THE PATENT POLICY OF DEVELOPING COUNTRIES

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Most countries have decided to participate in the international intellectual property system. In the recently concluded negotiations leading to a revised General Agreement on Tariffs and Trade, popularly known as the “GATT,” even more countries have agreed to participate, and all participants have agreed to meet minimum standards of participation and to subject their laws and procedures to outside scrutiny to ensure that they live up to the commitment.1

It is easy to understand why technologically advanced countries who are home to successful multinational competitors

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1. The GATT agreement is set forth in 33 INT’L LEGAL MATERIALS J. 1 (1994). A novel part of the new GATT agreement, The Agreement on Trade Related Aspects of Intellectual Property Rights, Including Trade in Counterfeit Goods of the General Agreement on Tariffs and Trade (“TRIPS”) is set forth id. at 83 and in SELECTED STATUTES, supra note †. The TRIPS contains transitional arrangements for developing and least developed country members which delay the effective date of the agreement as applied to them. See Part VI of the TRIPS. The U.S. Congress will consider U.S. adherence to the new GATT agreement in a special session at the end of 1994.
would choose to participate in the international intellectual property system. For them, it is clearly advantageous to do so. Membership in an international system for the protection of intellectual property permits their firms to exploit intellectual property rights in the markets of all of those countries that join the system. But many of the participants are countries that do not have these advantages. Why do they participate?

A conventional answer would be that they join the international intellectual property system in order to gain other trading advantages from the developed world. This was the theme of the GATT negotiations. In exchange for agreeing to join the international system for the protection of intellectual property, the developing countries have gained improved access to the markets of the developed world.

This essay argues that there is another and better reason for the developing countries to agree to the GATT agreement. That reason is that it is in their self-interest to do so. Why, for instance, would a country whose nationals are much more likely to pay than receive royalties from patents join the international patent system? Participation in the international patent system requires among other things that the participants grant patents to non-nationals on the same terms and conditions that they grant patents to their own nationals. Why would such countries participate even if most of those patents will be owned by non-nationals?

The method of this paper is conceptual. The author's area of expertise is the American intellectual and industrial property system, accompanied by a familiarity with the history of technological development in Western Europe and North America. The author has no expertise in the structure and strategies of or the challenges faced by countries operating in other environments. The purpose is to identify issues that technologically deprived countries must face if they desire to encourage the development of enhanced domestic technological capability, based on the assumption that their system of intellectual property resembles the American system—as the GATT agreement requires. This is not an unsympathetic perspective from which to

2. Richard T. Rapp & Richard P. Rozek, Benefits and Costs of Intellectual Property Protection in Developing Countries, 24 J. World Trade 75 (1990). The authors argue that participation in the international patent system is in the interest of less developed countries. The Rapp & Rozek argument is that regression analysis shows that countries with higher rates of economic growth protect intellectual property rights. However, the regression results do not show which is cause and which is effect. See also ROBERT M. SHERWOOD, INTELLECTUAL PROPERTY AND ECONOMIC DEVELOPMENT (1990) (favoring intellectual property protection in less developed countries based on case studies of countries with and without protection).
view the problem, for the position of technological laggard was one occupied by the United States for many years in the nineteenth century and accounts for the relatively recent and not yet complete acceptance by the United States of the international norms of protection.

The focus in this paper is on the patent system because I consider it the most problematic of the intellectual property regimes. Trademark and copyright present much easier cases for the adoption of the international system by less developed countries. This essay briefly discusses trademark and copyright before turning to the more difficult subject of patents.

I. TRADEMARK

Firms in a less developed country could be interested in having the right to infringe trademarks for either of two reasons. Either they desire to produce goods bearing infringing marks in order to export them into other countries where they will be sold in violation of the trademark rights of that country. Or they desire to infringe the mark in their own country because the mark has established a reputation with consumers in the less developed country.

The first motive is a case of simple piracy, in which the home industries wish to use their home country as a "pirate base" to infringe in other countries. Such a competitive strategy will result in a parasitical business that will always be dependent on the willingness of the targeted countries to tolerate the infringing imports. Because the status of the business in its target markets will always be illicit and hence uncertain, it will never have an established market position that can lay a foundation for the development of an internationally competitive business. The second motive means that the mark the firms desire to copy will inevitably lose its reputation in the less developed country as multiple sources produce goods infringing it while none of them has an incentive to protect its value as a signal of quality desired by consumers.

For these reasons, the advantages for a country in rejecting the international trademark system are illusory. A failure to provide protection for international marks encourages competitive strategies which do not lay a foundation for long-run competitive success.

II. COPYRIGHT

If a country does not participate in the international copyright system, then the works of foreign authors will not be protected. This means that publishers can reproduce the foreign
works without the obligation to pay any royalty, and the foreign works will be cheaper. Local authors will face the competition of the foreign works, and may also be denied the opportunity for protection in foreign countries. The effect of these two factors will be to disfavor the sale of works by local authors and to favor the sale of works by foreign authors. These points were made in the nineteenth century debate over the extension of U.S. copyright protection to foreign authors.  

A country that chooses not to participate in the international copyright system confronts its own potential producers of copyrightable works with the competition of copied works, whose lowered price reduces the incentives for the production of copyrightable works by the country's own nationals. The incentive for the production of derivative works such as translations adapted for the particular needs of the country will also be reduced.

III. PATENTS

It can easily be argued that a national strategy of providing no patent protection offers technologically deprived countries an opportunity to enjoy, at no cost, the technological innovations of others. Issued patents are publicly available documents which, to quote the American statute, are required to "contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains . . . and . . . set forth the best mode contemplated by the inventor of

3. In "Cheap Books and Good Books", The Question of Copyright, Matthews states:

I come now to the one class of books the price of which would be increased by the granting of International Copyright. This is the large and important class of fiction. Of course, American novels would be no dearer; and probably translations from the French, German, Italian, Spanish, and Russian would not vary greatly in price. But English novels would not be sold for ten or fifteen cents each. We should not see five or ten rival reprints of a single story by the most popular English novelists . . . English fiction would no longer cost less than American fiction. The premium of cheapness, which now serves to make the American public take imported novels instead of native wares, would be removed; and with it would be removed the demoralizing influence on Americans of a constant diet of English fiction. That American men and women should read the best that the better English novelists have to offer us is most desirable; that our laws should encourage the reading of English stories, good and bad together, and the bad, of course, in enormous majority, is obviously improper and unwise.

carrying out his invention." 4 Why can't the citizens of a technologically deprived country simply examine the patents issued by countries with a patent system and select the technology that is useful? That way, the country would avoid both the costs of investing in research and development and the expense of paying royalties on the use of technology developed by others. 5

The advantage of a no patent strategy is enhanced if other countries are willing to grant patents to the nationals of a no patent country. If the market of the no patent country is a small portion of the global economy, and the country's nationals can still obtain protection abroad, then the incentives of the citizens of the no patent country to invent and to exploit their inventions through foreign patents would be hardly, if at all, diminished by their home country's withdrawal from the international patent system. This apparently was the situation for nationals of the Netherlands and Switzerland during the period that those coun-

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5. See A. Samuel Oddi, The International Patent System and Third World Development: Reality or Myth?, 1987 DUKE L.J. 831 (1987) (setting forth the no patent arguments for the less developed world). Oddi explicitly discusses the disclosure issue:

In theory, a patent, wherever granted, must teach those skilled in the art how to use the invention. Because the vast majority of inventions sought to be patented in developing countries originate in developed countries where patents have been obtained, the technical information contained in these patent documents is available to the developing country and would be available regardless of whether it grants patents. This technical information could be of great value to enterprises within the developing country. Indeed, patent documentation has been promoted as a valuable source of technical information and has been made readily available to developing countries at nominal costs. The generic manufacture of 'Tagamet' in Argentina was presumably made possible by public domain information, including especially the SmithKline-Beckman patents granted and published in other countries. The problem, however, is that depending on the level of industrial sophistication within the developing country, the patent documentation originating in a developed country is likely to be inadequate in many, if not most, instances to practice the invention in the developing country. Accordingly, only when (a) the patent-granting agency in a developing country insists that the necessary, additional information be provided in all foreign applications and (b) such additional information is not otherwise available in the public domain, can it be said that the patent grant increases the net technical information available in that country. There is no indication that such requirements are being imposed or that the agencies of developing countries have even the capability of doing so. Indeed, in the vast majority of cases the patent documentation filed in the developing country is likely to be a translation identical in content to that filed in the developed country of origin.

Id. at 850-51; see also EDITH PENROSE, THE ECONOMICS OF THE INTERNATIONAL PATENT SYSTEM (1951) (arguing against the participation by less developed countries in the international patent system).
tries had no patent law. Eric Schiff reports both that Dutch and Swiss nationals continued to apply for and obtain patents in significant numbers in other countries and that the evidence supports the conclusion that the inventive energy of their populations was undiminished during this period.

There are three reasons why the no patent strategy does not in fact benefit the country that adopts it. The first reason is that the argument that a no or anti-patent strategy benefits the country that adopts it depends upon particular views of technology and of the patent system that are inconsistent with reality. The argument implicitly likens technology to a collection of food recipes and the patent system to a cookbook. Neither metaphor is right. Technology does not simply consist of a collection of instructions as to how to proceed, and patents do not, standing alone, contain the necessary information.

The second reason is that the technology needed by the developing countries is not the same as the technology that is needed by the developed countries. The developing countries have their own, unique needs. The incentive to invent, commercialize and market technologies which address their needs will only exist if there are patents available to protect successful innovators in those markets.

The third reason is that the ability of patent owners to charge for the use of their patent rights, either in the form of royalties or through end product prices is constrained by the ability of the country granting the patent rights to pay. Poor countries will inevitably pay proportionately less than wealthy countries for the use of patent rights.

A. Technology Is Not a Collection of Recipes and Patents Are Not a Cookbook

Technology does not exist on pieces of paper. Technology is a complex and interrelated body of information carried in the minds of a group of people sharing methods of communication, analysis and information storage. One of the methods of communication and storage that is used is writing; many of the shared

7. See id. at 21, 86; The Netherlands and Switzerland pursued a non-discriminatory patent policy. That is they had no patents for anyone, national and non-national alike. A country that pursued a discriminatory policy, making patents available for its own citizens but not for anyone else, would be more likely to find that other countries would close their patent systems to its citizens. Id.
8. An important reason for misunderstanding this point is that patents are often, but erroneously, said to be economic monopolies. I discuss why this is not the case in Patents: Monopolies or Property Rights? supra note †, at 31.
methods are conventions and practices about how that writing will be organized, the vocabulary it will use, and the unstated assumptions that it will adopt. An outsider to the group finds it difficult to understand and use the writings, even if they are publicly available. In the language of the U.S. patents statute, patents are written for the person "skilled in the art to which... [the invention] pertains."9

In particular, technology is not to be found in patents. Although the patent laws require that a patent contain (again quoting the U.S. statute) "a written description of the invention, and of the manner and process of making and using it" and to "set forth the best mode contemplated by the inventor of carrying out his invention,"10 these requirements do not mean what they seem to say. They are terms of art, whose meaning can only be understood in the context of the patent system.11 Because the patent system creates urgent incentives to seek patent protection promptly, a firm cannot wait to patent until "an invention" is a finished, commercial product. Instead, the firm must pursue a policy of incremental patenting, in which each technological development is separately patented, and is patented at a stage long before a commercially practicable product has been produced. Indeed, the firm will end up obtaining patents on innovations that turn out to have nothing to do with the commercial products that are actually manufactured and sold. There is no simple correspondence between a company's patent portfolio and its product line. The information as to what portions of the patented technology are actually used, and what unpatented technology is also used, is information possessed by the firm, protected by trade secrecy, and not disclosed.

Nor does the published technological literature serve as a substitute for the patent system. That literature, largely the product of the academic community, tends to be more theoretical than practical. Although it is an important medium of communication among members of the technological community about problems and solutions of general interest, it is not focused on supplying applied technological know-how relevant to a producer of particular commercial products.

9. The statute states:

The specification [of the patent] shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same, and shall set forth the best mode contemplated by the inventor of carrying out his invention.


10. Id.

Technologically deprived countries can obtain access to technology by hiring technological experts. However, if these experts are non-nationals, hiring them will require use of foreign exchange. And although an expert may be a cost-effective way to address a specific problem for which there are technological solutions, the hired expert, when he is finished, does not leave behind the technology itself.

One way in which outsiders gain access to the information possessed by a technology is education. Education programs can systematically instruct outsiders in the methods, techniques and practices of the technology. A technologically deprived country can send citizens abroad to pursue educational programs. There are many educational institutions that stand ready to admit and train a qualified student from anywhere in the world. A rich but technologically deprived country (for instance a country favored by large oil or other mineral reserves) might even be able to hire enough experts to create its own educational institution offering instruction to its citizens in the technologies it wishes to introduce. That step, though daunting in its own right, is at least fairly straightforward.

The next problem (if we don't stop to worry about the problem of paying for the educational services) is what graduates of the educational program will do with their newly acquired qualifications as members of the technological group. The only way to use their newly acquired expertise in the technology is to work for an institution that supports work in the technology. This means a technologically sophisticated business, a university, research institute, or government research body. Those employers are not to be found in a technologically deprived country.

A solution to that problem would be for the government of the technologically deprived country to itself hire its newly educated graduates. The problem is that formal education can only provide an entry path into a technological culture, it does not provide the hands on, "how to do it" experience that comes from solving actual problems. So the government would need to first hire senior non-nationals to staff the government research institution. But the government itself would find it difficult to meaningfully supervise the work of such persons, since by definition the experts would have expertise as to matters unfamiliar to the responsible government officials. Either the government officials would risk uninformed meddling in the activities of the experts, or they would risk that the experts would control the agenda of their activities free of any meaningful supervision. Although they could demand that the technologists define their objectives and insist that they meet them, the long lead time involved would
mean that they could pay the technologists for many years before they discovered that the project was a failure.

Persons who have been trained in a technology receive benefits from working in contexts where they can associate with others with similar training and interests. As a result it will be difficult to persuade persons with skill in the technology to relocate to a country with no existing technological culture. This, at a minimum, means that such a strategy will require above market rates of compensation to attract the necessary personnel.

If the newly graduated students were to instead utilize their skills by obtaining employment outside the country that educated them on the grounds that they needed practical experience in the technology, their home country runs the risk that they will, over time, become comfortable in their place of employment and will resist ever returning to their country of origin.

These problems mean that a strategy of developing an indigenous technological culture through education will be costly, very long-term, and of uncertain success. An alternative strategy is to attract high-technology firms, in the hope that they will bring with them the technological culture. It is not enough, of course, to simply attract the firm. If the firm only locates low technology activities in the country, such as basic fabrication and packaging activities, but leaves its high technology activities elsewhere, the firm is no different, from the point of view of the host country, than a low technology firm. What are the features of a country’s patent laws necessary to attract high technology activities and hence employment?

The first concern of a firm considering moving high technology activities to a country will be whether the laws of that country protect the firm against employees who leave the firm to use its technology in independent businesses. This will be particularly true if the firm plans to employ nationals of the country and to share with them the firm’s technological know how about how to design, manufacture and market its products. Since the only way the population of the host country can gain the experience of using their technological skills is if the employer is willing to share its technology with nationals of the host country, the host country will want this disclosure to occur. But such disclosures will be risky for the firm unless the legal system of the host country provides protection, not only in theory, but also in practice, with courts that are available to prevent employees from departing and using the firm’s technology in competing businesses. Although remedies for the protection of trade secrets can in theory exist absent a patent system, it is difficult to imagine how they can actually function. A patent, unlike a trade secret, can be enforced without revealing confidential information not
otherwise contained in the patent. And in a country without patent protection, defendants in a trade secrecy case could argue that the information that they were utilizing was not a trade secret because it is available in the issued patents of other countries. Thus any employer contemplating locating high technology activities in a country without patent laws and training local nationals in that technology is going to be concerned that there is no effective protection against the appropriation of the technology by the locally trained employees.\textsuperscript{12}

The second important concern that the firm is going to have is that it be able to produce products in the country that can be sold in many different countries. The economies of scale inherent in high technology production make it unlikely that a firm will be interested in investing in a facility that can produce for only a single national market. But a facility can produce for the international market only if the products do not infringe the patent rights of other firms in the market countries.

A multinational firm with an existing technological base will be in a position to provide such rights to the facility both because of its own patent position and because of cross-licensing. It is one of the contributions of the present international patent system that firms are able to obtain worldwide patent rights, and to design, manufacture and market their products on a worldwide basis. If the firm foresees the possibility that the facility will itself become the source of technological innovations which may be patentable, it needs to be concerned that the innovations can be patented in the countries where the product might be mar-

\textsuperscript{12} Oddi discusses the trade secrecy issue, but then dismisses it for reasons that are unclear:

The argument most commonly made is that a patent incentive is needed to induce the transfer of technology because patent owners would otherwise be unwilling to transfer their valuable technology in the form of trade secrets due to the relative weakness of trade secret law in developing countries. If a patent were granted, the argument runs, this would serve as underlying protection should the trade secret technology be disclosed. The patent granted on the invention thus acts, in a sense, as a 'security interest' for the underlying trade secret. This is purely a bootstrap argument, however, because the only reason (presumably) that additional technical information is needed is because the patent documentation itself does not disclose adequate information to enable those skilled in that art in the developing country to make the invention. Hence, in theory, the patent should be invalid for failure to provide an enabling disclosure. On the other hand, the practical reality of needing not only the documentation, but also technical assistance in assimilating the documentation cannot be underestimated. A more straightforward solution than granting patents in the hope they will induce the transfer of technology would be to make such transfer legally and economically attractive to the possessors of such technology.

Oddi, supra note 5, at 851-52.
keted. If the country itself refuses to participate in the international system, there is the risk that innovations made in the country will not be eligible for full international patent protection.

Thus a country which follows a no patent strategy will find it difficult to attract technologically sophisticated employers. Without such employers, it will find it difficult to create employment for those of its nationals who are technologically sophisticated. Those nationals will either remain in the country but will be unable to utilize and enhance their skills, or they will leave the country to find employment that makes better use of their skills. Unable to attract technologically sophisticated employers, the country will have to pursue a go it alone strategy, in which it will have to try to develop its own technological capability without sharing in the common pool of existing technology developed by others. This in turn will mean that its nationals and firms will develop technological solutions, methods and products which are different from prevailing international standards. This will isolate the domestic economy from the international economy, and deny the country the advantages of international exchange of both goods and services. Such economic isolation in turn increases the difficulty of enhancing the national technological base.

B. THE TECHNOLOGICAL NEEDS OF DEVELOPING COUNTRIES ARE DIFFERENT FROM THOSE OF THE DEVELOPED COUNTRIES

The technological needs of a developing country are not the same as the technological needs of a developed country. A technology does not exist apart from the needs, conditions, and resources of its users. A technology must be sensitive to the educational background of the users, and the related available technologies. For instance, it will often be critical what type of repair and maintenance services are available. A certain type of machinery may be highly effective and productive when used in a mass production system with an ample supply of electric power, skilled electronic engineers, and easy access to spare parts, but utterly useless at a more remote location. Thus, technological improvements which can make a substantial contribution to the lives of people in a developing country may be irrelevant in a different setting. A private firm has an incentive to make such an improvement only if it will be protected against immediate copying in those markets where the product has value. Thus, a no patent strategy may enable a country, to some extent, to appro-
Appropriate the technology of others, but that technology will often not be the technology that the country needs.

A country can, of course, hope that other countries with a similar educational, cultural, and technological situation will provide patent protection, and thus provide incentives for innovations useful to such countries. But no longer is the technologically deprived country taking from the advantaged. Instead, it is attempting to free ride on the system of its fellow developing countries while, at the same time, choosing not to contribute to the incentive for the development of technologies relevant to its needs.

C. THE COST OF A PATENT SYSTEM AUTOMATICALLY ADJUSTS TO THE ABILITY OF A COUNTRY’S ECONOMY TO PAY

In the face of these arguments, it might still be argued that a country cannot adopt a national patent system simply because it cannot afford it. The costs of administering the patent system itself can, of course, be defrayed by fees charged to applicants for patents and holders of issued patents. But the country also has to be able to pay the licensing fees charged by patent owners. In assessing this problem, the fact that patents are national rights conferring exclusive rights only within the markets of the country that issues them is important. Patent owners cannot and do not charge the same prices in different countries. The price of the right to make use of the patented technology must be set in relation to the demand for the right, and in less affluent countries that demand will be less. Thus the cost of a patent system to a less economically developed country cannot be measured by the prices charged for the right to use patents in developed countries.

IV. CONCLUSION

If these arguments are correct, does anyone outside a country have any legitimate interest in the nature of the patent laws which the country does or does not adopt? If it is in the interest of any country desiring to enhance its domestic technological capability to have patent laws, then such countries will adopt them on their own. Those countries that do not will not do so because they do not share this objective. Why isn’t the question of objective one best left to the citizens and government of the country concerned? What valid reason does any country have to be concerned about the patent laws of any other country? What justifies the use of the General Agreement on Tariffs and Trade to obtain from countries a commitment that their intellectual property laws will meet prescribed standards?
There are two problems which can be a legitimate basis for this interest. One is a free rider problem. Given the international patent system, there is an incentive for any single country to participate enough to give its own citizens access to the system and its benefits, while effectively denying its benefits to the nationals of other countries. Since there are problems in ascertaining the actual level of protection available in a country, a country can appear to give protection, sufficient to gain admission to the system, while in fact denying the reality of the protection it appears to give. Other countries can legitimately insist that if a country is to participate in the system, it must extend both in form and substance the protection which the system purports to provide.

The second problem is that a country that has not fully participated in the international system creates incentives among its own citizens to engage in activities that depend upon their ability to ignore patent rights. If patent protection is weak or non-existent, industries will develop that rely for their existence on their ability to ignore the international patent system. Once these industries have developed, they have an interest in resisting any change in the rules. Although it may be in the overall, long run interest of the country to participate in both form and substance in the international patent system, the adversely affected industries will have incentives to expend their political capital to keep that from happening. Thus even if full participation is as a theoretical matter the optimum strategy in the long run, once a country departs from that strategy it may find that internal political forces block a return to the optimum. Outsiders can play a constructive role by insisting that the issues be addressed within a larger and principled framework.

These arguments suggest that it will be possible for the member countries to cooperate successfully in the implementation of the GATT TRIPS agreement. This is likely to be true if the creation and maintenance of an effective international intellectual property system is in the interest of all countries, and is not just a form of payment made by the developing countries in exchange for other trade benefits. If and when the GATT TRIPS agreement comes into effect, the experience of the member countries with its operation should shed light on the question of whether or not these arguments are correct.