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INTELLECTUAL PROPERTY: REFLECTIONS ON ITS NATURE AND IMPORTANCE

The defense of intellectual property rights
today is the new frontier as were the human rights yesterday.

1. The Venetian Beginnings.

As is well-known, patents came into existence as a legal institution in the Republic of Venice in 1474. That means that the patent system has evolved over more than 500 years. The Venetian concept of legal protection for inventions was adopted by the English government in the 16th century.

However, in the ensuing decades the English monarchs started to abuse this patent right by granting sinecures and monopolies to their relatives and sycophants. Such abuses provoked public indignation which pressured Parliament to enact the Statute of Monopolies in 1673 which became the basis of the current patent laws of Great Britain and the United States. In the Statute of Monopolies the principle that only the "first and true" inventor has the right to be granted a patent, was recognized for the first time.

The first U.S. patent law was signed by George Washington in 1790, evoking the following Jeffersonian comment: "The law which authorizes the grant of patents has given the spirit of invention the greatest impetus imaginable."

Other countries, today developed and industrialized, such as France, Holland, Norway, Sweden, Japan enacted patent laws in the 1880's. Germany followed suit in 1903 and Canada in 1925. Clearly, patent protection preceded modern industrial development in each of these countries, which at that time were still underdeveloped countries.

2. An IP System must be Part of the Infrastructure.

Must an IP system be part of the infrastructure of a country from the very beginning, or rather only something to think about after a country reaches a certain degree of development?

Yes, of course, it must be part of the infrastructure, concluded Robert M. Sherwood (Counselor in International Business in Washington) in his recent book Intellectual "Property and Economic Development" (Westview Press, 1990):

> "Although largely invisible, an intellectual property system which protects innovation and creative expression may be viewed as a helpful precondition to creating and using new technology which boosts economic growth and aids development. From this point of view, the intellectual property protection system may be considered as a valuable part of a country's infrastructure.
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> The concept of infrastructure has proven useful in examining economic development. Roads, irrigation, sewers, schools, water supply, health care and electrical systems are among the preconditions thought beneficial for development. Creation of infrastructure is accorded priority because of this." (p.6)

Furthermore, Sherwood stated:

> "It is submitted that viewing intellectual property protection as an important aspect of a country's infrastructure would focus attention and analysis on its role in the economic development process rather than on trade conflicts." (p.5)

How true! What a revelation!

3. <u>There are no Viable Alternatives.</u>

Strong and modern patent systems, following the model of the European Union, are of interest for all nations, including the smallest and also the least developed. For this reason, such systems are being adopted universally, which is not surprising.

The new Indonesian patent legislation, just like those of other Asian countries, such as, Malaysia, Thailand and even Vietnam, also follow the European standard with protection for all products and processes.

Also, Hungary, Poland, the CEI (Community of Independent States), the Czech Republic, and other Eastern Europe countries, have come to recognize the need to protect chemical products of all kinds. In fact, most of the Eastern European countries are advancing as a block toward granting patents for chemical, pharmaceutical and biotechnological products and it is these countries that are going to be the competitors of the developing countries around the world.

In this context it should be pointed out that these Asian and European countries have established or strengthened their intellectual property systems before the GATT-TRIPS era and without being swayed by pressures from the outside. Why? Because they had come to realize that intellectual property systems would serve their own self-interests.

For example, a high official of the Indonesian Government made the following statements in a seminar which I attended in Jakarta a few years ago when I served as a consultant for the Patent , Trademark and Copyright Office, to assist them in implementing their first patent system:

> "The need to expand our knowledge and to improve our technological development and dominance require a greater availability of technological information through growth and development of the patent system. Only through the expansion of knowledge, and the increase in technological dominance, will we be able to carry out efficiently the process of technology transfer as well as solve related problems.
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> Especially today one cannot ignore the role that intellectual property plays in international markets, which is becoming increasingly more important.
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> The future economic development of the country will focus more and more on the industrial sector directed to exports, which obviously will need access to international markets. This access will only be achieved if we participate in mutual agreements in the sector of intellectual property, through the operation of sufficient, efficient and reciprocal legal protection.
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> .....
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> The current situation, where intellectual property has greater value and more importance provides a very different stage from that of the fifties, sixties or even the seventies."

In my opinion, these affirmations — and similar ones which I heard on recent trips to Korea and Malaysia — are very positive, modern, and at the same time surprising, since until 1991 there was no patent system in Indonesia. Furthermore, these statements have much relevance in other developing countries because there is considerable parallelism among many of them and Indonesia.

Indeed, we live in the nineties and not in the sixties or seventies, and nowadays we all live in a world that is becoming smaller and more interdependent every day, that is to say, we live in a "global village."

In Mexico as well as in other Latinamerican countries, granting patents for almost all product and process inventions has also become possible in recent years.

As we can see, patent systems everywhere are being modified and modernized for the purpose of establishing effective and strong protection for all inventive products and processes. And effective patent protection has to be in the interest of countries that wish to improve their economy and make it competitive in world markets. And the recent GATT-TRIPS will no doubt accelerate this trend.

On the other hand, there are no countries where patent systems were abolished, although Professors Melman and Machlup, famous economists of the fifties, after reviewing the American patent system in a study commissioned by the U.S. Congress, arrived at the following surprising conclusion: "If we did not have a patent system, it would be irresponsible, on the basis of our current knowledge and of its economic consequences, to recommend establishing one."

But the patent system has survived Professors Melman and Machlup and other critics of similar mentality. Today critical opinions about the patent system are rarely heard, and conclusions such as those of Professors Melman and Machlup seem like bad jokes. Professors Mansfield and Scherer, well-known contemporary economists, never would say such things.

For Mansfield, the patent system is a very important instrument as regards the technological development, because he understands that investment in R&D always depends on the degree of protection of IP. Mansfield concludes that given the intimate relationship between industrial innovation and economic growth, adequate protection of IP is indispensable for industrialized as well as for developing countries.

Time and again studies and proposals have been presented regarding alternatives to patents, as for example, economic incentive systems to inventors without grant of an exclusive right; but the patent system has outlived these and other proposals, because time has demonstrated that, when all is said and done, it is the best and most viable alternative of them all.

In this connection, the Spanish Professor Carlos Fernández-Novoa, of Santiago of Compostela, in his book "Toward a New Patent System," studied other alternative systems, particularly a governmental system of monetary premiums, but rejected it. He concluded that: "(T)he patent system is the only system that provides incentives for technological research that is conciliable with the system of market economy." I agree one hundred percent.

Nowadays I believe it is incontrovertible that a strong system of IP rights is indispensable for technological development, which stimulates economic growth and social welfare.

4. A Patent System is in the Interest of Nationals.

Nor should one believe that strengthening patents means conceding monopolies to foreign companies. A patent system, as I stated before, first and foremost is in the interest of nationals. There is genius and creativity everywhere. No country has a "monopoly" on that but where national talent and inventiveness are neglected, inventors and scientists have to go abroad to protect adequately their inventions. And this leads to the so-called "brain drain."

Two years ago, in a seminar in Lima, Peru, which was organized by INDECOPI and which I attended to give a talk, I was approached by a couple who told me that the husband had invented significant improvements in cars. They wanted to go to Miami to enlist an American patent attorney in order to patent his inventions in the United States, because "it made no sense to try to patent anything in Peru." All this is very interesting but at the same time very deplorable.

The problem in countries without a solid patent system, is that there are none of the incentives provided by such a system, which is prejudicial to technological development and economic growth. Actually, there are four incentives that a patent system furnishes, namely, to invent, to divulge inventions, to "invent around" prior invention and to invest in the commercialization of inventions and, interestingly, the incentive to invest is the most important of them all.

In this regard Sherwood had the following comments in his already cited book (p.197):

> "If people seem to be more inventive in the United States or Europe or Japan, it is not an accident. It is not because of genes or schooling or intelligence or fate. Implementation of the intellectual property system is critical because of the habit of mind which is fostered in the population. Human ingenuity and creativity are not dispersed unevenly across the globe. Those talents are present in every country. In some, unfortunately, the enabling infrastructure of effective intellectual property protection is missing."

Interestingly, the fact that most of the patents are granted to foreigners in developing countries does absolutely not mean that the patent system serves only foreigners. The truth is that this occurs also in all industrialized countries with Japan and the USA the only exceptions. In the USA almost half of all the granted patents belong to foreigners, too.

> "(T)he proportion of patents granted to non-residents within all countries appears to be high as the result of a multiplier effect. An invention which is patented in a number of countries will be recorded as a domestic invention in only one country, but will appear in the statistics of patents granted to

non-residents in all other countries in which the invention is patented. This multiplier effect accounts for the high proportion of patents granted to non-residents in the vast majority of countries." (WIPO, Background Reading Material on Intellectual Property, 1988, p.77)

In this connection, let me quote a comment from a recent article of Professors Zuccherino and Mitelman, entitled "Solid IPR Protection as a Tool of Economic Development" (6 Derechos Intelectuales 79,87, Editorial Astrea, Buenos Aires, 1994) (in translation):

> "It would be a mistake to think that patent protection constitutes a useful institution only for industrialized countries — an instrument of protection exclusively adapted for technology owners. On the contrary, it is fundamental for those countries that find themselves at the beginning of their industrial development.
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> The leading industrialized nations, Japan, United States, France, Germany, or England introduced patent protection in an era in which they all were underdeveloped countries and the prevailing motivation was to surpass the technological gap when compared to others; first, through import and adoption of foreign technology, and then, through the progressive development of a home-grown technology".

5. Patents do not Constitute Monopolies.

Let's now tackle another important issue. There is a notion that we should get rid of once and for all and that is that patents constitute monopolies. This is a misconception that has caused a lot of mischief. A patent as well as other IP as such can never be a monopoly. The prevailing thought today, and the American Patent Code thus characterizes it, is that a patent is property — a property like a house or a car or a share of stock — and not a special privilege, a monopoly granted by the government.

The concepts of patent and monopoly should be clearly distinguished. While in a monopoly something is taken away from the public domain, an invention is given to the public domain, although during a given term the inventor has the exclusive right to his/her creation. That is to say, a monopoly is something in the public domain that the government takes from the public and gives to a person or a company. An invention is something that did not exist before and was not in the public domain. It is something new, novel, that upon publication via the grant of the patent enriches the public domain with the knowledge of the invention, and upon expiration of the patent, enters into the public domain, free to be used by anyone. It is also important to keep in mind that a

patent does not grant the positive right to make, use and sell the patented invention but merely the negative right to prevent others from making, using and selling such an invention. Furthermore, there are always other competitive products, other subsequent or previous alternatives.

I can't understand how one can employ the word property — "industrial property", "intellectual property" — without admitting, without accepting that it is property in reality. It makes no sense to speak of property if it is not property but monopoly or privilege.

Consequently, a patent, far from being a monopoly, encourages and promotes competitiveness and, consequently, growth of industry.

In this context, Professors Daniel A. Zuccherino and Carlos O. Mitelman had the following to say in said recent article of theirs, (supra, at 97, 98, 99):

> "We are absolutely convinced that there is no reason to call inventor's rights a monopoly.
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> While it is true that a patent provides a patent holder an advantageous position, he or she is constantly exposed to being overtaken by the competition. It is exactly due to his/her patent position that competitors are motivated to 'invent around'.
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> The greater the rate of innovation, the greater the dynamic of competition. Competition induced by the existence of a patent brings about a plurality of alternatives."

6. Correlation of Investments and IP.

Robert Sherwood will also shortly publish an article in which he evaluates and classifies regimes of IP of different countries as well as the GATT-TRIPS regime using a scale of 0 to 100. This study was done from an investor's perspective. Some of the numerical scores are: Guatemala 15; Argentina and Brazil 40; Costa Rica 47; Pakistan 48; TRIPS 55; Mexico 65, etc. GATT-TRIPS does not obtain a higher score inasmuch as it is a system of minimal standards; in other words, it is a floor and not a ceiling. TRIPS merely reduces trade conflicts rather than stimulate investments. Sherwood then invokes Professor Mansfield's investment/IP protection correlation from his recent World Bank report, indicating that the TRIPS level of protection is only good enough to support private investment in sales and distribution, assembly, and parts manufacture. A higher level of protection is needed to stimulate private investment in complete manufacture, in sophisticated product development and in research. Attached Table 1 presents all of this quite graphically.

7. Must Technology be Free?

Contrary to what I have said so far, there still exists a school of thought that asserts that technology is the "common heritage of mankind", that is to say, that all technology should be made available for free. But if technology should come free, why not oil and gold? This observation was provided by one of my students, none other than the Director of Patents and Trademarks of Zimbabwe, Mr. Naboth Mvere, upon commenting that some countries have oil and others have gold and some countries have technology; and the countries that have oil and gold do not consider them part of the "common heritage of mankind" and accordingly give them away for free. Well said! And don't many developing countries have "green oil", that is, an abundance of germoplasma and biodiversity?

8. The Greater the Public Interest the Greater the Need for Protection.

With respect to the topic of exclusions of subject matter from patentability or, more specifically, concerning the issue of patentability of inventions in the nutritional, pharmaceutical and biotechnological fields, the judgment of the Supreme Court of the USA, in 1980, in the Chakrabarty case is very interesting. In deciding that new living organisms are patentable, they recognized that there is no better way to provide incentives for such potentially very valuable inventions.

Clearly, this point eliminates the argument that medicines and foods are too important to be patented. On the contrary, exactly because of high public interest, they are too important not to be patented. And because of this, Professor Thomas Field, my colleague at the Franklin Pierce Law Center, emphasizes that such products should be patentable a fortiori. In other words, the greater the public interest, the greater the need for protection. Incidentally, in the Chakrabarty case the Supreme Court stipulated the following: Everything under the sun made by man is patentable — and that's the way it should be, in my opinion.

9. Lag Times from Test Tube to Market Place.

With respect to the issue of appropriate lifetimes of patents and appropriate exclusivity periods, I submit that it is utterly absurd to have such short periods as, for example, one year in Costa Rica for pharmaceutical products, seven years in India and even 10 or 15 years that Latin American and other countries used to have in past years. Also it is absurd that a patent could be cancelled or be subject to a compulsory license for non-use after only three or four years of its grant; finally, it is absurd to consider importation of a patented product as a non-use of a patent.

In the annexed Table 2 there are some examples of the lag times that elapse from the conception of an invention until its commercialization. Interestingly, the author of this table was a Government employee and not a private sector employee. As can be seen in this table, in many industries lag times are longer than those which exist in pharmaceutical industry.

In light of this table, there is no doubt that short periods for patents, compulsory licenses, or cancellation for non-use, represent elements of unrealistic and anachronistic legislative regimes.

In an era of computation and biotechnology things are very different from earlier times, when simple tools or machines were invented. Consequently, R&D costs have risen steeply. It has been calculated that, at present, the introduction of a new medicine in the USA will take more than 10 years and will cost more than US$ 250 million.

In my judgement, there is no need to begin or continue with a compulsory license scheme; however, if abolition is politically impractical, compulsory licenses should be possible only in emergency situations and upon due compensation. And there should never exist a risk of cancellation, because this would result in the taking of property without any compensation, something which is anti-constitutional. Besides cancellation is too draconian a penalty.

Nor must there be a requirement of use, since the patent is property and, hence, it is the inventor or owner whose decision it is whether to use or not to use. But again, if it is politically unacceptable to eliminate this requirement, importation should be sufficient, inasmuch as it is completely unrealistic to require domestic production at all times and in all countries in which a patent is obtained.

10. Pipeline Protection and Parallel Imports.

Concerning transition from a previous regime to a new system, it goes without saying that a new or modified patent law should apply fully to pending applications. But it is also necessary to recognize the legitimate rights for innovations that were not patentable because the old law did not consider them patentable subject matter. The pipeline protection preferred by the most recent legislations, as for example, that of Mexico, permits that the inventor obtains a patent on such a product, provided that the product had not entered the national market of the country in question but the inventor had filed a patent application on the given product, or obtained a patent, in the country of origin or in another given country.

This type of protection does not imply any retroactivity of the law because it covers solely inventions not yet exploited in the country; furthermore, it is only temporary and ceases when the respective patent expires in the foreign country.

It is surprising that there is so much opposition on the part of the developing countries because this sort of protection is not at all new. In fact, in several countries, especially in many of Latin America, some forms of very similar protection under different names, such as, "patents of confirmation", "patents of introduction", "patents of registration", "patents of importation", etc. used to exist.

As regards parallel imports, it is obvious that they are incompatible with equity and technological modernization. It is not attractive to develop proprietary technology if one runs the risk of unfair competition from parallel importer opportunists. A patent does not have much economic value if the exclusive position it confers is not respected.

In the European Union only parallel imports among member countries and under given conditions are permitted by virtue of the principle of free flow of goods within the Union territory, but this does not apply to countries outside the Union.

11. Japan Showed the Way.

At this point in my talk I cannot help but mention the models and examples of Japan and Korea which indeed are excellent models and examples to follow and imitate. Japan is a most magnificent example to emulate. Korea and the other "tigers" (Taiwan, Hong Kong, Singapore), have followed the model of Japan with much success. As was done by the Japanese, one must put in place modern IP laws and through license contracts one must acquire as much technology from abroad as possible. In Japan experience demonstrated that, once a country installs a solid and effective patent system, the flow of technology toward that country increases, as well as their access to more advanced technologies. Such a patent system assures a simpler technology transfer process, greater access to desired technology at lower costs. On the other hand, the Japanese experience has also shown that licensing of foreign technology, as a general rule, serves as a catalyst to promote the local inventive activity.

These policies are even more beneficial, because acquired technology generally comes accompanied by foreign capital and investment in considerable quantities. Furthermore, technology importation not only leads to export of products manufactured via the introduced technology, but also to the export of the improved and modified technology ("reverse technology transfer").

In summary, the progress made by Japan since World War II, is due to their patent system and to their political opening to the licensing of technology, both of which were very attractive to foreign technology providers. Also, the most rapid form for achieving industrialization in a country consists in importing foreign technology and adequately protecting IP.

12. The Lament of Dr. Da Costa Neto.

A few years ago I attended a seminar organized by the ABPI (Brazilian Association of IP) and held in Salvador, Bahia. I could not believe what I heard: Brazilians talking about IP and technology transfer as one would expect to hear in developed countries.

For example, Dr. Virgilio Da Costa Neto, President of the Research & Development (R&D) Center of Bahia (CEPED), expressed wistfully that Japan was a wonderful example to imitate as concerns technological development and patents. Japan showed the way, he said.

Regarding that country, he made reference to the gigantic electronics company, Sony, which emerged after the last World War as a small family business, with a single patent based on a good idea for improving the radio.

Dr. Da Costa Neto also referred to interesting other concepts: Obtaining patents, he said, is a good business practice... patents help at the table of negotiations... and only through patents can an entrepreneur or a small company resist the competition of the giants.

Furthermore, he deplored the fact that, in spite of having a staff of more than 100 persons in/his R&D Department, sufficient funds, and considerable technological development, he had not received any request to patent something.

Similar considerations were also expressed by Professor Eloisa Biasotto Mano, Director of the Macromolecular Institute of the Federal University of Rio de Janeiro.

On the other hand, it was mentioned, that in a recent year, Brazil had paid out only three million dollars in terms of royalties, while the interest on the external debt reached more than 14 billion dollars.

13. Korea Could Have Had More Success.

Korea is another very interesting case, another example of the application of the successful Asian Formula. Korea did very well in imitating other countries, but the imitation took the legal form of improvement of a foreign product, rather than an illegal copy.

The Koreans also resorted to reverse engineering of American, European and Japanese products; improved them sufficiently so as to classify them as new, in addition to producing them very inexpensively.

To market these products in the USA, Europe and Japan, they had to avoid infringement of existing patents in these countries, in spite of deficiencies in the Korean patent legislation.

Sherwood has the following interesting observation is this regard.

> "It can be conjectured that Korea could have done even better had it had a strong system of protection in place in, say, 1960. The other factors which boosted Korean technical abilities would have produced even more. Where

> Korea had gaps in protection, products imported into Korea faced local pirate copies, as in the field of publications, movies, pharmaceuticals and agricultural chemicals, but this is not what accounts for Korea's new-found industrial prowess. Indeed, these areas are precisely among those where Korea is industrially weak today." (p.178)

Today other Asian countries, such as Indonesia, Malaysia and Thailand, are following the Japanese experience and that of the four tigers, applying the successful Asian or Japanese formula of economic development through patents and licenses.

In this context it is interesting to note that there are also good examples in neighboring countries, namely, Mexico and Canada. Since the passage of a first-rate patent law in Mexico in 1992, Mexican exports, especially in the pharmaceutical field, show sustained growth and investments in R&D have increased. And as regards Canada where the patent system was strengthened in 1987 and again in 1993, investments in pharmaceutical R&D increased by more than $500 million.

14. Pharmaceutical Patenting Strengthened the Italian Laboratories

There are no cases where a patent law which included medicaments as patentable subject matter, destroyed the national pharmaceutical industry. Nor are there cases where this resulted in an explosion of prices.

On the contrary, in Italy — another country that presents an excellent example for developing countries to follow — the introduction of pharmaceutical patents in 1978, strengthened the Italian laboratories which today are dominant in this market. In contrast to the fears of those who opposed patenting of pharmaceutical inventions, other excellent results came about, such as, increase in national and foreign investment in R&D, a rise in employment and revenue and maintenance of prices at reasonable levels.

No price explosion, as was anticipated, occurred in Italy. In fact, prices in this sector increased at a much lower rate than they increased in general. In the period from 1976 to 1989, prices for pharmaceuticals rose 79%, whereas retail prices rose by 127%.

In this connection, it should be emphasized that granting a patent does not have adverse effects because in Italy, as in other countries, the percentage of commercial products under a patent barely reaches 10% of all the pharmaceutical products on the market. That means, that the national industry is free to produce legally over 90% of these products. Only novel substances can be patented which means that those already on the market are not affected at all by the enactment of patent protection and, consequently, prices are also unaffected because no new legislation would have a retroactive effect. Finally, there are always (many) alternative products available but,

paradoxically, pirated products are often sold at prices that are higher than the originals.

There are other persuasive statistics about the effects of patenting pharmaceutical products in italy, which are detailed in well-known articles, published in volumes 4 and 5 of the "Derechos Intelectuales" (Editorial Astrea, Buenos Aires) and entitled "The Impact of Pharmaceutical Patents: The Italian Experience" and "The GATT Negotiations for the Protection of New Technologies", respectively written by G. Jori and Dr. Otto Stamm.

15. Trade Secrets and Patents are Complementary.

Of course, any IP system must include not only patents, but also trade secrets, utility models, industrial designs, trademarks, copyrights, etc. All of these are most important for technological development and economic growth and, therefore, it is important to establish and maintain strong and modern systems in these other fields just as in that of patents. Furthermore, another element of great transcendence, is a judicial system that assures the defense of IP rights.

In relation to trade secrets, it should be kept in mind that the patent system and the trade secret system are not mutually exclusive, but, in reality, are complementary. To protect adequately new inventive products or processes both can and should be used in complementary, even synergistic, ways.

There are those who would disagree with this thesis. When I defended this posture in a seminar of the ABPI in Sao Paulo, some years ago, Dr. Margarida de Mittelbach, chief of the Patent Office, was horrified, and expressed to be in total and profound disagreement with me. However, it is the pure truth!

The American Supreme Court in the case Kewanee Oil indicated that

> "Trade Secret law and patent law...(e)ach has its particular role to play, and the operation of one does not take away from the need for the other...the extension of trade secret protection (even) to clearly patentable inventions does not conflict with the patent policy of disclosure".

In this same decision, in a concurring opinion, Justice Marshall asserted that Congress, in promulgating the law of patents, merely intended to offer to inventors a limited monopoly in exchange for disclosure of their invention, rather than exerting pressure on inventors to enter into this exchange by withdrawing any alternative possibility of legal protection for their inventions. In another, more recent decision of the American Supreme Court, in the Bonito Boats case, it was maintained that trade secrets "dovetail" with patents.

In fact, as practical issue and in terms of management strategy, not only is it possible but very important to proceed as follows:

firstly, maintain the invention as a secret while a patent application for the same is in preparation or pending;

secondly, hold as trade secret the" know-how" associated with the invention that does not have to be revealed in the patent application;

thirdly, after the patent application is on file, preserve as trade secret all the improvements and R&D data subsequently obtained; and

fourthly, with respect to technologically complex products and/ or processes, obtain protection via patents for some inventions, and simultaneously preserve as trade secrets other aspects, in particular, other inventions and know-how related to inventions already covered by patent applications or patents.

In summary, a good management strategy consists in creating an IP estate, consisting of patents, trade secrets, utility models, industrial designs, trademarks, copyrights, etc. in order to obtain optimal protection for a given piece of innovation.

16. A New Mentality is also Requisite.

What is needed is creation in each country as well as in each company of a new climate with greater appreciation and knowledge of IP and the opportunities it presents. As demonstrated by the lament of Dr. Da Costa Neto that nobody in his R&D Department had submitted an invention disclosure in spite of having great quantities of R&D data, patent awareness or consciousness leaves a lot to be desired in many places. It bears to emphasize that more training re IP rights is requisite in order to form a new mentality about IP rights and their importance.

Secondly, once the importance of the IP in companies that carry out R&D, even in the smallest, is better appreciated, policies and procedures for "harvesting inventions", as very aptly the Japanese call it, should be established. The means or vehicle for harvesting inventions is the Invention Disclosure, that describes the invention in sufficient detail to enable preparation and filing of a patent application in the National Office of IP. One must take care not to divulge the invention before filing the patent application and, indeed, for obvious reasons, it is very important that the patent application be filed without delay and the sooner the better. To facilitate this process and to obtain greater cooperation on the part of R&D personnel a monetary incentive or bonus program should be instituted.

A company must have a policy designed to obtain IP rights, in order to protect potential products and processes and/ or current ones, to grant patent and know-how licenses, and to make acquisitions.

17. How to Modernize an IP System.

The above is but a short introduction to a very long topic. I want to conclude by outlining a possible course of action for modernizing an IP system, involving the following steps:

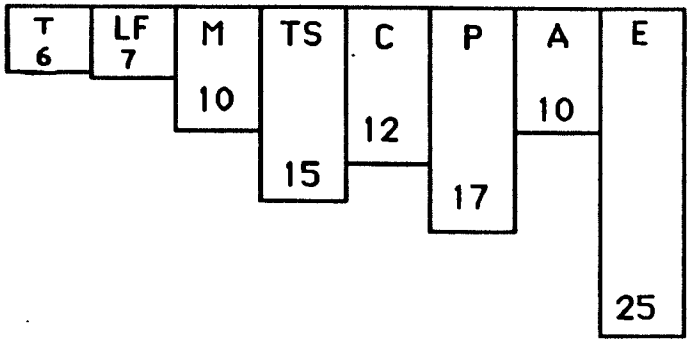
1) strengthen anachronistic national legislations,
2) adhere to the most important relevant international treaties,
3) create consciousness in the public as well as the private sector of the significance and benefits of IP rights, and
4) institute judicial mechanisms for the enforcement and defense of IP rights.

To me it is indeed a truism that the defense of intellectual property rights today is the new frontier as were the human rights yesterday.

Dr. Karl F. Jorda
David Rines Professor of IP Law
Franklin Pierce Law Center
Concord, NH

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CORRELATION OF INVESTMENTS & INTELLECTUAL PROPERTY PROTECTION



T = Treaties
LF = Life Forms (biotech + seeds)
M = Trademarks
TS = Trade Secrets
C = Copyright
P = Patents
A = Administration
E = Enforcement

Rating Scale from Investment Perspective

100
90
80 Bahamas (80)
70
Mexico (65)
60
TRIPS (55)
50 Pakistan (48)
Costa Rica (47)
Uruguay (45)
40 Brazil, Argentina (40)
Paraguay (35)
30
20
Guatemala (15)
10

TABLE 1

Mansfield's Survey

Research
Product Development
Sophisticated Manufacturing
Simple Manufacture
Parts & Components
Assembly
Sales & Distribution

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COMMERCIALIZATION LEAD TIMES

Industry	Years
Consumer Products	2-5
Biomedical	5-10
Electronics	5-15
Aerospace	5-15
Machine Tools	10-20
Automotive	10-20
Energy	15-20

Presented
by Dr. Ronald E. Barks, Director
Industrial Applications Office
Los Alamos National Laboratory
in a talk on "Accelerated Product Development with Licensed Federal Technology"
at LES Eastern Regional Conference
Hilton Head, S.C.
June 1992

CREDOS • INSIGHTS • TRUISMS
on
Intellectual Property Rights

- An effective IP system is indispensable to technological development which is indispensable to economic growth and social welfare;
- an IP system should be part of a country's infrastructure from the outset rather than something that one thinks about after reaching a fairly advanced stage of development (Robert Sherwood);
- of the four incentives provided by a patent system, namely, to invent, to disclose, to invest and to "invent around," the incentive to invest is the most important (CAFC Judge Giles Rich);
- "A country without a patent office and good patent laws is just like a crab that can't travel any way but sideways or backways" (Mark Twain);
- a patent and other IP are property and are not and cannot be monopolies (a patent does not take from the public and give to an individual; it takes from an individual and gives to the public), and this misconception has caused a lot of mischief;
- the duration of a patent should be no shorter than 20 years from filing and preferably 25 years or more or provide for patent term restoration to compensate for regulatory delays;
- short patent terms, early compulsory licenses or cancellation for non-working thwart a patent law and turn it into a hoax;
- lead times for commercializing inventions have become longer in all areas and not just the pharmaceutical area, and hence the conventional periods of three or four years till lapsing or compulsory licensing and short patent terms are badly out of step with present realities;
- "Everything under the sun made by man is patentable" (U.S. Supreme Court in the *Chakrabary* decision); hence, there should virtually be no exclusions of subject matter from patentability;
- subject matter that is viewed as too important to be protected is, on the contrary, "too important not to be protected" (Professor Thomas Field);
- some countries have gold, some have oil — and some have technology and those that have gold and oil do not consider them part of the "common heritage of mankind" and accordingly give them away for free (Naboth Mvere, Controller of IP, Zimbabwe);
- "Trade Secret law and patent law...(e)ach has its particular role to play, and the operation of one does not take away from the need for the other...the extension of trade secret protection (even) to clearly patentable inventions does not conflict with the patent policy of disclosure" (U.S. Supreme Court in the *Kewanee Oil* decision);
- technology transfers, licensing and investments are ever so much easier to carry out and accomplish via patents and other IP as vehicles or bases;
- importation of technology leads not only to export of products but in turn also to export of technology ("reverse technology transfer");
- the days when technology transferees in developing countries were taken advantage of are gone, the realization having taken hold that the only viable license is one that results from a win/win approach and passes the fairness test.

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