmaceutical field in order to keep prices at a reasonable level or to ensure access to particular

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<sup>11</sup> Compulsory licences are authorizations granted by a government or a judge permitting the use of a piece of intellectual property without the consent of the title-holder. Although Article 8 provides some flexibility for governments to enact legislation providing for the granting of compulsory licences, the provisions of Article 31 ("Other Use Without Authorization of the Right Holder") specifies that such use can be resorted to only if certain preconditions are fulfilled. These requirements are such that they in effect reduce the scope for granting compulsory licences.

medicines by the population. However, Article 31 of the Agreement sets out conditions which could reduce the scope to grant compulsory licences. (See section on compulsory licensing and the Annex.)

### **Specific provisions**

In the following paragraphs the main provisions of the TRIPs Agreement concerning specific areas of IPRs are outlined briefly.

#### ***Copyright and related rights***

In the copyright area, the Agreement makes express provision for the protection of software as a literary creation and for the first time in an international agreement provides rental rights<sup>12</sup> for phonograms (sound records), films and computer programmes as well as for the protection of data compilations. It establishes a minimum term of protection for works not belonging to natural persons: 50 years from publication or from creation (if publication was not made within 50 years from the making of the work). Enforcement rules are strengthened by the obligation to institute criminal proceedings and to prescribe penalties against copyright piracy on a commercial scale.

#### ***Trademarks***

The protection of trademarks will be substantially harmonized and reinforced as a result of the application of the TRIPs Agreement, which defines in considerable detail what signs may be protected and the minimum term of protection. It also sets out the minimum permissible period of non-use and the possibility of justifying this by "valid reasons based on the existence of obstacles" (Article 19). The Agreement supplements the Paris Convention with regard to the protection of

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<sup>12</sup> The granting of exclusive rental rights means that the title-holder may prevent the commercial rental of relevant works even after the first sale of a copy thereof.

'well-known' trademarks and blurs in practical terms the distinction between trademarks for goods and for services.

### ***Geographical indications***

Under the TRIPs Agreement, the 'protection of geographical indications', which hitherto was granted in a small number of countries, is now required of all members of WTO. Reinforced protection is accorded in respect of wines and spirits. The implementation of the Agreement will not, however, affect prior users of geographical indications of other members that become protectable under the Agreement, if the conditions specified by the Agreement are fulfilled.

### ***Industrial designs***

New or original industrial designs need to be protected for at least 10 years. The obligation refers to designs of an aesthetic nature, since countries are not obliged to protect designs dictated essentially by technical or functional considerations.

### ***Patents***

A crucial chapter of the TRIPs Agreement relates to patents. Until now, countries were free to determine areas of non-patentability, the duration of the terms of patents and the set of exclusive rights conferred on patent-holders. This freedom which was used by developing countries to frame their patent laws in accordance with their own objectives and interests no longer exists under the TRIPs Agreement. Patents are to be granted without discrimination as to (i.e. irrespective of) the place of invention, the field of technology or whether products are locally produced or imported. The Agreement thus settles the longstanding conflict over pharmaceutical product patents, which, under the Agreement, now need to be recognized. For biotechnological inventions, nevertheless, and as a reflection of the complexity and still unresolved differences even among developed countries on the issue, the Agreement only provides for a transitional solution which is to be reviewed within four years of the date of the Agreement.



The text of the Agreement sets out the rights to be conferred under a patent, including the protection of a product directly made with a patented process, and an exclusive right to produce, sell and import the protected product.

The reversal of the burden of proof<sup>13</sup> is stipulated for process patents in order to strengthen the patentee's position in civil cases of infringement, but with the proviso that the product is new or, alternatively, that there is substantial likelihood of infringement which could not be proven despite reasonable efforts by the title-holder.

Furthermore, detailed rules are set out limiting the conditions but not the grounds on which compulsory licences may be granted. Compulsory licences<sup>14</sup> must be non-exclusive and subject to a remuneration to be paid to the patentee, as well as to other conditions.<sup>15</sup> However, there are no specific provisions concerning the grounds on which such licences can be granted. Specific reference is made to the dependency of patents (i.e., when an invention cannot be used without using another invention); to licences for governmental non-commercial use; to cases of emergency use and to remedy anti-competitive practices. But licences may be granted also for other reasons. Thus, nothing in the

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<sup>13</sup> This means that when a party (A) markets a product identical to one obtained by the application of a process patent belonging to another party (B), the onus is on A to prove that the process patented by (B) has not been employed. This reverses the general principle of judicial proof, according to which it would have been (B) who would have had to prove an infringement by (A).

<sup>14</sup> See Annexe 6 [d].

<sup>15</sup> These include: case-by-case consideration of requests for compulsory licences; refusal by the title-holder of a prior offer by the prospective user made on reasonable commercial terms; possible revocation of the licence if the circumstances that motivated it have disappeared and are unlikely to recur. These conditions can certainly limit the effectiveness of compulsory licensing, if they are applied without adequately taking into account public interests and the legitimate interests of authorized users.

Agreement prevents, in effect, the granting of compulsory licences for reasons such as public interest, public health or environmental protection, subject to the conditions set out in the Agreement. The Agreement further allows national legislation to determine the rights that can be exercised by the licensee, including production or importation. Lastly, the minimum patent lifetime is stipulated as 20 years, counted from the filing date.

#### ***Integrated circuits***

In this area, compliance with the basic obligations of the Washington Treaty is provided for.<sup>16</sup> Though the Treaty authorizes the protection of the layout design of integrated circuits through copyright, patents or other titles, the Treaty follows the *sui generis* approach that was first adopted by US legislation and later on followed by Japan and European countries. The TRIPs Agreement reinforces the protection granted under the Treaty, by limiting the availability of compulsory licences and by imposing obligations on even *bona fide* acquirers of semiconductors who infringe rights.

#### ***Undisclosed information***

Under the TRIPs Agreement, trade secrets (such as confidential know-how or commercial information) are deemed protectable under the rules regarding unfair competition and Article 6 [bis] of the Paris Convention. In addition, obligations are recognized in relation to test results and other data submitted to governments in order to obtain approval of pharmaceutical and agrochemical products. The TRIPs Agreement stipulates that such tests and data must be protected against unauthorized disclosure and unfair commercial use.

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<sup>16</sup> The Washington Treaty deals with the protection by IPRs of the layout design of integrated circuits. It was adopted in 1989 but has not entered into force, mainly because of the dissatisfaction of the two major world semiconductor producers, the United States and Japan.

### **Restrictive practices in licensing agreements**

The TRIPs Agreement allows member countries to control and ban restrictive practices provided for in licensing agreements that in particular cases constitute an abuse of intellectual property rights with an adverse effect on competition.<sup>17</sup> The Agreement thus introduces the ‘competition test’ for the purpose of verifying and curbing the use of restrictive clauses, as proposed by industrialized countries during the long and unsuccessful negotiations under UNCTAD auspices on an international code of conduct for the transfer of technology.

### **Enforcement**

The Agreement also contains detailed provisions regarding judicial and administrative procedures and other measures related to the enforcement of rights, as well as specific rules for preventing trade in goods bearing false trademarks and in pirated works which infringe copyrights. The enforcement part of the Agreement constitutes a major innovation as compared to previous international conventions on the matter, which dealt exclusively or mainly with the availability of rights and not with procedures for exercising them.

### **Dispute settlement**

The provisions of the TRIPs Agreement as such cannot be the direct and sole basis of a claim by a private party, that is, it has not been conceived as a self-executing instrument. An action which charges non-

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<sup>17</sup> Typical restrictive practices include, for instance, (a) the obligation to exclusively transfer to the licensor the improvements in the technology made by the licensee and (b) the obligation imposed on the licensee to buy spare parts or inputs exclusively from a particular supplier.

compliance with the rules of the TRIPs Agreement can only be taken by other WTO members and not by individuals or firms.

Non-compliance with the new rules, once adopted, would give rise to a dispute settlement procedure under the WTO rules and, possibly, to retaliatory commercial measures in any field (not only in IPRs) by the country whose nationals are affected by such non-compliance. Since, within the WTO, adherence to the new IPRs universal standards will be monitored by the Council for TRIPs, the possibility of deviations from those standards is drastically reduced, unless a non-complying country is prepared to bear the costs of any trade restrictions that may be imposed.

The new WTO "Understanding on Rules and Procedures Governing the Settlement of Disputes" provides a limited time frame and considerable automaticity for the settlement of disputes. It creates a Dispute Settlement Body (DSB) composed of all WTO members and stipulates a 'negative consensus' rule for the establishment of panels, the adoption of their reports and the authorization of retaliatory measures. Such a rule means that the panel process will be instituted if at least one country favours this course.

The adoption of this Understanding also means that unilateral actions, such as action under section 301 of the US Trade Act, cannot be imposed before the DSB has verified the existence of a case of non-compliance and authorized retaliatory action. Any unilateral action taken before or outside such a procedure would be illegal under the WTO Agreement.

### **Transitional provisions**

Finally, the Agreement contains provisions that allow developing countries to delay complying with any or all of the Agreement's obligations for up to five years from the date of entry into force of the

Agreement. An additional five years is allowed in the case of countries which did not grant *product* patents before entry into force of the Agreement but which now have to do so under the terms of the Agreement.<sup>18</sup> The least-developed countries may delay implementation for up to 11 years. This term may be extended by the Council for TRIPs upon request setting out the reasons.

### **Technical co-operation**

Developed countries members of WTO are obliged, under Article 67 of the TRIPs Agreement, to provide "technical and financial co-operation" in favour of developing and least developed countries to facilitate the implementation of the TRIPs Agreement. Such co-operation, which is to be provided upon request and on mutually agreed terms and conditions, includes assistance in the preparation of laws and regulations, support for domestic offices and in the prevention of abuse of IPRs.

This obligation on the part of developed countries, if not adequately fulfilled, may be the subject matter of a claim before the Council for TRIPs, as in the case of any other obligation defined by the Agreement.

### **Review of the TRIPs Agreement in the WTO**

The TRIPs Agreement is to be reviewed for the first time five years from the date of its entry into force, and at two-yearly intervals

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<sup>18</sup> In this case, and under certain circumstances, "exclusive marketing rights" in other member countries are to be granted to the patent title-holder during the transitional period. National legislation may determine the scope and content of such rights. It would be logical to interpret the situation as meaning that the latter cannot be stronger than patent rights and that, in any case, they may be subject to compulsory licensing or similar provisions.

thereafter (Article 71). The Council for TRIPs may also undertake reviews when new developments warrant modifications.

### **III. How Much Freedom Remains to Determine National Policy on IPRs?**

Although the Agreement will have a powerful harmonizing effect in many respects (with respect to the duration of patent rights, for example), it only provides minimum standards. Hence, countries may provide higher protection for IPRs, but they are not obliged to do so (Article 1). In this sense, the Agreement represents both the floor and the ceiling of protection. Many developing countries, in fact, negotiated the Agreement on the understanding that it would contain the maximum concessions they were prepared to make, since in general they produce very few inventions and are unlikely to benefit from higher standards of protection. Hence, it is reasonable to expect that many developing countries will increase or expand IPRs protection only as far as it is necessary in order to comply with the TRIPs Agreement standards and to gain protection against possible commercial retaliation.

The TRIPs Agreement requires countries to adopt national legislation in conformity with the Agreement --- in other words the Agreement is not self-executing. However, whereas under the earlier system IPRs could be adapted to national needs and objectives, the TRIPs Agreement imposes detailed minimum standards thereby putting constraints on what can be legislated at the national level. Thus while countries may implement the Agreement in accordance with their own legal system, and take into account public interests such as public health and nutrition and the control of anti-competitive and abusive practices (Articles 1 and 8 of the Agreement), the new rules provide a rather rigid framework within which all countries must operate.

The provisions for a transition period may be of particular importance for many developing and least developed countries, giving

time to adapt the IPRs system and to adopt measures that mitigate the impact of the new rules, for instance, by reinforcing legislation against anti-competitive practices, or providing incentives to industries that need to convert their output in order, for example, to find alternatives for the production of goods which become patentable or to obtain licences from patent-holders. The planning and application of such measures will be crucial in industrial and technological policy in the years to come.

The fact that, as mentioned above, the TRIPs Agreement is to be subject to review suggests that it should not therefore be viewed as a static, unmodifiable instrument. This gives developing countries the opportunity to co-ordinate their views during the intervals between reviews in order to prepare proposals for changes in the Agreement, taking into account their own development objectives.

In view of the fact that in some crucial areas the Agreement appears to leave room for interpretation at the national level, or even the possibility of choosing between different options for legislation, it is important to examine briefly some of these examples.

### **Software**

While protecting computer programmes as literary works, the Agreement does not settle the controversial issue concerning the admissibility of "reverse engineering" with regard to software, a desirable feature of legislation aiming at promoting innovation and competition in the software industry.<sup>19</sup>

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<sup>19</sup> See Carlos Correa, "Legal protection and innovation in the software industry", *World Competition*, vol. 17, No. 1, Geneva.



### **Moral rights of authors**

The Agreement does not oblige member countries to comply with Article 6 [b] of the Berne Convention, which provides for the protection of "moral rights". Moral rights include, for instance, the author's right to be credited with the authorship of a work that is cited and to the integrity of a work. Moral rights are distinguishable from 'economic' rights. Paradoxically, the lack of obligation to comply with Article 6 [b] of the Berne Convention was accepted in order to satisfy the United States, which in this respect provides a lower level of protection than the international standard, whereas in other areas of IPRs the United States has pressed for higher levels of protection.

### **Exceptions to exclusive rights**

The articles on exceptions to exclusive rights regarding trademarks, patents and other rights are framed in very general and vague terms, which gives scope for countries to determine the specific instances of exceptions they are willing to permit. In the case of patents, for instance, exceptions may be made on the basis of prior use or for purposes of research and teaching, or for the importation of products legitimately sold elsewhere ("parallel imports"). In the area of copyright, exceptions generally include private use of a protected work.

As mentioned above, implementation of the principle concerning the international exhaustion of rights is of crucial importance if price discrimination or market fragmentation by title-holders is to be prevented.<sup>20</sup> "Parallel imports" -- as permitted under Article 6 of the

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<sup>20</sup> In the absence of the principle of international exhaustion of rights, the title-holder could price the same good at, say, US\$ 50 in country A and US\$ 100 in country B. The application of the principle allows any party in country B to import the product in question from country A, even without the title-holder's consent.

TRIPs Agreement -- would provide access to inputs or consumer products at the most competitive prices and conditions, and could become a significant component of industrial competition and consumer protection policies.

### **Patents relating to biological matter**

The TRIPs Agreement does not define what constitutes an invention: it only specifies the requirements to be satisfied in order to obtain protection for an invention. Hence countries can determine, in accordance with well established principles of patent law, that substances which exist in nature are simply a 'discovery' and not an invention. Genes, cells and other biological matter found in nature may not be deemed patentable.

In addition, member countries may declare plants and animals as well as essentially biological processes for their production as not patentable. This exclusion from patentability may be applied also to plants and animals which have been modified by genetic engineering and other techniques (e.g. transgenic plants and animals). The possibility of also excepting plants and animals -- which is to be reviewed after four years from the date of entry into force of the TRIPs Agreement -- is important in that it can be used to prevent the private appropriation of natural resources of importance for food and agriculture and for the conservation of the environment. The proposed review of this provision offers developing countries an opportunity to co-operate in defining permanent rules that recognize the right of national legislation to exclude the patenting of any living form.

The Agreement, however, obliges WTO members to protect plant varieties<sup>21</sup> by one of three methods: patents, an effective *sui generis*

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<sup>21</sup> Plant varieties refer to plants which have been improved by breeding techniques in order to make them stable and uniform.

regime (for example, through breeders' rights) or a combination of both. While the granting of patents is regulated by detailed standards, the only requirement with respect to a *sui generis* system is that it must confer "effective" protection, though the criteria to be applied in determining whether protection is effective are not defined. Accordingly, countries are free to determine the scope and contents of the rights to be granted. For instance, they could grant exclusive rights to breeders with respect to the propagating materials (that is, seeds and other materials for the reproduction of plants), of new varieties, subject to clearly stated exceptions for the re-use and eventual sale of seeds by the farmers<sup>22</sup> and exceptions for the use of protected varieties by a third party in order to develop a new variety. *Sui generis* regimes can also include compulsory licences (i.e. licences granted by the government without the title-holder's consent) for reasons of public interest, as well as provide recognition -- e.g. via a royalty or other type of remuneration -- of the rights of traditional farmers that have provided breeding materials.

In working out an "effective *sui generis* system" for plant varieties, there is considerable room for co-operation and harmonization of legislation between developing countries, the majority of which have not yet adopted any kind of protection for plant varieties. They may well wish to propose a *sui generis* system which corresponds to their own needs and does not follow the UPOV convention (the International Convention for the Protection of New Varieties of Plants), as revised in 1991 which strengthens breeders' rights at the expense of farmers' rights.<sup>23</sup>

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<sup>22</sup> Until a recent change in its law on breeders' rights, the United States law permitted the sale of seeds by farmers who obtained them from crops based on the cultivation of protected varieties, provided that the primary occupation of the seller and buyer was not the selling of seeds for reproductive purposes.

<sup>23</sup> See further, the later section on Protection of biological resources.

WTO member countries are obliged to grant patents for micro-organisms. However, although micro-organisms<sup>24</sup> must be patentable under the TRIPs Agreement, this obligation can be interpreted as applying only to micro-organisms that have been genetically modified, and not as they occur in nature.<sup>25</sup> As mentioned above, the discovery of a micro-organism can be considered under national legislation not to constitute an invention and, therefore, to be non-patentable.

### **Compulsory licensing**

The TRIPs Agreement does not expressly refer to the widely accepted notion of 'non-voluntary' or 'compulsory' licensing. But Article 31 on "Other use without the authorization of the right holder" allows the state to authorize a party to use the patented invention of another party, even without or against the consent of the latter. Nevertheless the granting of such authorization is subject to a detailed set of conditions and limitations with respect to the granting of such licences set out in the same article.

National legislation is free to determine many aspects of the implementation of compulsory licencing. The TRIPs Agreement does not limit, as mentioned before, the grounds on which such licences may be granted and therefore, countries can provide for the grant of compulsory licences for reasons of public interest or health, to protect the environment or for other reasons. However, as mentioned earlier, Article 31 sets out conditions regarding such use and these may in

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<sup>24</sup> It should be noted that there is a trend in developed countries to extend the concept of 'micro-organism' beyond its scientific meaning, so as to include all types of cells and sub-cellular parts. National legislation can, however, adhere to the scientific concept and limit patentability to derivatives of bacteria, fungi, algae, protozoa and viruses (see Coombs, J., *Macmillan Dictionary of Biotechnology*, Macmillan, London, 1986, p. 198).

<sup>25</sup> This is, for instance, the solution adopted by the Brazilian patent law, as revised in 1996.

practice tend to limit the scope for granting compulsory licences. Among other things, the proposed user must undertake efforts to obtain authorization from right-holder, and unauthorized use (a compulsory licence) will be granted only if such efforts have not been successful within a "reasonable period of time". Moreover, the legal validity of any such decision relating to the authorization of such use shall be subject to judicial review.

A further condition is that "adequate remuneration" be paid to the patent-holder. The meaning of such concepts as this need to be spelled out and given effect by national law and practices. In accordance with a correct interpretation of this expression, for instance, legislation could limit the remuneration so as to compensate, through a royalty calculated as a percentage of net sales, for the costs actually incurred by the patentee in developing the invention, excluding subsidies or other contributions that the patentee may have received from third parties or entities.<sup>26</sup> The compensation may also be determined taking into account the average royalties paid in the particular sector by licensees which are not under the control of the licensor concerned.

### **Industrial designs**

Another example of the room left for national legislators to determine the content of laws on intellectual property rights is that concerning the dual standard established for the protection of industrial designs, i.e., the possibility of protecting either designs which are "new" or designs which are "original". Moreover, the Agreement does not define

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<sup>26</sup> The US pharmaceutical industry, for instance, is reported to benefit from substantial subsidies for its R&D. Thus, 92 per cent of the cancer drugs discovered between 1955 and 1992 were developed with funding from the Federal Government. See James Love, "The other drug war. How industry exploits pharm subsidies", *The American Prospect*, Summer 1993, No. 14.

whether the required novelty is absolute or restricted to previous knowledge in the country where the application is made.

Some of the matters in the field of intellectual property rights which will be of particular concern to policy makers and legislators in developing countries are reviewed in more detail in the Annexe to this document.

## **IV. Implications of the TRIPs Agreement for Developing Countries**

### **General implications for legislation**

Overall, the TRIPs Agreement will have a substantial impact on intellectual property regimes in developing countries. Two groups of countries can, however, be distinguished in terms of the adjustments called for.

The first group comprises those countries which already have legislation that conforms to a considerable degree with the substantive standards of the TRIPs Agreement. Some of these countries have introduced significant changes in their IPR legislation in the last five to ten years, as a result of pressures and threats by the USA to apply Section 301 of the US Trade Act.<sup>27</sup> In these countries, the level of substantive adjustment required may not be very significant, though changes in certain aspects or the enactment of new legislation (e.g. concerning layout designs of integrated circuits) may be necessary to satisfy the Agreement's provisions. In particular this may apply to the provisions relating to the enforcement of IPRs, i.e. those that regulate the judicial and administrative actions available to private parties to combat infringement of IPRs.

A second group consists of countries that, despite foreign pressures, have not yet amended their legislation or have only done so partially. In this case, legislative action will be required and the implications will be wide-reaching and significant. They will, however, differ sector by sector. A comprehensive analysis of the implications of the TRIPs

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<sup>27</sup> This section allows the US Government to apply trade sanctions to countries which are deemed to conduct unfair trade practices that affect the interests of US companies, including in the field of IPRs.

Agreement for developing countries is, however, beyond the scope of this document. When drafting the legislation or considering its eventual review, developing countries should take account of the possible impact of the new framework for IPRs on local innovation, technology transfer, foreign direct investment and trade. No conclusive evidence exists on the benefits and costs of reinforcing IPRs. They are likely to vary considerably in accordance with the level of economic and technological development of the country concerned. Some of the key aspects to be addressed are outlined below.

### **Innovation**

One of the key issues to be addressed is whether the new regime is likely to stimulate local innovation. If the national R&D infrastructure is weak, strengthened protection is unlikely by itself to lead to any general increase in the rate and level of innovation.

Expanded protection may, however, affect public policies on science and technology. This may be the case if public research institutes become more inclined to protect their research results and privatize their use, for instance by transferring the titles to such results to a private enterprise or by granting it exclusive rights of exploitation.

### **Technology transfer**

It is not clear what the impact of increased protection is likely to be on the transfer of technology. On the one hand, it may facilitate access to technologies that the title-holders may be reluctant to transfer in the absence of intellectual property protection. On the other hand, with stronger protection, the risk of imitation will be lower and, to the extent that title-holders can exploit their technology alone, they may be less inclined to part with it. As a result, it could become more difficult to



obtain protected technology and, if it is obtained, royalties and other prices are likely to be higher.

There is evidence to suggest that since the 1970s policies and measures affecting access to technological and scientific knowledge held in industrialized countries have become more restrictive, reducing the flow of technology to developing countries. This trend could be reinforced by the higher levels of protection established by the TRIPs Agreement.

### **Foreign direct investment**

As in the case of technology transfer, the existence of certain standards of IPR protection will be one of the elements taken into consideration by potential foreign investors with respect to their decisions on where to locate their production facilities. However, to the extent that the levels of protection are substantially harmonized under the TRIPs Agreement, IPRs are likely to become a less significant issue in investment decisions, except with respect to the effective enforcement of available rights.

Moreover, as mentioned above, the reinforcement of IPRs (and, in the case of patents, the lack of obligation to work the protected technology locally) may lead to corporate decisions to locate production in the home country and to promote the export of products that incorporate protected innovations, rather than to engage in foreign direct investment for the purpose of manufacturing products in or near attractive foreign markets. The TRIPs Agreement, in the absence of other incentives, may, therefore, reduce the flow of foreign direct investment.

### **Trade**

Technology-holders from industrialized countries, which generally possess the resources to protect and enforce their rights globally, will be able to trade under the exclusive rights conferred by IPRs. Firms from developing countries, in contrast, generally lack the means to seek and enforce protection for their innovations in foreign countries, because of the high cost involved and their lack of specialized knowledge. The TRIPs Agreement could have an asymmetric impact on North-South trade flows.

### **Implications in selected areas**

In view of the importance of the implications of the TRIPs Agreement in the fields of pharmaceuticals, plant varieties and software, particularly for developing countries, these are examined briefly below.<sup>28</sup>

#### ***Patenting of pharmaceutical products***

Special value is attached by large pharmaceuticals firms to the availability of patent protection both for processes and for products. They have pursued unilateral action and have been among the most vigorous protagonists of multilateral negotiations with respect to intellectual property in order to extend and reinforce such protection. This is partly explained by the heavy expenditure involved in the development of new drugs, estimated to average around US\$ 200 million per new chemical compound, as also by the fact that new products may be imitated relatively easily, as suggested by short imitation time-lags.<sup>29</sup>

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<sup>28</sup> This certainly does not mean that the implications of the Agreement may not be important in other areas. The analysis that follows only attempts to highlight some of the cases in which such implications are likely to be substantial.

<sup>29</sup> It is important to appreciate that a large number of developed countries did not introduce pharmaceutical patents until their industries had reached a

Many developing countries did not begin to grant patent protection for pharmaceutical *products* until the late 1980s, though the majority did recognize *process* patents in the field. The enforcement or threatened enforcement of section 301 of the US Trade Act by the US Government and the GATT negotiations were intended to secure changes in the legislation of these countries. Facing the threat of trade retaliation, due to what was considered to be their lack of or inadequate protection for pharmaceuticals, many developing countries have thus responded in recent years by changing their laws accordingly (Chile, Mexico, South Korea and others). Others (e.g. Egypt, India, Jordan), however, have not so far granted product protection and are considering availing themselves of the possibility of the additional transition period provided by the TRIPs Agreement. This would permit a delay in providing patent protection for pharmaceutical products of up to ten years for developing countries and sixteen for least developed countries. Many developing countries are also introducing or strengthening provisions concerning compulsory licences on grounds of competition, health or public interest.

There are strong arguments favouring such an approach. Pharmaceutical products have wide social implications and governments are particularly concerned with health aspects and with the impact of patents on consumer prices and government health expenditures.

There is evidence that the patent system has a detrimental impact on pharmaceutical prices, particularly if the product itself is protectable. Even after a patent expires and competition from 'generic' products (which are not protected by patents) develops, the original innovator is

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certain degree of development (France, 1960; Germany, 1968; Japan, 1976, Switzerland, 1977; Italy and Sweden, 1978), or only introduced them when the introduction of patents on these products was considered to be of broader advantage for the country, as in the case of Spain's admission to the European Community.

able to maintain, through brand loyalty, prices higher than those that would be realized in the absence of patents. The introduction of patents for pharmaceuticals in countries that do not currently grant them may, therefore, imply significant social costs due to the higher prices charged for medicaments. Depending on the scope and coverage of the national health systems, there may also be a significant impact on public finances.

Governments may also have broader development concerns. Given the technological superiority of large pharmaceutical firms and the high costs of R&D for new drugs, it is almost always foreign enterprises that hold product patents in developing countries. With very few exceptions, pharmaceutical firms owned by developing country nationals have neither the size nor the competence to develop new molecules, and will therefore be dependent on the willingness of foreign companies to license their new patented products. As a result, national industrial development could be substantially hindered and there is likely to be an immediate increase in repatriated profits and royalties, which will have an impact on the balance of payments.

Moreover developing countries have ground for suspicion concerning the argument that patent protection generates benefits in terms of more local R&D by domestic or transnational companies and of increased flows of technology. Given the substantial finance needed to develop a new drug, very few developing countries' firms, if any, have the minimum size required to support the necessary R&D expenditures. In addition, with the granting of product patents, access to protected technology by local firms in developing countries will become more difficult, even impossible, since the title-holder's bargaining position will be reinforced and it will be possible to supply the market through exports from elsewhere. As suggested by the case of Turkey after the abolition of pharmaceutical patents, the transfer of

technology and foreign direct investment may be stimulated in the absence of patent protection.<sup>30</sup>

Many developing countries also fear that the most dynamic segments of the pharmaceutical market, where the prospects of growth are highest, will be excluded for domestic firms as a result of the new patenting rules. This is likely to be the case with respect to drugs based on biotechnology, where 'inventing around' (i.e. developing drugs based on similar compositions) is more difficult, particularly to the extent that the drug in itself replicates a substance existing in nature.

In conclusion, the concern that the social and economic costs of introducing pharmaceutical patents are likely to outweigh the benefits in the case of most developing countries suggests a cautious approach to intellectual property protection in the area of pharmaceuticals.<sup>31</sup> Since under the TRIPs Agreement member countries are bound to provide such protection, compensatory measures and schemes to avoid the negative impact of monopolization of drugs will need to be devised. Such measures could include, for instance, appropriate compulsory licence systems which facilitate access to protected technologies and raw materials. In the new framework for IPRs, this type of licence may be an important tool for preventing anti-competitive practices and for persuading title-holders to grant voluntary licences on reasonable commercial terms.

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<sup>30</sup> See Arman Kirim, "Reconsidering patents and economic development: a case study of the Turkish pharmaceutical industry", *World Development*, No. 13, February 1985.

<sup>31</sup> See, for instance, the results of studies undertaken in the World Bank, in J. Nogues, "Social costs and benefits of introducing patent protection for pharmaceutical drugs in developing countries", *The Developing Economies*, vol. 31(1), 1993, pp. 24-53.

### ***Protection of biological resources***

Developing countries possess most of the world's biodiversity. They are the source of genetic resources (such as medicinal plants) of great value for agriculture and industry. Traditional farmers in particular have contributed and still contribute to the continued improvement of plant varieties and to the preservation of biodiversity. These genetic resources providing gene pools crucial for major food crops and other plants have been freely transferred to developed countries in the past, on the understanding that they were a 'common heritage' of humanity, as expressed by the FAO International Undertaking on Plant Genetic Resources (FAO Resolution 8/83).

In contrast to their wealth in genetic resources, most developing countries lack the technological and financial resources to fully exploit these resources. With the advent of modern biotechnology, many developing countries fear that their varieties may be genetically changed and that the new varieties may later be substituted for the original varieties from which they were derived. Moreover, if intellectual property protection for plant varieties is reinforced and extended, foreign companies may become the 'owners' of varieties originating in developing countries.

Protection for plant varieties is not new. In the 1920s and 1930s several countries introduced legislation that gradually evolved into a *sui generis* system of protection (breeders' rights) that is distinct from the patent system. Based on the criteria of distinctness, novelty, uniformity and stability which have to be satisfied, "breeders' rights" have typically allowed control over the commercialization of propagating materials such as seeds, without prejudice, however, either to the use on their own land of seeds saved by farmers ("farmers' privilege") or to the development of new varieties by a third party taking as a starting point a protected variety ("breeders' exemption"). The *sui generis* regime was established at the international level in the 1960s, with the adoption of the International Convention for the Protection of New Varieties of Plants (the UPOV Convention). This regime introduced a

number of minimum standards for the recognition of breeders' rights and prohibited the simultaneous use of patent and *sui generis* protection for plant varieties. Many countries explicitly excluded the patentability of plant varieties and of the essentially biological processes such as breeding methods involved in obtaining them.

The UPOV Convention was ratified by a small number of developed countries and until recently no developing country had become a member. Some, however, have introduced national legislation on breeders' rights. During the 1980s, however, developed country enterprises began to exert pressure to modify the situation described above. Biotechnology-based firms were interested in obtaining patent protection for processes and genes used in plant varieties and for plant varieties as such. In 1986 a patent for a plant was granted in the United States, which gave rise to a worldwide debate on the patenting of plants and plant varieties.

In 1991 the UPOV Convention was revised with the effect of eliminating the prohibition of double protection (i.e. through patents *and* breeders' rights), expanding exclusive rights (to cover propagating and harvested materials in some circumstances) and incorporated the concept of "essentially derived variety". Furthermore, "farmers' exemption" was no longer a general principle and became an exception which may be established by national legislation.

In European countries the ban on patenting plant varieties is still in force, but these countries now tend to accept an interpretation of the prohibition on patenting plant varieties such that other plant classifications, parts or uses of a variety can be protected.

The differences between developed countries concerning the form of protection to be given to plant varieties were reflected during the negotiation of the TRIPs Agreement. The result is that the TRIPs Agreement stipulates that the protection of plant varieties may be based on patents or a *sui generis* regime or on a combination of both systems.

For most developing countries, this will represent a substantial change since the majority currently do not protect plant varieties.

The recognition of patents on plants (including plant varieties) is strongly resisted by many developing countries, for several reasons. First, the patentee would be authorized, in principle, to prohibit the re-use of saved seeds by farmers, with the consequence that farmers' costs would rise and the dominance of large seed companies would be strengthened. Second, breeding based on protected varieties would be banned, while patent protection would not encourage the kind of innovation that generally takes place at the farm level. Third, the patenting of certain traits (e.g. higher oil content, disease resistance, higher yield, etc.), or broad claims on genes, seeds and/or plants, may subject the production and marketing of important crops to monopoly rights. Fourth, patenting would contribute to further standardization and reinforce the trend towards monoculture, both of which erode biodiversity. Patenting could also lead to increased concentration in farm ownership and in the seeds industry, with small and medium farmers and breeders likely to suffer the worst impact.<sup>32</sup>

In the opinion of the proponents of an expanded and reinforced patent-based approach, protection is required in order to provide an incentive for innovation, by ensuring a reward for R&D outlays. In their view, the possible negative impact of protection would be offset by benefits to be derived in terms of new and better varieties. It is clear, however, that the negative consequences of patenting plant varieties in developing countries may outweigh any possible advantages. This would suggest that a *sui generis* regime would be the most appropriate approach in such countries, and that the coexistence or "accumulation" of patent protection for plant varieties with that of

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<sup>32</sup> For an analysis of the implications of patents on plants, see The Crucible Group, *People, Plants and Patents. The impact of intellectual property on trade, plant biodiversity, and rural society*, IDRC, Ottawa, 1994.



the *sui generis* approach should not be contemplated by developing countries.

### ***Computer programmes***

Software has become a major component, in value terms, of any computer system. Though its development may require considerable time and resources, it is easy and inexpensive to copy. World software production and trade is largely controlled by firms of developed countries, particularly those in the United States.

The protection of software has been one of the most controversial issues in the recent history of intellectual property. Since the formal adoption in the United States, in 1980, of copyright law as the main framework for the protection of software, many developed and developing countries have followed the same approach. The United States Government and firms have actively promoted this mode of protection at the international level. Software became one of the main issues in bilateral negotiations and frequently the subject of actions under Section 301 of the US Trade and Tariffs Act. The firm stance of the world's major software producers contributed to the imposition of the copyright standard and to the dismissal of proposals to establish a *sui generis* regime for software. Thus the TRIPs Agreement defines computer programmes as literary works which are protectable under copyright law.

Copyright has many advantages for the protection of software internationally. Unlike patents, registration in each country is not necessary. In order to obtain protection, which is conferred as of the date of creation and for very long periods (typically, for 50 years after the death of the author). Copyright protection does not require disclosure, in this case of the source programmes. Therefore, computer programmes sold in their object programme (i.e. the programme in its magnetic form), benefit *de facto* from both trade secrets and copyright protection. Moreover, the requirements to be satisfied in order to

qualify for protection (based on the concept of originality) are less stringent than under patent law.

Notwithstanding these advantages, the copyright solution has not satisfied everybody in the field, and its application to software is still under discussion. It is generally accepted as appropriate that legislation should protect software producers against 'piracy', that is, against the copying of computer programmes -- a practice that has allegedly caused multi-billion losses to innovating firms. Discussion therefore focuses on what form protection should take and on the extent of the rights conferred.

The functional nature of software has posed a major challenge to copyright law, and particularly to the fundamental distinction between ideas (which are not protectable) and expression (the copyrightable subject matter). Some court decisions in the United States have held that the protection afforded by copyright extends beyond the copyright of expression to the functional aspects of the software -- its structure, sequence and organization. More recently, a heated debate has taken place on the possibility of protecting user interfaces -- that is the 'look and feel' of the software.

The question of the protectability of programme interfaces has drawn attention to one of the key points with respect to the development of the industry, particularly in developing countries, namely to degree to which reverse engineering is legitimate under copyright law. Reverse engineering is necessary in order to understand a programme and for developing other programmes that may inter-operate with it or replace it, or for purposes of maintenance. The vast majority of interfaces used in the computer world today are produced by large suppliers and are *de facto* standards. If reproduction (including decompilation or reverse engineering) of protected software is forbidden and interfaces can be protected through copyright, the development of competitive products would be drastically limited.

While the extent of protection conferred on software under copyright law is the subject of debate<sup>33</sup>, a growing number of patents on computer programmes have been issued in the United States. Its Patent and Trademark Office regularly considers a computer algorithm to be patentable subject matter in that it is not purely mathematical. The number of computer-related patent applications have significantly increased. The patentability of software-related inventions may permit the title-holder to monopolize the basic concepts and the crucial programme interfaces. Moreover, patent protection may not be a substitute for copyright protection but may be additional to it, thereby tending to curb competition and new developments even further.

The countries that considered the possibility of developing a *sui generis* system of protection but which were forced to abandon it, now face the paradoxical situation that, even in the United States, a growing number of experts have come to the conclusion that software, as a unique functional work, requires a new, hybrid intellectual property system. The Office of Technology Assessment (OTA), in a Statement to the US Congress, suggests that:

"the distinction between writings and inventions is indeed breaking down with respect to functional works such as computer software and semiconductor chip masks. Because there are many works of this type, they may require their own framework for protection. If it were based on the distinctive characteristics of these works, the law might be more accurately targeted to achieve specific policy outcomes, thus serving as a more robust policy tool. With a new category of

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<sup>33</sup> For an analysis of law and case law on reverse engineering, see C. Correa, "Legal protection and innovation in the software industry", *World Competition*, vol. 17, No 1, 1993.

law, both producers and users would face less uncertainty each time a new type of work were introduced".<sup>34</sup>

Notwithstanding the shortcomings of the existing institutions of intellectual property, the establishment of a standard of protection for computer programmes in the TRIPs Agreement requires that national legislation strike a proper balance among all the interests involved and, particularly, that the legislation ensure sufficient room for legitimate reverse engineering and the development of competitive products.

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<sup>34</sup> Office of Technology Assessment, *Intellectual Property Rights in an Age of Electronics and Information*, Washington D.C., 1986, p. 14.

## V. Conclusion

Under the Agreement on Trade-Related Intellectual Property Rights which was negotiated during the Uruguay Round states have committed themselves to enshrining in national law minimum standards for each area of intellectual property rights. These minimum standards are those laid down under various international conventions plus a number of other obligations to increase the protection given. In essence the TRIPs agreement aims to bring intellectual property rights protection standards in developing countries up to the standard and pattern established in the advanced industrial countries. Furthermore, in order to enable the holders of intellectual property rights to enforce protection, complaints procedures and remedies must also be enshrined in national law.

The implementation of the Agreement will introduce major changes in the way that developing countries deal with intellectual property matters. It drastically limits the freedom of countries to shape their intellectual property systems in accordance with national objectives and degrees of development. Nevertheless, as a legal text, the TRIPs Agreement contains many ambiguities and loose definitions which leave scope for differing interpretations to be incorporated in national legislation. Moreover, there are other aspects of the Agreement which also provide scope for determining the content of national legislation as follows:

- First, developing and least developed countries have been granted transition periods of four and 10 years respectively in which to incorporate and adapt to the new standards and procedures, a further delay of five years is also granted with respect to the introduction of *product* patents. However, this additional leeway may be more apparent than real in the

important fields of pharmaceutical and agricultural chemical products due to the fact that a TRIPs clause allows product and process patent protection from the date of *filing* an application, which may be shortly after the date of entry into force of the WTO agreement.

- Second, developing countries can develop and apply effective compulsory licensing systems in order to ensure a reasonable degree of competition and to ensure that medicines and other essential goods and services are available to the population. However, there are specified conditions to be filled which once again may limit the extent to which resort can be made to compulsory licensing.
- Third, the international exhaustion of rights and other exceptions to exclusive rights can be established in order to prevent the accumulation of excessive market power by certain entrepreneurs and to promote research and development in developing countries.
- Fourth, in particular areas developing countries may provide for specific solutions or design appropriate approaches. For example, nothing in the TRIPs Agreement excludes legitimate reverse engineering of semiconductors and software, a crucial means of generating competition and encouraging innovation. *Sui generis* regimes of protection rather than patent protection may be developed for plant varieties, ensuring farmers' rights to re-use seeds and ensuring the availability of protected varieties for the purposes of breeding new varieties.

In drafting national legislation, developing countries will need to make full use of available legal skills and resources in order to minimize the potential economic and social costs of the reinforced and expanded protection of intellectual property they have to introduce, designing and executing national policies for promoting competition, local innovation

and production and widespread access to essential goods. In reformulating their IPRs systems in a manner compatible with their own conditions and needs, developing countries would benefit from consultation and co-operation among themselves to develop and subsequently implement model laws. They could also collaborate on the training of public officials on these matters.

Such co-operation could also extend to considering the development of regional approaches to implementing TRIPs legislation as well as to complementary legislation with respect to appropriate competition policies. They might also consider formulating common strategies to support the adaptation of industries adversely affected by the new IPRs regime.

It is important to appreciate that the rules regarding the protection of intellectual property not only influence matters related to cross-border trade but will also have a direct bearing on the framework affecting foreign direct investment and innovation. From the point of view of the pace and content of development in the South, the TRIPs agreement leaves much to be desired. At a general level, one can question whether an agreement which strengthens intellectual property rights in the manner prescribed by the TRIPs agreement is the most effective means of encouraging invention, technological innovation and development of a national production capacity in developing countries. The claim that TRIPs will encourage foreign investment is also questionable. But, as argued elsewhere by the South Centre, developing countries need to be vigilant concerning the level and content of FDI entering their economies.<sup>35</sup>

Developing countries individually and as a group will therefore need to monitor their experience in the implementation of the agreement very carefully to assess the impact on the transfer of technology, on national

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<sup>35</sup> See *Foreign Direct Investment, Development and the New Global Economic Order. A Policy Brief for the South*, South Centre, Geneva, 1997.

efforts to promote technological adaptation and innovation and on the development of a national production capacity.

If developing countries are to avoid the profound North-South imbalance in negotiating positions manifested in the TRIPs negotiations during the Uruguay Round, and if they are to make an effective contribution to the pending reviews of the TRIPs Agreement, they will need to put forward joint views on the revisions needed in TRIPs in order to promote their own socio-economic development interests. Similarly, developing countries would also benefit from establishing a common strategy and co-ordinating their action at the Council for TRIPs and other bodies of the WTO dealing with IPRs.

Whether increased protection for intellectual property will generate a higher rate of transfer of technology to developing countries through licensing or through foreign direct investment or whether it will limit the diffusion of technology and innovation in developing countries is yet to be seen. There is a possibility that, in a globalized economy, with low tariff barriers for manufactured products, the current changes in the intellectual property system could encourage the concentration of innovation and production in industrialized countries, the innovations being disseminated largely through trade, i.e. already incorporated in products and services. These are important matters affecting the balance of North-South relations and as such merit careful study and discussion in institutions within the United Nations system, such as UNCTAD.