Intellectual Property Management for Enhancing Competitiveness Particularly in Small and Medium Enterprises*

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Paper emphasizes the needs for enhancing competitiveness, particularly, in the small and medium enterprises (SMEs) through effective use of the intellectual property (IP) management system. Management of the IP system by SMEs should aim not only at the generation of their own technology but also at providing information to prospective inventors. Introducing the latest and the newest technologies in the productive sector of SMEs plays a critical role in economic growth and promotes competitiveness through the use of IP system in responding to consumers demands for higher and better quality of production. Finally, the author recommends some salient points for strengthening and promoting the IP system by governments and the private sector particularly SMEs and their national associations.

The author has been stressing through the years, in his addresses to individual and groups of developing countries in Asia, Africa, the Arab states and Latin America and the Caribbean, as also to industry representatives and associations, that there are considerable socio-economic benefits to be derived from effective use and management of the intellectual property (IP) system through, particularly, the enhancement of quality competitiveness in commerce, trade and industry.

A very much more widespread awareness and knowledge of its value for the private sector, particularly for the SMEs, and for national development and growth in the present millennium, has to be generated and encouraged. Also, as to how the IP system

can be utilized for promoting national inventiveness and creativity.

To keep in step with the emergence of creative new technologies, much has to be done in updating intellectual property legislations, modernizing the intellectual property infrastructures and administrations as well as obtaining and computerizing patent information and making it available to industry. The concerned government infrastructures need also to be made more market-oriented and user-friendly in order to serve the needs of an ever-growing number of users.

A greater quality conscious approach to economic management would generate higher growth and provide greater resources for social programmes aimed at reducing the incidence of poverty. Integrating the domestic economy with the global economy also needs greater attention. Development is a multidimensional process, which requires the creation of a broad based sustainable improvement in the quality of life and standard of living. In a growing economy, development should lead, among others to a reduction, inter alia, of unemployment and poverty.

Those amongst developing countries that have expanded their manufacturing base, and trade as well as export potential, have adopted the IP system to promote innovative, inventive and creative activity for enhancing their growth process. The IP system is one of the cornerstones of modern economic policy at the national level, and is increasingly becoming an important tool for sustainable development of developing countries in the knowledge-based society of the current millennium. Hence, building awareness of the legal and economic foundations of the IP system is essential for comprehending its importance and role in national strategies for enhancing competitiveness and accelerating socio-economic development.

A modern and well enforced IP system is one of the strong imperatives for ensuring that the liberalization of the economic, industrial and trade policies would help in the restructuring of the industrial and business sector and in encouraging, in particular, the SMEs to use the IP system as a means for national socio-economic and technological development.

Increasing Internationalization of Trade and Economy: Challenges and Opportunities

The increasing internationalization of production and distribution, and progress in technological innovation, is fast eroding physical barriers to international transactions. The growing borderlessness of trade and technology has thrown up, for developing countries, both new challenges and new opportunities. Technology has become an important asset in trade. World trade is also becoming an important factor in the growth process.

The challenges especially for SMEs lie in strengthening the domestic efficiency of innovative management of their productive sector in the context of an increasingly open and competitive global economy, with opportunities for investment and exports.

In the 21st century, the ever-emerging new technologies will create not only new problems but also provide considerable possibilities for socio-economic development in developing countries. The role of IP in spurring human capital formation, knowledge diffusion, and knowledge-based technological innovation and information, can be very substantial.
The IP system provides a balance of interests between the creators of new technology who spend large outlays in the creation and development of technology, and the users of that technology who employ it as an important tool for improving their technological ability and competitiveness in the marketplace. Intellectual property rights protection is an essential component for socio-economic growth, for developing indigenous technological capacity, for generating exports through enterprise competitiveness and for helping attract foreign investments that may be needed.

Developing countries that have diversified their productive sector and broad-based their manufacturing activities, primarily with utilization of the IP system for qualitative production for exports, show a steady and distinctive improvement.

**Intellectual Property: Its Role in the Growth of SMEs and in Economic Development**

The IP system encourages individuals and organizations to invent, innovate and create, by offering incentives which are commercially attractive, so that the talents of inventors and innovators could help economic advancement through technological progress and competitive capability, which latter will increasingly depend on how well each country unleashes the creative talents of its people.

Patent laws protect new inventions. The patent system deals with the most recent technology and has a positive role in the competitive positioning of an enterprise in the national and international markets.

With increasing competition in international trade, the value of patent information is also becoming more obvious to those who are forced to compete in order to maintain and improve their position in the marketplace. Again, the economic value of patent information lies primarily in its ability to provide, also to the small and medium enterprises, the necessary technological and market information, which can be used to their commercial advantage.

The existence of exclusive rights that the IP system provides, are also the legal basis for contractual arrangements between creators or the ones developing ideas, and the institutions or enterprises, wishing to use those ideas in the manufacturing process.

Business and industry as well as scientific institutions in developing countries should encourage their scientists and technocrats to overcome technological obsolescence and increase innovative research and development. Industry, in particular, the SMEs have to use the latest and newest technologies. An advance in technology should result in a commodity with more attractive performance characteristics and a product more saleable for the producer and less costly for the consumer.

Through provision of exclusive rights, the IP system ensures legal security needed to those scientific and technical institutions, and to enterprises that wish to avail of the possibility to encourage, through material resources and necessary funding, their employees in using their skills in research and development of worthwhile new ideas that can be utilized for constantly improving existing products or making new products.

For SMEs, it is important to optimize the utilization of the IP system in technological and economic competition, which will undoubtedly become more intensive in the years ahead. International competitiveness can be maintained only through high quality.
production incorporating the latest technologies, and qualitative competitiveness and growth in trade can ensure adequate and suitable employment opportunities.

The technological development of industrialized countries and some of the industrializing developing countries has evolved with the existence and enforcement of intellectual property rights protection. SMEs would need to go ahead with techno-economic reforms more aggressively. Technology is fast becoming an important asset in trade, in investment and in economic development. While trade increases with investment, it is investment that increases with effective intellectual property protection.

With the internationalization of trade, technology and investment, fears of erosion of economic supremacy and of economic space being invaded, are sometimes exaggerated. With increasingly skilled, low cost, technical manpower in a number of developing countries and with encouragement of competitive capability, such fears also seem unjustified.

The economic value of intellectual property rights protection lies mainly in increasing over competitive capability. An example is that of the development of India’s software industry.

For reaping the real economic value of the IP system, national industry associations should also pay increasing attention to the use of this system in the growth of the SMEs, which should be encouraged also to follow improved management practices. While the big industries have usually a fairly high level of knowledge and expertise concerning latest inventions in their field of technology, as also concerning trademarks and industrial designs, it is the SMEs, which need to be increasingly apprised and helped through such information.

SMEs are fairly significant employers and are units of technological innovation; they often adapt sooner to technical changes, but are not fully aware of the basic parameters of intellectual property laws. These micro-enterprises are the sole sustenance of some 300 million people worldwide. They should, as a deliberate policy, be assisted by simplifying regulations and procedures and by facilitating their access to credits, markets and training. The opportunities for them to make more informed decisions and encourage innovative management could also prime the national technological base.

Meanwhile, economic growth, to be meaningful, must reach out to the masses of the people. It should result in creation of job opportunities, achieving a balance between quality and quantity of such jobs. For this, the SMEs sector in developing countries must become qualitatively competitive, and should use in the process, the latest technologies. The governments in developing countries should also help in acquiring relevant technologies for this purpose, but to ensure that they get the latest and the best, they need to ensure updated intellectual property rights legislation and its effective and efficient enforcement.

**Encouragement of Inventive Activity; Innovation Management; Its Promotion in SMEs; Transfer of Technology, Acquisition and Licensing**

The economics of many developing countries are growing — some even rapidly. More investment and technology transfer in various areas, depending on the country concerned, are needed, as well as the modernization of certain industries, for instance, those in the manufacturing as well as in the service sectors.
To participate in the many opportunities of the present century available for developing countries in the international marketplace, it is necessary to accept the challenge of upgrading the IP system - both legislative and infrastructure - since without that no transfer of first grade technology could be expected.

While strong intellectual property protection with adequate and modernized legislation and its effective administration and enforcement undoubtedly helps not only in transfer of technology, encouragement of inventive activity is essential in as many small and medium enterprises as are basic to the national economy. It is necessary to promote knowledge-based growth with greater concentration on education, in order to produce an increasing reservoir of scientists, technologists, inventors and innovators. There is a growing realization that a newly industrializing developing country is not merely a bunch of factories producing goods and services. Policy formulation and action are necessary in all areas, which impact not only on acquiring modern technology and foreign direct investment, but also enable its adoption and assimilation in the given national context.

Good management requires especially that in the up and coming SMEs, young technocrats should be encouraged to invent and innovate. Even if it takes time, the SMEs should promote inventiveness in the production of indigenous brands of technology in which they have both competence and price edge.

Management of the IP system by SMEs should aim not only at generation of their own technology but also, most importantly, at providing information to prospective inventors. Again, technologies can be generated and exported if the inventive habit is encouraged by ensuring that the system of intellectual property protection is effective and that the inventor does not have to fear that his invention is likely to be limited or used by others without compensation.

Simultaneously, increasing technological improvements and the introduction of the latest and newest technologies in the productive sector of the SMEs plays a critical role in economic growth and in promoting competitiveness through the use of IP system in responding to consumer demands for increasingly higher and better quality of production.

Encouragement to, and facilities for, their scientists, researchers and technocrats to invent, combined with promotion of the innovative spirit by such enterprises and business, is a priority need for generation of higher growth through greater exports. Promotion of inventions and innovations is the basis of, and fundamental to, the success of enterprises be they medium or small. Business and enterprises should be encouraged to consciously promote among their employees the inventive, innovative and creative spirit, and to use the IP system as a tool for development. This encouragement should be provided from the stage of conception of a new idea for solving a technical problem through to the development of such an invention, its testing and ultimately the commercialization of products and services based on such inventions.

At the same time, it is important that linkages between SMEs, research and development institutions, and universities should be encouraged and strengthened. Industry and enterprises should be encouraged to plough much greater funding in research and development.

In order to be ahead of others in developing indigenous technology, even high technol-
ogy, on an increasing scale, the inventive spirit amongst our people should be encouraged. The developing countries should really aim at becoming the producers and exporters of technology rather than becoming their importers. Industrial property protection is critical for quality development of knowledge-intensive industries and enterprises.

One of the many myths associated with the patent system is that a patent is of little benefit other than to provide exclusive rights to the patentee. The value of having the complete document available to the public, including a comprehensive description of the new technology, is not always known or fully appreciated. Incidentally, patent applications worldwide had risen by 32% from 1.25 million to 1.65 million annually even in the five years ending 1990. Furthermore, with more than 65000 applications published under the Patent Cooperation Treaty (PCT) every year, the PCT system also makes a significant contribution to the wealth of technological information disclosed and made available to the public.

Inventions are documented and disclosed through patent documents each year. About 3.5 to 4 million patents are in force in the world. Certainly not all the several million registered patents in the world can be major technological breakthroughs. A sizable number encompass just “incremental” inventions consisting of small improvements to products and processes that increase their efficiency and marketability and are built “around,” as mentioned earlier, the technological information obtained from existing documents. Valuable technology is not always “high tech” nor does it always have to come from abroad.

Technological innovation is the key to economic growth and social prosperity, and patent information is the source of technological information that SMEs’ research organization have at their disposal. Patent documents, notably through their disclosure of inventions, are a source of the state-of-the-art technological and commercial information in valuable in the development of creative new technologies that could help the developing countries to get increased access to foreign markets.

Industrial property documents are an excellent source of the state-of-the-art in most technological fields. Research and development (R&D) efforts in the SMEs have to take cognizance of this vast amount of intellectual wealth and R&D planning must use this wealth systematically.

An increasing quality-conscious approach to economic management in the SMEs would generate higher growth and provide greater resources for social programmes. Adequate protection of intellectual property rights is a factor to be reckoned within the process of technology development, technology transfer and stimulating exports by capturing new markets and promoting national creative endeavour.

New technologies are emerging at a rapid pace. Global information networks, electronic commerce, digital transmission, the superhighways, the national information infrastructure (NII), the global information infrastructure (GII) and the Internet are just example of the eruption of ever emerging technologies. All these modern infrastructures will play an important role in national competitiveness of developing countries.

The Internet—a network of networks, continues its expansion and has millions of users connected. The estimated worldwide installed base of PCs in the home and in education had increased from 36 million
units in 1992 to 118 million units in 1997. The Internet is fast becoming a popular rather than an elitist medium. The Internet and the World Wide Web, are only glimpses of what can be expected in the coming years. Computer transmission and electronic reproduction will change the way information is treated as intellectual property.

In the area of transfer of technology, acquisition and licensing of technology, certain pitfalls need to be guarded against in negotiating licensing contracts, due to weaker bargaining position or lack of experience of enterprises in some developing countries. It is also likely that an enterprise - medium or small - wanting to acquire patented technology may not have sufficient skilled employees in the relevant area. The expertise of the licensor to train the required staff of the licensee may be necessary and it would be useful to have this included in the licensing agreement.

**Institutional Framework; Human Resource Development; and Awareness Building**

Governments should be made aware of the considerable economic value of effective intellectual property protection and the consequent socio-economic benefits through enhancement of qualitative competitiveness in trade and commerce, and greater possibilities of technological advancement in the process of moving from the industrial to the information age. Knowledge promotion, education and training, integration of technology and industrial policy with the necessary infrastructure development, as well as concurrent promotion of social justice, are some of the factors to be considered for effective implementation.

Meanwhile it is essential, imperative and urgent that in intellectual property rights and their protection, not only should a progressive new thinking and 'culture' be developed in business, research and development as well as in university circles, but also the “mindset” among the community at large be changed through greater awareness building.

Such awareness building has to be extended not only to technocrats in industry, to the intellectuals in the universities and the public at large, but also to the personnel in the police, customs, and the judiciary who play an important part in enforcement.

Much greater awareness is, in particular, essential about the socio-economic impact of strong intellectual property rights protection, if the developing countries are to use the system optimally for their benefit. The need for greater awareness building is imperative when one sees views being aired and positions taken and asserted, but little studied, and through repetition, being accepted, owing perhaps again to lack of detailed knowledge or precise information. As the adage goes, there is no worse blind than one who does not want to see.

Therefore, it is essential that greater awareness should be created about the importance of efficient and effective intellectual property protection and its impact on socio-economic and culture development. An intellectual property “culture” needs to be deliberately promoted, which would encourage intellectual creativity, and facilitate cross-fertilization of ideas and help increase innovative and inventive activity linked to market needs.

Intellectual property rights and their protection should be included in the national economic agenda. It should form an integral
part of our economic policy, industrial policy, S&T policy and educational policy.
The teaching of and research in intellectual property law should become an essential part of the law faculties in the universities, in institutions of higher learning, in institutes of engineering, management and scientific research, with networking and cooperation agreements with other institutions involved in the teaching of intellectual property and distance learning and development of courses.
The development of human resources is a strategic component of any effort aimed at modernizing and effectively using the IP system.
The frontiers of intellectual property are being pushed increasingly forward with the advancement of science and technology. More and more issues are emerging requiring protection to encourage scientific pursuits and investments therein. Discovery and creation of industrially useful microorganisms are some recent examples in the field of modern biotechnology.
To keep pace with their socio-economic development, developing nations and their small and medium enterprises, in particular, would need to trigger inventions, innovations and creativity. Experience has shown that national creativeness can contribute effectively to technological progress, only if it is matched by encouragement and legal security for inventors. Promotion of indigenous, inventive and innovative activities is an indispensable means of achieving international competitiveness.
The role of institutions concerned with promoting inventors and innovators, especially in helping inventors to commercialize their inventions is of prime importance. A national association of inventors is one of such institutions. SMEs would do well to promote the establishment of such an association at the national level, where it does not exist.
For human resource development and for mooting of policy options, establishment of a national or sub-regional institute of intellectual property development is very important.
Most importantly, at the national level, there needs to be a political will to adopt or adapt system, and to administer it effectively, in order to benefit optimally from its economic value.

Conclusion

Some of the points mentioned in this presentation, particularly, in the developing countries’ context, should be included in the policy considerations and directions for ensuring the strength and promotion of the use of the IP system by governments and by the private sector particularly the SMEs and their national associations where they exist, and in the utilization of the system as a critical tool in wealth and job creation and socio-economic development.

(i) Since socio-economic and techno-economic development and growth to be meaningful, must reach out to the masses of the people and should also result in job opportunities, it is essential to make the business, industrial and enterprise productivity, qualitatively competitive, using the latest technologies in the process.

We can get technology for the purpose, but to ensure that it is the latest and the best, it just cannot be without ensuring updated and strong IPR protection and its effective and efficient administration, as also its strict enforcement.
(ii) Intellectual property legislations should be modernized and constantly updated, to keep pace with international developments and emerging technologies.

(iii) In order to help business, industry and the SMEs sector to better utilize the IP system, it is essential that the concerned infrastructures should be proactively modernized and computerized, taking steps to make them responsive, user-friendly and helpful in encouraging investiveness and invention promotion and by increased efficiency of its procedures and practices.

(iv) Greater awareness building in respect of the role of IP in technological and economic development, should be given the necessary priority and should concentrate on creating more positive thinking not only in universities and institutions of higher learning, but also, in particular, in the industrial and enterprises sector, to correct misconceptions and negative views, due largely to lack of detailed knowledge or precise information.

(v) The SMEs sector, which plays an important role in providing considerable job opportunities, is still largely unaware of the implications of IPR protection. Much worse, many prospective inventors and innovators amongst the technocrats and employees in the SME’s sector are unaware of the basic parameters of intellectual property laws and regulations. Awareness building in this sector should be given a high priority.

(vi) Industry/R&D/university and institutional research linkages should be encouraged and strengthened.

(vii) A national inventors’ association, where this does not exist, should be established, with an eminent scientist-cum-inventor as its head, _inter-alia_, to help inventors in getting their inventions registered as patents and, more importantly, in commercializing such inventions.

(viii) National/sub-regional institute of IP development should be set up, where this does not exist, for serving both as an awareness building institution as well as a thinktank for mooting of policy options.

(ix) An oversight body, advisory commission or inter-ministerial steering group should be set up at the national level, to draw up a national IP policy, and to review national and international trends in the area of IP, in order to keep the government advised.

(x) Finally and importantly, there needs to be at the national level, the necessary political will to adopt/adapt the IP system in order to derive optimal national benefit from its economic value.

We should face up the challenges and rewards of using IP system optimally in our countries’ quest for competitiveness and national socio-economic self interest in the current 21st century.