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The International Protection of Computer Software Within the Context of Transborder Transfer of Technology

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Abstract: While there is general agreement that the best way to protect software is through the medium of copyright, there is also the feeling that this will be ineffective in the face of the intransigence of many developing nations. The paper attempts to set this debate in perspective, arguing that account must be taken of the genuine fears of developing countries regarding access to, and transfer of, new technology.

Introduction

We live in a period of rapid and significant technological development. The world community is technologically interdependent as never before and that interdependence is constantly accelerating. One of the most vital goals of any state is to maintain and increase its level of technology. For the developed industrialised countries a continuous flow of the most current sophisticated technology is vital if they are to maintain and enhance their economies. For the developing countries, increased acquisition of technology is a matter of life or death for great portions of their societies.

It is a truism that information is power. It is also a modern truism that information technology is the key to economic progress. The debate over proprietary protection accorded to software is often seen by the developing countries of the third world as an attempt by the developed countries to restrict their access to this tool of success and as a form of neo-colonialism.¹

At the same time, innovations in computer technology and development of evermore sophisticated software require substantial financial investment. The fruits of that investment are then easily exploited at a relatively small marginal cost. Hence the outcry of the industrialised countries at the software piracy prevalent in many less developed countries (LDCs) and the inadequate protection accorded to intellectual property rights.

The International Protection of Software

Different legal structures protect software. Copyright law, which is especially important when programs are mass-marketed, as in the case of software for micro-computers, is applied not only to protecting against software piracy but also to prevent the acquisition of illicit software by third parties acting in good faith. Copyright law also provides legal protection which is to some extent internationally consistent, by virtue of two international conventions which are considered to apply to software. One is the Universal Copyright Convention and the other is the Berne Convention. Both are based on the principle of "national treatment", guaranteeing the same degree of protection for works from any signatory country. This however, is not likely to be useful if the domestic law of some member-states does not even provide for national protection. Since it is the law of the host country which applies in the scheme, it is up to each country to ensure that its domestic laws act as an effective safeguard.

There appears to be international agreement that the medium of copyright is the best way to protect computer software. Copyright protection been the option chosen by the World Intellectual Property Organisation (WIPO). During the discussions leading to the draft WIPO Report on Model Provisions for Legislation in the Field of Copyright ([1990-91] 4 CLSR 40), there was overwhelming support for computer programs having the protection of copyright as literary works.

Other legal devices have, of course, been suggested:

- a. through patent protection
- b. through the law relating to trade secrets
- c. a new legal regime devised especially for software²

However, most countries have decided that copyright protection is the best under the circumstances. What has made this possible has been the characterisation of computer software as a "literary" work. See, for instance the US decision in *Apple Computer Inc v Franklin Computer Corp.* 714 F.2d. 1240 (1983):

....a computer program whether in object code or source code is a "literary work" and is protected from unauthorised copying.

The debate, however, is far from over. The protection of computer software is still a controversial issue. And nowhere is the issue more important than in the industrialising countries of the LDCs. This is particularly so in Latin American countries such as Brazil and Mexico and the East Asian Countries such as Korea, Taiwan, Singapore and Hong Kong. The latter grouping is especially important as they are steadily expanding their share of world trade in high technology products.

To take South Korea as an example: It is estimated that exports of electronic products and parts in 1985 exceeded US\$5.3 billion, an increase of 20% over the 1984 figure. In the first 11 months of 1984, semi-conductor exports alone totalled US\$1.15 billion and date processing exports reached US\$191 million. Furthermore, South Korea is beginning to develop a domestic software industry.³

This expansion has brought pressures from trading partners, particularly the US, to enact legislation for the protection of computer software. These complaints, in turn, have focused attention on the relatively undeveloped legal structures for the protection of software in those countries.

This debate has been most conspicuous in the discussions taking place within the General Agreement on Tariffs and Trade (GATT). In fact, the absence of adequate protection for software in the LDCs was one of the complaints of US industry most frequently cited by the US Trade Representative as a reason for pursuing a GATT intellectual property agreement.⁴ The aims of the industrialised countries to incorporate software protection within the GATT framework may be broadly described

as:

- assuring that computer software is included within the scope of expression covered by copyright law (perhaps as a supplementary clarification of the Berne Convention to specifically include computer software)
- establishing minimum standards of protection (e.g. duration of protection) and enforcement for each GATT member country with respect to computer software
- providing a framework for settlement of disputes between member states with respect to implementation of the minimum GATT standards; and
- making GATT remedies (e.g. the withdrawal of tariff concessions) available for breach of the GATT rules.

In essence, the industrialised countries argue that a mere clarification of the Berne Convention is inadequate to protect software. By bringing computer software within the GATT orbit, the industrialised countries would be enabled to impose meaningful penalties on LDCs which ignored Berne standards. More important, these penalties would then be based on a lawful structure which would no longer be characterised as economic retaliation.

Needless to say, in the eyes of the LDCs the debate concerning the protection of software seems to be dominated by the views of the industrialised West intent on protecting its own interests. The new legal regimes being suggested are even regarded as the thin-edge of a new, technological, colonialism. I wish to suggest in this paper that the legal protection of computer software, if it is to be effective, needs to be seen, and addressed, from a number of different perspectives, primarily, the difficult question of the transfer of technology.

Transnational Technology Transfers

The transfer of technology represents one of the major hopes, perhaps the only hope, for improving the economic position of the LDCs. The current debates regarding the proprietary protection accorded to computer software must be seen within the context of their demand for access to new developments.

The term "technology transfer" calls to mind, first, the most clearly visible classic form: a license to use technology for a fixed term in return for payment of royalties, usually expressed as a percentage of sales, often with an initial lump sum payment. However, technology may be acquired in a number of other ways, these being dependent upon the stage of technology sought and the bargaining power of the acquirer. Some of these transfer mechanisms, such as joint ventures or turn-key projects or through fulfilling export orders, though effective, are often overlooked as important sources of future productivity and desirable side benefits of export promotion programmes.

The relative importance of each method of technology transfer for a given nation will naturally depend upon its resource endowment, level of advancement and, to some extent, political system and ideology. At lower levels of advancement, acquisition of technology is relatively simple and cheap. The technology required for this level is already, generally speaking, in the market place. At more advanced levels, however, very sophisticated and recent technological developments can only be accessed by paying directly in the form of royalties that are high enough to enable the developer to recoup the considerable research and development expenditures that made the innovation possible.

Proprietary Protection for Computer Software in Context

There cannot be proper global protection of computer software until and unless the fears - real and imagined - of the LDCs are both acknowledged and addressed. A starting point for this would be to

consider the following (admittedly incomplete) list of issues:

- a. The New International Economic Order
- b. The economic power of certain industrialised countries
- c. The LDCs fear of multinational domination
- d. Export controls and restrictive market and contractual practices
- e. Fear of competition
- f. Immature protection of intellectual property rights within domestic law
- g. Unsophisticated legal systems
- h. Prohibitive costs of software

The New International Economic Order

In 1974 the UN General Assembly adopted 2 important resolutions that reflected the tenor of economic development analysis of the time. The first was the landmark Declaration on the Establishment of a New International Economic Order (NIEO). Among other points, the Declaration called for

Giving to the developing countries access to the achievements of modern science and technology, and promoting the transfer of technology.

The second resolution, adopted the same year, was the Charter of Economic Rights and Duties of States, which was very much along the same lines.

For the next decade or so, these ideals were to become a dominant theme of much of the discussion among economic and political strategists specialising in development studies. Ideals they were, and ideals they were to remain; no workable legal regime was even discussed, much less implemented.

The economic power of developed countries

The economic power of nations such as the US is manifested in the computer industry. The US dominance of the market began in the 1950s when the US Government contracted with independent software firms to develop software for defence and space projects. Within a decade the US hold on the software marketplace was complete. In the early 1980s the US software industry held a 70% share of the US\$18.3 billion software market. By 1987 it was estimated that this market was worth about US\$55 billion with US software companies controlling 75% of the market.⁵

While the US has advocated a multi-lateral approach towards solving the problem of software protection through GATT and the WIPO initiatives, it has also taken unilateral action in the form of an intense programme of direct negotiations, coupled with the threat and use of unilateral economic sanctions, to attempt to improve foreign protection for US intellectual property rights owners. Although existing unfair foreign trading practices legislation already addressed inadequate protection of intellectual property rights and was used in several intellectual property disputes, Congress heightened the priority of the intellectual property issue in the enactment of the Trade and Competitiveness Act of 1988 by outlining an explicit programme of executive action.

Congressional action took the form of amendments to foreign unfair trading practices legislation (originally enacted as s.301 of the Trade Act of 1974). These amendments, which generally give the appearance of limiting executive discretion with respect to trade barriers investigations and remedies, require the United States Trade Representative (USTR) to:

1. identify countries that deny adequate and effective protection of intellectual property rights;
2. identify "priority" countries that are the most frequent intellectual property rights

transgressors;

3. initiate accelerated s.301 investigations with regard to the practices of the identified priority countries which could lead to the taking of remedial action.

In 1989, the office of the USTR, using these new "Special 301" provisions of the 1988 Trade Act, placed 17 countries on an intellectual property "Watch List" and 8 countries on a "Priority Watch List". The USTR press release accompanying the Watch List and Priority Watch List identifications stated:

As a result of this extensive review, the USTR concluded that no foreign country currently meets every standard for adequate and effective intellectual property protection as set forth in the US proposal on intellectual property in the Uruguay Round of GATT.

Thus the USTR has determined that all countries are eligible for potential priority designation based on the standards of the US Uruguay Round proposal. because all countries "deny adequate and effective protection of intellectual property rights" within the meaning of the statute.⁶

Reference may be made to the following examples:

(i) The US-Brazilian pharmaceutical patent dispute. Although concerned with patent protection of pharmaceuticals and not with computer software, it illustrates the kind of action the US is prepared to take against countries that are not prepared to toe the line. At the end of 1988, the USTR, acting on a complaint from the Pharmaceutical Manufacturers' Association, imposed approximately US\$40 million in *ad valorem* tariffs on a variety of Brazilian imports as a consequence of Brazil's continuing refusal to extend product and process patent coverage to pharmaceuticals. Brazil contended that its patent policies are fully consistent with its international legal obligations, both under the international intellectual property treaty system and the GATT. Brazil lodged a complaint with the GATT, charging that the retaliatory and discriminatory US tariffs violated the latter's obligations under the General Agreement. After initial objection by the US, a GATT panel was formed to decide the dispute. According to a senior GATT official, Brazil's position received "the most massive support we have seen in a panel dispute", accompanied by a complete absence of support for the US position.⁷

(ii) The Brazilian *Microsoft* case. In May 1986, Microsoft Corporation notified several Brazilian companies that they had reproduced its MS-DOS operating system without authorization, and requested that they refrain from using and/or marketing unauthorised programs. After prolonged negotiations, the parties reached an agreement under which Microsoft would grant the companies the right to use, distribute, reproduce and modify the computer program in question for a three-year period. The companies then applied to the Brazilian authority responsible for processing the application to import into Brazil the MS-DOS system (a requirement under the Brazilian Informatics Policy, Law No.7232 of Oct 29, 1984). The authority refused its permission, citing MS-DOS similarity to a program called SISNE being developed by a Brazilian company. MS-DOS was not to be given copyright protection because of this similarity. The US Government considered that the decision constituted a discriminatory practice in international trade and threatened to retaliate against Brazilian exports. The Brazilians were eventually forced to agree to a compromise.⁸

(iii) The US-South Korea dispute. In 1985, after more than two and a half years of consultations, the US instituted a s.301 investigation because of South Korea's failure to substantially improve its protection of intellectual property rights. After extended consultations, South Korea agreed to take action to improve its protection practices. There can be no doubt that agreement was facilitated by the Korean concern to remain eligible for trade concessions under the US Generalised System of Preferences. In any event, in July 1986, the US announced the successful conclusion of the s.301

investigation, which resulted in an exchange of letters between the two governments under which South Korea committed itself to, *inter alia*, (1) extend product patent protection to chemicals and pharmaceuticals, (2) adopt a comprehensive copyright law, (3) extend copyright protection to computer software. Revised Korean patent, copyright and software legislation was subsequently passed during December 1986.⁹

(iv) Mexico provides an example of a country that has discovered the advantages to be gained from toeing the US line. In January 1990, it revised its 1982 Regulations to the Law on the Control and Registration of the Transfer of Technology and the Use and Exploitation of Patents and Trademarks. The 1982 Regulations had been aimed at protecting Mexican firms from domination by, primarily, US multinational corporations. The US had contended that the Regulations did not offer sufficient protection for intellectual property rights. When the revised Regulations came into effect in 1990, the USTR "rewarded" the Mexicans by removing Mexico from the Priority Watch List of countries that have allegedly failed to safeguard intellectual property rights.¹⁰

Fear of domination by multinationals

The principal participants in the direct roles of supplier and receiver in either a developing or developed country have been the business enterprises, principally the multinational corporations. At the same time there is concern in the LDCs over the legal and economic dislocations created by multinational (or "transnational") corporations, leading to a number of efforts to remedy these dislocations. The problem of copyright protection of software must be viewed in this context. It would be unfair to characterise the suspicions of the LDCs as hostile or self-defeating or to describe the actions taken by them as punitive. This is especially so as the multinational corporation's control of advance technology, often assured by national intellectual property and trade and export laws, together with its managerial skills, its financial resources and its ability to take advantage of economies of scale have permitted multinationals to dominate local competition in domestic markets.

The fears of LDCs regarding multinationals may be listed briefly as follows:

(i) Although the multinational and its subsidiaries are incorporated under national laws, the extension of the multinational network across national boundaries prevents municipal legal systems from fully dealing with them. Moreover, developing host countries are often handicapped by deficient legislation and a lack of trained administrative personnel.

(ii) The multinational's centralised, hierarchical structure permits the 'home' country (the country in which the parent company is located) to pierce the normal territorial limits on assertions of jurisdiction. By manipulating ties of equitable ownership and personal allegiance which link multinational subsidiaries to their parent, the home country is often capable of controlling activities that take place within the territory of another government. The multinational often counters host country pressures by seeking protection from its home nation which may control credit sources and other levers of power. To quote an example, in order to assist US corporations resisting the Chilean copper industrialisations during the Allende administration, the US government cut off Export-Import Bank credits for the importation of goods into Chile, pressured multi-lateral banking institutions such as the World Bank to disapprove further loans to Chile and terminated all aid programmes.¹²

(iii) There is an inevitable tension between the economic policies of the host country and the multinational, whose profit-maximising motives are global in scale and whose base of decision-making is located outside the reach of national jurisdiction. LDCs have found these tensions to be particularly acute where it appears that foreign subsidiaries tend to frustrate national research and development goals by supplanting local technology with imported expertise. This, of course, is not

only a problem for LDCs. The French, for instance, have been particularly sensitive about the share of the French computer industry acquired by US multinationals.¹³

(iv) The technical and financial clout of multinationals generally prevents arm's length bargaining between them and LDC host countries. This disparity is graphically illustrated by noting that the gross sales of many multinationals exceeds the GNP of many LDCs. For instance (using examples from the seventies) during 1973, the gross sales of General Motors and Exxon were \$35.798 billion and \$25.724 billion respectively.¹⁴ During the same year the GNP for Colombia was \$8.4 billion and that of Zaire was \$2.3 billion.¹⁵

(iv) Various international initiatives to control multinationals in the last two decades have failed. The UN Code of Conduct for Transnational Corporations (introduced under the aegis of UNCTAD) did not really get off the ground. International Law has not been able to offer controls either (International Law has only indirectly touched upon the concept of the multinational: see for instance *The Barcelona Traction Case* [1970] ICJ 4). While, on the one hand, international arrangements such as GATT and the IMF have facilitated the development of the multinational and international minimum standards of state responsibility have protected it, the international legal system has generally failed to control the activities of multinationals.

To some extent the fears of developing countries are being recognised by developed countries. The OECD, for instance, has issued "Guidelines for Multinational Enterprises in the 1976 Declaration on International Investment and Multinational Enterprises (15 International Legal Materials (1976) 967). In addition, there have been regional attempts at solutions. Decision 24 of the Andean Commission is far more specific and purports to create international legal obligations (Decision 24, 1970, of the Commission of the Cartagena Agreement, "Common Regime of Treatment of Foreign Capital and of Trademarks, Patents, Licenses and Royalties", (1971) 10 International Legal Materials 152). Among the more salient provisions of the Andean Code are a disinvestment scheme, a limitation on the repatriation of profits, a reservation of certain sectors for domestic enterprises, an investment screening mechanism setting high standards of entry for foreign investors and the establishment of a sub-regional office on industrial property for the co-ordination of national efforts on the transfer of technology.

Export controls and restrictive market practices

US market practices are a prime example, where there are stringent controls on resales and re-exports under the US Export Administration Act 1979 and the Regulations made thereunder. Even though a foreign company may have title to a US origin item, it may be required to obtain Department of Commerce approval or satisfy the Department's imposed conditions before it may re-export or re-sell the item. This is a severe limitation on those countries such as Singapore whose economy is heavily dependent on resales and re-exports within South East Asia.

Because of their extra-territorial implications, re-export controls are considered by both foreign companies and foreign governments to be an intrusion on their sovereignty. The consequence of non-compliance could be as severe as having future exports denied or having all imports into the US banned; the US has the practical leverage to force compliance.

Under current US export controls, all software, regardless of type, requires either a general or validated export licence. Many software developers, even those of mass marketed software freely available in the US have had trouble getting permission of the US Department of Commerce to export their products to even "friendly" countries. A few examples of what may be regarded as contractual practices of dubious legality may be mentioned here:

(i) "Shrink-wrap" licensing. Software for micro-computers, whether for business or domestic use, is often "sold" in circumstances in which it may not be feasible for the producer of software to obtain signed licence agreements at the point of distribution. The most obvious examples are high value, high volume sales by high street retailers and sales by mail order. In place of the conventional licence agreement signed by both the producer and the end-user, it has become standard practice for software to be supplied in a clear, sealed, plastic package through which can be seen the terms of a "licence agreement" between the producer and the end-user. This document is usually headed by a statement in large letters to the effect that a person opening the package will be deemed to have agreed to all the terms and conditions of the license. The intention of shrink-wrap licensing arrangements is to establish a contractual relationship between the producer and the end-user to stand quite independently of the contract between the retailer and the end-user. A shrink wrap licence typically includes a statement that the end-user or licensee agrees to respect all the proprietary rights of the producer and that, in particular, unauthorised copies of the software will not be made. The legal status of the typical shrink wrap license is unclear even in the industrialised countries of the US and the UK. In the UK, courts have implied a limited license to use in context of indirect infringement of artistic copyright - *British Leyland v. Armstrong Patents* [1986] FSR 221. It is unclear whether the courts will adopt a similar approach in the software copyright field.

(ii) Use of "software time locks". This may be described as a new "weapon" devised by computer software manufacturers to deal with non-renewal of licenses. It works quite simply: embedded in the software is logic that will disable the program after a certain date. The legality of such devices is still unclear. There is at least one case pending in the US, *Revlon v. Logisticon* (there is a brief note of the dispute in [1990-91] 5 CLSR 31), which is considering the legal ramifications of such time locks. Devices such as time locks may not present too much of a problem for software buyers/licensees in developed countries, where there are legal experts skilled in perusing software contracts and in obtaining proper protection for their clients. In the LDCs lawyers have yet to come to grips with the particular problems posed by software contracts. This makes it possible for the large software suppliers to impose strict terms. Moreover, in a dispute, the supplier has the upper hand and can dictate terms on the basis of the real, or implied, threat of activating the time lock. It is too much to hope that the computer industry will itself try to produce better computer contracts which give protection to both sides.

(iii) Another example of "unfair" contractual practice is that adopted by hardware manufacturers who "bundle" software into the pricing structure of the hardware. It is a practice described in *United Software Corporation v Sperry Rand Corporation*:

Bundling ... is a practice by which the computer manufacturer charges a single price for the hardware and software, and other services provided, along with the sale of the computer system. Included in the single price is the hardware, all software that has been developed, future supportive systems, education services, and, to varying degrees, all future developments in software. ((1974)5 CLSR 1492, 1497)

Although "bundling" appears to offer a number of advantages it does mean that the buyer is more or less permanently tied to the manufacturer. It also creates the illusion that the software was free, which is not the case at all.

The legal implications of computer contracts are complex and have not yet been resolved by the courts of the advanced countries. Then, too there is often the feeling that the software supplier's terms are proffered on a "take it or leave it" basis with little room for negotiation. This is compounded by the use of standard form contracts.

Fear of competition

A number of LDCs, in particular the nations of East Asia, have developed their computer industries to such an extent that technology suppliers are concerned about the "boomerang effect", in which technology recipients of today become direct competitors of tomorrow. Software suppliers in advanced countries such as the US, are keenly aware of the emergence of these East Asian nations and are growing increasingly reluctant to license their state-of-the-art technology for fear of losing their technological lead. The supplier feels that he is selling not merely a product but also his ability to compete in world markets over the long run.

To take Korea as an example, in some areas of production Korean producers have already reached the leading edge of technology. In the area of computer software, Korea has the capability, the talent, the financial strength to pose a very real threat.

Inadequate protection within domestic law of intellectual property rights

Within the LDCs there is generally inadequate protection of innovative technology through the device of intellectual property rights. The problem is even more acute regarding the protection of software. The problem is not just that many LDCs are not convinced of the argument for software protection through copyright; the problem is that there is as yet no "frame" on which to hang such rights. The Peoples Republic of China is a prime example of this. There is no real concept of intellectual property rights. Under the recent "open door" policy, for instance, it was expected that the investor would recover his investment by export sales and not by royalty payments.

Because the protection of intellectual property rights is a relatively new concept for many developing countries, with no strong domestic constituencies of inventors, etc, able to benefit from such laws, they have not seen the need to develop strong laws or to devote already scarce government resources to their enforcement. Indeed, some of these countries have resisted strengthening intellectual property protection in the belief that giving individuals such ownership rights retards economic development by limiting access to innovation.

With situations such as these prevailing in the LDCs it is unrealistic to expect their legal systems to be able to deal with the problems posed by techniques such as reverse engineering or devices such as time locks.

Unsophisticated legal systems

The legal systems of the LDCs are characterised by the absence of the sophisticated devices that lawyers in developed countries can draw upon to protect infringement of software rights. Devices such as Anton Piller orders, although well used in some jurisdictions such as Malaysia, Singapore and Hongkong to protect against software infringement, are not used at all in other jurisdictions of the LDCs. The technique of the injunction, so common in the developed common law countries, is another example.

Even in a technically advanced nation, such as Japan, there may be problems. When a Western Intellectual Property delegation visited Japan in 1989, lawyers in the delegation enquired if it was possible to obtain an injunction and get it enforced against a copier of computer software. After some debate among Japanese lawyers it was finally agreed that there was such a procedure in Japanese law but that it was rarely used. (Quoted in [1988-89] 5 CLSR 32, 33).

Conversely, this also means that a buyer of software is also similarly disadvantaged. For instances, ESCROW agreements are relatively unknown even in jurisdictions such as Malaysia and Singapore, whose legal systems are relatively developed, and searching out for a domestic firm prepared, and able, to act as an ESCROW agent is almost an impossibility.

All this, of course, must be seen in the context of an almost total lack of lawyers specialising in computer law and able to give expert advice on elaborate software agreements.

The prohibitive costs of technology

High technology is usually inaccessible through indirect means of technology transfer. Reverse engineering, besides being illegal, is not always successful. Licensing is the only method of gaining access. But technology at this level is expensive. Three percent royalties may satisfy the needs of a tennis shoe multinational but the supplier of nuclear magnetic resonance technology will be more demanding. Not only is the technology in greater demand, but the recentness of the innovation means that the research and development costs have not yet been recovered. In fast changing areas, such as computer systems, the fraction of the royalty that must be allocated to research and development will be even greater, since these costs must be recovered swiftly before the product or service in question is upstaged by yet another advancement, possibly by a competitor.

The Chinese experience may be pointed to. There are considerable pressures on the Chinese to conform, at least, to the international copyright conventions and perhaps they will eventually do so. For the moment, however, they stand aside from the discussions in GATT because they have little to offer but also, primarily, because they just do not want to be drained dry in foreign currency payments for licenses and royalties.¹⁶

The Chinese do not as yet possess a copyright law that protects computer software. Like all less developed countries, the Chinese are in a quandary over the balance of advantages to them. They seek unrestricted access to computer technology in the early stages of their development and at a time when they cannot afford to pay market prices for it in foreign currency. Later, when they have their own products they will seek the protection of copyright to protect their own overseas income. Even the US has passed down that road in the last 100 years (for instance, the past lack of copyright protection in the US for foreign literary works).

Coupled with this has been a lack of conviction that intellectual property rights are worth protecting, although this particular battle seems slowly being won. Mexico provides a classic example of a developing country that has begun to recognise the value of effective intellectual property protection. In January 1990, Mexico revised its 1982 Regulations to the Law on the Control and Registration of the Transfer of Technology and the Use and Exploitation of Patents and Trademarks. Registration is required under Article 21 of the 1990 Regulations for agreements which directly grant the right to produce, distribute or commercialise computer programs. Unregistered agreements are void and unenforceable before national tribunals. The Regulations were, in fact, revised in order to liberalise the terms under which technological know-how, including software, was licensed or otherwise transferred to Mexico. The original 1982 Regulations were aimed at protecting Mexican firms from domination by multinational corporations while assuring Mexico's access to current technology. In actual fact, the effect of the 1982 Regulations was to inhibit technology transfer. In January 1990, the US Trade Representative (USTR) recognised Mexico's efforts in IP protection and removed Mexico from the Priority Watch List of countries that have allegedly failed to safeguard intellectual property.¹⁷

CONCLUSION

While the basic laws of intellectual property protection have been in effect for many years in the developed countries and many LDCs are members of either one or both of the international conventions, many LDCs are only now arriving in the computer age. Even where intellectual property protection exists for software, there are substantial differences in the laws and regulations

governing protection.

Some have reached the stage where they are beginning to lose from inadequate software protection, for instance, Korea, Taiwan and Singapore. So they are now "convinced" of the value of copyright protection. Others such as Indonesia, Nigeria, Malaysia and the People's Republic of China cannot afford it at their stage of development. There should be nothing surprising in this. It is a pattern which developed countries have followed in the past. The US is a prime example of this. There was a time not too long ago when foreign literary works received no copyright protection at all in the US and this is a probable factor in the current dominance of US publishing firms in the world market.

The huge profits being made from software piracy, for instance, in Thailand, is another factor to take into account. There may be the will to suppress illicit copying, but if the profits are good enough it takes a lot more than mere will to clean out the racketeers.

India is a case in point. It was one of the first countries in the world to specifically extend copyright protection to computer software by amending its Copyright Act in 1986. Moreover, software infringement is also a criminal act, while *Anton Piller*-like orders have been recognised. In practice, however, as one commentator has pointed out, piracy is an organised guerilla war which the legal infrastructure cannot deal with. (Hebalkar, "India's War on Software Piracy", (1990) 4(9) International Computer Law Adviser 4)

Enforcement of any kind is a problem faced by the legal authorities of LDCs. It is particularly acute when the enforcement agencies need special skills and training such as is needed to enforce the law regarding software protection.

Endnotes

1. According to the use of terms common within the United Nations, "developed countries" refers to countries that are members of the Organisation for Economic Cooperation and Development with a few additions such as that of Australia and New Zealand. These countries are also referred to by terms such as the "western" or "advanced" or "developed" countries. "developing countries are spoken of as the "Third World", the "less advantaged" "under developed" or as "less developed countries". Purely for reasons of convenience, the terms "developed countries" and "less developed countries - LDCs- will be used in this paper.)
2. For further discussion on the alternatives on offer reference may be made to Rostoker and Rines, Computer Jurisprudence: Legal Responses to the Information Revolution (Oceana Publications, New York. 1986)
3. Tae Hee Lee, "Legal Protection of Computer Software: Korea's Careful Progress Towards International Standards" [1986] 19 Law/Technology 28
4. Abbott, "Intellectual Property Rights Negotiations in the GATT Framework: A Global Venture of Special Interest for Software Rights Holders" (1990)4(11) International Computer Law Adviser
5. (1985)45 (September) Computers and Law 14
6. Abbott, p.8
7. Abbott,p.8
8. For further details reference may be made to Mazzuco, "Trends in the Brazilian Informatics

Policy" (1990) 4(9) International Computer law Adviser 5

9. Duval, "Fair Trade and the Protection of Intellectual property in US-Korean Economic Relations (1988) 21(1) Law/Technology 18

10. Abbott,p.17

11. (1990)11(4) International Computer Law Adviser 17

12. Coonrod, "The UN Code of Conduct for Transnational Corporations", (1977)18 Harvard International Law Journal 273, note 41

13. J.Servan Schreiber, The American Challenge ,at pp.134-150

14. Fortune Magazine (May 1974) vol 89, p.232

15. Agency for International Development, Gross National Product: Growth Rates and Trend Data (1974), pp.5,11

16. Report of the Intellectual Property Delegation to the Peoples Republic of China, [1988-89] 5 CLSR 32

17. (1990)11(4) International Computer Law Adviser 17