

OVERVIEW

INTRODUCTION

The Millennium Development Goals recognise the crucial importance of reducing poverty and hunger, improving health and education, and ensuring environmental sustainability. The international community has set itself the target of reducing the proportion of people in poverty by half by 2015, along with associated specific targets for improving health and education and environmental sustainability.

It is estimated that in 1999 nearly 1.2 billion people lived on less than \$1 a day, and nearly 2.8 billion people on less than \$2 per day.¹ About 65% of these are in South and East Asia, and a further 25% in sub-Saharan Africa. There were an estimated 3 million deaths from HIV/AIDS in 2001, 2.3 million of them in sub-Saharan Africa.² Tuberculosis (TB) accounts for nearly 1.7 million deaths worldwide.³ On present trends, there will be 10.2 million new cases in 2005.⁴ There are also over 1 million deaths annually from malaria.⁵ In 1999 there were still 120 million children not in primary school. Sub-Saharan Africa has the lowest current enrolment rate at 60%.⁶

It is our task to consider whether and how intellectual property rights (IPRs) could play a role in helping the world meet these targets – in particular by reducing poverty, helping to combat disease, improving the health of mothers and children, enhancing access to education and contributing to sustainable development. It is also our task to consider whether and how they present obstacles to meeting those targets and, if so, how those obstacles can be removed.

Some argue strongly that IPRs are necessary to stimulate economic growth which, in turn, contributes to poverty reduction. By stimulating invention and new technologies, they will increase agricultural or industrial production, promote domestic and foreign investment, facilitate technology transfer and improve the availability of medicines necessary to combat disease. They take the view that there is no reason why a system that works for developed countries could not do the same in developing countries.

Others argue equally vehemently the opposite. IP rights do little to stimulate invention in developing countries, because the necessary human and technical capacity may be absent. They are ineffective at stimulating research to benefit poor people because they will not be able to afford the products, even if developed. They limit the option of technological learning through imitation. They allow foreign firms to drive out domestic competition by obtaining patent protection and to service the market through imports, rather than domestic manufacture. Moreover, they increase the costs of essential medicines and agricultural inputs, affecting poor people and farmers particularly badly.

In assessing these opposing arguments, it is important to remember the technological disparity between developed and developing countries as a group. Low and middle income developing countries account for about 21% of world GDP,⁷ but for less than 10% of worldwide research and

development (R&D) expenditure.⁸ The OECD countries spend far more on R&D than India's total national income.⁹ Almost without exception, developing countries are net importers of technology.

It is essential to consider the diversity of developing countries in respect of their social and economic circumstances and technological capabilities. Altogether more than 60% of the world's poor live in countries that have significant scientific and technological capabilities, and the great majority of them live in China and India. China and India, along with several other smaller developing countries, have world class capacity in a number of scientific and technological areas including, for instance, space, nuclear energy, computing, biotechnology, pharmaceuticals, software development and aviation.¹⁰ By contrast, 25% of poor people live in Sub-Saharan Africa (excluding South Africa), mainly in countries with relatively weak technical capacity.¹¹ It is estimated that in 1994 China, India and Latin America together accounted for nearly 9% of worldwide research expenditure, but sub-Saharan Africa accounted for only 0.5% and developing countries other than India and China only about 4%.¹²

Thus developing countries are far from homogeneous, a fact which is self-evident but often forgotten. Not only do their scientific and technical capacities vary, but also their social and economic structures, and their inequalities of income and wealth. The determinants of poverty, and therefore the appropriate policies to address it, will vary accordingly between countries. The same applies to policies on IPRs. Policies required in countries with a relatively advanced technological capability where most poor people happen to live, for instance India or China, may well differ from those in other countries with a weak capability, such as many countries in sub-Saharan Africa. The impact of IP policies on poor people will also vary according to socio-economic circumstances. What works in India, will not necessarily work in Brazil or Botswana.

BACKGROUND

Over the last twenty years or so there has been an unprecedented increase in the level, scope, territorial extent and role of IP right protection.¹³ Manifestations of this include:

- The patenting of living things and materials found in nature, as opposed to man-made products and processes more readily recognisable to the layman as inventions
- The modification of protection regimes to accommodate new technologies (particularly biotechnology and information technology), such as the EU Biotechnology Directive¹⁴ or the Digital Millennium Copyright Act (DMCA) in the United States (US)
- The extension of protection into new areas such as software and business methods, and the adoption in some countries of new *sui generis* regimes for semiconductors and databases
- A new emphasis on the protection of new knowledge and technologies produced in the public sector
- The focus on the relationship between IP protection and traditional knowledge,¹⁵ folklore and genetic resources
- The geographical extension of minimum standards for IP protection through the TRIPS agreement (see Box O.1), and of higher standards through bilateral and regional trade and investment agreements
- The widening of exclusive rights, extension of the duration of protection, and strengthening of enforcement mechanisms.

The concerns about the operation of the intellectual property system and the extension of IPRs are not confined to their application to developing countries. There are currently two prominent enquiries in the US, one by the National Academies of Science and one by the Department of Justice and the Federal Trade Commission, looking at this important question.¹⁶ These concerns centre on the rapid increase in patent applications in the US in recent years (a more than 50% increase in the last five years), and the perception that many more patents of "low quality" and broad scope are being issued. A fear is commonly expressed that too many patents have been and may be granted

Box O.1 The World Trade Organisation and the TRIPS Agreement

The Agreement on Trade-Related Aspects of Intellectual Property Rights (TRIPS)¹⁷ emerged from the Uruguay Round of trade negotiations completed in 1994. The Final Act of these negotiations created the World Trade Organisation (WTO) and set out rules – the WTO Agreements including TRIPS – with which members of the WTO have to comply. A dispute settlement system was also streamlined to resolve trade disputes between WTO Members. The WTO, as of January this year, has 144 Members, accounting for over 90% of world trade. Over 30 further countries are negotiating membership.

TRIPS requires all WTO Members to provide minimum standards of protection for a wide range of IPRs including copyright, patents, trademarks, industrial designs, geographical indications, semiconductor topographies and undisclosed information. In doing so, TRIPS incorporates provisions from many existing IP international agreements such as the Paris and Berne Conventions administered by the World Intellectual Property Organisation (WIPO). TRIPS however also introduces a number of new obligations, particularly in relation to geographical indications, patents, trade secrets, and measures governing how IP rights should be enforced.

A special body, the Council for TRIPS (commonly known as the TRIPS Council), on which each WTO Member is represented, was established to administer the operation of the TRIPS. The TRIPS Council is responsible for reviewing various aspects of TRIPS as mandated in the agreement itself and also as requested by the biennial WTO Ministerial Conference.

Among the issues raised by TRIPS that have provoked the most discussion are:

- whether the objective set out in Article 7 that IPRs should contribute to the transfer of technology is achievable, particularly in respect of developing country members of the WTO.
- the perceived tensions between Article 8 which allows countries to adopt measures necessary to protect public health, and to prevent abuses of IP rights, provided they are TRIPS consistent, and other requirements in the agreement. These include the requirements to provide patent protection for pharmaceutical products, limitations on the conditions for issuing of compulsory licences (Article 31) and on the scope of provisions providing exceptions to patent rights (Article 30).
- the requirement to protect test data against “unfair commercial use” in Article 39.
- the justification for providing additional protection for geographical indications for wines and spirits, (Article 23) and whether this additional protection should also be extended to cover other or all geographical indications.
- the extent to which patents should be allowed on inventions relating to living forms, for example microorganisms (Article 27.3(b)), and the requirement to provide IP protection for plants. In that context, the compatibility of TRIPS with agreements such as the Convention on Biological Diversity (CBD) has been raised.
- the cost of meeting the requirements of TRIPS for many developing and least developed WTO Members in relation to the administration of IP rights and their effective enforcement.

TRIPS took effect on 1 January 1995. WTO Members considered as developed countries were given one year to comply whilst developing countries and transition economies were given until 1 January 2000 although for developing countries required to extend product patent protection to new areas such as pharmaceuticals, a further five years was provided before such protection had to be introduced. Least Developed Countries (LDCs)¹⁸ are expected to enact TRIPS by 2006 although the Doha Ministerial Declaration on the TRIPS Agreement and Public Health allowed them a further 10 years in respect of pharmaceutical products.

Where there are disputes over the interpretation of TRIPS and its implementation by national laws, members may bring cases to the WTO’s Disputes Settlement Body (DSB) to resolve. To date there have been 24 cases involving TRIPS, where the disputes procedures have been invoked. Of these 23 were brought by developed country members, and one by Brazil. Sixteen were disputes between developed countries, seven were cases brought by developed against developing countries, and one by Brazil against the US. Of the 24, ten have been settled by mutual agreement, seven were decided by panels set up under the procedure, and seven are still pending.

in respect of developments of minor importance. For instance, in the pharmaceutical industry this can have the effect of prolonging monopolies on valuable therapies. Patents may also be granted in some jurisdictions over biological materials on the grounds that they have been isolated from nature, if a possible function or utility is identified. The extent to which such practices affect competition by making it more difficult for rival inventors to sell competing products, or more expensive for consumers to buy them, is a matter of concern and growing debate. Considerable debate also exists about their effect on research, particularly in software and biotechnology, where patents taken at an early stage in the research process may be an obstacle to downstream research and commercialisation.

In a seminal article, the biologist Garrett Hardin¹⁹ coined the phrase “tragedy of the commons” to explain how common resources tended to be overutilised in the absence of rules for their use. The proliferation of IPRs, particularly in areas such as biomedical research, has suggested the possibility of “a different tragedy, an “anticommons” in which people underuse scarce resources because too many owners can block each other...more intellectual property rights may lead paradoxically to fewer useful products for improving human health.”²⁰ Companies may now incur considerable costs, in time and money, determining how to do research without infringing other companies’ patent rights, or defending their own patent rights against other companies. This gives rise to a question as to whether the substantial costs involved in patent searching, analysis and litigation are a necessary price to pay for the incentives offered by the patent system, or whether ways can be found to reduce them.

The issues are not confined to patents. In the US, the term of copyright has extended in the last century from 28 years (renewable for a further 28 years) under the 1909 Copyright Act to 70 years after the death of the author, or 95 years from publication (in line with European practice). The question is whether this extension of protection can credibly be regarded as enhancing the incentives for future creation, or whether it is more about enhancing the value of existing creations. In 1998, Congress passed the Digital Millennium Copyright Act (DMCA) which, *inter alia*, forbids the circumvention of technological protection (i.e. encryption). In Europe, the Database Directive requires all Member States to provide *sui generis* protection for any collection of data arranged in a systematic way, whether the data itself is original or not. So far the US has not followed this approach. Increasingly there is concern that protection, under the influence of commercial pressures insufficiently circumscribed by considerations of public interest, is being extended more for the purpose of protecting the value of investments than to stimulate invention or creation.

We think that the concerns about the impact of IP in the US and other developed countries are important for developing countries as well. But we consider that, if anything, the costs of getting the IP system “wrong” in a developing country are likely to be far higher than in developed countries. Most developed countries have sophisticated systems of competition regulation to ensure that abuses of any monopoly rights cannot unduly affect the public interest. In the US and the EU, for example, these regimes are particularly strong and well-established. In most developing countries this is far from being the case. This makes such countries particularly vulnerable to inappropriate intellectual property systems. We consider that developing countries can seek to learn from the experience of developed countries in devising their own intellectual property systems suitable to their particular legal system and economic situation.

Apart from the impact of local intellectual property rules internally in a developing country, there are also indirect impacts of the developed country intellectual property system on developing countries. In the digital age, restrictions on access to materials and data on the Internet affect everyone. Scientists in developing countries, for instance, may be prevented from gaining access to protected data, or have insufficient resources to do so. Research on important diseases or new crops affecting developing countries, but carried out in developed countries, may be hampered or

promoted by the IP system. The IP regime in developed countries may provide powerful incentives to do research of particular kinds which mainly benefit people in developed countries, diverting intellectual resources from work on problems of global significance. Practice in developed countries may allow knowledge or genetic resources originating in developing countries to be patented without prior arrangements for sharing any benefits from commercialisation. In some cases developing country exports to developed countries may be restricted as a result of such protection.

Equally important for developing countries is the continuing trend towards the global harmonisation of IP protection. The movement towards harmonisation is not new – it has been going on for over 100 years. However the TRIPS agreement, that entered into force, subject to specified transitional periods, in 1995 (see Box O.1) has made minimum standards of IP protection mandatory for WTO members. But TRIPS is only one element of international harmonisation. There are continuing discussions in WIPO aimed at further harmonisation of the patent system, which may supersede TRIPS. Moreover, bilateral or regional trade and investment agreements between developed and developing countries often include mutual commitments to implement IP regimes that go beyond TRIPS minimum standards. Thus there is sustained pressure on developing countries to increase the levels of IP protection in their own regimes, based on standards in developed countries.

We have also been struck by the inconclusive and contested nature of much of the economic research devoted to elucidating the impact of IPRs, even in relation to the developed world. There is much that is uncertain, and given the nature of the subject, may remain so. The impact of IPRs is very often contingent on particular circumstances and context. Many academic observers, for this reason, remain determinedly ambivalent as to whether the social benefits of IPRs exceed their costs. Typical of these is the following example:

“It is almost impossible to conceive of any existing social institution {the patent system} so faulty in so many ways. It survives only because there seems nothing better to do.”²¹

In the case of developing countries, several recent reports by international agencies have commented on the likely impact of the globalisation of IP protection on developing countries.²² All of these reports reflect to varying extents a concern that heavy costs may be incurred, but that the benefits for many countries are less easy to identify.

OUR TASK

We take the setting up of our Commission to be evidence that the British government is sensitive to these concerns. In that light our fundamental task is to consider whether the rules and institutions of IP protection as they have evolved to date can contribute to development and the reduction of poverty in developing countries.

Our starting point is that some IP protection is likely to be appropriate at some stage for developing countries, as it has been historically for developed countries. There is no doubt that it can make an important contribution to research and innovation in developed countries, particularly in industries such as pharmaceuticals and chemicals. The system provides the incentive for individuals and companies to invent and develop new technologies that may benefit society. But incentives work differently according to whether there is a capacity to respond to them. And, by conferring exclusive rights, costs are imposed on consumers and other users of protected technologies. In some cases, protection means that potential consumers or users, who are unable to pay the prices charged by IP owners, are deprived of access to the innovations the IP system is intended to make available. The balance of costs and benefits will vary according to how rights are applied and economic and social circumstances. Standards of IP protection that may be suitable for developed countries may cause greater costs than benefits when applied in developing countries which must

rely in large part on knowledge or products embodying knowledge generated elsewhere to satisfy basic needs and foster their development.

The Nature of Intellectual Property Rights

Some see IP rights principally as economic or commercial rights, and others as akin to political or human rights. The TRIPS agreement treats them in the former sense, while recognising the need to strike a balance between the rights of inventors and creators to protection, and the rights of users of technology (Article 7 of TRIPS). The Universal Declaration of Human Rights has a broader definition recognising “the right to the protection of the moral and material interests resulting from any scientific, literary or artistic production of which he is the author”, balanced by “the right...to share in scientific advancement and its benefits.”²³ The crucial issue is to reconcile the public interest in accessing new knowledge and the products of new knowledge, with the public interest in stimulating invention and creation which produces the new knowledge and products on which material and cultural progress may depend.

The difficulty is that the IP system seeks to achieve this reconciliation by conferring a private right, and private material benefits. Thus the (human) right to the protection of “moral and material interests” of “authors” is inextricably bound up with the right to the private material benefits which result from such protection. And the private benefit to the creator or inventor is derived at the expense of the consumer. Particularly where the consumer is poor, this may conflict with basic human rights, for example, the right to life. And the IP system, as manifested in TRIPS, does not allow – except in rather narrow ways - discrimination between goods essential to life or education, and other goods such as films or fast food.

We therefore consider that an IP right is best viewed as one of the means by which nations and societies can help to promote the fulfilment of human economic and social rights. In particular, there are no circumstances in which the most fundamental human rights should be subordinated to the requirements of IP protection. IP rights are granted by states for limited times (at least in the case of patents and copyrights) whereas human rights are inalienable and universal.²⁴

For the most part IP rights are nowadays generally treated as economic and commercial rights, as is the case in TRIPS, and are more often held by companies rather than individual inventors. But describing them as “rights” should not be allowed to conceal the very real dilemmas raised by their application in developing countries, where the extra costs they impose may be at the expense of the essential prerequisites of life for poor people.

Regardless of the term used for them, we prefer to regard IPRs as instruments of public policy which confer economic *privileges* on individuals or institutions solely for the purposes of contributing to the greater public good. The *privilege* is therefore a means to an end, not an end in itself.

Thus in terms of assessing the value of IP protection, it may be compared to taxation. Hardly anybody claims that the more taxation there is, the better. However, there is a tendency among some to treat more IP protection as self-evidently a good thing. More taxation might be desirable if it delivers public services that society values more than the direct and indirect cost of taxation. But less can also be beneficial, for instance if excessive taxation is harming economic growth. Moreover, economists and politicians spend much time considering whether the structure of the tax system is optimal. Are heavy social security taxes harming employment? Are particular tax breaks serving their intended purpose, or merely subsidising their recipients to do what they are already doing? Is the effect of the tax system on the distribution of income desirable from a social point of view?

We think there are very analogous questions for intellectual property. How much of it is a good thing? How should it be structured? How does the optimal structure vary with sectors and levels of development? Moreover, even if we get the level and structure of protection right, to balance the

incentive to invention and creation against the costs to society, we also have to worry about the distribution of gains.

Equitable Sharing of Benefits and Costs

The immediate impact of intellectual property protection is to benefit financially those who have knowledge and inventive power, and to increase the costs of access to those without. This is obviously relevant to the distribution of gains between developed and developing societies. Even if there were economic gains to the world as a whole from extending protection, on which there is some debate, the distributional consequences for income may not accord with our sense of equity. In the majority of developing countries, with weak scientific and technical infrastructures, the benefits in the form of the stimulus to domestic innovation will be muted, but they will still face the costs arising from the protection of (mainly foreign) technologies. Thus the costs and the benefits of the system as a whole may not be fairly distributed.

If most developing countries do not have a strong technological base which could benefit from IP protection, they do have genetic resources and traditional knowledge, which have value both to them and to the world at large. These are not necessarily IP resources in the sense that they are understood in developed countries, but they are certainly resources on the basis of which protected intellectual property can be, and has been, created. This raises a number of difficult issues as to whether and how these resources should interact with, and be valued by, the “modern” IP system, the extent to which these resources and knowledge require their own protection (not just in the IP sense), and how commercial benefits derived from these resources should be equitably shared.

The Internet also offers enormous opportunities for access to information required by developing countries, in particular scientists and researchers, whose access to printed media may be limited by lack of resources. But there is a concern that forms of encryption (or “digital rights management”), designed to counter widespread copying, will make material less accessible than is now the case with printed media. Such trends endanger the concept of “fair use”²⁵ (and similar doctrines) as it applies now to printed works, and at the extreme may provide the equivalent of perpetual copyright protection, by technological rather than legal means.

How Should Intellectual Property Policy be Made?

When there is so much uncertainty and controversy about the global impact of IPRs, we believe it is incumbent on policy makers to consider the available evidence, imperfect as it may be, before further extending property rights in scope or territorial extent.

Too often the interests of the “producer” dominate in the evolution of IP policy, and that of the ultimate consumer is neither heard nor heeded. So policy tends to be determined more by the interests of the commercial users of the system, than by an impartial conception of the greater public good. In IPR discussions between developed and developing countries, a similar imbalance exists. The trade ministries of developed nations are mainly influenced by producer interests who see the benefit to them of stronger IP protection in their export markets, while the consumer nations, mainly the developing countries, are less able to identify and represent their own interests against those of the developed nations.

Thus we recognise that the rules and practices of intellectual property, and how they evolve, are the product of political economy. Developing countries - and in particular poor consumers of products which may be protected by IP rights - negotiate from a position of relative weakness. There is a fundamental asymmetry in relationships between developed and developing countries, based ultimately on their relative economic strength.

The negotiations on TRIPS in the Uruguay Round are but one example. Developing countries accepted TRIPS not because at the time the adoption of intellectual property protection was high on their list of priorities, but partly because they thought the overall package offered, including the reduction of trade protectionism in developed countries, would be beneficial. Now many of them feel that the commitments made by developed countries to liberalise agriculture and textiles and reduce tariffs, have not been honoured, while they have to live with the burdens of the TRIPS agreement. The agreement on a new “development” WTO Round at Doha last year recognises that this bargain, between developed and developing countries, needs to be made explicit and meaningful.

The difficulty for developing countries in this context is that they are “second comers” in a world that has been shaped by the “first comers”. And because of that, it is a very different world from that in which the “first comers” developed. It is a cliché to say that we live in an age of globalisation, when the world economy is becoming more integrated. It is an article of faith in the international community that integration on appropriate terms into the world economy is a necessary condition for development. The question from our point of view is what are the appropriate terms for that integration in the field of IPRs. Just as the now-developed countries moulded their IP regimes to suit their particular economic, social and technological circumstances, so developing countries should in principle now be able to do the same.

We therefore conclude that far more attention needs to be accorded to the needs of the developing countries in the making of international IP policy. Consistent with recent decisions of the international community at Doha and Monterrey, the development objectives need to be integrated into the making of IP rules and practice. At Monterrey in March 2002, governments welcomed “the decisions of the World Trade Organization to place the needs and interests of developing countries at the heart of its work programme”. They also acknowledged the concerns of developing countries, including:

“the lack of recognition of intellectual property rights for the protection of traditional knowledge and folklore; the transfer of knowledge and technology; the implementation and interpretation of the Agreement on Trade-Related Aspects of Intellectual Property Rights in a manner supportive of public health...”²⁶

We believe this is a satisfactory but partial agenda. There is far more that needs to be thought about and done in considering the impact of the existing system upon developing countries. It is our contention that intellectual property systems may, if we are not careful, introduce distortions that are detrimental to the interests of developing countries. Very “high” standards of protection may be in the public interest in developed countries with highly sophisticated scientific and technological infrastructures (although we note, as above, that this is controversial in several respects), but this does not mean the same standards are appropriate in all developing countries. In fact we consider that developed countries should pay more attention to reconciling their own perceived commercial self-interest, with their own interest in the reduction of poverty in developing countries.

To achieve that end, so far as possible developing countries should not be deprived of the flexibility to design their IP systems that developed countries enjoyed in earlier stages of their own development, and higher IP standards should not be pressed on them without a serious and objective assessment of their development impact. We need to ensure that the global IP systems evolve so that they may contribute to the development of developing countries, by stimulating innovation and technology transfer relevant to them, while also making available the products of technology at the most competitive prices possible. We need to make sure that the IP system facilitates, rather than hinders, the application of the rapid advances in science and technology for the benefit of developing countries.

We hope our report will make a contribution by defining an agenda for making the global IPR system, and the institutions in that system, work better for poor people and developing countries.

We have identified a number of key issues for developing countries which we deal with in the following chapters:

- What can we learn from the economic and empirical evidence about the impact of IP in developing countries? Does the historical experience of developed countries hold any lessons for developing countries today? How can technology transfer to developing countries be facilitated? (Chapter 1)
- How does the IP system contribute to the development of medicines that are needed by poor people? How does it affect the access of poor people to medicines and their availability? What does this imply for IP rules and practices? (Chapter 2)
- Can IP protection on plants and genetic resources benefit developing countries and poor people? What sort of systems should developing countries consider for protecting plant varieties while safeguarding farmers' rights? (Chapter 3)
- How could the IP system contribute to the principles of access and benefit sharing enshrined in the Convention on Biological Diversity (CBD)? Can it help to protect or promote traditional knowledge, biodiversity and cultural expressions? Can the extension of Geographical Indications²⁷ (GIs) benefit developing countries? (Chapter 4)
- How does copyright protection affect developing countries' access to knowledge, technologies and information that they need? Will IP or technological protection affect access to the Internet? How can copyright be used to support creative industries in developing countries? (Chapter 5)
- How should developing countries frame their own legislation and practice on patents? Can developing countries frame their legislation in ways that might avoid some of the problems that have occurred in developed countries? What would be the best position for developing countries in relation to patent harmonisation? (Chapter 6)
- What sort of institutions do developing countries need to administer, enforce and regulate IP effectively and how can these be established? What complementary policies and institutions are necessary, in particular in relation to competition? (Chapter 7)
- Are the international and national institutions involved in IPRs as effective as they could be in serving the interests of developing countries? (Chapter 8)

¹ World Bank (2001) *"Global Economic Prospects and the Developing Countries 2002: Making Trade Work for the World's Poor"*, World Bank, Washington DC, p.30.

Source: <http://www.worldbank.org/prospects/gep2002/full.htm>

² UNAIDS & WHO (2001) "Aids Epidemic Update", UNAIDS/WHO, Geneva.

Source: http://www.unaids.org/worldaidsday/2001/Epiupdate2001/Epiupdate2001_en.pdf

³ WHO (2001) *"Global Health Report 2001"*, WHO, Geneva. Statistical Annex, Table 2. "Deaths by cause, sex and mortality stratum in WHO Regions, estimates for 2000".

Source: <http://www.who.int/whr/2001/main/en/pdf/annex2.en.pdf>

⁴ World Bank Data. Source: http://www.developmentgoals.org/Hiv_Aids.htm

⁵ WHO (2001).

⁶ World Bank Data. Source: <http://www.developmentgoals.org/Education.htm>

⁷ World Bank Data. Source: <http://www.worldbank.org/data/databytopic/GDP.pdf>. In this report, we define developing countries as those classified by the World Bank as low income, lower middle income and upper middle income. Source: <http://www.worldbank.org/data/countryclass/classgroups.htm>

⁸ See note 12 below.

⁹ OECD Expenditure in 1999 was \$553 billion. OECD (2001) *"OECD Science, Technology and Industry Scoreboard 2001 - Towards a knowledge-based economy"*, OECD, Paris.

Source: <http://www1.oecd.org/publications/e-book/92-2001-04-1-2987/A.2.htm>. India's national income was \$440 billion. World Bank Data.

Source: <http://www.developmentgoals.org/Data.htm>

- ¹⁰ One measure of technological capability is the number of US patents taken out annually. Those developing countries which were granted over 50 US patents in 2001 included: China 266, India 179, South Africa 137, Brazil 125, Mexico 87, Argentina 58, Malaysia 56. China (Taiwan) received 6545 and Korea 3763 but these are not developing countries on the World Bank classification.
Source: http://www.uspto.gov/web/offices/ac/ido/oeip/taf/cst_all.pdf
- ¹¹ This region received a total of only 10 US patents in 2001.
Source: http://www.uspto.gov/web/offices/ac/ido/oeip/taf/cst_all.pdf
- ¹² In 1994, China accounted for 4.9% of global R&D expenditure, India and Central Asia for 2.2%, Latin America for 1.9%, the Pacific and South East Asia 0.9% (excludes newly industrialised countries) and sub-Saharan Africa 0.5%. UNESCO (1998) "World Science Report 1998", UNESCO, Geneva, pp.20-21.
Source http://www.unesco.org/science/publication/eng_pub/wsr98en.htm
- ¹³ See Box O.1
- ¹⁴ Directive 98/44/EC of the European Parliament and of the Council of 6 July 1998 on the legal protection of biotechnological inventions, *Official Journal L 213*, 30 July 1998, p.13-21.
Source:http://europa.eu.int/smartapi/cgi/sga_doc?smartapi!celexapi!prod!CELEXnumdoc&lg=EN&numdoc=31998L0044 &model=guichett
- ¹⁵ See Glossary for definition.
- ¹⁶ One enquiry is currently ongoing at the US National Academies ([Source: http://www7.nationalacademies.org/step/STEP_Projects_IPR_Phase_II_Description.html](http://www7.nationalacademies.org/step/STEP_Projects_IPR_Phase_II_Description.html)). The other enquiry is being undertaken by the US Federal Trade Commission (FTC) and the Department of Justice (DOJ) on the relationship between intellectual property and competition policy. The speech of the Chairman of the FTC on 15 November 2001, "*Competition and Intellectual Property Policy: The Way Ahead*", sets out concisely current concerns. Source: <http://www.ftc.gov/speeches/muris/intellectual.htm>
- ¹⁷ The full text of the TRIPS Agreement can be found at: http://www.wto.org/english/docs_e/legal_e/27-trips.pdf
- ¹⁸ The least developed countries are 49 classified as such by the UN. Of these 30 are currently WTO members. For details see: <http://www.unctad.org/en/pub/ldcprofiles2001.en.htm>
- ¹⁹ Hardin, G. (1968) "The Tragedy of the Commons" *Science*, vol. 162, pp. 1243-1248.
- ²⁰ Heller, M. & Eisenberg, R. (1998) "Can Patents Deter Innovation? The Anticommons in Biomedical Research", *Science*, vol. 280, pp.698-701. Source: <http://www.sciencemag.org/cgi/content/full/280/5364/698>
- ²¹ Jewkes, J., Sawers, D. & Stillerman, R. (1959) "*The Sources of Invention*", St Martins Press, New York, p.255.
- ²² These include: UNCTAD (1996) "*The TRIPS Agreement and Developing Countries*", UNCTAD, Geneva; UNDP (2001) "Human Development Report 2001", UNDP, Geneva. Source: <http://www.undp.org/hdr2001/>; World Bank (2001), Chapter 5; and Bystrom, M. & Einarsson, P. mimeo (2001) "*TRIPS: Consequences for Developing Countries: Implications for Swedish Development Cooperation*", SIDA, Stockholm.
Source: <http://www.grain.org/docs/sida-trips-2001-en.PDF>
- ²³ United Nations (1948) "*Universal Declaration of Human Rights*", UN, Geneva, Article 27.
Source: <http://www.un.org/Overview/rights.html>
- ²⁴ UN Sub-Commission on the Promotion and Protection of Human Rights (2001) "*Intellectual Property Rights and Human Rights*", UN, Geneva, p.6, paragraph14, Document No. E/CN.4/Sub.2/2001/12.
Source: [http://www.unhchr.ch/Huridocda/Huridoca.nsf/\(Symbol\)/E.CN.4.Sub.2.2001.12.En?Opendocument](http://www.unhchr.ch/Huridocda/Huridoca.nsf/(Symbol)/E.CN.4.Sub.2.2001.12.En?Opendocument)
- ²⁵ See Glossary for definition.
- ²⁶ Monterrey Consensus, March 2002. Source: <http://www.un.org/esa/ffd/aac257L13-E.doc>
- ²⁷ See Glossary for definition.