



THE INTELLECTUAL PROPERTY-CONSCIOUS NATION:

MAPPING THE PATH FROM DEVELOPING TO DEVELOPED

KAMIL IDRIS AND HISAMITSU ARAI



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INTRODUCTION

The 2005 World Summit,¹ attended by more than 170 Heads of State and Government, reaffirmed the resolution of world leaders to create a more peaceful, prosperous and democratic world and to undertake concrete measures to continue finding ways to achieve the United Nations (UN) Millennium Development Goals (MDGs).

In the last century, it became clear that development depends on the existence of reliable institutions within which human beings think, interact and carry on business, and that one of the essential elements supporting such institutions is property rights.² In this present century, among such property rights, *intellectual* property (IP) rights are gaining increasing importance as our activities become increasingly knowledge-driven. Now, more than ever, our development depends on whether and how our intellect will be expressed and respected in property rights, and how the fruit of our intellectual activities – the results of innovation and creativity – will be used and disseminated in society. Our future, our security and our well-being, lie in our heads – and not only in what used to be the formula for survival: land, labor and capital.

Innovation and creativity have been much more stimulated in this knowledge-based and information-rich century than in previous ones, thanks in part to the physical and virtual networks that allow increasingly easy movement of people, goods and information within and among

nations. At the World Intellectual Property Organization (WIPO),³ we consider that the IP system has a vital role to play in leveraging that inventive activity – particularly among the younger generation who will be the political and creative leaders of tomorrow – to meet the national and global challenges facing us today.

As the title of this book suggests, it was written with a view to contributing to the international debate on global challenges in general and those associated with development in particular. The policies and strategies aimed at accelerating economic growth and development that have, to date, been applied in developing countries have met with varying success.⁴ In our opinion, one of the weakest links in development strategies is the one between development, on one hand, and innovation, creativity and IP, on the other. Many developing countries have not yet given sufficient priority to mobilizing their domestic intellectual resources or to strengthening the link between innovation and creativity, and national policies, making a clear connection between intellectual property and development strategies. The role of the IP system is to capture the benefits of innovation and channel the necessary resources to meet the needs of consumers, and society as a whole, for innovation.



In previous publications,⁵ we have discussed IP in the context of development and prosperity, and why and how its use or non-use makes nations different. This book aims at underscoring the importance of the link between policies and strategies for development, and IP. To this end, Chapter 1 will seek to illustrate how harnessing innovation and creativity can lead to a cycle of wealth creation and development, and how this cycle can be accelerated by well-founded policies integrating intellectual property considerations. A country that puts this cycle into motion by implementing a clear development strategy and policies will be referred to in this book as an “intellectual property-conscious nation”.

Such a nation recognizes the value of its own creative, innovative and highly skilled nationals and the importance of retaining them and enhancing and expanding their skills and talents. In Chapter 2, we will discuss how human resources and knowledge workers can be empowered with a culture harnessing innovation and IP.

Chapters 3 to 8 include some cases and examples of how IP could contribute to meeting global challenges, including the UN MDGs.

There are certain misperceptions about IP in some quarters, which seem to discourage its use as a tool for development. IP protection is seen as:

- something only for wealthy countries and not for those of low income; thus, weak IP is somehow better for the national industries of such low income nations;
- an obstacle to access to information and essential drugs; and
- an obstacle to competition.

On the other hand, much as we seek to set out the great benefits that a carefully crafted and managed IP system can bring, we do not pretend that it can solve all of a country's problems or allow it to meet all of its challenges. For example, the following statements do not reflect the true nature of IP:

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- the stronger the IP protection, the better the well-being of the society;
- the IP system alone, once set up in accordance with international rules and obligations, will bring benefits through foreign direct investment and transfers of advanced technology; and
- a one-size-fits-all IP system can cater for the different needs of different nations.

As the impact of IP has become multi-dimensional and more widely observable, its integration into national policies and strategies needs to strike an appropriate balance between the various interested parties and public policy objectives. Such a balance may well require not only an efficient IP system, but also interaction between the IP system and other public policies. Given that the optimum balance needs dynamic and delicate fine-tuning in response to economic, social and technological change, the IP system also needs to be constantly reviewed and readjusted, so that it functions optimally to achieve national goals.

It is our hope that this book will help leaders understand how effective IP can be as a policy tool if it is well-balanced and properly integrated into national strategies for development. Some national leaders have already realized this, and taken initiatives to integrate IP into their national strategies—for example, China (in progress⁶), Kenya (National Development Plan 2002-2008) and Romania (Intellectual Property National Strategy 2003-2007⁷). The ongoing implementation of the Japanese national intellectual property strategy, initiated by the Prime

Minister,⁸ is another example which highlights the importance of constantly updating national strategies.

Chapter 9 contains our suggestions for leaders who wish to launch new initiatives in the context of their national development strategies, as well as a message to future generations. Predicting what will happen in the next decade, let alone the next 100 years, is difficult. However, we wish to appeal to world leaders to think in terms of 2050, when the children of today will be becoming leaders in their turn. We wish to suggest a new approach to global challenges—the strategic use of the IP system as a lens focusing on innovation and creativity and their central role in the preparation of a national road map for development.



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CHAPTER 1



INNOVATION, CREATIVITY, KNOWLEDGE AND A NATION'S SUCCESS IN THE 21ST CENTURY

Calculating devices (embryonic computers) go back as far as the abacus, invented in China 2,500 years ago.⁹ They have evolved through various mechanical and electro-mechanical “counting machines” invented in countries from the United States of America to France, and on into complex digitally-based hardware and software, incorporating cutting-edge technology from many countries.

Innovation Potentially Flourishes in All Countries but...

There are countless examples, from every country in the world, of innovation and creativity that have given rise to products and services which make our lives better, easier and safer. Such innovation and creativity, focused, channeled and supported by government policies and strategies and the efforts of industry and the public sector, can be a powerful engine that can drive nations towards successfully competing in the increasingly global economy of the 21st century.

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Multinational corporations have recently increased their investment in some countries in their search of talented researchers. However, other countries have not benefited from this dynamic expansion of R&D-related foreign direct investment (FDI) and the various R&D incentives offered by such corporations. This can be linked to a need to speed up strengthening human resource capabilities; enlarging the pool of knowledge workers; enhancing technological capacity to absorb and adapt technologies imported through FDI; liberalizing the market; and providing a business-friendly institutional framework and policies.

Innovation, Creativity and Intellectual Property

An “innovation culture” is one in which innovation and creativity are valued and appreciated, adequately funded and channeled to specific needs. It is a key factor in a nation's success in enhancing the well-being of society and creating wealth.

Leveraging natural creativity or spontaneous innovation for financial gain and national economic growth requires appropriate institutional support which is much more than merely funding. It requires a climate, and a culture, that is supportive of R&D; where a certain amount of risk-taking is balanced by the use of market discipline and good practices to identify the best products and services to bring to market, or the most efficient programs for governments to deploy. When the IP system operates as

it is intended to and fulfils the policy goals set for it, it is an invaluable mechanism for stimulating and supporting such a positive climate, and allowing the fruits of this innovation to be fed back to the society that is looking for the benefits.

Global Challenges and Innovation

The overriding importance of creativity and innovation in a nation's policies and undertakings has been set out in many publications and documents, such as the *Millennium Declaration* promulgated by the Member States at the UN Millennium Summit in 2000. This Declaration lays out a set of internationally-agreed development goals, including the Millennium Development Goals (MDGs), a set of quantifiable development targets to be achieved by the year 2015. The MDGs are "a set of simple but powerful" objectives to be addressed by all nations, such as: eradication of extreme poverty and hunger; achieving universal primary education; reduction of child mortality; combating HIV/AIDS, malaria and other diseases; ensuring environmental sustainability; and developing global partnerships for development.



The need for a strategy which integrates innovation and creativity into national development and global endeavors, especially to meet the MDGs, is reflected in some of the specified objectives, such as the one to improve public health. *The Road Map Towards the Implementation of the United Nations Millennium Declaration*, published in September 2001, states that "to encourage the pharmaceutical industry to make essential drugs more widely available and affordable by all who need them in developing countries," the UN Member States "welcomed national efforts to promote innovation and develop domestic industries."¹⁰ The Task Force Report on Science, Technology and Innovation, prepared for the UN Millennium Project, states that "one of the problems hindering reduction of poverty and the achievement of other Goals in the developing world is the absence of adequate infrastructure [...] developing countries need to adopt strategies to improve their infrastructure in ways that promote the technological development necessary for sustained economic growth".¹¹

The international community could accomplish much more if a central role were given to innovation with respect to all of the specified goals and objectives. Innovation is not limited to, and does not merely mean, scientific and technological research, but includes such strategically

necessary components as a robust innovation culture, enhanced and focused R&D, pro-active initiatives to enhance local innovative capability, new ways of strengthening social networks which harness the power of innovative minds, a new cultural pride based on national solidarity, and much greater use of networks and partnerships to leverage resources to better achieve all of the objectives and goals.

Innovation as a National Policy

How does a nation create an environment in which innovation and creativity are the norm rather than the desired goal? How does a country integrate into its national policies and economic development agenda those innovation and creativity mechanisms and platforms which will bring about the desired results?

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The Prime Minister of India, Dr. Manmohan Singh, in a speech on November 19, 2004, succinctly captured the essence of innovation, and the innovation culture, as a key component in his government's policy and strategy considerations, when he stated:

"In 1700, India, China and Europe accounted for similar shares of the world income. Each had a near 23 percent share of world income. By the middle of the 20th Century, India's share was down to a paltry 3 percent, China's down to 5 percent. Europe and the United States together accounted for more than 50 percent of world income."

"Clearly, the question for us is what must we do now to secure the required acceleration of growth in the near term? The answer is easy to comprehend. India needs a renewed bout of economic dynamism. A new wave of investment based on entrepreneurship and creativity of all those who believe in the idea of India. There is now before us a new generation of Indians with a new commitment and a renewed stake in the future of our country. There are many more across the world who also want India to succeed, to prosper. We must enable their creativity, their enterprise, and their faith in India to find expression in as many ways as possible. We have to put in place a policy framework which rewards entrepreneurship, innovation and creativity."¹²

Another country which has taken steps to move "from developing to developed" is Malaysia. The Prime Minister, Datuk Seri Abdullah Ahmad

Badawi, underscored his country's belief in an innovation culture supported and enhanced by a solid intellectual property framework when he underscored that:

“A strong intellectual property landscape can attract more foreign investors to Malaysia and pave the way for a faster and effective technology transfer, which would also enable local manufacturers to reap the full benefits from research and innovations. It is time for local institutions of higher learning to play their roles in contributing to intellectual property development in the country.”¹³

Along the same lines, Chinese Premier Wen Jiabao, in his annual report to the National People's Congress (NPC) in 2005, emphasized IP concerns in terms of strengthening domestic enterprises to compete more effectively in the global marketplace through the enhanced generation of IP assets. He said, “With regard to deepening the reform of state-owned enterprises, this reform continues to be the central link in economic restructuring. We will energetically develop large companies and large enterprise groups that own intellectual property rights, have name brand products and are internationally competitive.” At the NPC in 2006, he said, “China has entered a stage in its history where it must increase its reliance on scientific and technological advances and innovation to drive social and economic development”.¹⁴ As this is written, China is preparing its National Strategy of Intellectual Property for release in 2006.



Innovative Developing Countries

The level and depth of a country's innovation culture can be measured by several criteria that include economic, social, health and educational factors.

One of the most reliable indicators of innovation in a particular country or region is patenting activity. Patents are a key measure of the extent and success of an innovation culture. They reflect inventive performance, they can track the diffusion of knowledge, and they are good indicators of the level of internationalization, regionalization and nationalization of innovation activities. They can be used to measure the level of R&D activities, and ultimately, how effective those are, what structure they are taking, and which industries appear to be successful, and which not.

The Patent Cooperation Treaty (PCT) administered by WIPO is the cornerstone of the international patent system; of its 128 Member States, 71 (or 56 percent¹⁵) are developing countries. Statistics on its use reveal some interesting data. While developed countries filed the greatest number of patent applications, in 2005, applications from developing countries increased by 20 percent over the previous year, with the greatest increase being from China (43.7 percent) and the Republic of Korea (33.6 percent). Although, overall, developing countries accounted for 6.7 percent of all PCT applications filed, the actual numbers from the most prolific developing countries were: Republic of Korea (4,747); China (2,452); India (648); South Africa (336); Singapore (438); Brazil (283); and Mexico (136), indicating that some developing countries are catching up with the developed countries. However, as shown in Table 1 below, in many other developing countries, the number of patents granted is small, as is the ratio of the number of patents granted to residents (nationals) compared to that of non-residents (foreigners). Trademarks statistics, also good indicators of business activity, show a similar trend with the gap between developed countries and certain ("innovative") developing countries being fairly small. However, developing countries other than those innovative ones, show weak activities in both the patent and trademark areas.

It is hard to draw any conclusion from these statistics alone, since many other factors are also involved but, given that no discrimination exists in granting rights to residents and non-residents, the ratio of patents or trademarks owned by residents (nationals) to those of non-residents (foreigners) highlights a few interesting facts.

A relatively high ratio of resident to non-resident activity in the area of patents and trademarks may imply a strong local technological capability as well as a country's openness and attractiveness to foreign companies, considered by most experts to be the most relevant factors for the encouragement of FDI and innovation. Developing countries with ratios higher than 40 percent are China, India, the Republic of Korea and South Africa (see Table). It is no coincidence that they are also locations attracting FDI inflows and in which national innovative activities are increasing.

Relatively low ratios, implying relatively low intellectual property activity among residents, demonstrate, perhaps, a country's need for enhanced governmental policies in support of domestic innovation, intellectual property activities and business.

Table: Patents Granted and Trademarks Registered during 2002 for Residents and Non-Residents in Selected Countries and Regions

Countries or Regions in descending order of their population	Population in millions in 2001	Patents granted to residents (A)	Patents granted to non-residents (B)	"National Technological Capacity Index" A/(A+B)	Trademarks registered for residents (C)	Trademarks registered for non-residents (D)	"National Business Index" C/(C+D)
China	1,272	5,868	1,565	79%	169,904	48,262	78%
India*	1,033	650	950	41%	79,746	10,490	88%
EU(EPO)**	453	25,452	21,932	54%	22,983	12,913	64%
USA	285	86,976	80,358	52%	22,520	146,536	13%
ARIPO***	242	3	124	2%	NA	NA	NA
Indonesia	214	21	2,471	1%	NA	NA	NA
Brazil	172	674	4,066	14%	12,454	4,809	72%
Russian Fed.	144	15,140	2,974	84%	21,776	11,936	65%
Japan	127	108,515	11,503	90%	89,024	15,760	85%
Mexico	102	138	6,478	2%	29,025	17,181	63%
Egypt	68	117	640	15%	NA	NA	NA
Republic of Korea	47	30,175	15,123	67%	32,678	7,910	82%
South Africa****	44	184	NA	40%	8,760	13,140	40%
Colombia	43	13	350	4%	NA	NA	NA
Algeria	31	8	103	7%	1,283	3,113	29%
Kenya	31	NA	NA	NA	250	740	25%
Romania	22	556	1,801	24%	3,980	7,910	33%
Australia	19	1,675	12,821	12%	17,299	16,097	52%
Israel	6,4	233	1,241	16%	1,862	6,557	22%
Singapore	4,1	243	7,340	3%	3,388	22,341	13%
Uruguay	3,4	4	51	7%	2,828	4,185	40%

Source: WIPO Industrial Property Statistics and annual reports of Intellectual Property Offices

* The trademark figures for with regard to India are the number of trademark applications instead of that of registered trademarks.

** Patent statistics represent numbers of patents granted by the European Patent Office, the membership of which is slightly different from that of EU, whereas trademark statistics represent community trademarks registered by the Office of the Internal Market (Trademarks and Designs) of the EU.

*** The figures from ARIPO (a regional organization of English speaking African countries) are for 2000.

**** As no reliable figures are available, the number of patent applications in 2002 (including PCT designations) and trademark applications, are indicated, based on WIPO industrial statistics and statistics published by the Companies and Intellectual Property Registration Office (CIPRO) at http://www.cipro.co.za/about_us/registration_stats.asp. The ratio figures are cited from CIPRO's estimate contained in a study by Ethel Teljeur, *Intellectual Property Rights in South Africa*, The Edge Institute.

The Intellectual Property System Converts Innovation into Assets

One of the weakest links in development strategy is that between economic growth, on the one hand, and innovation, creativity and intellectual property, on the other. Domestic knowledge, innovation and ideas do not automatically generate economic growth and development; they do so when used as part of an entrepreneurial process, supported by the IP system that allows knowledge and innovation and ideas to be converted into economic assets which appear in a market in the form of goods, services and information.

As economists and historians suggest, the failure in the past to realize knowledge potential in many countries can be explained by the absence of a free market and institutionalized property rights.¹⁶ In the 21st century, which is increasingly driven by knowledge and intellectual activities, the existence of institutionalized *intellectual* property rights is a new and decisive factor.

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An Innovation Cycle

For innovation and creativity to have an economic (and societal) impact, its ownership must be clearly established, and the IP system is designed to do that. However, access to the goods and services protected by IP rights is often regulated by other public policies, such as drug price control mechanisms under public health laws, and legislation concerning privacy, national security, anti-trust policy, science and technology, and environment protection. Accordingly, the integration of IP considerations into those relevant public policies areas is crucial for development.

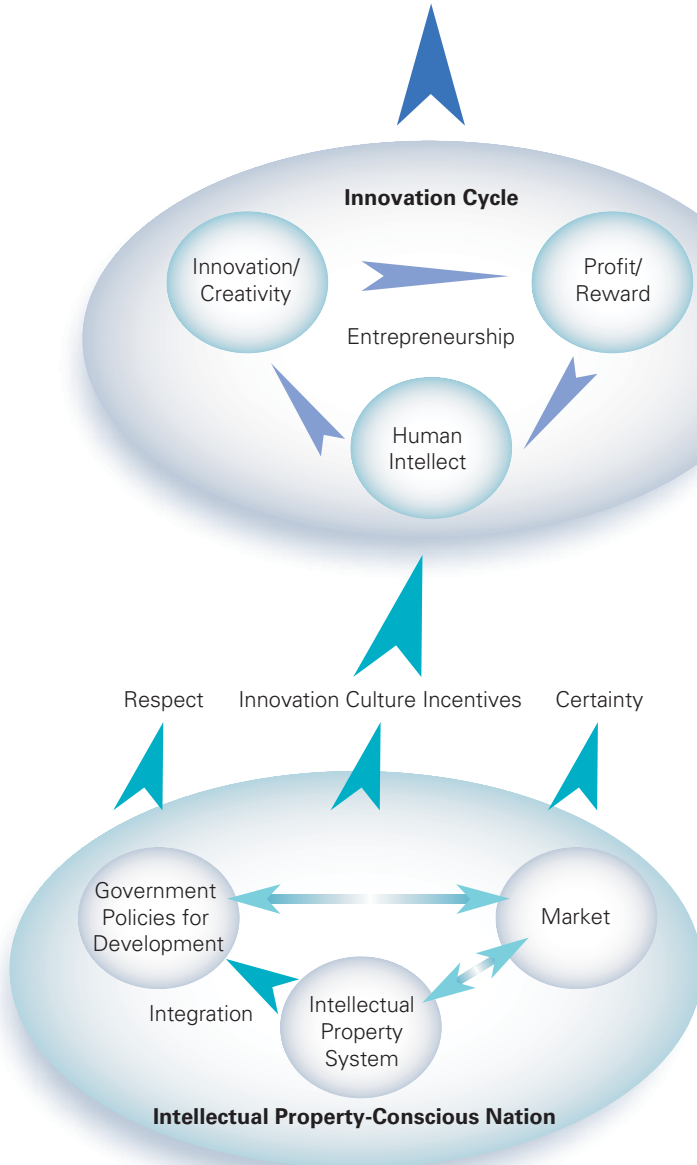
While in no way a panacea for a country's economic ills, the IP system can, through integration into other policies, make a vital contribution to economic health by encouraging entrepreneurs to invest, thereby enhancing the incentives for innovation, facilitating the process of commercial exploitation of ideas and knowledge, and ensuring reward and from the investment and production of goods and services.

Accordingly, a national development strategy needs the strategic integration of intellectual property issues with other development policy issues, such as those in the economic, trade, financial, educational, social, cultural, environmental, and competition fields. A well-functioning IP system

interacts with the market, which not only provides capital and incentives for investment, but also facilitates entry to the increasingly globalized marketplace, as well as providing profits for further investment (see Chart).

Chart: The Innovation Cycle in an Intellectual Property-Conscious Nation

Development, Prosperity, and Diffusion and Accumulation of Knowledge



The underlying concept of an innovation culture is the use, inclusion, and integration of the IP system (along with its incentives and framework) into every government policy, and the underlying strategies which implement those policies.

The IP system helps convert innovation into tradable, economic assets which can generate financial gain. These assets can be used for commercial purposes, encouraging further innovation and creativity, contributing to the creation of wealth, and increasing the stock of knowledge and reserves of the nation.

A well-functioning innovation cycle, supported by robust institutions in a nation where government strategies and policies include intellectual property consideration, is dynamic and self-sustaining.



CHAPTER 2



EMPOWERING PEOPLE WITH AN INNOVATION CULTURE AND INTELLECTUAL PROPERTY

As an example of the positive effects of integrating IP considerations into national policy-making, let us consider a particular land-locked country with few natural resources. It was not recognized as a high-tech country when it introduced its first national patent law in 1907; but for the last century, innovation, R&D and technological development have been at the forefront of government thinking. In 1943, the country established a national Commission for Technology and Innovation (CTI), to support innovation in industry, which continues to this day, with an even more forceful voice. Currently, the country spends 2.7 percent of its GDP on R&D, with more than two-thirds coming from private industry.¹⁷ Today, that country is a leader in biotechnology, banking, high technology, pharmaceuticals, insurance and certain agricultural products. That country is Switzerland. How does it maintain the innovation edge? One way is through the “Policy Objectives,” which the Government announces at the beginning of each year. For 2005, there were 16 policy objectives designed to keep Switzerland in the forefront of economic growth and development in the ultra-competitive global marketplace, and to keep its standard of living among the highest in the world. The first was “[s]trengthening the educational system and enhancing the field of research”.¹⁸



Another example of a country with scarce natural resources is Japan. Less than 20 years after the collapse of the feudal system in 1867, the new Japanese Government was aware of the importance of intellectual property and introduced its first patent law in 1885, followed by the first copyright law in 1887. Considering the development level of Japan at that time, the introduction of those basic laws was a brave and far-sighted decision. As intended, these intellectual property laws became a major driving force in the economic growth and development of Japan, helping the country become a major economic power by accelerating the importation of foreign technologies as well as stimulating the creativity and innovation of domestic inventors and creators.

Intellectual Property Stimulates and Empowers Human Intellect

Public policies to encourage learning, intellectual activity and training such as those dealing with education, science and technology, culture, and employment, most effectively empower people if they are integrated with IP considerations. Such empowerment is necessary for success in the 21st century and is an integral part of an innovation culture, nurtured and focused through the IP system.

Unfortunately, many countries are fighting a battle to retain their domestic knowledge workers. The migration of knowledge workers to other countries in search of greater opportunities, higher wages, better living and working conditions, greater educational opportunities or more abundant R&D resources, is popularly referred to as the “brain drain” (or “talent drain” in the case of musicians and artists). It is a serious problem on many different levels, and affects all countries of the world, though not necessarily with the same severity.

Africa is perhaps hardest hit by this phenomenon. One report indicates that the continent has lost more than one-third of its skilled professionals in recent decades, and that it is costing some \$4 billion a year to replace them with foreign workers.¹⁹

Piracy and counterfeiting contribute to the emigration of national talent and knowledge workers, as they drive out legitimate products, and deprive local enterprises of the necessary economic base to develop or mature. Thus, local artists unable to make a living from their artistic endeavors, move to foreign countries to produce their works, where they can be legally protected and sold.

At home, the local market is flooded with foreign-manufactured illegal products, representing another culture, another set of values, all antithetical to local culture and heritage.²⁰ This is doubly detrimental, since not only do copies of foreign cultural products sweep out national cultural products from the marketplace but local talent is also discouraged from staying at home to nourish national culture.

Steps to Enhance Domestic Human Resources

There are several reasons why brain drain occurs. According to a globally recognized African computer scientist, “the primary cause of external brain drain is unreasonably low wages paid to African professionals”.²¹ Other factors include better facilities, resources and opportunities in the host country, as well as possible political instability at home.²²

IP is one of the factors relevant to the brain drain. For example, a well-known software developer in Ghana notes that the international investors buying into his company are doing so “purely because of African intellectual property. [...] Technology is the only way for Africa to get rich; we don’t have a proper infrastructure and we can’t compete in

manufacturing. [...] But if you put me behind a PC and tell me to write software for an international customer, then I can compete brain for brain with anyone trying to do the same thing elsewhere.”²³

Many countries have started to implement policies to reverse brain drain and among these, education is key, and includes awareness training related to the skills and the abilities associated with innovation and creativity. Knowledge of mathematics or chemistry is one skill; using that knowledge to discover new compounds or formulas is an extension of that skill through innovation and creativity training.

As the national economy grows, knowledge workers who have emigrated to foreign countries often return home, enter the national work force, contribute to the development of the innovation culture and increase the momentum of the innovation cycle often through their contribution to spin-offs, start-ups and small and medium-sized enterprises, which thrive on the use of the intellectual property system.

Educate Young People: The Foundation of the Innovation Culture

In the early 1990s, Brazil decided to emphasize its science and technology sectors – and the results have been impressive. In 1993, there were 21,541 science and technology researchers working in the country; in 2000, there were 48,781. Even more impressive, in the early 1990s Brazil produced fewer than 1,000 PhDs a year. In 2000, over 6,300 PhDs graduated from the country’s universities.²⁴

Masters graduates often go abroad either to continue studying or to work, with a certain percentage, in some cases as high as 80 percent, not returning to their native country. However, 80 percent of Masters graduates from Brazil do return home to work and live, reflecting the opportunities and environment which the country has to offer.²⁵

One reason for this positive outcome is the *Pronex* program (Centers of Excellence Support Program), in which financial support is provided by the Government to groups of researchers with the aim of promoting the enlargement of the pool of scientific knowledge in Brazil. These centers, in addition to their research activities, are committed to disseminating the accumulated knowledge to other emerging research centers in the country. A center of excellence is defined, *inter alia*, as having the

competence to generate or transform scientific and technological knowledge for applications in projects of relevance to the development of Brazil. Many of the centers are affiliated to, or liaise with, universities and institutions of higher education in the country. This emphasis on research and technology, and the action-oriented program to support it, have produced substantial and tangible results for the country, including the ability to retain its highly skilled professionals, who have allowed Brazil to depend less on FDI, and to enhance its international competitiveness.²⁶

A similar example can be found in India, which, in the 1970s, decided to emphasize the teaching of science, technology and mathematics in schools. By the 1980s, a considerable pool of highly educated workers, ready, able and willing to accommodate the nascent computer and software industries, had been created.²⁷ The result, based on a combination of far-sighted governmental policies in support of innovation and knowledge-based industries, and FDI initiatives, is some of the largest information technology clusters in the world, notably in Bangalore, where home-grown enterprises and “outsourced” branches from the world’s leading firms work comfortably and profitably in an innovation culture of fruitful employment (it is estimated that, in 2002, the software sector employed around 520,000 workers²⁸). As evidence of the success of the Indian Government’s policy and the subsequent supporting action it has taken, the Indian software industry’s gross earnings, between 1994 and 2002, expanded from \$787 million to \$10.2 billion.



Reversing the Brain Drain

Irrespective of the reasons for brain drain, skilled professionals working abroad can constitute another effective resource back in their home country, for example, by contributing knowledge and often monetary resources to assist with development. More than 40 countries have set up specific programs to establish linkages and effective communications with emigrants. One example is the South African Network of Skills Abroad (SANSA), with members, 45 percent of whom hold Masters degrees and 30 percent of whom have doctoral degrees, located in more than 60 countries.²⁹

While these linkages can be helpful, they are not an alternative to the need for domestic knowledge workers. Developing countries need many more knowledge workers who elect to stay and seek job opportunities at home, and thus to make their country a better place from

within. They also of course, benefit from those emigrant knowledge workers who decide to return home, often arriving not only with advanced knowledge or technical skills, but also with enhanced business, financial and entrepreneurial skills. Pro-active government policies can promote the return of such skilled nationals living abroad, in effect helping to reverse the brain drain.

For example, according to the National Association of Software and Services Companies (NASSCOM) in India, it is estimated that over 25,000 expatriate Indian IT professionals have returned home in the last four years since 2001. Some 40 to 50 percent of them are working in offshore services for foreign customers, while some of them have established business ventures in India.³⁰

In another example, the National Science and Technology Development Agency of Thailand created the *RBD Project*, to leverage the skills of its nationals abroad. As well as enabling technical linkages between them and the appropriate Thai institutions, it provides a coordinated information center, a “One-Stop-Office” to assist with relocating in or travelling to Thailand, and other types of assistance, such as the necessary resources to fast-track scientific and technical projects. It even provides funding for deserving projects and for visiting professors and scientists, and sometimes offers inducements to those skilled professionals who wish to return to Thailand permanently.³¹

A further, pro-active example can be found in Uruguay. On September 28, 2001, the President of the *Pasteur Institute* and the Foreign Affairs Minister of Uruguay signed a political declaration which established a branch of the famous institute in Montevideo. The agreement established, *inter alia*, a cooperative arrangement involving the governments of Mercosur countries, as well as 11 universities and research centers, with the aim of contributing to the development of biological, biomedical and biotechnological research, as well as to the development of fundamental sciences, public health and industry. Three of the most important and defined objectives of the cooperation are directed specifically towards: (1) public health (especially epidemiological problems); (2) human resources training; and (3) the development of other regional biotechnological research centers. The new Pasteur Institute center, as an integral part of its mandate, strives to achieve regional networking, advanced courses, scientific exchanges and creation of a world class scientific documentation center and database.



Such an initiative will go a long way towards reversing the brain drain in the Mercosur countries, and will undoubtedly lead to scientific and technological advances in the treatment of local and regional diseases.³² The Pasteur Institute in Uruguay is an example of national efforts to create an innovation culture, to counter the brain drain and at the same time, constitutes a form of FDI in the host country.

Domestic Knowledge Workers Attract FDI

Greater investment in developing countries, particularly through FDI, can have a powerful impact, bringing not only technology and capital, but also opportunities to train local workers. However, to attract FDI, certain preconditions conducive to investment need to be met. They include adequate infrastructure, security, rule-based business practices and a skilled workforce. Many developing countries do not meet them and a mere 12 countries (including China, Brazil, Mexico, Malaysia and India) account for nearly 85 percent of non-oil FDI in the developing world.³³ This number should be expanded by pro-active policies and strong initiatives by host governments which foster investment and innovation. Favorable tax treatment is an obvious one; others include improvement of the national institutional framework relevant to knowledge-intensive investment, such as science parks, public R&D labs, incubators and intellectual property policies.



When multinational corporations look for strategic locations for R&D centers, they consider if a potential host country has an attractive pool of knowledge workers. For example, Microsoft's innovation instincts led it to China, where the corporation established the Microsoft Advanced Technology Center near Beijing. The Center employs nearly 500 engineers, Ph.D. students and visiting professors, in developing graphics, handwriting recognition and voice synthesization technologies, among others. "One of the reasons we opened the Beijing lab was to tap into a great pool of talent," said a Microsoft Senior Vice President.³⁴ The Microsoft Center represents a merger of human resources and innovation aimed at creating new products and services, new markets and profitability.

Another example is the Discovery Research facility of multinational pharmaceutical company, AstraZeneca, in Bangalore, India. This facility opened in early 2004, and is focused on finding new treatments for tuberculosis, a disease that is diagnosed in about two million people

every year in India, and more than eight million people worldwide, mostly in the developing world. More than 100 scientists are involved in knowledge-intensive work at this facility, and they are aided by an ability to coordinate, consult with and leverage the AstraZeneca global network of R&D centers. The facility would not have been created were it not for the support of the State of Karnataka and the Government of India.³⁵

Our last example in this section is the R&D facility, again in Bangalore, established in 1999 by the Chinese telecom company Huawei Technologies. Huawei's facility employs more than 800 professionals, over 90 percent of whom are Indian. Huawei's expansion into India will also include investments in other areas, such as manufacturing. The facility concentrates on computer software development for the next generation.³⁶ This predicts an emerging trend of South-South cooperation driven by the internationalization of R&D and knowledge-intensive manufacturing.



Integrating IP Policies into Government Development Policies

The knowledge-based industries are particularly desirable targets for FDI-seeking countries, which are providing various benefits and programs designed to compete for and win such investments. Malaysia's multimedia super corridor project was conceived from the start as a cluster platform to attract high-growth multimedia enterprises. Indonesia introduced tax concessions specifically for microchip manufacturers.³⁷ In 1999, the Philippines offered a 12-year tax holiday for projects which produced raw materials for the electronics industry.³⁸ In 2001, Thailand offered an advantageous policy to attract electronics manufacturers.³⁹ India proposed a 10-year tax holiday for biotech and pharmaceutical enterprises on earnings from research and development, and the tax exemptions already in place for computer software technology parks were increased.⁴⁰ Singapore offered similar incentives for e-commerce and Internet businesses.⁴¹ Romania granted full exemption on equity and export conditions for foreign and local manufacturers involved in new projects.⁴² Like the FDI platform created by Malaysia with its multimedia super corridor, the United Arab Emirates created Special Economic Free Zones (SEFZs) to facilitate FDI by not only allocating the geophysical space, but also by removing the constraints enterprises might encounter in FDI activities; India and the Republic of Korea are moving ahead with similar plans for SEFZs.⁴³

Therefore, FDI is one of the key mechanisms by which developing countries can provide domestic knowledge workers with good opportunities to contribute to their nation's economic growth and development. For domestic infant industry to capitalize on such opportunities, however, the mere combination of FDI and government policies for financial incentives does not seem to be sufficient. Why?

First, as an increasing number of case studies show, the local capacity to absorb imported technologies is crucial. In many developing countries, this capacity is insufficient. Second, the type of FDI is important. It should not only produce products and services, but should bring the host country more sustainable and longer-term solutions. If the driving force behind FDI is only cheap labor costs and attractive taxation incentives, other countries may offer better conditions in order to snatch the next manufacturing site, as some "Asian Tigers" experienced in the 1990s. Recent FDI inflows with regard to innovation and R&D centers in some countries do not depend on such short-term attractiveness. As discussed above, they seek to tap into the pool of local knowledge workers. From the strategic viewpoint of the host countries, one of the major benefits of such FDI is the strengthening of local innovative capability so that the nation may depend on its own human resources rather than resources of external players.



Though it is generally good news for governments to see more foreign firms locating outposts in their countries, often to tap into the pool of local knowledge workers or just for the good deals offered by the governments, in many arrangements concerning FDI and technology transfer, little attention is paid to the result of intellectual activities, or intellectual property, which may accrue as a result of the arrangements. The effect of FDI on domestic innovative capacity can be measured and enhanced only when an increase in intellectual property rights obtained, and retained, by domestic industry and individual creators is observed.

Countries attracting R&D-related FDI, such as the Republic of Korea in the 1990s and China in recent years, have promoted innovative activities by nationals through national policies to encourage incremental technological improvements and adaptation of imported technologies. A system of utility models (protection of "small inventions") and joint ventures was carefully crafted to increase local technological capability and included training of local workers, joint R&D, the adaptation of the transferred technology to local needs and the flexibility for local partners to share in the intellectual property rights deriving from the system.

There are different approaches in different countries. Developing countries have unique opportunities which often need unique business models, different from those with which multinational corporations are familiar, and some success stories have been reported with that approach.⁴⁴

In the last century, through reverse engineering and the copying of imported products, the domestic industry of several countries developed skills in manufacturing the basic components of machinery such as television sets and motor bikes. However, the local workers did not only manufacture these components at lower cost, but also further remodeled and adapted them to local needs. The process significantly contributed to national capacity building. This in no way suggests that all acts of copying should be encouraged. Some copying is illegal because it infringes the intellectual property rights of others; however, some other sorts of copying are not illegal because, for example, the technology is not new or is without intellectual property protection. In addition, incremental improvements to imported technologies, and follow-on inventions made in the process of local adaptation, can result in new intellectual property rights owned by nationals. Thus, while avoiding the infringement of the intellectual property rights of others, developing countries need to learn how to use imported technologies (often protected by patents) and patent information itself to develop basic technological and manufacturing skills and improve local human resources in the process of moving from being mere manufacturers to becoming creative engineers.



There are three stages in the industrial and technological development of a country: (1) the production of mainly non-skilled-labor-intensive goods; (2) the transition towards the production of capital technology and skilled labor-intensive goods; and (3) the production of mainly capital technology and skilled-labor-intensive goods.

The timescale for such developments has varied considerably. Japan moved through the three stages within a few decades, whereas the Republic of Korea did so much more quickly. Many reasons exist for the different speed of technological development, including the role played by local companies in the choice of imported technologies, the adaptation of those technologies and also possible subsequent development of new technologies (which presupposes a minimum educational standard and favorable economic and social conditions). The patent system and policies need to be flexibly implemented and actively

used to allow local companies to protect their improvements and adaptations and any new technologies deriving from the imported ones. The accumulation of such domestic patents will allow local industry to enhance its competitiveness and accelerate development in the country.

As countries move through the three stages of development outlined above, the need, for instance, for an adequate patent system becomes apparent since, generally speaking, innovation associated with capital technology and skill-intensive manufacturing requires the protection provided by well-functioning patent system.

CHAPTER 3

REDUCTION OF POVERTY AND HUNGER



A good illustration of the various factors involved in achieving far above-average economic growth and development is provided by the Republic of Korea.

At the end of World War Two, the country's per capita GNP was at about the same level as countries in central Africa. Since then, it has increased its national wealth exponentially, and has become a net exporter of high technology products. For the year 2003, the country was ranked eighth in the world in terms of per capita GNP; viewed in another light, the 2003 per capita GNP figure was 35 times larger than central African countries. How did the country achieve such economic growth?

In 1980, the Republic of Korea joined the Paris Convention for the Protection of Industrial Property (industrial property in this context is industry-related intellectual property rights such as patents, trademarks and designs), one of the most important international treaties dealing with intellectual property. From that point forward, the country's intellectual property policies and strategies allowed it to accelerate its economic growth and development at a rate faster than any other developing country.



With its new status as an official player in the international intellectual property community, the Republic of Korea obtained access to high technologies, mainly through the mechanism of patent licensing. In addition, the Government encouraged domestic inventors and innovators by introducing a utility models law (a kind of "small patent"), to protect the incremental improvements made by domestic inventors and enterprises to the imported technologies. Thus, an indigenous technological skills base was established and developed. It is that base which has facilitated the growth of the country's modern, leading-edge technologies enterprises, which in turn provides it with its high level of economic growth and development, and its high GNP.

An important element in the country's success was the Government's support for small and medium sized enterprises (SMEs). This included policy initiatives encouraging the active use by SMEs of the intellectual property system and the strategic use of patent information (available as a matter of public record in patent applications, often online and easily accessible) to learn state-of-the-art technology, and to increase efficiency by avoiding unnecessary investment in R&D which has already been done.

While it is difficult to prove the causal effect of IP on development in case studies, including this one, it is clear that the Government expressly recognized the role of IP in various policies and incorporated IP considerations, incentives and infrastructure into its national strategy. In this regard, the country's economists, when considering the historical (and future) role of the IP system with respect to technology development and exploitation in the Republic of Korea, have observed that:

"[I]n the early stage, when the technological capability of ROK was low, there was not much foreign interest in the local market for technology and hence for intellectual property rights protection. [...] As the technological capability of domestic firms rose and the market for technology was formed in the 1980s, the proportion of foreign [patent] applicants became dominant. But since the mid-1980s, with the increase in local technological capability, the proportion of Korean intellectual property rights started to catch up with foreign-owned intellectual property rights. Rapid upgrading of technological capability of Korean firms has been made possible by active R&D investment, and it has led to a rapid rise in international patent applications by Korean firms."⁴⁵



The study from which the above quote was taken also addresses this question: "whether intellectual property confers undue monopoly rights on the technologies in developing countries, or whether intellectual property contributes to the national development of technologies in developing countries?", and answers with this definitive statement:

"[t]he truth is, however, at least in terms of long-term strategy, that a country cannot achieve development without proper protection of intellectual property. Instead of dwelling on the level of protection, the debate has moved on to the efficiency of the intellectual property system at the national level."

Another country which continues to post impressive economic development results is China, where its winning strategies and policies include a sharp focus on high technology industries, underpinned by intellectual property policies and infrastructure, and a pro-active and visionary strategy involving intellectual property expressly attuned to its national development agenda.

In the mid-1990s, China clarified a major element of its national economic and strategic policies by adopting a very pro-active IP policy. It set about revising national laws to fully comply with the obligations of the Agreement on Trade-Related Aspects of Intellectual Property Rights (TRIPS Agreement), in anticipation of its becoming a member of the World Trade Organization (WTO). These revisions were undertaken by China without waiting for its accession to the WTO—a powerful example of the political will necessary for a nation to move from developing to developed. While fostering an innovation culture and putting in place IP strategies and policies are integral to China's success, this could not have been accomplished without the firm political will of China's leaders in support of integrating IP into the nation's policies and strategies.

The Prime Minister of India, Dr. Manmohan Singh, in his inaugural speech at the 92nd Session of the Indian Science Congress, on January 3, 2005, offered these thoughts:

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"I do wonder whether or not we are creating the required incentive mechanisms to reward creativity? [...] In addressing this challenge we will also be dealing with the problem of making science a more attractive career option. But there are other aspects of the incentive issue that we must also address. One such is the protection of intellectual property. I believe an important incentive mechanism for research is provided by the patent regime. [...] Apart from keeping our international commitments, an important objective of our government is to bring in a balanced intellectual property regime which on the one hand will give a full expression to the creative ability of India's intellectual prowess and on the other hand also protect the interest of society at large."⁴⁶

The above examples highlight the importance of political will in integrating IP into a nation's policies and strategies. The Republic of Korea, China and India have affirmatively integrated IP policies into their thinking, as well as their national policies and strategies for development.

Creating a Sufficient Food Supply

According to the Millennium Development Goals Report 2005, hunger and malnutrition are still pervasive. Chronic hunger is on the decline but the number of people going hungry increased between 1997 and 2002. In a global sense, the current challenge is to further reduce the number

of undernourished people in the world, estimated at 792 million in 98 developing countries.⁴⁷

Food security (“physical and economic access to sufficient, safe and nutritious food by all people to meet their dietary needs and food preferences for an active and healthy life”⁴⁸) is taken for granted in some countries, but in many developing countries, it is a real and immediate challenge. For example, 24 percent of the population of South Asia is undernourished, and 33 percent in sub-Saharan Africa.⁴⁹ The critical status of food supply was highlighted at the Doha Ministerial Conference of the WTO, and the World Summit on Sustainable Development also singled out the availability and affordability of food as a *sine qua non* for the eradication of poverty.⁵⁰

Looking back over the history of food supply and food security, the notable achievements made by the Green Revolution were based in large part on technological innovations in the agricultural sciences. Old-style farming became modern farming through improved seeds, better irrigation techniques, and highly effective fertilizers and pesticides, which contributed to increasingly higher crop yields, augmenting the food supplies of nations.



Indeed, the development of high-yield varieties of rice, maize (corn) and wheat could be said to be one of the most important technological breakthroughs in the last few decades. The greatly increased crop yields of these newer varieties provide greater quantities of basic food staples for increasingly larger populations. For example, a recent study of the productivity impacts of international crop genetic improvement research in developing countries shows that the development of modern, high-yield crop varieties for developing countries in the 1980s and 1990s accounts for 40 percent of production growth.⁵¹

By the 1990s, almost half of the farmers in developing countries had begun using the high-yield varieties. A good example is China, where the results speak for themselves: the country reduced the number of undernourished people from 304 million (30 percent of the total population) in the period 1979 to 1981, to 119 million (9 percent) in the period 1998-2000. According to a study by the Food and Agriculture Organization (FAO), China’s impressive results are attributable to a large increase in domestic production of food, driven by investments in irrigation and land reclamation projects, the development of higher-yield

varieties, improved farming practices, and enhanced incentives tied directly to the farmers' production outputs.⁵²

Innovation contributes not only to productivity gains but also to enhanced nutritional values, as shown by the development of high-yield, vitamin-A-rich Golden Rice in 2000, after more than a decade of research. Golden Rice was designed to help counter vitamin A deficiency, which increases the risk of serious conditions such as blindness and immune system problems. According to the World Health Organization (WHO), an estimated 250 million people globally are deficient in the vitamin. The research effort was led by Professor Ingo Potrykus, with funding from the Swiss Federal Institute of Technology in Zurich, the Rockefeller Foundation and the European Commission.

When the Rockefeller Foundation conducted an IP audit of the results of the Golden Rice project, it discovered that it had used 45 intellectual property rights, owned by approximately 30 different companies and universities. For developing countries to be licensed to freely use Golden Rice, it would be necessary to include licenses from the IP owners identified in the IP audit.

Professor Potrykus said that he was "rather upset" to learn of this, at least at first. He considered it "unacceptable, even immoral, that an achievement based on research in a public institution and with exclusively public funding, and designed for a humanitarian purpose, was in the hands of those who had patented enabling technology". However, after studying the situation, he realized the important contribution the IP system had made to his achievement in developing Golden Rice. "At that time I was much tempted to join those who radically fight patenting. Fortunately I did a bit of further thinking and became aware that the Golden Rice development was only possible because there was patenting. Much of the technology I had been using was publicly known because the inventors could protect their right (by filing patent applications which were published). Much of it would have remained secret if this had not been the case. If we are interested to use all the knowledge to the benefit of the poor, it does not make sense to fight against patenting. It makes far more sense to fight for a sensible use of intellectual property rights."⁵³

The Golden Rice project was successful because there was a focused, sufficiently resourced consortium of private/public entities leveraging resources and energies in a common quest for a specific result. The

Golden Rice project was “lucky” in this sense; there are so many other worthy projects which suffer from a lack of funding and other necessary resources and in general, from a lack of critical attention and political will.

The Golden Rice project underscores two major points: (1) that leverage-creating partnerships between public and private entities, and among national and international, governmental and non-governmental entities, are critical to the success of the type and magnitude of R&D necessary in such a project; and (2) that in the various potential partnering relationships, the use of the IP system and its incentives and infrastructure is a vital element in attracting the full-scale involvement of private enterprises; maximizing the potential return on their investment; and facilitating the continuation of follow-on R&D.

These two major points take on added significance in the light of the fact that, unlike developed countries, R&D programs in developing countries are mainly funded by the public sector and the amount available is small. For R&D efforts in agriculture, this is compounded by the fact that foreign aid in this sector has been halved since 1986. For R&D efforts in agriculture to intensify in the developing world, significant inward investment is required. To stimulate the growth of domestic agricultural capacity and biotechnology initiatives, and the creation of beneficial public-private partnerships, the use of the IP system and the incentives and framework which it gives, is essential.⁵⁴

The IP system can provide financial support for public research institutions under budgetary pressure, if IP arrangements are designed carefully.⁵⁵ Management of risks such as a small return and the proliferation of patents on research tools is important to maximize the benefit from the IP system.⁵⁶ A balance between incentives that the IP system gives, and the agricultural policy objectives is necessary. IP policy options need to be carefully chosen by considering the implication of such questions as IP ownership (who should own intellectual property if it derives from a public-funded project) and IP licensing conditions. For example, in the United States of America, the Bayh-Dole Act, enacted in 1981, introduced a uniform patent policy regarding the management of patents resulting from publicly funded research, and had a significant impact on R&D at universities and public research institutions (see Chapter 7).

The Golden Rice project also suggests that problems such as those experienced by Professor Potrykus were perhaps caused by lack of

political will and of a well-prepared patents management agreement at the launch of the project, as well as by the lack of coordinated international policies on the use of patents by governments. To overcome difficulties in negotiating patent licenses with multiple patent owners, there is a need to encourage them to apply humanitarian policies to patents management. International guidelines in this area could be useful to facilitate voluntary licensing of patents with regard to essential goods required in order to strengthen international efforts to reduce poverty and improve public health in developing countries. In the case of the Golden Rice-related patents, licensing agreements were negotiated among companies concerned. The patent licensing agreements between AstraZeneca, which was granted exclusive licenses by the inventor, and other companies holding relevant patents, allowed for any *bona fide* research organization to receive licenses for the development of Golden Rice. The agreements also allow farmers to use the rice royalty-free and to earn as much as \$10,000 per year from its sale.⁵⁷

There is a need for international cooperation so that countries may gain experience and learn the skills necessary to prepare an IP management plan and negotiate IP licenses. International not-for-profit organizations such as the African Agricultural Technology Foundation (AATF),⁵⁸ CAMBIA,⁵⁹ and the International Service for the Acquisition of Agri-biotech Applications (ISAAA)⁶⁰ are active facilitators, knowledgeable in IP management, that help developing countries acquire proprietary technologies.

Another example of a project that directly addresses IP concerns is the *Netherlands-Kenya Biotechnology Programme*. It was created and funded with the understanding that any resulting inventions would be owned by the researchers and the implementing institution, and that products resulting from this initiative would be made available, royalty-free, to small-scale farmers in Kenya and other countries where the products would be of use.⁶¹

IP management is one of a fundamental set of skills required for undertaking projects that are part of a knowledge-based development strategy, and training in IP management should be included in all capacity-building programs.

Protection of New Plant Varieties

Protecting new plant varieties can be a stepping stone for developing countries to achieve higher levels of technology transfer, FDI, and increased economic growth and development in rural areas. Once plant varieties are protected, the immediately perceptible results are commonly an influx of new foreign (i.e. non-domestic) varieties, often ornamentals, and the technology required to produce and harvest them. While these new operations might be foreign-owned or foreign-funded, they also contribute to the building of a domestic knowledge-base, as well as boosting the local economy.

Once guidelines for plant variety protection have been established and implemented, local breeders acquire access to foreign varieties for domestic breeding (the breeder's exemption), as well as access to global markets for their products. This usually results in the development of improved, locally adapted varieties, and perhaps more importantly, in the transfer of technology and know-how and improved agricultural productivity. Successful results, even on a small level, can generate increased investment in further plant breeding and related commercial operations, which in turn can stimulate new or other commercial breeding enterprises. As the opportunities and possibilities expand, sustainable variety improvement brings other new commercial ventures, as well as more responsive and accessible seed supply chains through enhanced, more legally consistent licensing possibilities.



Remote, rural areas may experience economic growth and development through the international protection of plant varieties, not necessarily by producing more staple food crops, but by producing other sustainable crops and plant varieties, thereby enhancing the economy, increasing purchasing power and helping raise the living standards of the local community.

Consider the following case study involving China. In 1999, China introduced a law for the protection of plant varieties. Since its implementation, the effects (and the benefits) have been measurable, and positive. By January 1, 2005, China had received 2,046 applications for plant variety protection, including 32 filed by foreign firms from countries including Japan, the Netherlands, the Republic of Korea, New Zealand and the United States of America. The number of applications by Chinese nationals in 2002 was approximately 300 which was ranked 9th among 60 member States.⁶²

Other results attributable to the new law can be seen in the increased revenues received by Chinese plant breeders, allowing increased funding of further R&D. Furthermore, domestic seed companies expanded their market share in China by supplying authorized, branded seeds to farmers, who in turn increased production by growing these new varieties. "Such protected varieties, including strains of rice, corn, wheat and vegetables, have been accumulatively planted in 42.7 million hectares of farmland over the past few years. The financial benefits [...] brought to breeders are estimated to have reached 1.97 billion yuan (\$237 million) and have increased grain production by 56.32 billion kilograms."⁶³ Only "17 percent of the investment for R&D came from government at various levels".⁶⁴ It is, therefore, easy to see that a sustainable development cycle has been facilitated by the enhanced revenues, that allows breeders to invest more in further R&D operations and contribute to economic growth and development.

There is another important phenomenon attendant on international protection of plant varieties. "Another shift is that individuals and enterprises, rather than scientific institutions, are filing more and more applications for plant varieties resulting in an increase in the ratio of the former from one-fifth in 1999 to one-third in 2003."⁶⁵ A latent creativity in Chinese farmlands, as well as in rural residents, has been awakened by the plant variety system and the economic opportunities which it has brought into Chinese rural development. This quiet but solid and sustainable green revolution in rural areas, and at the grassroots level, can be traced directly to the political will of China's leaders, to the establishment and nurturing of an innovation culture, and to the integration of IP policies and strategies to support economic growth and development.⁶⁶

Increase Purchasing Power by Adding Value to Natural Products

International debate and negotiation have been centered around measures towards greater concessions on tariffs, expanded access to markets in developed countries, and reduction of subsidies to farmers in developed countries, in an attempt to improve conditions for countries whose trade largely depends on agricultural products. In addition to such measures, IP could also be considered as a key policy tool, to be combined with agriculture and trade policies, with a view to enhancing profits for those whose purchasing power essentially depends on frequently fluctuating prices of primary agricultural products. For

example, trademarks (particularly those which are used to certify the quality of products or those which are collectively owned by an agricultural association supporting farmers), geographical indications, and design protection could be integrated into policies that promote the export of certain products that can be distinguished in the global market based on their origin.

Coffee is the second most heavily traded commodity in the world, after oil, and it offers a very interesting glimpse into the working dynamics of IP in export promotion. Colombia is the major exporter of coffee to the United States of America, in large part based on its campaign centered on Café de Colombia.⁶⁷ The National Federation of Coffee Growers of Colombia is an association which is entirely owned by over 500,000 Colombian coffee growers. It has successfully promoted Colombia as a country for high-quality coffee, and as a result, its coffee product sells on the world markets at a significant price premium. The Federation spends over \$15 million a year promoting both the country and its coffee products in educational campaigns, television commercials, advertising campaigns, logo protection and licensing arrangements. Juan Valdez, the poncho-wearing symbol of Café de Colombia, is now well known. It opened its first shop in the United States of America in September 2005, and plans to open hundreds of locations worldwide over the next several years. Juan Valdez was first introduced as the symbol of Café de Colombia in 1981. However, the Juan Valdez brand was registered as a trademark as early as 1965 through the WIPO trademark registry. Its marketing strategy, conscious of the power of the IP system (in this case, its appealing trademark), underlies the success of this nation and product-branding effort.⁶⁸



Another IP marketing initiative is “Jamaica Blue Mountain Coffee,” registered as a trademark in the United States of America⁶⁹ and showing positive economic results directly because of the political will, innovation culture and IP strategies and policies which underpin it at the national level.

Sri Lanka was famous for its tea when it was known as Ceylon but since then globalization forces have changed the structure of the tea industry (consolidation into three major multinational enterprises), and thus diminished Sri Lanka’s former image. That is changing again through the commercially successful efforts of Dilmah Tea, and its founder, Merrill J. Fernando. Dilmah Tea has reversed the tea industry’s mass-production processes by establishing teas which are picked, packed and branded at

origin, which gives us the brand notion of *Single Origin Tea*. Dilmah also sells direct to consumers, avoiding middlemen costs, and modification or neutralization of the final product. The entire operation is supported by the nation branding notion of Ceylon/Sri Lanka's great tea growing tradition, and a vision of quality for the company and the country. Government support enabled Mr. Fernando to overcome opposition by international bulk tea buyers who wanted Sri Lanka to remain a supplier of raw material. Mr. Fernando launched Dilmah, the first international brand from a tea growing nation, in 1988.⁷⁰

In some developing countries, the supply and sale of drinking water has emerged as one of the most popular business activities. Fiji is experiencing how its geographical location and environmental characteristics can contribute to rural and national development, and to entering the global marketplace. A company selling *Fiji Water* entered into arrangements with the Government of Fiji to secure a 99-year lease on one of the Fijian islands where an aquifer produces water that is bottled at source, and shipped globally. A good marketing strategy created sales revenue of \$47 million for 2003. Some of the revenue is being used to set up schools in Fiji, following the enterprise's policy. The product is protected in several ways by trademarks, including its name, the design of tropical flowers on its bottles, and even its uniquely shaped bottle. The owners convinced several luxury hotels and restaurants to carry their product, and marketing experts are attempting to place it in films and television shows. The strategy, adding value to one of the most basic natural resources, drinking water, is supported by the IP system. This one product showcases the nation in the best possible light—branding a natural product while at the same time enhancing the nation brand of Fiji as hip, friendly, and healthy.⁷¹

The following example gives another promising view of the expanded opportunities created by the integration of IP into development strategy, in this case through trade promotion. It also spotlights the important role played by the government, specifically the expeditious processing and granting of intellectual property rights to national entrepreneurs, as well as the potential benefits of effective enforcement of intellectual property rights to protect domestic enterprises from the debilitating effects of counterfeiting and piracy.

According to a *WIPO Experts' Study on Intellectual Property and the Textile Industry*, in Ethiopia, Ghana, Kenya and Nigeria, textile factories



used to have steady and sustainable production and sales before they started to suffer from a flood of imported cheap textile products which copied their design patterns. That flooding of imitation products was reported by the press, which quoted a spokesperson for the local industry as saying that “once the new Ghanaian designs are released, it is only a matter of a few months, if not weeks, before knockoffs appear. [...] The four local textile producers figure piracy and smuggling cost them about two-thirds of the \$150 million annual local market, a sharp blow in a country with relatively little indigenous industry and an average annual per capita income of just \$400.”⁷³

The WIPO Study recommended that, in the first place, the textile industry should be made aware of the benefits of protecting their original designs by copyright or design protection, and of the possibility of further enhancing protection by registering a certification mark to provide consumers with assurances of product authenticity. The Study also recommended that the government increase its support for this industry by strengthening IP office administration, improving the current lengthy procedures for the granting of intellectual property rights (in some countries, the registration of a trademark takes several years, during which time most designers and local firms are likely to be forced out of business by piracy), and stepping up efforts to strengthen enforcement of intellectual property rights to help crack down on piracy and counterfeiting, phenomena which not only discourage national industries and entrepreneurs (potential contributors to the national economy and drivers of its growth) but also eviscerate domestic creative culture.

The cases above offer some instructive lessons. (1) Collaboration between the government and national trade associations of strategically important export products is necessary to shape more effective policies and strategies for the promotion of such products, which may otherwise be traded as raw materials with no added value. The absence of a domestic value-added component locks countries into the situation where a large part of the potential profits are lost to the intermediaries who actually do the adding of value. This leaves such countries heavily dependent on uncertain markets for a few agricultural products. (2) The IP system could and should be integrated into the above marketing strategies (designed to capture and retain loyal consumers) by effectively protecting and enhancing the products and services to which value has been added through trademarks, geographical indications, designs and copyright. (3) The entire value-chain from production to marketing, from

investment to return (including contribution to society) is better managed by producers in developing countries, or collaborators with those domestic producers. This scenario offers the best opportunities for successful cooperation between the government and producers, as well as for national development in respect to rural development and nation building.

These last points can be further elaborated. Today, consumers have a large choice of products and services. They generally seek better quality and special features which fit their taste or life style. They may also search for something new and different. Price is and will always be an important factor, but it is no longer the only factor in the decision. Once consumers have experienced satisfaction with certain products and services, they will most likely continue to buy them. The loyalty of consumers, based upon a mutual trust between them and the producers of those products and services, is essential to continuing success in the global market where numerous alternative products and services are trying to attract consumers. The need to create and sustain consumer trust and confidence underscores the renewed importance of having a good reputation and a recognized brand.



Developing a successful, sustainable brand requires good technologies which ensure the high quality of the products and services, as well as a good marketing strategy appealing to consumers. Consumers generally do not care whether or not technologies embedded in products are patented; what they buy are products distinguished by their brand names (trademarks). Certain consumers give priority to the form or design of products. Patents, trademarks (or geographical indications) and designs, when combined, can produce the best results in developing the brand. A sustainable brand also needs support from the government, because export and marketing have increasingly become joint efforts of government and producers, especially when dealing with brands for consumers in other countries.

CHAPTER 4

IMPROVEMENT OF PUBLIC HEALTH



The IP system, and specifically the patent system, has been the subject of much discussion and focus lately in the different media, particularly in connection with access to essential drugs and medicines, including those necessary to fight HIV/AIDS. Some of the headlines went so far as to proclaim that the patent system was causing prejudice to many patients—that because of patents on vital drugs, the prices for those drugs were exorbitantly high, and further, that patents were the main reason that access to such drugs was denied to poor patients in developing countries.

We are concerned that some of the arguments which continue to be aired are still based on misunderstandings about the role of the patent system in this issue. For example, patents are blamed for increasing the price of drugs. However, some 95 percent of the pharmaceutical products on the WHO's Essential Drug List are not protected by patents. In the case of patented drugs, a patent is not necessarily the determining or only factor in the price of those drugs, which depends on a wide variety of cost elements, including R&D, production, distribution and marketing. Other factors which affect access to medicines, such as the existence and efficiency of an internal public health delivery infrastructure, go beyond the role of the patent system.

However, this Chapter is not intended to discuss the above issues but to indicate the potential of the patent system to improve public health.

While the *Doha Declaration on the TRIPS Agreement and Public Health* confirmed that developing countries had the additional route of procuring necessary drugs from other countries, that solution is only workable in the short term. In the long term, developing countries must create and develop adequate necessary drug manufacturing capabilities—on a national or regional basis. Long-term solutions also encompass redoubled efforts to develop new drugs for the pandemic diseases of developing countries, at the national level, at national laboratories and university research centers, with increased governmental funding and prioritization. In this context, how could the patent system best be used? The following sections introduce a few cases which provide useful suggestions.

Essentials for Improved Public Health

In approaching the subject of improving public health in developing countries, it is helpful to review the essential conditions which lie at the

center of the solutions to the problems. Stronger political commitment by governments of both developed and developing countries is necessary to tackle public health issues and to stimulate the allocation of more public funding. Equally important is improvement in the basic public health infrastructure—a prerequisite to any other policies aimed at improving access to and delivery of drugs, and for implementing preventive measures through immunization and vaccination.

Many experts have analyzed the plight of developing countries regarding public health, and suggested that, in some cases, the weakness of the health and medical infrastructures makes it difficult to deliver medical products and services to those people who need them. This is a key problem in the delivery of essential drugs which are now often made available at substantially lower prices thanks to the efforts of the international community together with the suppliers of the drugs.

Innovation is hampered in some developing countries by the lack, or weakness, of such essential components as basic entrepreneurship, a viable market, local R&D and manufacturing capability.



Assistance from developed countries and multinational enterprises often does not match the need in developing countries. Reasons for this include, the fact that developing countries often constitute smaller and less profitable markets, weakening one of the key incentives for companies to create new products and services to tackle diseases prevalent there. For example, between 1975 and 1999, only 16 of the 1,393 new chemical entities (components of new drugs) placed on the market focused on tropical diseases and tuberculosis – a mere 0.1 percent.

Greater Investment

In the case of diseases which afflict only or mainly developing countries, without significantly enhanced assistance from the international community, it is extremely difficult for those countries to make the necessary investment to upgrade their limited innovation capability to develop new drugs. This is no longer a “developing country problem”. Diseases which previously were prevalent in only one corner of the world, have increasingly spread to all the other corners.

The funding allocated by, or available to, developing country governments for public health, as well as the budgets of relevant

international organizations (e.g., WHO), have steadily increased,⁷⁴ but are still not enough; additional public funding is absolutely critical. For the developing countries, an increase in specifically focused public investment, and carefully crafted policies and strategies to support the objectives, are necessary. Public funds should also be supplemented by private sector efforts. It is encouraging to see that more NGOs and multinational research-based pharmaceutical companies have become pro-active in their respective contributions to these global challenges.

What discourages the private sector from making a greater contribution is the high risk, and the smaller size of the developing country markets. These result in the so-called 10/90 research gap—only 10 percent of the \$55 billion global spending on health research is devoted to diseases or conditions that account for 90 percent of the global burden of disease.⁷⁵

The conversion of the research results and innovation initiatives, aimed specifically at assisting the developing countries with respect to their unique diseases, into the end products (i.e. effective and economical drugs) is generally a longer, riskier and more expensive process than drugs for developed country markets, because of the smaller size of the market and the lower return. The economic model is not sustainable if the enormous cost burden of developing and manufacturing such drugs is assumed by only a few multinational enterprises and their in-house R&D operations.

We therefore must find viable measures which hedge that risk, and which shore up the perceptible weakness of the current market mechanism in this area, so that we can encourage more funding and more R&D by the private sector. One such measure is the strategic use of the IP system. Intellectual property rights management should be built into partnership strategies. Arrangements between the government or the international organization representing the public interest of developing countries, on the one hand, and the private sector, on the other, can be structured in ways which allow those research-based pharmaceutical firms in developing countries with a limited innovation basis, to be more integrally involved in the process. As discussed later, strategic use of the IP system can be integrated to achieve the assurances, mutual and voluntary cooperation, business structure and legal enforceability to support the R&D needed to deliver the desired products and services.

Many partnerships between the public and private sectors (public-private partnerships (PPPs)) have been successfully created to meet the challenges associated with developing new drugs and vaccines. If we can find a viable business model for increasing funding and encouraging significant investment in the development of new drugs, the risk of which can be partly hedged by assuring the protection of R&D results by patents and related exclusive marketing rights, that model could also apply to other healthcare areas which need innovation (such as the development of better and more affordable equipment, for example, to protect against malaria-carrying mosquitoes, improve sanitary conditions, and render water safe and drinkable).

Building Domestic Capacity in Developing Countries

The building-up of domestic capacity in manufacturing and R&D operations, which in the past has often been strengthened through FDI or joint research projects, is of vital importance and should be given close political attention. Whereas innovative developing countries have started to shift their policies into a more pro-active mode on this issue, others have not, despite its vital importance and immediacy.



It is the lack, or weakness, of domestic manufacturing capacity in drugs that must be addressed. The national capacity is required to make viable use of the flexibility to implement the relevant TRIPS Agreement provisions. The provision allowing for the granting of non-voluntary (compulsory) patent licenses was expected to promote the transfer of relevant technologies to the local industry. Other provisions allow a country to import essential drugs where the local manufacturing capacity is missing. Since the Doha Ministerial meeting of the WTO in 2001, international negotiations have led to the establishment of certain procedures to make use of this facility. However, there have been no significant initiatives to tackle the weakness of domestic manufacturing capacity in those developing countries where that is exactly the underlying root of the problem.

From a longer-term perspective, it is not clear whether relaxing (or waiving) certain rules in the patent system, or seeking concessions in confrontational negotiations with the private sector, is the best way to solve such root problems, namely, the lack of a basic healthcare infrastructure, which hobbles many developing countries, and the lack of local R&D and

manufacturing capacity. Together with short-term measures, some developing countries may also wish to consider increasing their basis for innovation as a more viable avenue to solve the root problems.

Certain innovative developing countries offer good lessons in this regard. To absorb and adapt imported technologies requires basic manufacturing and engineering skills. Those skills are often gained during the process of manufacturing products licensed by foreign companies which set up joint ventures with domestic firms. Some of these domestic firms have benefited from their wise use of the patent system. For example, in the 1990s, generic drug manufacturers in India emerged as leading suppliers of generic drugs to developing countries. How they accomplished this is worth reviewing. Pharmaceutical manufacturers in India made the best use of the patent system to develop their knowledge and capacity. They did so on the basis of the patent information available by researching patent applications and related documents, many online, which had been published freely in other countries. Most of the patent applications had never been filed in India, mainly because the owners were not interested in extending their marketing efforts to such a small market (in terms of profit). The technology disclosed in those patent applications was, and is, freely available and Indian firms took advantage of it.⁷⁶

To further strengthen its innovation culture, India has recently undergone various legal and related changes based on the TRIPS Agreement. The following statement made in Autumn 2004 by the Prime Minister of India indicates political will at the highest level in support of an innovation culture and the country's intellectual property-conscious national policies and strategies:

“We have a strong manufacturing base in drugs and pharmaceuticals; however, industry will have to move from mere imitation to innovation now. It will have to get into new drug discovery research. I am very happy that industry has already accepted this challenge. I understand that during the last four years the R&D investment made by drugs and pharmaceutical industry has gone up by 400 percent.”⁷⁷

Modern technologies, whether imported or home developed, are not the only basis of innovation in the healthcare field. Sometimes knowledge associated with traditional medicine forms a good basis for developing new medicines. Consider the sickle cell disease which afflicts Africans,

and which is particularly troublesome in Nigeria, where an estimated 100,000 children are born with it every year. Sickle cell disease affects life expectancy, and facilitates severe infections and organ damage, including kidney failure and heart attacks. Traditional medicine practitioners in Nigeria have used a series of local plants to help fight sickle cell disease for years. When the scientists at the *Nigerian National Institute for Pharmaceutical Research and Development* (NIPRD) started looking for a way to tackle the sickle cell problem, they began working with local traditional medicine practitioners, studied their local plants, and ultimately made a scientific breakthrough which created a new treatment for the disease. NIPRD sought out a foreign manufacturing partner (because of the lack of local capacity), and identified and negotiated a favorable agreement with the US-based company Xechem International, Inc., which will manufacture the new drug, as well as seek all necessary regulatory approvals. Through its IP policies and strategy, NIPRD maintains an equity position with respect to all future sales and spin-offs, as well as guaranteed low-cost access to the drug for domestic use.⁷⁸



Many other developing countries are expected to follow the path which innovative developing countries have followed, whereby they can integrate the IP system and its incentives and infrastructure into their policies and strategies to form a solid basis for the creation of a domestic manufacturing capability, and enhanced R&D capacity. If the policy goal is to target the enhancement of domestic capacity, we doubt that a strategy seeking concessions from potential suppliers of technologies through the grant of non-voluntary licenses would produce the best result. A better approach is to seek and negotiate voluntary and mutually agreeable licenses, which often provide know-how and data essential to production operations and more importantly, which also can provide training programs for local human resources. However, for voluntary licensing mechanisms to work successfully, the international community needs more support from pharmaceutical manufacturers in developed countries.

The disease burden in developing countries must be seen as an issue for the entire global community, and all parties can step up efforts to do more. Governments of developing countries, for example, could offer special conditions and incentives (tax, expeditious regulatory approvals, the provision of facilities, etc.) to potential licensors and manufacturers. In this respect, the following cases from Cuba and Singapore offer good insights. Each government implemented policies to create a solid business and infrastructure basis in the field of biotechnology.

The Cuban Government has implemented a national policy, with attendant strategies incorporating IP considerations, which has produced a robust biotechnology sector in the country. The Government allocated funding specifically for biotech research and development, which has resulted in the setting up of a biotech cluster outside Havana, with almost 40 research centers producing cutting-edge biotech research, obtaining patents to protect the results, and taking those results to market with commercial and humanitarian success.

One of those research centers, the *Carlos J. Finlay Institute of Serums and Vaccines*, has produced an advanced vaccine against meningitis B and C. This initiative was designed to help with domestic problems, but the success of the vaccine has prompted its commercialization, resulting in 15 patents worldwide, and millions of dollars in royalties from foreign countries. Another research center, the *Center for Genetic Engineering and Biotechnology*, has produced new vaccines against hepatitis B and against the haemophilus influenza bacteria. This latter vaccine has resulted in a patent jointly held by the University of Havana and the University of Ottawa, and it is currently being produced in Cuba.

The Cuban biotech sector, spurred on by the Government's pro-active policies and strategies, and by its financial and logistical support, has obtained some 150 national biotech patents, with approximately 70 patents in force abroad. Its products are now being exported to over 50 countries. The Cuban Government's policies have created an innovation culture, a domestic base of skilled workers, and the ideal environment for accelerated growth of knowledge workers in terms of new spin-offs and start-up businesses, as well as for the broad SME sector. The successful results are international as well. For instance, the *Heber Bioven Sdn Bhd*, a Malaysian-Cuban joint venture, was established in October 2002 to manufacture Cuban biotech products in Malaysia for the Asian market. Similarly, the Bangalore-based Biocon India, and the marketing subsidiary of the Cuban Center of Molecular Immunology, have established a joint venture—*Biocon Biopharmaceuticals Pvt, Ltd*—to produce and market Cuban anticancer drugs in India.⁷⁹

The Government of Singapore has been integrating IP strategies into its national policies for several years, and the results are impressive. The Government tasked its Economic Development Board with reaching out to the emerging biotechnology field. As a backdrop to this, the Government had already emphasized the importance of the life sciences

in its school programs, and at the university level. The Government, as urged by the Board, also created a biotechnology cluster platform for emerging and established biotech companies, by designating a space (named *Biopolis*, the bio-scientific park in Singapore) where companies might set up shop, and by offering incentives to companies which did so. Singapore had also taken all necessary steps to bring its national legislation, and the supporting infrastructure, into line with internationally recognized standards, such as the Paris Convention and the TRIPS Agreement. The results are numerous – for example, Novartis, the Swiss pharmaceutical firm, established its research institute for tropical diseases in Biopolis in July 2004. The policies of the Government of Singapore, the country's innovation culture, the supporting infrastructure and its IP laws, and its proximity to the developing countries afflicted by malaria and dengue fever, were the motivations behind the Novartis move.

Balancing Private Incentives and Public Policy Objectives



While it is important to take measures aimed at strengthening the domestic technological, scientific and manufacturing bases, it is also important that intellectual property system incentives and infrastructure be integrated into public health policies to seek a balanced approach between incentives available to the private sector (for example, research-based pharmaceutical firms), on the one hand, and the public health policy tools, on the other, such as drug price control mechanisms, the availability and use of generic drugs, the regulatory approval process for new drugs and the protection of data submitted for such approvals, conditions for medical insurance coverage and availability, and government funding for medical research projects.

Market mechanisms are another factor which can be used to achieve the desired balance. In many developed countries, there is true competition among research-based pharmaceutical manufacturers on many levels, for example, where some have obtained patents of other firms by introducing incremental improvements. Another example of market competition exists between research-based firms and generic drug manufacturers, where the patent system can influence the outcome through means such as the extension of the patent term and mechanisms allowing generic drug manufacturers to swiftly market their products after the patent concerned expires. The combination of these and other policy tools can provide the basis for sound competition, which contributes to the containment of the price of new drugs and the enhancement of

innovation. However, these types of competition would not be expected in many developing countries where local research-based manufacturers of pharmaceutical products either do not exist, or exist to such a limited extent that there is no real competition. The governments of such countries could implement public health policies and strategy to strengthen their local and infant pharmaceutical industry through various incentives, including a timely and adequate protection of the result by patents which encourage multinational corporations to partner with local companies to undertake joint R&D and to market products.

One possible model reflecting a voluntary and inclusive approach concerns PPPs, in which the government of a developing country, with assistance from the international community, provides a private firm with funding and favorable conditions for the procurement and marketing of certain desired products or services, while the private firm undertakes the necessary R&D, and follow-on commercial exploitation, to meet the particular needs.



CHAPTER 5

IMPROVED EDUCATION FOR THE NEXT GENERATION



In the same sense that an adequate food supply is a *sine qua non* for the eradication of poverty, it is equally axiomatic that a solid education system (and likewise, an educated workforce) is a *sine qua non* for economic growth and development in any nation.

However, in 2000, more than 104 million school-age children were *not in any school*. Of those, 94 percent were in developing countries, mostly in South Asia and Sub-Saharan Africa.⁸⁰

Creative Kids

The education system is entrusted with producing adults who will assume the leadership of the nation and its business, and look after its well-being for future generations. Creativity and innovation-related activities are increasingly part of the course work in intellectual property-conscious nations.

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The education system of an intellectual property-conscious nation also gives students awareness of their own creative potential as well as of what can be accomplished using that creativity in the modern, knowledge-based workplace. It should start as early as possible. An international study found that 80 percent of students had not heard of intellectual property nor of intellectual property protection. That fact manifests itself in an almost complete lack of cyber ethics, a disrespect for the original work of others, unthinking acceptance of illegal downloading, and worst of all, an absence of a sense of the value of personal creativity. This is the sort of culture in which piracy and counterfeiting thrive. But when students value their own original ideas and their own expressions of those ideas, they are encouraged to actually make use of their talents, creating their own new and original material.⁸¹

Intellectual Property and Creativity in Education

There are many good examples of programs set up to educate young students about IP at the earliest possible stage. For instance, the Intellectual Property Office of Singapore (IPOS) created “Iperckidz”, an IP education and outreach program for schools, designed to be both informative and fun. This program offers a “Detective IP” CD-ROM and a website, as well as in-school shows. The Director-General of IPOS captured the essence of the program at its launch by noting that creativity and innovation are inherent in children, and that they had the

potential to be inventors, creators and owners of IP in the future. She pointed out that the program would help to inform children “of their rights to protect their creations and innovations. This is especially relevant in today’s knowledge-based economy whereby children in schools are given opportunities and encouraged to create, innovate and take on projects to experience entrepreneurship.”⁸²

A similar program targets creativity in respect to music. The “Creativity in the Classroom” project encourages students in certain schools in the United States of America to label their creative works with the copyright symbol, the year and their name. This program helps the students develop a greater awareness of the value of their creative work, the values inherent in IP, and, the value of the work of others.⁸³

In Autumn 2004, WIPO hosted an exhibition entitled *Creativity by Children—A Chinese Experience*, the first WIPO exhibition consisting entirely of the work of children. The children had been encouraged to create original works, under the theme *Today creates the Future*, by the Heilongjiang Intellectual Property Office in China. Each painting was accompanied by a short poem explaining the idea which inspired it, for example, respecting science, shaping the future, promoting creativity and scientific innovation and spurring human progress. At the inauguration of the exhibition, the Chinese Ambassador to the United Nations in Geneva, Sha Zukang, noted that a sound IP protection mechanism is of vital importance to a nation’s creativity and development. “The nation’s hope lies in the younger generation,” he said. “The participation of the youngsters will help imbue a strong intellectual property rights sense in their minds, which serves as the most effective way of ensuring a sound environment for intellectual creation.”⁸⁴



The Hong Kong Special Administrative Region of China, is bringing the world of creativity and innovation directly to its young students. The Intellectual Property Department has a team of professional staff actively involved in promoting, and educating the public on the values and benefits of IP. Their activities include year-round school visits, campaigns, media broadcasts, exhibitions and roadshows.⁸⁵ They also arrange for media celebrities to promote their programs and campaigns. One such program is entitled “Promoting Cyber Ethics for Students and Youth—Fight Against Cyber Crime,” which links not only IP, creativity and the Internet, but also certain of the physical dangers which are unfortunately associated with modern information technology.⁸⁶

The Consequences of Piracy

Notwithstanding these positive developments in the education world, young children today face unprecedented challenges, which could affect their attitude to creativity at a most vulnerable time. From buying and selling pirated music tapes and CDs on the streets to illegally downloading music and movies from unauthorized websites, children are led to think that creativity is always available, like the air, and access to it is there for the taking. Children for whom there is no guilt, shame or sense of illegality or wrongdoing in the act of stealing the intellectual creations of others will not have the benefit of a sense of the worth of their own creativity and innovation when they become adults.

If the young generation becomes a group of free-riders, without respect for creative skills or instincts and with no sense of the benefits of an innovation culture, who else will take up the formidable global challenges of this century, solutions to which require enhanced levels of intellectual ability, creativity and collective effort? The education of the young is critical in meeting those challenges as well as solving the problems and making the most of the opportunities that will ensure a safe, secure future.



Intellectual Property and University Education

The foregoing cases represent some of the many new and promising initiatives that are bringing the importance and value of creativity and innovation to the attention of the younger generation. As for the older, more advanced students, the innovation culture is alive and well at the university level in most countries. However, IP education is a relatively new area for government policy-makers and academic institutions. In the past, it was generally limited to the field of law and handled by specialists and corporate lawyers, and was thus taught only to law students. Since the impact of IP has become so crucial to all aspects of our daily economic, cultural and social life, many countries have felt the need to strengthen and expand the teaching of IP at undergraduate level and to take an interdisciplinary approach to IP education.

In addition to what could be referred to as “standard” university IP education, there are other education avenues through which IP concepts and skills are brought into the workplace and/or into society. The following examples are taking place outside the university and post-graduate level. They are all inspiring and results-oriented, and illustrate

how a national IP policy can create a national platform on which to build an enabling infrastructure, and create economic growth mechanisms from within.

The *Intellectual Property Academy* in Singapore, launched in January 2003, is a “national agency dedicated to deepening and broadening Singapore’s knowledge and capabilities in intellectual property protection, exploitation and management.” With its motto “Empowering the Intellect”, it aims “to build a thriving culture that encourages the management and harnessing of innovation, and the resultant intellectual property rights for the achievement of success in this global, knowledge-driven economy.” At the launch, the Senior Minister of State for Law and Home Affairs, Assoc. Prof. Ho Peng Kee, captured the spirit of the Academy:

“The value of intellectual property cannot be underestimated. With globalization and rapid technological advancements, intellectual property will continue to increase in strategic importance against traditional advantages such as geographical location and abundance of natural resources. Those who are able to maximize their intellectual assets will have a clear advantage.”⁸⁷



Government policies and strategies guide and support the education environment of a nation. Those policies and strategies can often induce public and private partnerships, which can substantially enhance the educational opportunities available. Philips Electronics, the Netherlands-based firm, through its subsidiary, the Philips Electronics China Group, will fund two European IP experts to teach postgraduate students in the People’s University of China. The company will also fund local research programs on IP. It is in discussions with Qinghua University about a similar program. As Philips has 13 R&D centers in China, and has set up 35 solely owned firms and joint ventures there, providing Chinese society with advanced IP skills serves the interests of both Philips and China.⁸⁸

IP education programs are relevant to all industries. The positive, measurable effects of a solid education system on the creative arts, and especially what has become known as the “creative industries,” is too marked to be ignored any longer. The creative industries comprise some of the most culturally and economically important activities, such as motion pictures and television, computer software, music, literature and publishing, video games and broadcasting. The World Bank estimates that the creative industries contribute about seven percent of the world’s GDP.

CHAPTER 6



PROTECTION OF OUR COMMON ENVIRONMENT AND SUSTAINABLE DEVELOPMENT

The UN MDGs include a full range of environmental and development goals which merit global attention, including implementation of the Convention on Biological Diversity (CBD); the reduction in emissions of greenhouse gases (the implementation of the Kyoto Protocol); conservation and sustainable development of all types of forests; the fight against serious drought and/or desertification, particularly in Africa; sustainable water resources management; and the reduction of the effects of natural and man-made disasters.

The search for sustainability is reinforced by an innovation culture supported by a well-functioning intellectual property system integrated into well-crafted government policies. Recommendations by UN advisors stress the importance of improving access to, and increased use of, scientific and indigenous knowledge, as well as the integration of environmental sustainability elements, into all development projects.⁸⁹



Biological Diversity

The CBD states that both *in-situ* conservation and *ex-situ* preservation of biodiversity are key tools in any effective strategy, and that all policies for preservation, conservation and achieving sustainability need to be established in conjunction with giving due consideration to the political, social, economic, and environmental aspects of the region and to the opinions of the local people who know best about the local environment.

How can the intellectual property system assist both local stakeholders and external partners in improving access to, and use of, scientific and indigenous knowledge, and in integrating environmental sustainability elements into all development policies?

For the past several years, WIPO has been studying the issue of how the intellectual property system can best contribute to the preservation and sustainable development of the environment through its Intergovernmental Committee on Intellectual Property and Genetic Resources, Traditional Knowledge and Folklore (IGC). Good practices are being accumulated in that forum and made available on its website. Selected cases are described below to indicate the potential of the IP system for providing a solid basis for collaboration among all stakeholders.

The *Association Instituto Nacional de Biodiversidad* (INBio) is a non-profit organization in Costa Rica formed as a joint venture with the

multinational research-based pharmaceutical manufacturing company Merck. The underlying joint venture agreement embodies basic principles regarding: access to bio-diversity resources; exclusive rights to study samples obtained; IP protection for any innovative product or knowledge derived from the indigenous resources; and a compensation scheme. The IP components establish a framework and guiding principles in which benefits are secured for both parties, while at the same time, ensuring conservation and due care of indigenous resources. Merck has compensated the NGO (approximately \$1.35 million) for approximately 10,000 samples obtained and studied, and has further agreed to royalty payments of between 2-3 percent if the research into the sampled indigenous resources results in a commercially viable product.⁹⁰

In Kerala, India, a Trust Fund for benefit-sharing was set up in 1997 (*Kerala Kani Samudaya*) to commercially exploit a restorative and anti-stress drug called “Jeevani”. The drug was developed by scientists in India, and is based on the tribal medicinal knowledge of the Kani tribe. The technology which produced the drug was filed as a patent, and licensed to an Indian pharmaceutical company, Arya Vaidya Pharmacy. With increasing sales and revenues, the benefits from the commercialization of the drug will make the Fund operational for the sustainable future harvesting of the arogyapaacha plant from which the medical components for the drug were extracted. The Trust Fund for the sustainability arrangements allowing for the conservation of the plants came into existence only because the patent and the intellectual property rights involved in this matter established a critical value-added process which was developed directly from local knowledge.⁹¹



Expanding the Source and Scope of Technological Solutions

Like an adequate food supply, an adequate and safe water supply is also a cross-cutting issue with which everyone on the planet is concerned, although some much more desperately than others. Safe water is taken for granted in many countries, but in others, obtaining it is a daily contest.

The tsunami of December 2004 ruined the water systems of many of the areas where it struck. Resultant diseases started to spread in those areas, and the need for safe drinking water became critical. The intellectual pursuits of one man, Dr. Ashok Gadgil, may have saved millions of lives following the disaster.

After the outbreak of “Bengal cholera” in 1993 killed some 10,000 people, Indian-born physicist Dr. Gadgil began searching for a way to efficiently and inexpensively purify water for poor communities in developing countries. He ultimately created the *UV Waterworks*, a robust and efficient device which kills bacteria, viruses and parasites in water from any source, using ultraviolet light. The device is now installed in more than 300 locations around the world in several countries including Mexico, the Philippines and India.

The IP system played a key role in the development and deployment of the UV Waterworks system. Financing for Dr. Gadgil’s idea was difficult to obtain, but eventually he found managers who provided the initial funds. At first, he had wanted to put his invention on the Internet and give it to the world. His employer advised him that patenting the system was the better route for several reasons, mainly quality control of the manufactured product and protection against cheap, non-conforming copies that did not work properly, which might damage the whole project and put users of the device at risk.

The patented system attracted a dozen companies that approached Dr. Gadgil’s employer with the request for an exclusive license (exclusivity can reduce the risks associated with development and marketing). After a selection process, WaterHealth International was chosen to manufacture the device and arranged for its deployment. The licensee company was quick to offer the device, on a cost-recovery basis, to those affected by the tsunami.

The role which the IP system can play at the grassroots level to encourage and leverage innovation and creativity is demonstrated by projects such as the *Honey Bee Network* in India. The Network, initiated by Dr. Anil K. Gupta, encourages local people, such as farmers and artisans, to create and propose incremental improvements and innovation for techniques, designs, devices and business methods applicable to farming, irrigation, harvesting, utilization of plants, etc. The Network also offers a mechanism whereby members can register intellectual contributions, which are included in a database of local knowledge. Patent applications are filed for some of these suggestions and ideas, facilitated by financial support from the administration of the Network. The Network is a collaborative effort between private industry and public sector services. The patent system provides it with the necessary incentives and mechanisms which help it to be a virtually self-supporting operation. The



Honey Bee database contains more than 10,000 ideas, innovations and suggestions, all waiting to be commercially developed.⁹²

A Wealth of Patent Information in the Search for Technologies to Protect the Environment

Many patents are registered and granted, but, for a variety of reasons, are never commercialized. Nevertheless, the information they contain can be vital in any number of situations. Consider the *Business Intelligence Express* (BIX), which was set up to promote innovation, productivity and sustainable development, by providing online access to industry specific patent information to assist managers in the minerals and metal mining and processing industries to: (1) keep abreast of technical developments occurring anywhere in the world; (2) evaluate new products, processes and collaboration prospects created by external science and technology activities; and (3) see and understand evolving trends and developments at the earliest possible stages—all through the focused use of freely available patent information.



In the 1970s, when the Government of Japan reinforced policies to fight air and water pollution, published patent applications containing anti-pollution technologies were identified and marked up to provide engineers with easy access to the most up-to-date technological information, tailored directly to their immediate needs. The strategic use of this valuable patent information helped to avoid duplicative investment and R&D, and greatly assisted with technology transfers from research institutes to the industry of environmental protection which was emerging at that time.

Sharing Responsibilities for Societal Well-Being

Sustainability requires, for the most part, new and advanced technologies to achieve the higher results and outputs which underpin economic growth and development. Where the environment and environmental sustainability are particularly concerned, environmentally sound technologies must be transferred to developing countries under terms and conditions which allow all parties to win. If this paradigm cannot be achieved, we end up with examples such as the one below.

Chlorofluorocarbons (CFCs) are a coolant that causes damage to the atmosphere's ozone layer. The international community has agreed to

reduce and ultimately eliminate their use. Substitutes are available, but they are new and they are generally under newly granted patents; thus an IP challenge exists. Several manufacturing companies in India tried to eliminate their use of CFCs, but it was too costly. Acceptable substitutes for the CFCs had been developed by a few firms. However, those firms, pressing for commercial advantage, offered to license the substitute formulas to the Indian companies in exchange for a majority equity share of those companies. Thus, if the owners of the Indian companies gave up their companies to foreign firms, they could stay in business and achieve the desired environmental sustainability results.⁹³

The above example gives rise to questions concerning *corporate social responsibility* (CSR), as well as the need for the government to intervene from time to time to achieve public policy objectives. The IP system in certain countries provides for mechanisms which would, in the case of the failure of voluntary licensing negotiations with reasonable terms and within a reasonable period, allow for the issuance of a government license, or the grant of a non-voluntary compulsory license. Such measures and their potential use could also be brought into play on the enactment and implementation of relevant national legislation, such as anti-pollution laws.⁹⁴



However, rather than pressing for mandatory regulations, private firms could join the growing international movement to act under voluntary guidelines. One can certainly question whether it is wise to leave it entirely to governments to set laws for companies simply to follow; alternatively, it seems unwise to take no pro-active measures in developing countries where such laws do not exist.⁹⁵ Common sense and global social responsibility can contribute to finding the critical solutions that lie in the interface between the public policy objectives, and the IP system and its incentives and infrastructure.

The nation conscious of IP is way ahead of the global curve with respect to development issues and those concerning environmental sustainability. It knows that partnerships and the strategic use of IP to find and create such partnership are a key element in achieving successful results.

CHAPTER 7

ENHANCED GLOBAL PARTNERSHIPS



The answers to many of the most pressing problems and challenges associated with disease, are found through innovation and scientific R&D. The foundations of such R&D are teams of highly trained professionals, the product of a vast array of institutions from universities and similar institutions of higher learning to publicly funded research laboratories and facilities.

Two of the most essential roles that universities play are: (1) carrying out scientific R&D and analysis; and (2) they are the main, and most efficient means of providing high-level training and education in the sciences and new technologies. Universities have an extremely important role to play in enhancing innovation in all countries, but especially in developing countries, because most of a nation's knowledge base is stored there. It is universities that should be encouraged to take the lead to establish and sustain national innovation and creativity to support the move from developing to developed.

Intellectual property rights derived from university research provide the framework, the incentives and benefits, and the reliability and consistency necessary to attract the enthusiastic involvement of other sectors of society, thus establishing the platform upon which global partnerships can be created, enhanced and exploited for maximum results and advantage. Leveraging these intellectual property rights has already produced some extremely encouraging results.

Harnessing University Intellectual Property Rights

One of the first official acts by which a government sought to release under-utilized innovation occurred in the United States of America, with the enactment of the Bayh-Dole Act (BDA), which became effective on July 1, 1981.⁹⁶ The BDA created a uniform patent policy among the many federal agencies that fund research, enabling small businesses and non-profit organizations, including universities, to retain legal title to inventions made under federally-funded research programs. This was a major change from the previous policy, which required a specific decision by the Government on the ownership of an invention before a university could file a patent application. The BDA was triggered by concern that Government-funded research results were not finding their way from the research lab to the public as useful and practical technologies.

Another important result of the BDA has been the establishment of units for IP management; these play a key role in ensuring that universities receive Government grants for R&D, and that inventors realize a share in the profits stemming from the commercial licensing of the invention.

Some argue that the role of BDA has been exaggerated and it was an effect, not a cause, of a surge in university patenting and licensing. However, it seems that the policy shift resulting from the BDA made researchers and universities conscious of IP considerations and of the possibilities of licensing future products and services, entering into commercialization contracts on a sure and reliable footing with private industry. Consequently, university labs became more equipped to commercialize research results, receiving income, especially royalties, which facilitated future research operations and helped fund the continued education of vital human resources.

Academic institutions were granted more than 20,000 patents between 1993 and 2000 for technologies discovered by their researchers. Over 3,000 new companies have been formed since 1980, based on the licensing of inventions from academic institutions. Commercialization of new technologies from academic institutions generated some \$30 million of economic activity each year – supporting some 250,000 jobs. There are more than 1,000 products currently on the market that are based on university-licensed innovation.⁹⁷ There is also a growing trend for more involvement by private industry in funding university research, facilitated by IP policies which enable all parties, direct and indirect, to partake of the social and economic benefits derived from public research.

The experience of the United States of America with regard to collaboration between universities and industry through IP policies introduced by the BDA is worthy of emulation by developing countries, if the context that made the BDA work in the United States of America is clarified in the light of the particular needs of the developing country wishing to activate commercial exploitation of public-funded research results.⁹⁸ Several countries are taking the necessary steps to introduce IP policies similar to the BDA.

University Research is Good Business... in all Countries

The results attributable to the BDA have encouraged other countries to move in a similar direction, but in some cases, through different mechanisms or approaches. The Japanese Government, in 1998, enacted the Law for Promoting University-Industry Technology Transfer, which encouraged patent activity in universities based on IP strategies.⁹⁹ This is an approach similar to the BDA, in which the university takes legal title to the IP associated with an invention, and makes appropriate arrangements with private industry for the commercialization process. An income stream from the anticipated royalties from sales is an integral component of this approach. Countries that are moving in this direction include Denmark, Finland, Germany, Norway and the Republic of Korea.¹⁰⁰

Other countries have approached the objective of vesting universities with the appropriate IP titles and incentives through employment laws. In those situations, certain university personnel were previously exempted from employer-employee restrictions on who could own the results of an employee's research; under the new laws, the university would be the exclusive owner of intellectual property rights derived from an employee's research, thus facilitating the BDA objectives.¹⁰¹

In still another scenario, some governments, such as those of Canada and Ireland, are attempting to accomplish BDA objectives through "codes of practice" which establish general guidelines on how best to cede to the university all rights and interests needed to allow it to commercialize the results of its publicly funded research.¹⁰²

Whatever the approach, the object of the BDA and other such mechanisms is to give the university where the research is taking place intellectual property rights in the results, and, thus, the best basis upon which to enter into partnerships with private enterprises (whether existing, created or spun-off), which will commercialize the results, manufacture and distribute the products and services, produce income for all contracting parties, and create real world benefits, in the form of, for example, newly developed drugs, or other needed products or services.



The Technology Licensing Office

Universities that can now claim ownership of the results of their research need the expertise to establish the legal rights involved and commercialize the resulting products and services, creating an income stream. That need has, in many instances, led to the establishment of a Technology Licensing Office (TLO).

The main functions of the TLO include: (1) reviewing all university research and maintaining awareness of status and anticipated completion, as well as of possible usages and avenues of commercialization; (2) filing and processing patent applications for all research results with commercial or other potential; (3) seeking out partnership relationships with private industry and the philanthropic sectors; (4) formalizing relationships with partners on the most practical and potentially lucrative bases; (5) constantly reviewing procedures, results, problems and situations in the research side of the operations, and proposing viable solutions.



Different structures and management styles are being experimented with, as the TLO is a relatively new phenomenon. Some are quite successful, while others are still finding their feet. It appears from the collective experience that TLOs need to be local and close to the main actors, as many contacts and initiatives are entered into based on personal or long-standing relationships between the actors involved. There is some experimenting with regional TLOs, but the majority of those which are successfully licensing patent rights are in closer proximity to the R&D action. The number of licenses at a typical TLO is small, as would be expected with research which may take years to bear fruit.

TLOs serve an important function in bringing products and services to the people who need them, and the following examples illustrate how they are fulfilling their mandates and achieving successful results.¹⁰³

- The Council of Scientific and Industrial Research (CSIR) of India created *Patestate*, a collaborative effort involving the Intellectual Property Management Division of CSIR, the Department of Biotechnology, and the Government of India, to facilitate the process of licensing the potential drugs developed by the country's laboratories. *Patestate* seeks commercial, private industry partners, handles the licensing, and follows through on all

transactions. To date, there are some 6,000 CSIR patents worldwide.¹⁰⁴

- Two nascent TLOs are starting on the path to successful commercialization of the results of their respective nations' R&D. The *Scientific and Industrial Research and Development Unit* (SIRD) of the Uganda National Council for Science and Technology is tasked with creating "the policy environment for conducting scientific research of social and economic significance to Uganda, so as to improve the quality of life and generate wealth".
- The *National Council on Science and Technology* (NCST) of Jamaica is undertaking national networking of science and technology institutions, to encourage and facilitate dialogue and information sharing, and encourage collaborative efforts aimed at commercializing R&D projects.¹⁰⁵
- The University of Stellenbosch in South Africa has created an *Office of Intellectual Property*, with the tasks of protecting the IP produced by the University's R&D programs, and with seeking commercial partners and other commercial applications for it. The University has also started *Unistel Holdings*, a holding company for the spin-off companies which R&D often creates. To date, the holding company has generated revenues of around \$11.14 million a year, and has directly led to the creation of 138 new jobs. Also in South Africa, the University of Cape Town has created *UCT Innovation*, a wholly owned company, to commercially exploit the university's IP—it has already earned about \$1.78 million.¹⁰⁶

The TLO is a new, quickly evolving and integral component of the new paradigm in PPP. The tremendous results achieved by the better organized and better financed PPPs are encouraging and deserve closer examination.

Components of PPPs

The incentives provided by the IP system, harnessed by initiatives such as the BDA, have helped create the increasing number of global, well funded PPPs, many of which are focused on attacking and defeating some of the world's worst diseases.

The new breed of PPP is different from the previous ones in many respects, and involves three categories of partner.

- The *public sector* is by far the biggest and most important player in the new PPPs. Countries seeking solutions to problems such as HIV/AIDS, tuberculosis and malaria, are the biggest source of funding, and other necessary resources to make the PPPs work effectively.
- The *private sector* has understood the power and incentives and benefits of the IP system since the beginning. However, prior to the setting up of PPPs, companies were limited by several factors, including the need to focus on profit. Charitable endeavors were occasionally undertaken, but private enterprises were not set up for that purpose, and as such, their PPP involvement was quite limited. That all changed with the enactment of the BDA, because for the first time, everybody's concerns could be discussed, negotiated and satisfied—intellectual property rights generated by the PPPs allowed all the players to win. The private sector provides not only funding, but also hard-core expertise and scientific talent, and the necessary structure for producing, manufacturing and distributing the finished products and services.
- The *philanthropic sector* is the third category of partner in the new PPPs. It includes the foundations and tax-exempt organizations which are often referred to as non-profit organizations, including NGOs. This sector often brings financing and human resources expertise different from that contributed by the private sector. Lately, two well-funded foundations have received much media attention for their pioneering work on the curing and prevention of pandemic diseases, namely, the *Bill and Melinda Gates Foundation*, and the *Rockefeller Foundation*. They are both pioneering participants in PPPs in areas where their involvement is critically necessary, and where their policies are creating noteworthy trends in how PPPs can work even more effectively.¹⁰⁷



PPPs with Intellectual Property Rights Management

Generally speaking, research into drugs for many diseases prevalent in developing countries is too risky an investment for the private sector, therefore, various policies have been implemented to provide incentives.

For example, in 2000, the United States of America introduced a tax credit on sales of vaccines for malaria, tuberculosis and HIV, which resulted in a significant increase in vaccine research at the National Institutes of Health. The European Union considered an incentive package for private sector investment in research on vaccines for those three diseases which included low-cost loans for small biotechnology companies, purchase funds, and limited patent term extension on lucrative products in exchange for transfer of some patent rights to international public health organizations. With regard to the patent term extension, opinions are divided.¹⁰⁸ However, it merits consideration.

Based on lessons learned from initial attempts at forming PPPs, which gave mixed results, some guiding principles and precepts have emerged which could reduce the risk of failure, and maximize the chances of success. Those lessons include using intellectual property rights as incentives for the private sector.

The strategic use of IP applies not only to private sector manufacturers but also to other players such as private investors. The following is a *Note of Advice* to public investors interested in the Canadian biotech sector: "One of the issues particularly important to venture capitalists abroad is the protection of their investment's intellectual property. Biotech companies must retain the rights to manufacture and market at least some of the products that emerge from their research laboratories in order to build stockholder value and justify a healthy market valuation for the company. Investors follow when the intellectual property is 'rock-solid', well-protected, covers a wide geographical base, and extends well into the future."¹⁰⁹

With the insertion of IP policies and strategies as additional incentives, the new PPPs are now focusing at the outset on the business considerations necessary to attract adequate resources and provide business-based solutions and options for the key players. The patent rights obtained on the results of R&D are the IP assets, which are the subject of the negotiations and the contracts relating to future commercialization activities. The new PPP business plans resolve at the outset issues such as the extent and quality of R&D needs; IP identification, hypothecation, commercialization and securitization; potential products and services, and the spin-off businesses which they could create; and the allocation of income, royalties and other commercial considerations, in the most equitable ways. Access conditions are also often formulated and agreed upon as part of the IP

business plan and include such considerations as price ceilings on final products; territorial marketing segmentation; exclusive versus non-exclusive manufacturing and/or distribution rights; alternative access pathways and mechanisms in case one of the players fails to deliver what has been promised; and hopefully in every one of these plans, some form of domestic capacity building as an essential component.¹¹⁰ The formation of the PPP business plan can be seen in general terms as effectively balancing the incentives necessary for full participation by private industry and public policy objectives including certain conditions on access to all products to be generated by the particular PPP.

PPPs in Action

On January 24, 2005, the *Bill and Melinda Gates Foundation* announced that it was donating \$750 million to the Global Alliance for Vaccines and Immunization (GAVI). Previously, the Gates Foundation had donated the largest private donation to the United Nations-initiated Global Fund to Fight AIDS, Tuberculosis and Malaria, and had helped create the Global HIV/AIDS Vaccine Enterprise. Each of those endeavors involves scientific research and development on a massive scale.



A current project of the Gates Foundation is known as the “*Grand Challenges in Global Health*” initiative, whose aim is to “bulldoze the roadblocks standing in the way of medical objectives”.

How does the Gates Foundation decide where to invest its considerable assets? In this instance, it asked “top researchers to tell us which breakthroughs could help solve the most critical health problems in the developing world. Scientists from more than 80 countries sent in thousands of pages of ideas, which led to 14 specific Grand Challenges in Global Health. Once we published these challenges, more than 10,000 scientists submitted proposals for research.”¹¹¹

The *Grand Challenges* initiative is a good illustration of what is possible. The challenges, themselves, were selected for several reasons, but one not so obvious reason is always a major consideration for the Foundation when choosing which projects to undertake: “Priority is given to projects that leverage additional support.” In the GAVI project, for example, additional support from UN agencies, from private industry and from national governments, was not only a key factor, it was obligatory, or the Foundation would not have become involved.

All of the Gates Foundation's projects are R&D intensive, with results susceptible to patenting and commercialization. IP issues are agreed to beforehand with the understanding that the public interest will be the predominant consideration. All data is shared among the participants; manufacturing and distribution considerations are hammered out at the earliest possible opportunity for maximum efficiency, and for the most widespread results. Private industry is highly involved in these projects. Not with a view to privatizing the resulting vaccines for their own profits but, rather with the aim of building on research results for possible spin-off projects, and also contributing to the well-being of mankind — corporate social responsibility in action.

Some of the Grand Challenges are: (1) preparing vaccines that do not require refrigeration; (2) creating a full range of optimal, bio-available nutrients in a single staple plant species; and (3) developing a strategy to deplete or incapacitate a disease-transmitting insect population.

Another good illustration of a PPP can be found in Kenya. The *Kenya AIDS Vaccine Initiative* (KAVI) has already produced a drug aimed at preventing infection with HIV, which is currently undergoing final testing. The Government of Kenya developed a strategic policy to attack the disease, and allocated funding towards relevant R&D. Scientists from the University of Kenya were joined by scientists from Oxford University and the British Medical Research Council, on a line of research triggered by the realization that a high-risk segment of the population of Nairobi was proving to be consistently immune to HIV. The PPP commenced its operations, however, with insufficient attention to the IP aspects of the project, and a misunderstanding occurred during the research. After careful consideration by all parties, a satisfactory arrangement was agreed upon, which leveraged the intellectual property assets and allowed commercialization to move forward with incentives rather than distrust. One of the final points agreed to concerned guaranteed access to the ultimate drugs to be produced. Kenya's Minister for Tourism, Trade and Industry captured the innovation culture spirit when he said, "... my advice to local researchers is to include matters of intellectual property rights from the launch of any collaborative research agreements or memorandum of understanding."¹¹²

CHAPTER 8

CULTURAL HERITAGE, CREATIVITY AND NATIONAL PRIDE



Intangible cultural heritage provides nations and communities with a sense of continuity with previous generations, is intrinsic to cultural identity and its preservation and promotion contributes to cultural diversity. As a result, many initiatives are underway internationally, nationally and locally to safeguard it.¹¹³

Intangible cultural heritage is also a mainspring of creativity, as it is in a permanent process of production; it is cumulative and creative. Cultural policies encompass, therefore, not only the preservation of traditions and of the values and standards handed down by past generations, but they must also address issues related to present and contemporary creativity.¹¹⁴

Moreover, in this age of technological advances, social transformation and globalization of trade, there is a growing recognition of distinctive cultural traditions as a basis for new forms of sustainable development. The local and “authentic” are increasingly appreciated. While cultural difference is valued anew and cultural diversity actively promoted, cultural and symbolic goods are in growing demand and enjoy enhanced economic value.

Cultural Heritage and IP

Developing countries should respond to these trends and growing consumer demand for difference and distinctiveness, by leveraging their rich cultural heritage and creating and trading in novel and culturally distinct goods and services. IP protection has an important role to play in facilitating the creation and dissemination of culturally distinct creations. Copyright, for example, allows the exploitation of the products of creative literary and artistic works—such as music, books, software and art—and protects them against illegal use.

IP protection provides the legal basis for the cultural industries, which, drawing upon cultural heritage as a source of inspiration and creativity, can act as powerful engines of economic growth, generating considerable income and employment fuelled by growing demand for cultural and symbolic goods and services in an expanding marketplace. Many businesses today - small, medium and large - create wealth using the forms and materials of traditional cultures – local cooperatives that produce and market handmade crafts, industrial textile manufacturers that employ traditional designs, producers of recordings of traditional music, pharmaceutical manufacturers that use indigenous knowledge of

healing plants, promoters of tourism, and entertainment conglomerates that employ various forms of traditional representations for motion pictures, amusement theme parks and children's toys.¹¹⁵

For indigenous and other traditional communities too, expressions of their traditional cultures and "folklore", perhaps the most outward manifestation of a people's cultural and economic capital, are also often a source of creativity. After all, it is increasingly recognized that the unalloyed re-creation and replication of past traditions is not necessarily the best way of preserving identity and improving the economic situation of indigenous, local and cultural communities. It is creativity and enhancement of heritage that represent the ideal way.

Yet, too often cultural products deeply rooted in the cultural heritage of developing countries have crossed borders and established significant market niches in industrialized countries, not benefiting adequately the countries of origin.¹¹⁶ Developing countries need to put in place strategies and action plans to encourage and reward creativity by their own nationals, and allow them to compete in regional and international markets, as a contribution to the economic, social and cultural development of their countries. The link between cultural heritage, culture and economic development is now being more appreciated. International and regional financial institutions, such as the World Bank, have begun to support cultural development projects that treat culture as an economic resource that is able to contribute to tourism, retention of creative talent, poverty alleviation, local job creation and foreign exchange earning.



Developing countries should also look into how best their nationals could leverage the cultural heritage of their country, by identifying, establishing and promoting a "nation brand," because sophisticated consumers are concerned not only with quality and price, but also with the origin of the particular products and services, and the culture behind them.

Clarifying IP issues can also facilitate wider and equitable access to archives, libraries and museums for educational, scholarly and commercial purposes.

However, one should bear in mind legitimate concerns with what some disparage as the "commodification of culture". Indeed, cultural heritage is not merely there to be leveraged as an economic resource. The

relationship between tradition, modernity and the marketplace is not always perceived to be a happy one. What is creativity and development from one perspective may erode traditional culture from another. And the imitation or marketing of cultural forms and culturally specific artistic works by the commercial sector might be counterproductive to the welfare of the local communities in subtle yet destructive ways.

So, in this multicultural and connected world, there is growing support for the view that culture should not be treated as a mere commodity and that heritage as such is worthy of preservation. Notions of “identity”, “authenticity”, “reputation” and “origin” are increasingly valued and seen as worthy of promoting and safeguarding.

This means that when encouraging creativity and development based on their cultural heritage, developing countries should also bear in mind cultural as well as economic objectives.

Here too IP tools can play a key role, through values embedded in the IP system that prevent misappropriation and culturally offensive uses, complement initiatives aimed at cultural heritage preservation, keep valuable secrets, recognize non-pecuniary interests, and allow the valuation and safeguarding of local distinctions.¹¹⁷ Recognition of the cultural role of copyright does not deny its economic function; on the contrary, it complements and further legitimizes it.

Using the full potential of the diverse and flexible tools that make up the IP system, developing countries should encourage their creators and innovators to take advantage of all that IP has to offer in meeting both commercial and cultural needs. Coordination and balance are needed.

Through tactical branding, protecting symbolic value, safeguarding reputation and goodwill, and building recognizable distinctions of origin, IP tools can be used in complementary ways to address a range of cultural concerns.

For example, copyright does not impose the commercial exploitation of creative works, but it empowers those creators who may wish to disseminate and exploit their creative works, by enabling them to ensure that such exploitation is in accordance with their wishes and is respectful. “Moral rights” correspond to the interests of creators to be identified as the originators of a particular work, and the ability to control

the conditions that surround its dissemination, be it from the very decision to go public to the safekeeping of authenticity - thus addressing both economic and cultural dimensions.

In addition, IP laws governing trademarks, geographical indications and national symbols, as well as the related area of the repression of unfair competition, aim at the protection of established reputation, distinctiveness and goodwill associated with goods and services, and the avoidance of deception or confusion among members of the public. Diverse cultural goods and services—bearing distinctive names, words and other indications protected by IP—advance cultural interests and promote cultural diversity.

IP is therefore about choice and there is no “one size fits all model”. Depending upon identified needs and objectives, intellectual property offers a range of tools which can address, in a complementary way, both economic and cultural concerns, reinforcing links between cultural values and cultural valuables.



Cultural Industries

A nation’s cultural heritage will manifest itself in the nation’s “cultural industries,” a term which refers to commercial (and sometimes non-profit) enterprises which deal in the creation, production, manufacture, distribution and/or commoditization of products and services in such fields as: music, audiovisual, art, architecture, literature, information technology, interactive entertainment and education. Every one of the foregoing items is a vehicle, or platform, pursuant to which the nation’s culture could, where appropriate, be identified, examined, disseminated, enhanced, and thereby channeled for maximum effect. Such industries have their strength rooted in the protection of their primary products and services mainly through the laws of copyright and related rights.

Both cultural heritage and cultural industries are important forces for creating wealth, and, to some extent, have been overlooked by some developing countries. Due to the lack of an internationally standardized methodology to quantify the economic impact of culture and the cultural industries, policy makers have not had sufficient information to fully recognize the magnitude of the potential that their country’s culture, and therefore its cultural industries, can have in respect to growth, development and wealth creation.

A recently-published WIPO guide suggests a standard methodology for ascertaining and measuring the impact of the cultural industries by, *inter alia*, introducing a clear definition of “core copyright-based industries.”¹¹⁸ The core copyright-based industries of the United States of America, for example, contributed approximately \$535 billion, or 5.2 percent of its GDP, and the creation of jobs for 4.7 million workers in 2001. The cultural industries contribute more to the US economy and employ more workers than any other single industrial sector.

In the year 2000, however, it was India which produced the single highest number of motion pictures of any nation in the world, not the United States, Japan, France, or the Hong Kong Special Administrative Region of China (the top five for that year).¹¹⁹ It is estimated that India’s cultural industries have a potentially significant impact on the Indian economy which may be comparable to that of the United States. A preliminary survey shows that the copyright-based industries in Singapore contributed 5.6 percent to GDP in 2001.¹²⁰ Though the methodology and the definition of copyright-based industries is different from that espoused in the WIPO guide, similar studies show that copyright industries account for between 5 to 7 percent of GDP in Brazil, Finland and the Netherlands.¹²¹ Another study suggests that the contribution of cultural, creative and copyright industries to the GDP in China, Colombia, Venezuela and South Africa ranges from 2 to 3 percent.¹²²



Some developing countries have strong cultural industries. For example, Brazil, Egypt, India and Mexico are exporters of film and television programming.

The first animated film series to come out of the African continent is about Kabongo the griot, a West African storyteller. The film, made entirely in Africa, is the work of a small animation studio, Pictoon, based in Senegal’s capital Dakar. Broadcast on the Canal France International satellite services, Kabongo was an instant hit. Pictoon’s founders, two Senegalese, plan to create more African cartoons, inspired from legends and stories that have been passed from father to son for generations, because such stories, they believe, hold a universal appeal. Pictoon understands the value of its intellectual property and has registered Kabongo with the French collective management society, the Society of Authors and Composers of Dramatic Works. The founders say “unless we know how to sell our culture, others will sell it for us. The art industry is really important to Africa because it creates an image of us.”¹²³

The Intergovernmental Conference on Cultural Policies for Development (the Stockholm Conference), organized by UNESCO in 1998, adopted an Action Plan which recommended that countries should “reinforce policy and practice to safeguard and enhance the cultural heritage, tangible and intangible, movable and immovable, and to promote cultural industries.”¹²⁴ As a background paper for the Conference explains, “countries which have recognized the strategic importance of creation, copyright and the cultural industries and have given them adequate attention are privileged both in cultural and economic terms today, while nations which have neglected them are confronted with the uneasy alternative of being either overrun by foreign cultural products and contents – which entails heavy royalty payments and a sense of cultural identity under threat – or taking the protectionist route of closure. Associated with this dilemma is the important problem of the brain drain of artists and cultural workers.”¹²⁵

Governments of many developing countries have struggled to implement policies and strategies to enhance cultural heritage and which support the cultural industries. One key element which is often missing in those countries, and which is seen as the weakest link in this particular value chain, is a realistic, operational institutional framework which both facilitates and respects the commercial exploitation of the country’s cultural heritage, and the consequent conversion of that cultural heritage into cultural assets which have economic value.



Richness in cultural heritage by itself cannot generate wealth. Today’s commercial exploitation of cultural heritage, and the generation of tradable cultural assets in the market, requires a sophisticated business, financial and legal footing, the very kind which the IP system and its incentives and infrastructure provide. Such business-based endeavors relative to cultural heritage have more chances of success if they are undertaken in an environment where the IP system is effectively integrated into the government’s policies and strategies.

Because, as we have seen too often, the absence of IP conscious policies and strategies will most often lead to a situation where a country’s cultural heritage, and its potential cultural assets, remain dormant, worse are exploited by others... from foreign countries... in foreign countries.

Creating and Protecting a Vital Revenue Stream

One of the most important and essential elements in the critical infrastructure of the intellectual property-conscious nation, relative to its cultural industries and cultural assets, is the existence and proper functioning of collective management societies. Those societies facilitate mass, country-wide licensing agreements (especially noteworthy in the public performance and broadcasting arenas); and the collection and distribution of royalties (domestically and through the network of other societies around the world) for the usage of works by their members. The general impact such societies have, not only on individual authors, creators and musicians, but also on the individual businesses, firms and the industries at large in terms of their enhanced growth and development potential—adds a positive dimension to the distribution and dissemination of cultural works.



The lack of such national collective management societies has also contributed to the trend towards successful artists, and would-be successful artists, in developing countries leaving their homelands. For example, the most successful African musicians have been those who emigrated to France to record their music, and to seek the advantages of the French-based collective management societies; if they had stayed at home, they would have languished in an environment with little, if any, possibility of earning a living from their craft. There are, unfortunately, many other similar examples in African countries, the result of policies relative to taxation, investment, etc., which have not supported the development of the cultural industries, and prompted many musicians to go abroad. In 1985 and 1986, for example, the government of a west African country assessed a 160 percent import duty on musical instruments, and disallowed tax waivers for companies sponsoring artistic and cultural events.¹²⁶ One aspect of this tragedy—the “talent drain” out of Africa—is that it is happening at precisely the same time that African music is becoming very popular in other parts of the world.¹²⁷

Some countries are now realizing the national as well as the economic benefits of strengthening their infrastructures and the related functions necessary for the effective enforcement of IP rights, and specifically in respect to cultural heritage and cultural assets, copyright and related rights, and the process of broad based licensing.

Jamaica has achieved a 3.5 percent share of the global music market. Jamaican composers and musicians account for about \$385 million of the royalties received by European, American and Asian collective management societies.¹²⁸ That is the external picture. In the country itself, the Jamaican Performing Rights Society, which for 64 years was the sole collecting society in Jamaica, reported domestic collections of approximately \$2.5 million—most of that sum accruing to the accounts of foreign composers and musicians. This deficit is caused by underdeveloped legal and institutional capacity in the country, including the collective administration and weak enforcement of copyright.¹²⁹ Furthermore, due to a lack of the required expertise in international licensing and international copyright and related rights laws, Jamaica, and its composers and musicians do not receive their proper portion of royalties collected in developed countries. With enhanced technical assistance plus the innovation culture attitude, Jamaican artists could re-evaluate all existing arrangements so that they could receive their proper share of global copyright and related rights revenues, which are estimated to effect at least a 3 percent increase in Jamaica's GDP.¹³⁰



In an effort to counter this imbalance, WIPO assisted the Caribbean region in strengthening collective management societies by helping to create the Caribbean regional database, which includes documentation on more than 26,000 Caribbean musical works. This database enables Caribbean music to be identified and accounted for when it is performed or broadcast in public in the Caribbean and in foreign countries. More than 300 creators have joined this initiative during the last two years, which indicates a growing level of confidence by creators in their own organizations.¹³¹

The Role of Museums and Archives

Recent initiatives to digitize and make widely available entire libraries and other cultural and historical collections hold the promise of promoting cultural exchange and diversity, museum, library and archival services, scientific and scholarly progress, educational opportunities and creativity.

IP issues arise at every stage of the collection, cataloguing, inventorying, recording, presenting and re-use of cultural materials by cultural heritage institutions and specialists. For example, as museums, libraries, archives and galleries produce derivative works such as databases, catalogues,

coffee-table books, educational materials, postcards and other mementos, they need to address and manage a range of IP questions. IP issues become even more pressing as they set up digital libraries of their collections.

Further IP issues are raised in claims by indigenous and traditional communities that activities by museums and cultural specialists do not take adequate account of their rights and interests; and that documenting and displaying a traditional song or a tribal symbol, for example, make them vulnerable to misappropriation. In other words, the very process of *preservation* of traditional cultural expressions can trigger concerns about their lack of legal *protection*.

Cultural institutions and specialists, indigenous communities and other stakeholders are increasingly seeking technical information and advice from WIPO and others on these issues with a view to formulating appropriate strategies that take relevant intellectual property issues into account.¹³²



Identifying, clarifying and strategically addressing intellectual property options in relation to safeguarding cultural heritage could strengthen synergies between the protection of cultural documentation and its preservation, enhance respect for traditional cultures and promote the wider exchange of cultural expressions between the peoples and communities of this culturally rich and diverse world.

Ultimately, equitable and secure access to the collections of museums and archives, fully using available intellectual property tools, holds the great promise of promoting creativity and economic development, museum and archival services, scientific and scholarly progress and educational opportunities.

Canada provides a good example of the beneficial results which can result from museums' use of the IP system. In 1982, Canada's Multiculturalism Policy was enshrined in the Constitution: "Through multiculturalism, Canada recognizes the potential of all Canadians, encouraging them to integrate into their society and take an active part in its social, cultural economic and political affairs."¹³³ In the same year, the *Canadian Heritage Information Network* (CHIN) was established under Canada's cultural policies, and became a national center providing a visible face to Canada's cultural heritage through the world of networked information. CHIN promotes the development, the

presentation and preservation of Canada's digital cultural heritage content for current and future generations of Canadians.¹³⁴ A number of museums in Canada have begun to both market and license their images in multimedia products; other museums have considered following the same path. To assist its members (more than 1,000 cultural institutions across Canada) in marketing and licensing their respective products, and to achieve a reasonable income stream so as to be able to recoup the costs involved in sustaining such an infrastructure, copyrights and trademarks are relied upon as key tools. To better accomplish these objectives, CHIN supports its members through, *inter alia*, the preparation of recommended economic models for administering the IP assets of its museum members.¹³⁵

Piracy and Counterfeiting

To enhance national cultural heritage and to encourage domestic authors, artists and creators to identify, amplify and create cultural assets, it is crucial to create, nurture and sustain a societal attitude which respects creativity—and which conversely disapproves of theft, plagiarism and dishonest practices. The public must be educated about not only the severe economic impact (loss of income and jobs), but also the societal and cultural impact of piracy and counterfeiting on the nation and its citizens (talent drain to other countries, diminished cultural industries, and consequent decline in national cultural activities and assets).



Piracy and counterfeiting are worldwide problems facing all countries, whether developed or developing. The problems associated with piracy and counterfeiting are rooted in both the suppliers of pirated and counterfeit goods, and in the consumers who knowingly purchase such goods. Individual activities on a small scale accumulate and can ultimately make a large impact on a national scale.

Allowing pirated and counterfeit goods to be sold has the effect of driving out of the country the authentic cultural creators and into that vacuum, i.e. the shortage of authentic and affordable national cultural assets, the illegal copies arrive and eliminate any possibility for domestic industry, local culture, or any sort of national pride-building enterprises to take root. The IP system and its incentives and infrastructure provide proven mechanisms to enforce intellectual property rights, to nurture and sustain local creators, and to help build domestic enterprises, industries and national pride in the country's cultural heritage. In this never-ending

struggle, no nation can be victorious by itself—international cooperation is essential. But individual nations bear the primary responsibility for establishing and implementing their national IP policies.

Dissemination of Culture Through New Technologies

A culture cannot survive in a vacuum, it needs to be shared, used and enjoyed in order to stay alive. Disseminating culture helps to achieve this, as well as facilitating a better understanding of it among those of other cultures.

The Internet is one of the most effective means of global communication and dissemination of culture and knowledge, along with CD, DVD, MP-3 and related technologies.



However, making effective use of the new technologies in conjunction with cultural assets and cultural heritage is not so simple. For example, merely recording folklore can be fraught with social, cultural, and even legal issues which require deep thought and creative solutions.

We are confident, however, that practical, workable solutions can ultimately be achieved through national and international debate involving the creators and users of cultural assets. For example, as part of its contribution to the World Summit on the Information Society (WSIS), WIPO organized an Online Forum on Intellectual Property in the Information Society in June 2005, to provide a unique opportunity for all interested parties to engage in an open debate on issues related to IP in the information society.¹³⁶

In response to such questions as: whether and how the IP system can support freedom of expression and creativity; how copyright functions in collaborative creative processes; and how future creativity will be affected, hundreds of comments were posted during the two-week session. While some expressed concerns that the current copyright system is excessively tilted towards the interests of the copyright owners as opposed to the public interest or consumers' benefit, other comments suggested possible solutions to make copyright licensing more flexible and simple, so that the system could cater to the needs arising from an increasingly open and collective process for producing and improving creative works, as well as an increasingly global, individual and speedy process for disseminating and transacting works over the Internet.

Choices for Wider Dissemination of Creative Works

There is growing concern that the copyright system currently leads to a diminution of the public domain, and hampers the dissemination of information and knowledge that is necessary for creative activity. This concern has its basis in a lack of knowledge among creators about the choices available to them to make their works available to the public. While copyright owners can reserve all rights in their works, they can also choose to put their works in the public domain, assign copyright or grant a license to users either for payment or free of charge. Copyright licensing options include the so-called Creative Commons, and the GNU Public License of the open source software project. Music files have recently been offered free of charge by such copyright owners as the Culture Minister of Brazil, Gilberto Gil, (himself a well-known singer and composer) with a clear indication that others are allowed to enjoy them or use them for their own creative work.¹³⁷



Policy advisors of developing countries may wish to consider how the balance between the various interests involved should best be struck, perhaps by reflecting on the experiences of other countries.¹³⁸ Most copyright and related rights laws have exceptions and limitations which protect certain public policy objectives.

The copyright and related rights system is less complicated than the patent system as far as the acquisition of rights is concerned, since it does not require registration or renewal, nor examination by the government. In this regard, users of the copyright and related rights system in developing countries have cost-free, independent and equitable access to the system. This contrasts with the patent system. Thus, authors, artists and creators in developing countries are able to contribute to their country's efforts to utilize cultural heritage by creating and disseminating cultural economic assets, all under and with the international power of the copyright and related rights system. However, as the previous sections have discussed, the weakness of the national infrastructure relative to licensing and collecting royalties, as well as insufficient support for the enforcement of copyright and related rights, needs to be addressed to realize the potential which lies, too often dormant, in cultural and creative activities.

Protecting Traditional Cultural Expressions/Folklore and Traditional Knowledge

Indigenous, local and other cultural communities justly cherish traditional cultural expressions (TCEs) and knowledge as part of their cultural identities. Maintaining the distinct cultural processes that give rise to TCEs, and sustaining the cultural life that finds expression in them, can also be vital for their future well-being and sustainable development and for their intellectual and cultural vitality.

While the artistic heritage of a community plays significant social, spiritual and cultural roles, it can also, as a source of creativity and innovation, play a role in economic development. The use of traditional cultural materials as a source of contemporary creativity can contribute towards the economic development of traditional communities through the establishment of community enterprises, local job creation, skills development, appropriate tourism, and foreign earnings from community products.

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By providing legal protection for tradition-based creativity, IP protection can enable communities and their members to commercialize their tradition-based creations, and/or to exclude free-riding competitors. The marketing of artisanal products also represents a way for communities, especially women to earn income, show and strengthen their cultural identity and contribute to cultural diversity. IP can assist in certifying the origin of arts and crafts (through certification trademarks) or by combating the passing-off of fake products as 'authentic' (through the law of unfair competition), for example. Communities have used their IP to exercise control over how their cultural expressions are used, and to defend against insensitive and degrading use of traditional works.¹³⁹

Traditional cultural manifestations are also a source of inspiration and creativity for cultural industries, such as the entertainment, fashion, publishing, crafts and design industries. Many businesses today, small, medium and large, in developed and developing countries, create wealth using the forms and materials of traditional cultures.

However, as traditional cultural expressions themselves have often been passed down from earlier generations and are often communally held, created for religious and cultural, not commercial, purposes, and in oral form, current IP systems do not provide all the protections that indigenous and other communities ask for.

Concerns with the misuse and misappropriation of TCEs has given rise to an active and complex debate at WIPO and elsewhere.

Indigenous and other traditional and cultural communities argue that traditional creativity and cultural expressions require greater protection in relation to IP. They cite a wide array of examples: indigenous art copied onto carpets, T-shirts and greeting cards; traditional music fused with techno-house dance rhythms to produce best-selling 'world music' albums; hand-woven carpets and handicrafts copied and sold as 'authentic'; the process for making a traditional musical instrument patented; indigenous words and names trademarked and used commercially.

WIPO first began examining the relationship between IP and the protection, promotion and preservation of TCEs/folklore several decades ago. It has an active program of policy development, legislative assistance and capacity building in this area.



The relationship between TCEs and IP raises complex and challenging issues. Expressions of traditional cultures/folklore identify and reflect the values, traditions and beliefs of indigenous and other communities. TCE, often the product of inter-generational and fluid social and communal creative processes, reflect and identify a community's history, cultural and social identity, and values. The challenges of multiculturalism and cultural diversity, particularly in societies with both indigenous and immigrant communities, require cultural policies to maintain a balance between the protection and preservation of cultural expressions – traditional or otherwise – and the free exchange of cultural experiences. A further challenge is to balance a wish to preserve traditional cultures with a desire to stimulate tradition-based creativity as a contribution to sustainable economic development.

While lying at the heart of a community's identity, cultural heritage is also 'living' – it is constantly recreated as traditional artists and practitioners bring fresh perspectives to their work. Tradition is not only about imitation and reproduction; it is also about innovation and creation within the traditional framework.

Therefore, traditional creativity is marked by a dynamic interplay between collective and individual creativity. From an IP perspective, it may often be difficult to know what constitutes independent creation. Yet, under current copyright law, a contemporary adaptation or arrangement of old

and pre-existing traditional materials can often be sufficiently original to qualify as a protected copyright work. Furthermore, tradition-based designs can be registered as industrial designs, and a WIPO treaty already provides international protection for performances of expression of folklore—the WIPO Performances and Phonograms Treaty, 1996. Geographical indications have been registered in respect of handicrafts in Portugal, Mexico and the Russian Federation; and indigenous communities in Australia, Canada, New Zealand, Panama and elsewhere are using certification marks to guarantee to consumers the authenticity and quality of genuine indigenous creative arts.

This leads to a key policy question—is the existing IP system adequate or are new specially developed (*sui generis*) IP-like measures needed? Responses to this question are diverse.



The WIPO Intergovernmental Committee on Intellectual Property and Genetic Resources, Traditional Knowledge and Folklore (IGC) is making substantial progress in this complex area.

Whatever might be the eventual outcome of the Committee, its work has already had significant and concrete impact: draft *sui generis* instruments, based on extensive consultations and an open commenting process, have been prepared and are being discussed and are already contributing to and informing national and regional consultations and processes; existing documentation of already disclosed traditional knowledge is now being included within the scope of “prior art” for patent examination purposes, helping to avoid cases in which patents are wrongfully granted over Traditional Knowledge(TK)-based inventions; the aspirations and concerns of indigenous and other cultural communities are now at the centre of IP policy-making; practical toolkits and guides to provide IP advice to TK documentation initiatives and museums, archives and other cultural heritage institutions are in preparation; the work of the WIPO IGC continues to be a process of reviewing the core principles and assumptions of IP; and, through the collection and analysis of actual experiences with IP, TK and TCEs, extensive practical and empirical information is now available, helping to ensure that solutions eventually arrived at are workable, real-world and actually useful to communities.

States have recently, and appropriately we believe, laid emphasis on the international dimension of these issues, because it is most often the borrowing and appropriation of TCEs between, not within, cultures that

causes the most offence. Mechanisms to enforce rights in TCEs and TK regionally and internationally are therefore necessary.

Nation Branding

The benefits which are available from good policies and strategies of governments relative to culture and creativity are not limited to the cultural industries. The strategic integration of the IP system promotes innovation and creativity in all industries and serves as a measurable stimulation for all domestic individuals and enterprises who are innovators and creators.

In the global market, cultural and social aspects are playing an increasingly important role in the decisions of consumers in choosing products and services. For example, many consumers first consider the image perceived from the design, outlook and name of a product, rather than the price. These social and cultural factors can be seen as a value-added component of products and services, and some of them can be capitalized as intrinsic to the value of the brand.



The process and benefits of successful branding are one of the best ways to keep loyal customers, and thus enable providers with a sustainable and competitive position in the globalized market. For entrepreneurs to be successful on a long-term basis, such cultural and social elements should be taken into account, and factored into the innovation and creativity of the producers and their products and services.

The importance of reflecting cultural and social elements in the marketing of products and services, and the enhancement of the brands associated with them, is not limited to strategies of the private sector. Countries can also consider ways to leverage their cultural heritage, by identifying, establishing and promoting a “nation brand,” because increasingly sophisticated consumers are concerned not only with quality and price, but also with the origin of the particular products and services, and the culture behind them.

Enterprises have been using branding techniques and strategies to differentiate themselves and their products and services from their competitors for centuries. Some countries are doing the same. A good image and well-tended reputation can boost a country’s competitiveness

in the same way as a corporate brand. A study suggests the rise of the “Brand State,” in which a carefully crafted and well-executed nation-brand exercise may be instrumental in more effectively taking advantage of a country’s unique culture.¹⁴⁰ The following examples illustrate how the IP system is at the heart of this process and the strategies to accomplish it.

Defining the nation’s image is the initial step on the road towards nation branding. Others include refining that image, promoting it, ensuring it is properly received, and constantly updating and re-defining it in response to any relevant changes or developments. Many nations have whole departments for this type of work, and their results are measurable in terms of the increase in tourism, FDI, transfer of technology, balance of payments deficits or surpluses, job creation, etc.

Nation branding is the creation and establishment of an image of a country based on positive and relevant values and perceptions. The nation brand embodies a shared national vision of who and what the country and its people are, what they represent, what the country physically looks like, and what it stands for. All countries have a “country equity”, that is, an emotional value resulting from an association with that country.¹⁴¹

The external perception of a country is also important: how does the world see that country? All countries have an image in the world, sometimes referred to as “reputational capital.”¹⁴² Understanding that image, refining it to serve the best interests of the country, and effectively marketing the country through nation branding, is happening every day on a global basis. Nation branding can also be viewed as a layer of “value-added” to the quality, and the identification and the perception of the nation and its goods and services; in that connection, the creation and execution of a nation-branding process could become more effective if government policies integrating IP aspects applied. Consider the following examples.

The Hong Kong Special Administrative Region of China “is where opportunity, creativity and entrepreneurship converge,” and has marketed itself as “Asia’s World City”.¹⁴³ Portugal is “Where the Atlantic Meets Europe”.¹⁴⁴ St. Lucia branded itself as the best vacation spot in the Caribbean. When the tourists responded, the Government successfully created linkages to St. Lucia’s garment and fashion sectors.¹⁴⁵ In the same way, Jamaica created effective linkages between its strong tourism sector and its own garment and fashion sectors.¹⁴⁶



One of the best nation-branding examples is Spain, which incorporated as elements of its nation-branding strategy the image of Joan Miro's sun, the Barcelona Olympics, the Guggenheim Museum in Bilbao, and such Spanish celebrities as Pedro Almodovar and Penelope Cruz. This strategy has been one of the most successful recent nation-branding initiatives, partly because it has been executed flawlessly, but mainly because it draws on the true culture, identity and heritage of the Spanish people and of the country: it is truly authentic. The success of the nation brand seems to have helped many Spanish multinational enterprises in their quest for market share. The Spanish Government drew on the talents and expertise of some of its key citizens to create and refine its branding initiative, including clothes designer Adolfo Dominguez, film maker Pedro Almodovar and architect Santiago Calatrava.¹⁴⁷

As Spain's example shows, the selection, creation and use of a logo for nation branding can also be a crucial factor. How can the IP system support nation branding and help to maximize the benefits which it offers? In 2002, Poland's Ministry of Foreign Affairs hired a consultancy to design a logo for its nation-branding process centered mainly on the promotion of tourism and trade, and ultimately came up with a red and white kite with the word "Polska." Such logos may be protected as certification marks, and placed directly on goods and used in conjunction with services, to represent the value of the nation and guarantee the quality of specific products—a major benefit when dealing with matters of exportation. New Zealand's stylized Kiwi symbol has been carried on many manufactured exports, and was also adopted as a certified trademark by the New Zealand Manufacturers' Federation.¹⁴⁸



Viet Nam's Trade Ministry is also planning a new national trademark strategy as part of a program to build a national identity for Vietnamese products in domestic and overseas markets. A recent survey conducted by the Ministry showed a lack of recognition of Vietnamese brands among foreign visitors and residents, including the big names in its domestic market, such as Thai Tuan textiles or Vinamilk. Until two years ago, only 1.6 percent of the trademarks registered in Viet Nam were owned by Vietnamese companies. The Ministry has proposed incentives for businesses which use the *Viet Nam Value Inside label*, including half-price advertising in domestic media outlets.¹⁴⁹

Finally, Japan has also introduced its "Japan Brand" strategy, in conjunction with the country's Intellectual Property Strategic Program

2005, which is designed to promote Japan's culture and lifestyle worldwide.

Any superficial brand supported by only a mere marketing campaign, and not secured by the quality and value of products and services, is most likely to fail to win customer loyalty. Successful branding requires constant efforts aimed at innovation and creativity to enhance their value. The process of branding encourages innovation and creativity.¹⁵⁰

This is also true of nation branding. If the nation's brand is not true to the people and to the country, the people will not recognize it (or themselves in it), and the external world will surely discover the disconnect between the brand and the true reality. A nation's efforts to successfully brand itself in the world marketplace, and internally as well, involve many elements, and many different and diverse forces, including political, economic, cultural and geographical.



One point that cannot be emphasized enough is that the *process* by which a nation defines its brand is, in and of itself, worth the cost and effort, as it can help focus a nation's perception of itself and assist it in identifying its strong points.

Every country has a culture, a heritage, resources, natural beauty, and internal qualities that can be identified and defined, highlighted and captured, in a nation-branding initiative which is both pleasing and economically effective. Successful nation-branding efforts result from political will, focused national policies and strategies, and the integration of IP consideration into those policies and strategies.

CHAPTER 9



ACTION PLAN FOR THE EMERGING INTELLECTUAL PROPERTY-CONSCIOUS NATION

For many developing countries, the use of IP as one of their chief and most important policy tools would require a refocusing of national policies and strategies across the board. That refocusing would entail: (1) *integration* of intellectual property elements into all of the government's policies and strategies; (2) *customization* of intellectual property policies and strategies to suit the level of development of the country, its available resources, strengths and limitations; and (3) achieving a *balance* between the interests of the public versus the needs of the private sector, industry and right holders so that certain public policy space may be created for the customized integration. This scenario is designed to encourage the creation of a critical mass of intellectual property rights owned by nationals, the starting point for such development policies.

As developed countries have a longer experience in generating intellectual property assets, and in the use and enforcement of intellectual property rights, developing countries need to bridge that gap by increasing domestic awareness about intellectual property in the context of development, and actively and effectively promoting the use of intellectual property in national strategies and policies, in education, and in nation branding and national culture.

The most effective first step towards the generation of more intellectual property assets is political will and leadership. In an increasing number of countries, whether developed or developing, IP has become a fixed plank in the key note address of the President or the Prime Minister. It is in those countries, with a high level of awareness, that the integration of intellectual property appears to be successfully in progress.

1. CREATE A CUSTOMIZED AND STRATEGIC INTELLECTUAL PROPERTY ACTION PLAN FOR THE NATION

Make a political commitment at the highest level to create and refine a detailed vision and strategy for a country driven by innovation and creativity.

The government should make it very clear exactly what its vision and strategy for the country is, including the goals and objectives, and the timeframe. Government policies and strategies will work with the maximum chance of success if they are communicated to, and applied at, all levels of society, and integrated with IP policies.



In Japan, Prime Minister Koizumi's strong commitment to strengthening the country's international competitiveness through strategic protection and exploitation of intellectual property rights is the driving power of the recent active reform of the IP system in Japan. After he gave that commitment in his policy statement in February 2002, the Basic Law on Intellectual Property, which sets out the basic policy controlling all IP systems in Japan, was enacted in November 2002. Based on that Basic Law, the Intellectual Property Strategy Headquarters was established in March 2003 as the highest decision-making body on IP policy in Japan; it was tasked with strategically and intensively promoting the policies regarding the creation, protection and exploitation of IP. The Headquarters, headed by Prime Minister Koizumi, consists of all cabinet ministers and ten eminent experts from industry and academia.

Another good example of an articulated vision incorporating the elements described above is the statement made by Mr. Thaksin, the Prime Minister of Thailand, in June 2005, at the 15th Asian Corporate Conference.



“Prime Minister Thaksin introduced a concept of ‘value creation’ in order to emphasize it in the Thai government’s economic strategy during the second term of the Thaksin Shinawatra administration. He told participants in the conference that ‘most developing countries have made commodity exports central to their development strategy. As they move up the development ladder, they add value in the form of manufacturing and assembly, which require low- to semi-skilled labor. But over the long term, this model cannot be sustained. Commodities tend to face unfavorable terms of trade. While developing countries may never be able to move away completely from commodities, the Prime Minister believes that they have to make value creation a bigger part of their development strategy. He stated that value creation goes beyond simply adding value. Developing countries in Southeast Asia and elsewhere may proudly point to high-tech assembly plants where value is added to high-tech products. But at the end of the day, the value of such products comes not from the assembly or the plants, but from intellectual property—the patents, the copyrights, the designs—that go into each product. He further pointed out that, ‘for value creation to take place, Southeast Asian countries must first identify their comparative advantages. They must then add intellectual value and skills to create pricing power for their products

and services in the world market.’ He explained that value creation means that ‘one plus one equals more than two.’ How much more depends on how highly the market values the ideas that go into the product. As for Thailand, which is rich in artistic and aesthetic traditions, value creation may mean creating distinctive and unique products, developing new brands, and differentiating products based on the unique Thai style. Or it may be based on something else entirely. What is important is that people must be given the tools and freedom to explore, to experiment, and to create. That is what makes the free market so compelling. The Prime Minister was convinced that value creation represented a new economic model for Thailand and, quite possibly, for Southeast Asia. As its people become more educated and its economy moves further up the development ladder, value creation will contribute substantively to GDP growth. He believes that the creation and protection of intellectual property will become increasingly important as the value creation model takes hold. To encourage value creation, he said, education is the first part of the equation. Thailand is pushing ahead with educational reform in order to create knowledge workers in every field. The second part is the creation of an enabling regulatory environment. In this regard, the Prime Minister indicated that the concept and practice of good governance was of much importance to his administration.”¹⁵¹

Once there is a strong commitment at the very highest level of government, it should be followed by a strategic plan in which new policies, strategies and actions should be clearly delineated. Efficient coordination and cooperation between the various ministries within the government should be ensured as well as nationwide support from all possible constituencies, including industry, consumers, academia, and the public at large, in order to find the best balance among the different interests, and the most suitable customization of policies and strategies for the specific needs and level of development of the country.

Ensure that IP policies are integrated into national development strategy and strike an appropriate balance between public policy objectives and the incentives and infrastructure which fuel innovation and creativity.

To achieve maximum effectiveness, the IP system and its incentives and infrastructure need to be integrated into relevant policies and strategies.

That integration process also requires fine tuning and customization, to ensure it is adapted to the nation's stage of development and its unique needs. Countries where domestic IP capacity is still weak, require proactive government initiatives such as active awareness-raising programs about the IP system in the context of development, programs assisting nationals in using the IP system, and tax credits attractive to intellectual property rights holders.

International assistance is also necessary. In that context, a vigorous international debate examining the role of the IP system and its policies, and the most effective approach to the customizing of IP goals so that they are in line with each government's policies and strategies, is taking place in various fora, in particular at WIPO, in connection with the *WIPO Development Agenda*. WIPO Member States have been discussing how best to incorporate the development dimension into WIPO's various programs and activities. As a key part of that process, WIPO Member States, in particular developing countries, will also benefit from informative discussions and observations made by governments, users of IP, and active members of civil society and academia.



In order to formulate the most effective national IP policies and strategies—those which support both development goals, as well as the accelerated creation of business opportunities for innovators and creators—it is crucial to ensure the widest possible participation of all constituencies in the debate. For example, Japan's national Intellectual Property Strategy is prepared every year through a transparent and participatory process in which any person with an interest can submit comments on the draft. As a result, the 2005 Intellectual Property Strategy program contained 450 items for action, reflecting a fine-tuned balance among the various interests and policy objectives.¹⁵²

2. ENHANCE THE “NATIONAL INTELLECTUAL PROPERTY RESERVES”

Make clear that one of the criteria for successful development is the quantity and quality of IP assets owned by nationals.

A nation conscious of IP sets a clear goal to enhance its level of competitiveness and the richness of its culture. Its indicator is the quantity and quality of intellectual property rights with commercial or cultural value, i.e. IP assets, owned by nationals. Such assets could be called “national

intellectual property reserves” and could constitute part of national GDP in the knowledge-based economy and society of this century.

The national IP reserves will grow if the innovation cycle is powered with good policies and run by capable professionals. The following are particularly important:

- (1) Promote a culture conducive to innovation and creativity and empower entrepreneurs and creators, while combating counterfeiting and piracy;
- (2) Build national capacity and develop human resources for IP assets management, bearing in mind that universities and the public research institutions are key; and
- (3) Leverage the country’s comparative advantages and unique strengths, including traditional knowledge and cultural heritage.



To enhance national IP reserves, the accessibility of the IP system should be addressed at the outset. Awareness of IP in general should be enhanced and access to the IP system made as easy and inexpensive as possible. As most of a country’s reserve of intellectual resources and its knowledge base are concentrated in universities and in public research institutions, specific goals and strategies may be useful to encourage researchers and scientists.

For example, in India, the CSIR, a national network of 38 publicly funded industrial R&D institutions, set a clear goal regarding the number of patent filings to be achieved in a certain timeframe.

To create more IP assets, human resource development regarding IP rights, in particular with respect to patents, is essential, as the Director-General of the CSIR, Dr. Mashelkar, stated:

“...Skills in filing, reading and exploiting patents will be most crucial in the years to come; but our ability to read or write patents is very poor. Neither can we properly protect our inventions nor can we understand the implications of the patents granted to our competitors. Many of the patents written by our professionals could be easily circumvented. Manpower planning for intellectual property protection needs priority. Intellectual property must be

made a compulsory subject matter in the law courses in the universities in India. Our graduates coming out of engineering and technology streams have no idea about intellectual property, and yet it is these young people, who will have to fight these emerging wars in the knowledge markets.”¹⁵³

Another important resource, which is undervalued in certain countries, is their unique store of traditional knowledge and cultural heritage. Traditional knowledge can provide a basis for scientific and technical research and if its stakeholders are assisted in using the IP system, dynamic partnerships can be created giving win-win results for all parties concerned.

A good example is a commercially successful venture based on traditional knowledge about a plant called *Hoodia gordonia* held by the San people in South Africa. The South African Council for Scientific and Industrial Research (SACSI), in partnership with a UK-based pharmaceutical firm, developed an anti-obesity drug directly from the plant and the TK associated with its historical usage. This commercial partnership, based on TK, an indigenous resource and IP (through patent licensing arrangements), has resulted in the generation of financial and other benefits for the San.¹⁵⁴ There have been recent articles about this. The “official” product is not yet on the market but “other” Hoodia products are currently being sold in Europe and the USA. The San and the companies with the Hoodia licence feel that they are being “cheated” out of their return.



The objectives for a country moving from developing to developed include: ensuring a fair return to a manufacturer who operates in a marginalized local or rural area; that manufacturer and its value-added products from the mass machine-assisted, commoditized production of copied products which often sweeps out handicraft products made by poor people based upon their TK; and taking the steps necessary to graduate the country’s economic base from the mere manufacturing for foreign investors (which essentially exploits cheap labor costs), to a more value-added and sustainable culture, wherein industries create strong brands based on quality and value. All of the foregoing objectives require the generation, development and enhancement of IP assets of domestic human resources, and domestic industry.”¹⁵⁵

It may also be necessary for the government to ensure and facilitate the critical interface between traditional knowledge and IP by re-adjusting the

government's policies and its use of the IP system to achieve a better fit. The President of the United Republic of Tanzania expects traditional knowledge in Africa to contribute more to development. He has called for the evolution of the IP system to better adapt to particular aspects of indigenous knowledge (traditional knowledge). He stated:

“People cannot be “developed” by an external force; they can only develop themselves. They need above all not dictates, but empowerment and facilitation. [...] But, for Africa, indigenous knowledge also represents both national heritage and national resources that in today's world call for protection, promotion, development and conservation. [...] It is imperative therefore, that the indigenous knowledge within the intellectual property rights regime be re-appreciated to allow communities and countries to also lay claims to the intrinsic knowledge extracted from indigenous knowledge without recompense. [...] In conclusion, it is my ardent hope that this new interest in the possibilities that indigenous knowledge offers for accelerated development will also create new interest in expanded self-reliance and self-confidence among our people.”¹⁵⁶

National debate in developing countries to formulate national policies relative to the use and application of IP is crucial. As explained in Chapter 8, to facilitate that process, international debate is also underway in the WIPO IGC.

If one side of the coin is the efficiency and accessibility of the IP system and its incentives and infrastructure, the other side is the active exploitation of IP assets, supported by effective enforcement of IP rights. This secures the value of the IP and also underscores and maintains the credibility and certainty which are the backbone of the IP system. The court system and its judges and personnel, the training and availability of lawyers and agents, the system of taxes and fees, and the administration of government agencies, for example, all affect both IP matters, and many other matters.

In order to enhance and strengthen the IP system at the national and international levels, WIPO has a number of programs to assist its Member States, including the modernization of the national institutional framework and administration; human resource development and training; programs for particular target groups such as SMEs,

stakeholders of traditional knowledge, judges, lawyers, law students, and IP professionals and related workers; and services for the global protection of different areas of intellectual property rights.

3. PARTICIPATE IN THE GLOBAL INTELLECTUAL PROPERTY MARKET

Support domestic IP owners and users in furthering their IP trade in the global market; integrate the nation's brand and its culture and cultural heritage into that process.

Fully utilize the international institutions to internationalize the nation's IP reserves.

Many developing countries have joined the global market and follow the international rules embodied in the treaties and regulations administered under the WTO. Through the TRIPS Agreement and free trade agreements, including their respective IP provisions, those countries have ostensibly joined the global “intellectual property market” (a term referring to part of the global market where value-added products and services protected by the IP system and its incentives and infrastructure are traded).



The percentage of products and services in the IP market is increasing. A recent study shows that the current value of IP in the United States of America is estimated to be equivalent to about 45 percent of the GDP.¹⁵⁷ An increase in the share of IP in GDP appears to be the recent trend in the global market.¹⁵⁸ No country can benefit from the IP system and its incentives and infrastructure until its nationals use their IP assets and enforce their IP rights in the global market on a regular and consistently increasing basis.

The nation's brand, and its unique culture and cultural heritage, are hidden assets with little value unless they are integrated into a national, cohesive and congruent effort to turn them into assets of global value. At that point, they enhance and support the presence, the business and the future prospects of the nation's entrepreneurs and creators in the global market, and the beneficial results are felt domestically.

Internationalizing the nation's IP reserves requires the concerted efforts of the government and IP owners—because only through those focused and coordinated efforts will the nation extend its scope and reach beyond its borders, above its national limitations.

4. CHANGE ATTITUDES

Facilitate innovation – culture thinking and positive attitudes at all levels – local, national and international – and readjust the attitudes of key players.

Harnessing and updating innovation and creativity, establishing and nurturing an innovation culture, and channeling the resultant energy, enthusiasm, creativity and forward thinking into new products and services through the IP system, all starts with re-adjusting attitude re-adjustment, not just on the “nation’s” side, but also with respect to those persons who might be considered to be on the international institution side of the equation. Multinational enterprises who have subscribed to corporate social responsibility thinking and practices are showing that it serves the world and their shareholders better. Undertaking initiatives and actions which serve to enhance societal well-being can produce many dividends, as more and more multinational enterprises are discovering.



Governments can show by their own, and by their nation’s, example that benefiting both society and the shareholders can be accomplished, first by instituting an innovation culture and its attendant attitude, and also through refined business models, new legal paradigms, the more effective use of technological measures and technology itself, and through political awareness and accountability.

The promotion and use of an attitude which embodies corporate social responsibility thinking and practices, builds the distinctive character of a company (and a nation), and can be a large source of its competitive spirit, as well as providing what can be referred to as its “corporate soul.” Another perspective on the same attitude is the socially responsible investment movement, in which targets for investment are selected after evaluation of a company’s corporate social responsibility quotient, and its financial performance; this movement is becoming a major form of investment in the United States of America and the United Kingdom.¹⁵⁹ It is also worth mentioning that the UN Global Compact encourages multinational enterprises to take into account environmental considerations, labor standards and human rights in their activities.¹⁶⁰

The new attitudes, which permeate, underscore and serve as highly charged motivators throughout the IP system, are vastly different from

the old business paradigms of the 19th and 20th centuries; they reflect not only an element of enhanced bottom-line profitability and long-term economic sustainability, but also societal well-being; sustainability of the environment and development; the paramount importance of human resources; market-oriented business dynamics; and virtually unlimited possibilities for growth, development, for new products and services, and for the creation of spin-off businesses and new SMEs.

5. BEGIN THE FUTURE TODAY

Think in terms of the world in 2050—when the children of today will be in charge.

We must begin today to educate and prepare children to be the main problem-solvers of tomorrow – averting disasters, handling crises, and inspiring the country and its citizens to higher levels of security, well-being, and vastly greater economic, social and cultural growth and development.



Preparing children for their future roles starts within the family, and closely thereafter with their education. We have stressed the importance of education throughout this book. Education is the cornerstone of the nation and its future.

Stimulate creativity and innovative thinking and activities in the education system.

Introducing in the early years the concepts and principles of the IP system and its incentives and infrastructure can pay big dividends for the nation. It allows children to see where their creativity and imagination can lead them; how, where and what products and services might emanate from their dreams and creations; and at the same time, it teaches them to respect both the original work of others, and their own original work. It teaches respect and gives a sense of current business and lessons in how the economy really works.

One way to leverage the nation's unique resources is to employ celebrities and national personalities in this quest. They attract and focus media and other attention onto these worthy initiatives, and can create energy and enthusiasm more quickly and effectively than almost any other method.

Bring children into all possible processes and education-enhancing situations: parliament, courts, higher education, science laboratories, businesses, SMEs, etc.

Children are a country's most precious asset, its most valuable resource, and must be accorded that status by today's leaders. Preparing the children to better take charge of their nation could be a leader's greatest legacy.



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Note: Page numbers in bold indicate chapters. IP is used as an abbreviation for intellectual property. Page numbers with *n* refer to footnotes.

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ACKNOWLEDGEMENTS

The authors would like to thank all those who have contributed, both directly and indirectly, to this publication. Gratitude is particularly due to the Member States of WIPO for their invaluable support and their belief in WIPO's vision.

The authors appreciate contributions from the two task forces at WIPO and the Intellectual Property Headquarters of Japan. At WIPO, a task force, composed of Larry Allman, Bojan Pretnar, Lesley Sherwood and Yo Takagi, assisted the authors in managing the preparation of the book, collecting cases and other useful supporting material, and finalizing the draft. Julie English took care of all the administrative details. At the Intellectual Property Headquarters, Cabinet Secretariat of the Government of Japan, a task force composed of Matsuo Nonaka, Miwa Shoji and Nobue Yazawa, provided support and input to WIPO's task force.



The authors also appreciate contributions received from the following staff members of WIPO and the International Union for the Protection of New Varieties of Plants (UPOV): Philippe Baechtold, Shakeel Bhatti, Esteban Burrone, Peter Button, José Graca Aranha, André Heitz, Marcus Höpperger, Guriqbal Jaiya, Lucinda Jones, Rolf Jördens, Lianyuan Ma, Elizabeth March, Carlos Mazal, Geoffrey Onyeama, Philippe Petit, Nuno Pires de Carvalho, Pushpendra Rai, Narendra Sabharwal, Anil Sinha, John Tarpey, Antony Taubman and Wend Wendland.

The authors are particularly grateful to Pat Smith for reviewing the draft.



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