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## FIGHTING AFRICA'S FOOD DEFICIT

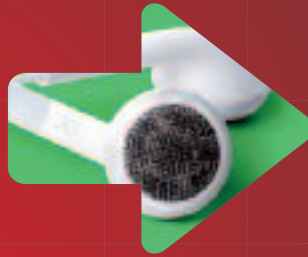
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## SWITCHING ON TO IP

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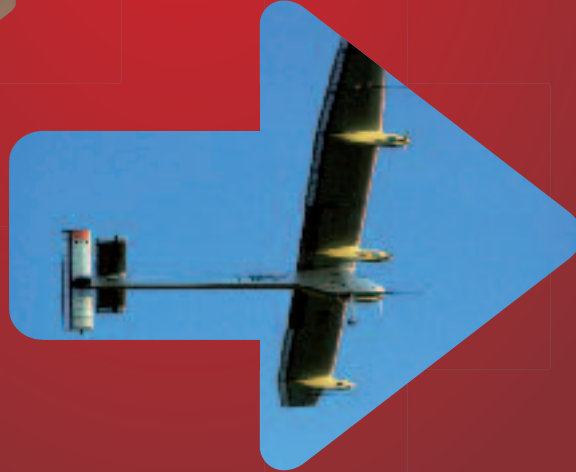


## EXPANDING THE IP INFORMATION HIGHWAY



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# CATALYZING CREATIVITY IN THE DIGITAL WORLD

The Oscar-winning film producer **Lord David Puttnam** reflects on the growing importance of creative industries and the need to maximize the benefits of the digital environment for long-term economic growth.

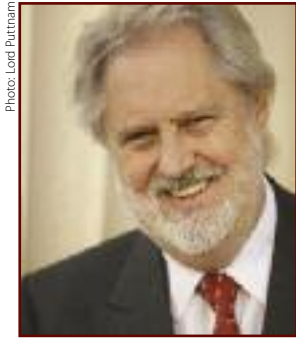


Photo: Lord Puttnam

## About Lord Puttnam

Lord Puttnam moved into film production in the late 1960s. His successes as a producer include film classics *Bugsy Malone*, *Midnight Express*, *Chariots of Fire* (which won the Academy Award (Oscar) for Best Picture in 1981), *Local Hero*, *Memphis Belle*, *Meeting Venus* as well as *The Killing Fields* and *The Mission* with Roland Joffé (which won the *Palme d'Or* at the Cannes Film Festival in 1986). Lord Puttnam was Chair and Chief Executive Officer of Columbia Pictures from 1986 to 1988. His current roles include serving as President of the Film Distributors' Association, Deputy Chairman of British public service broadcaster Channel 4 and as Chancellor of the Open University.

In these extremely challenging times our creative industries are taking on a greater degree of importance than ever before. Digital technologies, including broadband, are already transforming the way in which audiences consume moving images of every kind. But beyond all else, the transformation is being driven by a growing number of fundamental changes in people's behavior – in audiences, as consumers and as citizens. For example, people want to use digital technologies to access content faster, more conveniently, at home and on the move – in ways that were all but unimaginable even a decade ago. Needless to say, this poses some difficult challenges for anyone involved in creating and distributing films and television programs.

Change, when it occurs at the scale and speed seen today, can be tremendously challenging. When I first became involved in the film industry in the 1960s, much of it was ill equipped intellectually, emotionally or organizationally to take advantage of even the earliest forms of technological innovation.

In this respect there are some interesting lessons to be learned from history. These are perhaps epitomized by an organization which rejoiced in the name of FIDO – the Film Industry Defence Organisation. Based on what seemed to be a "brilliant" idea dreamed up in the mid-1950s by British

film companies; FIDO sought to create a pool of money sufficient to buy the television rights to all American and British movies to prevent them from ever appearing on television – and, in doing so, to crush television at birth! The attempt was a miserable failure and demonstrated once more the importance of understanding, and coming to terms with, industrial change rather than simply trying to turn the clock back.

Fortunately, the contemporary creative industries have shown a little more foresight than those who sought to run the British film industry as a cosy duopoly in the 1950s and 1960s.

My central point is that our existing strengths will count for little if we do not actively embrace the evolution of the media, and seize every possible advantage it offers.

It has become all too obvious that the underlying business model for our industries needs to undergo some fairly radical changes if we are to take advantage of the opportunities that digital technology presents to maintain – and even strengthen – our creative industries.

For example, if the industry is serious about effectively enforcing its intellectual property, then it has to provide an equally effective means of delivering content to digital customers. It is here

that, in my judgment at least, we have barely begun to scratch the surface.

We need to explore these possibilities in ways that are about far more than simply “permitting” various forms of passive consumption; but to see them instead as a massive catalyst for encouraging a whole new world of creative collaboration, sharing and learning.

Here is a cautionary tale, drawn from the archives of C-Span, the U.S. public service broadcaster: in 1994, Christopher Dodd, Democratic Senator from Connecticut, set out a thoroughly imaginative way of using the value of past intellectual property to support contemporary artists and scholars. The proposed “Arts Endowing the Arts Act” would have added 20 years to the term of copyright protection, and used a portion of the income from those extra years to underwrite current creative work. Under the rules then existing, U.S. copyright protected an individual’s work for his or her lifetime, plus 50 years. Corporations with works “made for hire” held rights for 75 years.

Under Senator Dodd’s proposal, at the end of each of these terms the rights to an additional 20 years were to be publicly auctioned, some of the proceeds of which would go to build an endowment dedicated to the arts and humanities. Tragically Dodd’s proposal failed; and four years later Sonny Bono’s proposal for the extension of copyright term by 20 years passed, but with **none** of the public benefits that Chris Dodd had attached.

This time around **all** the benefits from the Bono proposal simply accrued to the incumbent corporations and individuals.

So I’m suggesting that we dare to take a fresh look at the possibility of an environment in which “right owners”, when faced with difficult or challenging questions, look at each issue from the perspective of: “Why not?” rather than “I own it, therefore why on earth should I – after all, what’s in it for me?” Here I am suggesting a small shift;

but a tiny shift that could, over time, begin to make an enormous difference.

I am not so naïve as to believe it will be easy to achieve a defensible, let alone sustainable, balance between rights and access – if for no other reason than that much of the debate has become so fractious and shrill that it is all but impossible to pursue a balanced and constructive discussion.

When “public resources” have been used to create content, the overwhelming objective should be to maximize the “public benefit” returned to those who helped pay for its creation in the first place. I could offer a blizzard of facts about the way in which the global appetite for content of all types has enlarged and expanded in the digital world. What is absolutely certain is that today’s global marketplace already offers more commercial possibilities for well-made content than have ever previously existed.

It is my belief that an economy based on our creative industries is considerably more sustainable in the long term than one based on credit default swaps.

Over more years than I care to remember I, and other so-called “luvvies”<sup>1</sup> have been accused of promoting “fluffy”, or at best “marginal”, sectors of the economy like film, broadcasting and design, at a time when hard-headed “realists” were insisting that our true future lay in the area of ever-more sophisticated financial instruments and services. It turned out that those very “financial instruments” were the very first to give way when the global economic storms began to rage out of control. Our intellectual property, on the other hand, if we carefully nurture and develop it during these hard times, could well prove to be one of the crucial drivers of growth going forward.

All of us who care about the future of the creative industries need to step up to the plate and ensure that we really do seize the opportunity to maximize the economic and cultural benefits of the digital era.

<sup>1</sup> An actor, actress or other artistically minded person

# FIGHTING AFRICA'S FOOD DEFICIT

Legal Counsel for the African Agricultural Technology Foundation (AATF), **Alhaji Tejan-Cole** explains what his organization is doing to help farmers in Africa increase productivity, profitability and sustainability to reverse the continent's food deficit.

Experts have long agonized over how to produce higher crop yields and more nutritious foods from poor soils, to make food affordable for and accessible to Africa's expanding population.

As African farming is largely smallholder-based and most farmers still use inefficient practices that take a lot from the soil but give little in return, the prognosis is gloomy. With the current

faith in market-based solutions, many of them can only slip into deeper poverty and deprivation.

The Food and Agriculture Organization (FAO) of the United Nations says that every 10 percent increase in smallholder agricultural productivity in Africa can lift almost 7 million people above the dollar-a-day poverty line.

Proprietary technologies to improve the drought tolerance, pest and disease resistance, yield potential and nutrient content of food crops are already being exploited in developed countries, with research companies coming up with better technologies every day.

While most smallholders in Africa seem resigned to the hit-or-miss character of their livelihood, they are keen to adopt new proprietary technology options where the right incentives and market opportunities exist.

With this in mind, the AATF was established to help small-scale farmers access and use these proprietary technologies to attain food security and reduce poverty.

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## Facilitating Technology Transfer

The Foundation identifies proprietary agricultural technologies that could benefit farmers. It then facilitates the transfer of these technologies and the

associated know-how by negotiating royalty-free access for use in African farming systems. In so doing, AATF aims to address the legitimate concerns of both the technology providers and the users.

Although rich in natural and human resources, Africa is home to some 239 million undernourished people with an estimated 33 million children going to sleep hungry every night, according to the FAO. The Organization also notes that the rate of increase in undernourishment in Africa vastly exceeds that of other developing regions.

The big question is how to harness the best of science and technology to help the continent increase its agricultural productivity, profitability and sustainability and contribute to improved food security for all.

Between 1980 and 1995, Sub-Saharan Africa was the only region to experience a decrease in crop production, with average yields falling by 8 percent. This contrasts with an increase of 27 percent in Asia and 12 percent in Latin America.

A predominance of rain-fed, as opposed to irrigated, agriculture, minimal use of inputs and the lack of functioning competitive markets are just some of the problems facing African agriculture.

A great deal of effort has been directed at reversing this trend, but to little effect. Food aid continues to be a major part of the strategic response to curbing hunger. It is generally agreed, however, that an effective response to the food security crisis is to increase the yield potential of the land, rather than to expand the area of land under cultivation. Increased production per person engaged in agriculture is essential, because devastating problems such as HIV/AIDS, malaria and tuberculosis are reducing the productive capacity of the African labor force.

Certain proprietary technologies could be readily adapted to the agro-ecological conditions in the region and made available to poor farmers. Use of these technologies in the African context promises to stimulate broader and more equitable economic growth on a sustainable basis.



Photos: AATF

**Farmer Julia Odhiambo from Kenya had abandoned planting maize in this field because of striga. With IR maize technology she can now grow maize.**

While international companies hold the intellectual property (IP) rights to most of these proprietary technologies, they have little commercial incentive to market them in Africa given the high costs of product identification, development and testing, regulatory approval, liability, manufacture and market development. Consequently, such companies focus on larger markets where they can more readily obtain a return on their investment.



**An IR maize technology demonstration plot in Tanzania.**

The technologies sourced and promoted by AATF vary depending on the priority needs identified by farmers through sub-regional organizations and national agricultural research systems. They can include chemical, mechanical, biological and process solutions.

“We operate along the entire food chain to deliver proprietary agricultural technologies through innovative partnerships and effective technology and product stewardship,” says Dr. Daniel Mataruka, Executive Director of AATF.

The strengths of AATF’s partners lie in identifying, acquiring, adapting and delivering proprietary technologies to resource-poor farmers. Current partners include governments, farmers, agricultural producers and consumers and regional and national agricultural institutions and agencies.

The process begins by identifying, in collaboration with agricultural development organizations, the problems to be resolved. AATF then consults with proprietary technology holders to determine which technologies would be the most appropriate and effective in addressing the priorities identified by farmers.

Acting as an intermediary, AATF negotiates with technology owners on behalf of the eventual beneficiaries and, if successful, enters into licensing agreements that allow it to access and use the proprietary technology on a humanitarian, royalty-free basis. The Foundation then makes contractual agreements with institutions in the region and elsewhere for further research, adaptation and dissemination.

## Major Projects

The Foundation is currently implementing five major projects, with several others in the pipeline.

One of these is a project to control striga in maize. Also known as witchweed, striga is a parasitic weed that sucks nutrients from maize, reducing yields by up to 80 percent.

AATF is promoting imazapyr-resistant (IR) (StrigAway®) non-transgenic maize seed, which has been shown to be effective against the weed, among farmers in East and Central Africa. The Striga Control Project is in its deployment stage, and AATF is working with key partners and a wide range of stakeholders to encourage farmers to test and adopt the technology.

In the western regions of Kenya for example, striga has caused farmers so much trouble that many associate its effects with witchcraft.

“As a herbalist, I have always believed in the traditional way of doing things, but today I can say that we must embrace the modern methods of agriculture,” says Kennedy Okumu one of the farmers now working with AATF to popularize imazapyr.

The use of IR maize technology to control Striga leads to yields 38 to 82 percent higher than those currently obtained from traditional maize varieties. In Kenya, a conservative estimate indicates that, when adopted, the proposed technology will lead to an extra 62,000 tons of maize in Western Province alone. This translates into US\$5.3 million per year using 2002 estimates of farm-gate prices for maize in Kenya.

AATF is also developing *maruca*-resistant cowpea varieties – which are currently being field tested under controlled conditions – to tackle the pod borer (*maruca vitrata*). This pest inflicts severe damage on crops of cowpea, resulting in yield losses of between 70 to 80 percent. Due to high prices, farmers cannot afford insecticide spraying, and those that do spray are often exposed to serious health hazards. By facilitating development of transgenic cowpea varieties resistant to the *maruca* pest, AATF hopes to minimize insecticide use and its harmful effects on health and the environment.

The Foundation has accessed, through a royalty-free patent license, a gene conferring resistance to the *maruca* pod borer in cowpea, and is facilitating strict bio-safety regulatory compliance for its development and deployment in West Africa.



Yet another project seeks to improve the resistance of banana crops to bacterial wilt disease. Bananas and plantains are an important food source for over 100 million people in Sub-Saharan Africa. In the East African highlands and most of the Great Lakes region, bananas are a major staple food and a source of income for over 50 million smallholder farmers.

With an annual output of some 16.4 million metric tons, the region produces about one-fifth of the world's bananas, but many biotic and abiotic factors still greatly reduce productivity. In 2001, an outbreak of banana bacterial wilt in Uganda caused economic loss of some US\$200 million.



**Bacterial wilt resistant banana on a demonstration plot in Uganda.**

Another initiative is the development of improved rice varieties. AATF has negotiated a patent license for the technology

with Arcadia Biosciences, which will perform plant transformation, greenhouse trials and field trials in the United States, then work with AATF-contracted researchers in Africa to transfer and adapt the technology.

The varieties developed will be nitrogen-efficient and salt-tolerant. They will accommodate the needs of farmers growing rice in the poorer highland soils with limited resources for fertilizers, as well as those growing rice in more saline lowland soils.

Rice is one of the most cultivated food crops in Africa, with consumption on the continent growing by about 6 percent annually. This demand has created an annual shortage of 6.5 million metric tons, a gap filled by imports that cost around US\$1.7 billion every year.

### Water Efficient Maize for Africa (WEMA)

AATF's largest ongoing project is Water Efficient Maize for Africa (WEMA). Maize is the most widely grown staple crop in Africa, with more than 300 million depending on it as their main food source. It is, however, severely affected by frequent drought, leading to average yields almost seven times lower than those in other developed countries.

WEMA seeks to develop drought-tolerant African maize using conventional breeding, marker-assisted breeding and biotechnology. The benefits and safety of the maize varieties will be assessed

by national authorities according to the strict bio-safety regulatory requirements in the participating countries of Kenya, Mozambique, South Africa, Tanzania and Uganda.

AATF is working with the International Maize and Wheat Improvement Centre (CIMMYT), Monsanto, and the respective countries' agricultural research systems. CIMMYT provides high-yielding maize varieties that are adapted to African conditions and expertise in conventional breeding and testing for drought tolerance. Monsanto has provided proprietary germplasm, advanced breeding tools and expertise, and drought-tolerant transgenes developed in collaboration with German chemical company BASF.

The varieties developed through the project will be distributed by AATF, royalty-free, to African seed companies and made available to smallholder farmers. The national agricultural research systems, farmers' groups and seed companies are contributing their expertise in field testing, seed multiplication and distribution.

Field trials have already been approved in Kenya, South Africa and Uganda, while regulatory approval is expected in Mozambique and Tanzania.

The conventional varieties are expected to be available around 2014, with transgenic varieties scheduled for deployment in 2017.

"The moderate drought-tolerant maize varieties expected from the project will result in an additional 2 million tons of maize in the participating countries, meaning that 14 to 21 million people will have more to eat and sell," said WEMA Project Manager Dr. Sylvester Oikeh.

### Collaborating with WIPO

The recently signed collaboration agreement between the AATF and the World Intellectual Property Organization (WIPO) moves one step closer in responding to the call by WIPO Director General Francis Gurry for member states to ensure the IP system serves as a stimulus for solving the global challenges confronting policymakers across the globe.

This collaboration also promises to show that the IP system serves the needs of developed as well as developing and least developed countries alike, and that Africa has the capacity to become a beneficiary of IP-related technology transfer.



# SWITCHING ON TO IP

When Mr. Noh Si Chung set up his business in Yangju City, Republic of Korea (ROK), in the mid-1970s, intellectual property (IP) was not at the forefront of his mind. His company, Feelux Lighting, suffered the consequences of this in the 1990s, when it found it was powerless to fend off competition from an overseas competitor that undercut its business by imitating its most successful product. This bitter experience triggered Mr. Noh's interest in IP and brought about a transformation in his company's approach to managing innovation and IP. This article takes a closer look at the experiences of this medium-sized company and the lessons it learned about the importance of integrating IP into its business strategy to drive its commercial success in the highly competitive lighting sector.

In the 1990s, the mainstay of Feelux's commercial activity was its triple wavelength bulb, a product that was similar to, yet distinct from, those then sold by other market leaders, such as Osram and Philips. The company's order books were full and sales were expanding for this competitively priced product. In 1994, however, Feelux fell foul of an overseas competitor that had copied its technology and undercut its revenues by selling triple wavelength bulbs at a fraction of Feelux's retail price – Feelux was charging US\$12 per unit whereas the competitor was selling identical units for US\$3. Absent a patent or any other IP right, the company was unable to defend itself against these predatory practices – with devastating consequences. A year later, Feelux was forced to shut down its manufacturing operations for triple wavelength bulbs. To make matters worse, a number of companies dropped Feelux as a supplier of lighting components.

Bruised from these bitter experiences and recognizing how vulnerable his company was without an IP strategy, Mr. Noh resolved, from then on, to “never develop or produce products without a patent.” Today, the company is a champion of IP.

Through its extensive research and development efforts, its commitment to innovation and to the use of IP, Feelux has emerged as a leading high-end lighting technology company. Feelux, “is positioning itself as one of the most competitive electronic and lighting companies in the world,” notes Mr. Noh.

Today, IP is a hallmark of Feelux's business culture. On arrival, new employees are versed in the company's approach to IP. Twice each year, all employees are offered IP rights training programs. The company has developed a database of its IP assets, including details of existing patent holdings, patent applications, other ongoing projects and ideas submitted by employees. This

Photos: Feelux Lighting



**Image from Feelux Lighting Museum's Campaign to raise awareness about the seriousness of lighting pollution.**

provides a bird's eye view of the status of the company's IP holdings.

Feelux has its own IP department, which enables it to cut costs and ensure efficient handling and management of its IP interests. The department's expertise offers a cost-effective alternative to paying patent attorneys' fees, generating significant savings for the company. The IP department files the company's trademark and design applications directly, monitors uses of these rights, identifies infringing activity and generally oversees the company's branding strategy to ensure its trademarks remain distinctive and do not become generic.

The IP culture characterizing Feelux's business operations encourages employees to submit innovative ideas to weekly “ideas meetings”. An employee compensation system, introduced in 2008, further encourages innovation by rewarding the employee-inventor. Under the system, every employee carries a special “idea” notebook in which to record new ideas. These are reviewed at weekly meetings. Employee engagement in this process is reflected in performance assessments,



## About Feelux

Established in 1975

Activity: **Designs and manufactures**  
high-end innovative lighting products  
Headquarters: **Yangju City, ROK**  
Sales office: **Seoul, ROK**  
R&D center: **Weihai, China**  
Overseas network: **8 subsidiaries**  
**in China, Indonesia, Malaysia,**  
**the United States and Singapore**

The company's Lighting Museum traces historical developments in the use of lighting – from torches, candles and oil lamps to the electric light bulb, fiber optics and LEDs (light-emitting diodes).

It also features a Lighting Art Pavilion that introduces an exciting world of light to children and adults. In the Sun in Home (SIH) System Pavilion, the company demonstrates the influence of light on human well-being. The company's trademarked SIH System – an adjustable-color temperature and illumination system – is based on a lighting philosophy rooted in the hypothesis that lighting conditions influence mood and mental health. Cool light is associated with greater alertness and is thought to assist concentration; warmer tones are associated with a

more mellow and relaxed state and enhanced mental well-being.

Every autumn, Feelux organizes a Lighting Concert combining lighting and music to showcase the company's latest products. Its Dreaming Tomorrow Training Center is a cultural facility, offering a range of lighting experiences and training programs for the general public, employees, engineers and designers.

In 2004, Feelux obtained ISO 14001 status as an environmentally-friendly company.

with five idea submissions being considered equivalent to an idea that management deems a suitable candidate for patent protection. Twice each year, the company organizes an exhibition featuring the 20 best ideas submitted, from which it selects those it believes worthy of patent protection. The employee responsible for each selected idea receives a cash reward upwards of US\$1,000 depending on its business value and degree of creativity. In 2009, 115 ideas were displayed, of which 13 were selected for patent protection.

Feelux has taken full advantage of government programs for small and medium-sized enterprises (SMEs) designed to improve the sector's management and use of IP rights. The company's remarkable commitment to IP, its growth potential and its "outstanding patented technology" resulted in its winning the Republic of Korea's Patent Star Award in 2008. The US\$60,000 prize that accompanied the award is being used by the company to further improve its IP management systems.

In 2009, the government's forward-looking SME development program, through which IP experts support businesses in managing their IP assets, provided Feelux with expertise equivalent to some US\$45,000. A government brand development program for SMEs also enabled the company to enhance its trademark portfolio and to acquire its "Orchestra of Light" trademark in Russia.

"Patents have enabled us to increase our sales by up to 60 percent," said Mr. Noh. Now that Feelux has integrated IP into its business strategy and operations, it "can confidently market its innovations," and command premium prices for its products, without fear that competitors will "free-ride" on its technology and infringe its rights.

Today, Feelux has an impressive patent portfolio of 201 patents in 11 countries and a further 165 patent applications pending. The company has also filed a number of international applications through WIPO's Patent Cooperation Treaty (PCT), which facilitates the process of obtaining international patent protection. Additional revenue streams have been created by selling and/or licensing certain technologies which the company is not in a position to exploit. These are identified by undertaking regular IP audits, a process that is greatly facilitated by the existence of its IP database.

Innovation is a key factor in enabling companies to remain competitive; but, innovation without adequate IP protection can spell disaster. An effective IP strategy enables a company to sharpen its competitive edge and to secure its long-term financial interests. Feelux's commitment to IP is yielding significant dividends for this highly innovative company. Its experiences underline the critical importance of integrating an IP focus into business strategies.



# EXPANDING THE IP INFORMATION HIGHWAY

Never before has so much information been so easily available to so many people. The Internet has transformed every aspect of our lives, opening up new frontiers of knowledge and new opportunities for innovation and creativity. But ensuring universal access to the technical information contained in patent documents and science journals to enable broad participation in innovation presents significant challenges that underscore the need for effective international cooperation.

Since the birth of the international intellectual property (IP) system in the 1880s, policymakers have emphasized the development of IP's legal architecture. While this is of continuing importance, the international IP community is now also focusing on the benefits that can derive from enhancing IP's technical architecture. Not only will this ensure more efficient delivery of services by IP offices and help reduce the knowledge gap, it promises to enable users to leverage the benefits associated with quick and easy access to IP information.

In a recent interview with WIPO Magazine, WIPO Director General Francis Gurry explained that, "Just as participation in the physical economy requires access to roads, bridges and vehicles to transport goods, similar infrastructure is needed in the virtual and knowledge economy. However, here the highway is the Internet and other networks, bridges are interoperable data standards, and vehicles are computers and databases."

The international IP community's new emphasis on strengthening IP's technical infrastructure stems from various characteristics of the evolving international innovation landscape. These include:

- rising global demand for IP rights that has fuelled a backlog in processing applications, particularly for patents;
- the changing geography of innovation;
- the internationalization of patenting activity and associated expansion in the languages of patent disclosures;
- growing demand by users for access to value-added information on the Internet, and to automated search tools; and
- a commitment to reducing the knowledge gap.

## Expanding the IP highway

The widespread availability of the Internet and other information and communication technologies (ICTs) has created an opportunity to build IP networks and to enhance the flow of IP information around the world. Developing and least developed countries increasingly recognize that effective IP systems play a key role in promoting national economic development. Many, with WIPO's assistance, have started to modernize their IP systems and operations using ICTs to digitize their data collections and to deliver enhanced IP services that connect to international IP networks for improved efficiency and work sharing between offices.

Of all the IP rights, patents generate the largest amount of technical work for granting authorities. A more transparent and efficient patent system underpinned by effective work sharing practices is good news for smaller patent offices that do not have the expertise or resources to handle the applications they receive. It also benefits applicants whose principal interest lies in promptly obtaining patent rights that are valid in many countries.

Part of the bargain in the patent-granting process is that applicants must describe how their inventions work. These descriptions, or disclosures, which become freely available to the public, help determine whether a claimed invention satisfies the criteria for patentability – broadly, whether it is new, useful, non-obvious (or has an inventive step) and merits a patent. Patent examiners in the offices of the countries in which protection is sought undertake a search of the "prior art"<sup>1</sup> to establish the novelty and inventive step of a claimed invention.

Today, given the territorial nature of IP rights – whereby they are legally valid only in the country or region in which they are granted – a single inventor seeking to protect a technology in different markets will have to submit multiple patent applications for the same technology.

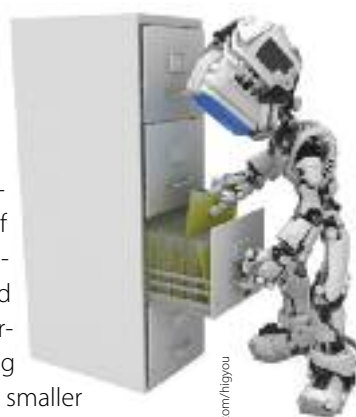


Photo: iStockphoto.com/higyou

<sup>1</sup> Prior art constitutes all information made available to the public in any form before a given date that might be relevant to a patent's claim of novelty and inventiveness. If an invention has been described in prior art, a patent on that invention is not valid.



Photo: iStockphoto.com/George Clerk



This process can be greatly simplified by using WIPO's Patent Cooperation Treaty (PCT), which allows an applicant to bundle multiple applications under a single international application and significantly reduces filing fees.<sup>2</sup> In many instances, however, examiners in each

of the IP offices to which the application is subsequently submitted will undertake their own search<sup>3</sup> of the prior art to determine patentability rather than accept the search results generated by a counterpart office. Notwithstanding variations in patent law and policy in different countries, there is much to be gained from bolstering IP's technical infrastructure. Efforts to link up offices, digitize data collections and establish uniform data standards, formats and practices, are being stepped up to reduce duplication and create opportunities for more efficient processing of applications. Various international initiatives are seeking to build on the existing international framework to expand the IP highway, by working to establish common platforms and practices that will enable offices to improve the efficiency and quality of patent search and examination. These initiatives include the patent prosecution highway (PPH) launched by the United States and Japan, various "Foundation Projects" launched by the IP5 group,<sup>4</sup> and the WIPOCASE platform launched by the Vancouver Group<sup>5</sup> in cooperation with WIPO.

While WIPO is not involved in all of the many initiatives launched by different groups of countries, as noted by Mr. Gurry, the Organization plays a key role "as a conduit for... results to be made available multilaterally." "In this way," Mr. Gurry continued, "different pieces of the global technical infrastructure will be built and contributed to by different parties, so that, ultimately, we would have a global infrastructure that is built by all, and owned by none."

## From paper to digital

IP offices in developing and least developed countries, under pressure from users to provide online

services such as search, registration and filing systems, often face huge challenges in migrating IP data from paper to digital formats. WIPO supports offices of all sizes and from all regions in overcoming these obstacles through a range of advisory services and the provision of auto-

mated software systems, such as IPAS (Industrial Property Automation System), for the administration of IP rights. It also assists IP offices in digitizing their IP records and preparing data for online publication and electronic data exchange. To date, some 70 countries have benefited from WIPO's assistance in the modernization of their IP operations.

## Technology & innovation hubs

WIPO is also working with member states to establish Technology and Innovation Support Centers (TISCs),<sup>6</sup> designed to:

- facilitate access to and support the use of technology databases such as aRDi<sup>7</sup> and ASPI<sup>8</sup> to promote use of patent and technological information;
- promote understanding of the value of IP information and the competitive advantages created by IP;
- strengthen the capacity of research institutions in the areas of IP licensing and technology transfer;
- support businesses in developing an IP strategy and using IP valuation tools.

The overarching aim of TISCs is to help reduce the knowledge gap and to demonstrate the practical use of IP information in these countries by developing the skills of local people to extract knowledge from IP data sources.

## Building bridges

The challenge in marshalling the evolution of what some consider to be probable – a global master database of IP information that allows users to search in multiple languages – is to ensure its global interoperability and the intercon-

<sup>2</sup> Offices with limited resources can also benefit from an international search report on the merits of any given application filed under the PCT.

<sup>3</sup> Or supplementary search

<sup>4</sup> IP5 includes the patent offices of China, Europe, Japan, the Republic of Korea (ROK) and the United States.

<sup>5</sup> The Vancouver Group includes the IP offices of Australia, Canada and the United Kingdom and focuses on issues relevant to mid-sized IP offices.

<sup>6</sup> TISCs have been established in Algeria, Ecuador, Honduras, Kyrgyzstan, Morocco and Tunisia. Additional centers are planned in Bangladesh, Congo, Cuba, Democratic Republic of the Congo, Dominican Republic, Egypt, Guatemala, Mozambique, Philippines, Senegal and Viet Nam.

<sup>7</sup> aRDi – Access to Research for Development and Innovation

<sup>8</sup> ASPI – Access to Specialized Patent Information

## About aRD<sup>i</sup> & ASPI

These databases are designed to facilitate access to targeted scientific and technological information and thereby leverage national innovation and economic development. Rolled out in July 2009, aRD<sup>i</sup>, a partnership between WIPO and various prominent science and technology publishers,<sup>9</sup> aims to increase the availability of scientific and technical information in developing

countries. By offering free or low-cost access to some 50 online journals, it seeks to support researchers in creating and developing new solutions to the technical challenges they face.

The ASPI program, launched in September 2010, offers patent offices and research institutions in developing countries free or low-cost access to so-

phisticated tools and services for retrieving and analyzing patent data. ASPI is made possible by a public-private partnership between WIPO and leading patent information providers.<sup>10</sup>

Each of these database initiatives was born of WIPO Development Agenda recommendations.

nectedness of databases through a single, WIPO portal. Establishing these “bridges” within the technical infrastructure of IP means countries will need to cooperate to establish international technical standards for data formats, database structures and data exchange protocols.

### Vehicles for data integration

The clients of IP offices, especially innovation-oriented companies, increasingly need access to value-added IP information. These resources are particularly important for the strategic management of their IP assets. “For most companies and individuals who develop new technology in their core business, it is just as important to ensure clearance from infringing rights held by others as it is to secure your own exclusive right,” noted Jan Modin, FICPI’s<sup>11</sup> Special Reporter on International Patent Issues.

The information disclosed in patents – the “how it works” of technology – is available to the public free of charge from patent offices around the world and is a rich source of valuable technological information. The digitization of patent data collections is opening the door to a wealth of valuable information. Online collections allow researchers, companies, investors and the public to mine this information quickly and easily. “Patent information represents a critical source of knowledge and insight for researchers and innovators, legal professionals, entrepreneurs and policymakers across the globe,” Mr. Gurry commented at the launch of the ASPI program in September 2010.

The information in patent databases allows innovation-oriented companies to:

- optimize research and development (R&D) investment;
- track the latest technological developments;
- identify potential commercial partners;
- monitor the legal status of technologies; and
- develop new and improved inventions and processes by enabling users to selectively combine a range of different technologies.

Patent databases are also key tools for patent examiners in their search and examination activities. The expanding range of languages in which original technical disclosures are made underlines the need for examiners to be able to access a comprehensive source of patent information to reveal all relevant prior art. Access to comprehensive patent databases promises to help improve the quality of patents granted and reduce the risks of their being invalidated following the identification of relevant prior art, post grant.

In response to growing demand for IP information and in a drive to ensure its universal accessibility, WIPO launched, in June 2010, the WIPO GOLD portal, a single online gateway to WIPO’s global collections of up-to-date and fully searchable IP data.

An expanding range of user-friendly database tools enables users to mine the rich sources of information embedded in the IP system – information relating to brands, designs, patents and other types of IP that can contribute significantly to narrowing the knowledge gap and facilitating innovative activity.

<sup>9</sup> aRD<sup>i</sup> partners: the American Institute of Physics, Elsevier, John Wiley & Sons, National Academy of Sciences, Oxford University Press, Royal Society of Chemistry, Sage Publications, Springer Science+Business Media, and Taylor & Francis

<sup>10</sup> LexisNexis, Minesoft, Proquest, Questel, Thomson Reuters, WIPS

<sup>11</sup> FICPI – International Federation of Intellectual Property Attorneys



WIPO GOLD brings WIPO and the international IP community one step closer to universal, free-of-charge access to IP information.

## PATENTSCOPE

WIPO's principal vehicle for facilitating access to the technological information found in patent documents is its PATENTSCOPE database. PATENTSCOPE offers a fully-searchable repository of information relating to over 8 million patent applications. It includes published international applications filed through the PCT, a mechanism which facilitates the process of obtaining patent protection in up to 142 countries. To date, it also includes patent data collections of 17 national patent offices and one regional office. The integration of additional national collections is anticipated. It is also foreseen that the bulk of patent data from IP5 offices will be added this year. PATENTSCOPE is helping to breathe new life into previously inert data sources, and to create a platform for enhanced innovation and technology transfer in the future.

The aim is to continue to expand PATENTSCOPE by integrating additional national and regional patent data collections so that anyone, anywhere in the world, can access this information with the click of a mouse. Supporting countries in the digitization of their patent data collections will also help to enhance the availability and reliability of information about the legal status of patents. This strategically important information is a key factor in determining a company's freedom to operate and in avoiding potentially costly and damaging lawsuits. It also helps to facilitate technology transfer by providing insights into which technology is protected and where, as well as when it is likely to become freely available to the public.

## Facilitating multilingual access

Changing patterns of innovation – marked, in particular, by the emergence of northwest Asian countries as significant growth areas – with PCT usage by China, the Republic of Korea and Japan rising from 7.6 percent in 1994 to 29.2 percent in 2009 – and increasing emphasis on open innovation, are fuelling an imperative for the patent system to accommodate greater linguistic diversity.

PATENTSCOPE's enhanced search functionality, known as CLIR (Cross-Lingual Information Retrieval), was developed by WIPO in response to this need. CLIR enables users to find documents written in five different languages (English, French, German, Japanese and Spanish) using queries expressed in one single language. Users will also soon be able to search in Chinese, Korean and Russian.

CLIR's "automatic" search function translates a search term, e.g. "coffee capsule" into five languages and identifies all documents in which it appears. An interface with *Google Translate* then allows for the translation of any given document into a language of choice. The "supervised" function under CLIR also makes it possible to enrich searches by eliminating ambiguities in search terms and honing the categories in which the search is applied, rendering it more accurate and targeted.

When patent offices undertake searches of prior art to establish patentability, the breadth of these searches is limited by the linguistic capacity of examiners and of the search system itself. Search tools such as CLIR offer a useful means of overcoming these constraints. Continuous enhancement of PATENTSCOPE's functionality and data coverage will significantly improve its usefulness as an information resource for offices and users alike.

WIPO's databases are constantly evolving in response to the needs of users. While alone they cannot narrow the knowledge gap, they do provide a rich source of valuable information for inventors, creators, entrepreneurs, researchers, policymakers and lawmakers.

The challenge of strengthening the IP system's international technical infrastructure is a daunting and complex endeavor. Effective international cooperation in this area promises to enable broader participation in the IP system and to enhance the benefits of innovation by greatly facilitating the administration and use of IP rights in the future. WIPO is at the forefront in coordinating international efforts to expand the IP highway and to continue to improve its services to provide better access to knowledge.

# RICE AND IP

## A Recipe for Revitalization

*Tanbo* art – living artwork made from different varieties of rice to create giant images in rice paddies – is a unique effort to revitalize rural communities in Japan. The WIPO Japan Office caught up with the creators of this exciting and increasingly popular new form of artistic expression and with leaders of a small community which is taking it one step further by using the intellectual property (IP) system.

### Breathing new life into rural communities

In front of the swaying rice paddies across from the Inakadate village hall on a summer's day, it is hard to see what all the fuss is about. But from the vantage point of the mock castle that sits atop the village hall of this small farming community 600 kilometers north of Tokyo in the Aomori prefecture, all is revealed. What at ground level appears to be an ordinary rice field becomes, 20 meters higher up, a living work of art depicting famous Japanese warriors, intricately crafted from tens of thousands of rice plants.

### A creative solution to a widespread problem

*Tanbo* art, which first appeared in Inakadate in 1993, is sweeping the country, from the island of Hokkaido in the north to the southern island of Kyushu. The phenomenon is also gaining popularity in the Republic of Korea. In the early 90s, with an aging population of just over 8,000 inhabitants, many young people having moved to the city, Inakadate's local government sought ways to revitalize its local economy, create jobs and attract people back to the community. One cold winter's day village leaders called a meeting of local residents to try to find a solution.

Since Inakadate had no real tourist attractions, someone suggested they draw on the village's centuries-old tradition of rice cultivation using different colored plants to create giant rice paddy art – *tanbo* art – to bring visitors to the village.

The local government-sponsored Village Revitalization Committee (VRC) identified a suitable 2,500m<sup>2</sup> field adjacent to the village hall – ideal

because the village hall's mock castle provided a perfect viewing point. The VRC then faced the more difficult task of choosing and creating a design.

### Choosing a design

To keep things simple, the community decided to create an image of Mount Iwaki, a famous mountain visible from Inakadate, along with the words "*Inakadate, a village of rice culture*". Hand drawn by a local art teacher, the design was plotted onto a diagram and mapped onto a field which was then planted with three unique varieties of rice, each with different colored leaves.



Photo: Inakadate Village Hall

**Mount Iwaki, the first design created by Inakadate residents.**

Inakadate's local government organized a program of events around the *tanbo* art program, which encouraged community involvement and attracted tourists to the village. Members of the local community as well as tourists were invited to help plant the rice at an event in June, and again in October to help with the rice harvest. All who took part in these events lunched on *onigiri* (rice balls) made from the previous year's harvest. They were also given tickets to exchange for two kilograms of the *tanbo* art rice they had helped to harvest at the annual November festival. As this living artwork grew, so did the number of tourists, and by the early 2000s Inakadate's *tanbo* art program was attracting national attention.

### Increasing the scale

With growing numbers of visitors and increasing media attention, the villagers decided to take the project to another level. Local landholders and the village government formally agreed to set aside additional land adjacent to the village hall, resulting in some 15,000 m<sup>2</sup> of land being used for *tanbo* art.



The community voted, in 2001, to replace the simple designs initially used with famous works of art. Each year, in February, the village government convenes a meeting to select a design for the coming year, from among suggestions by residents or visitors. As a general rule, the community uses art works from the public domain but, on occasion, they use copyright-protected works for which they need to obtain the artist's permission. For example, in 2004 the village received permission from the right owners to use a woodblock print by famous Japanese artist Shikō Munakata from Aomori (1903-1975).

## A painstaking process

Designs are still hand drawn by a local art teacher, but their intricacy requires that a high-tech blue-print be made using computer aided design

(CAD) software. The CAD blueprint puts the artwork into perspective and shows exactly where each variety of rice should be planted. This is the easy part.

Survey equipment in hand, local officials mark precise measurements in the rice field according to the blueprint, tracing the dimensions of the design. They then start the painstaking process of placing thousands of sticks in the ground to indicate where each variety of rice is to be planted. Tape is strung between the sticks creating an outline of the design.

In early June each year, the village holds a rice-planting event which attracts hundreds of people from all over Japan. "Because the preparations have already been made, the planting only takes about half a day and anyone can participate," said Mr. Takatoshi Asari of Inakadate's Industrialization Division.

## A modest but crucial economic boost

According to Mr. Asari, donations from the over 170,000 tourists taking part in these *tanbo* art events have made a big difference to the village economy. "In 2009 we received 7 million yen (approximately US\$75,000) in donations, and that increased to 7.8 million (approximately US\$95,000) in 2010". This is not pure profit; Mr. Asari explains that it "costs around 3 million yen (approximately US\$36,500) to prepare and create the *tanbo* art." However, he notes that any surplus is "put into development projects for the village." In 2010, the surplus amounted to some US\$58,500. While this financial result is modest, the village considers the program a success. "We want to bring in as much economic benefit for the village as possible," said Mr. Asari, "but we are okay as long as we break even, and anything above that is viewed as a success."

## Recognizing an opportunity

Inakadate's experience has inspired other communities in Japan. Officials in the Maki-cho district in Ōmihachiman City on the east coast of Lake Biwa, Japan's largest freshwater lake, some 350 kilometers southwest of Tokyo, were particularly intrigued by the success of Inakadate's *tanbo* art program. Mr. Jisaku Yamanishi, chairman of the Suikei Yumenosato Committee (SYC), a local revitalization committee formed in 2005, visited Inakadate to see firsthand what the villagers were doing.

He soon realized that *tanbo* art could be used to revitalize his own community. Built on reclaimed marshland in 1946, Maki-cho, like Inakadate, has suffered from the migration of its young people to urban areas and is experiencing economic difficulties. Unlike Inakadate, Maki-cho does not have a rich regional history (such as rice cultivation) to draw upon.

Mr. Yamanishi believed that *tanbo* art offered one possible solution to his community's problems. If Maki-cho could not lay claim to a famous specialty, Mr. Yamanishi felt it was up to him and the SYC to create one. "We talked about what we could do to improve the economic situation for everyone," Mr. Yamanishi explained. "We decided that *tanbo* art was a way we could revitalize the area, and we launched the program in 2007."

Though similar to the Inakadate process, Maki-cho's use of *tanbo* art has two notable differences. First, the annual theme of the design corresponds to the animals of the Chinese zodiac. Second, be-

Photos: Inakadate Village Hall



**Planting and harvesting – Inakadate's 2010 *Tanbo* art creation.**



cause the community has no high-level vantage point, the artwork is designed and planted so that it is visible at ground level. As in Inakadate, Maki-cho holds *tanbo* art planting and harvesting events in which anyone can participate. These events have given the region much needed publicity and a welcome boost to tourism.

## Creating *Meibutsu*

Maki-cho's early success prompted the SYC to consider turning its harvested *tanbo* art into *meibutsu* – a Japanese term for famous products associated with a particular region. The SYC knew that a strong brand name was key to its success. It therefore created the name "Suike Art Rice" and decided to protect it using the intellectual property (IP) system. In February 2009, the SYC submitted a trademark application for Suike Art Rice, which was registered by the Japan Patent Office (JPO) in January 2010.

This trademark registration is a key element of the SYC's strategy to promote its new and relatively small-scale initiative. The SYC relies on its members, volunteers and partnerships in the community to harvest, package and market its rice. "We make the packaging ourselves... to showcase that year's *tanbo* art design, and then sell it directly and through cooperating organizations in the region," explains Mr. Yamanishi.

On top of the economic benefits derived from registering the Suike Rice Art trademark, Maki-cho has been granted *meibutsu* status. It is expected that this will enhance its reputation, boost tourism thanks to greater media attention and, ultimately, inject new vitality into the local economy.

The SYC realized that, just as the rice it harvests is unique, so too is the process it uses to make *tanbo* art. How could they use this process to bring positive benefits to the community?

Having successfully registered its trademark, the SYC again turned to IP. "The people in Maki-cho all talk about what can be done to revitalize the area, and many feel that IP is one of the best ways to economically benefit our community," explained Mr. Yamanishi.

## Applying for patent protection

In early 2009, Mr. Yamanishi and two other members of the SYC invented a new form of advertis-

ing – dubbed "Eco Advertising" – using *tanbo* art. Simple in design yet elegant in its implementation, Eco Advertising allows clients to publicize their products or services in an ecologically benign way using living rice plants. It offers customers an original advertising vehicle that is bigger, cheaper and safer than simple billboards or signs. The invention uses the SYC's *tanbo* art process to create living advertisements in just about any size and location.

With the community's backing, Mr. Yamanishi and his co-inventors submitted a patent application (#2009-101401) to the JPO in March 2009. The committee's overriding objective in seeking patent protection for its Eco Advertising invention is to generate capital for revitalization efforts. This involves a two-pronged approach. First, sponsors – whether corporate, governmental, educational or private – pay a fee to create their logo, slogan or other advertisement using *tanbo* art. Second, the SYC licenses its Eco Advertising model to other towns, cities and villages and supports licensees in creating attractive *tanbo* art. This approach enables the community to attract sponsors and generate capital to fund local development projects. Licensees can also organize events around their own *tanbo* art to attract media attention, boost tourism and generate a range of associated economic benefits.

At the time of writing, SYC's patent application is still pending. The media attention this move has generated, however, is already benefitting Maki-cho. In late 2010, a major Japanese company began talks with SYC to license Eco Advertising.

## IP to be proud of

When the idea was fielded by an unknown villager in Inakadate in 1993, nobody really knew if creating *tanbo* art was feasible, let alone that it would be so successful. Nearly 20 years later, what started as an innovative idea has grown into a national phenomenon, and some small communities – like Maki-cho – have recognized that it goes hand in hand with IP. From trademarks to patents, IP has given Maki-cho a *meibutsu* to be proud of, and holds the promise of similar opportunities for communities throughout Japan and beyond.



Photo: Mr. Jisaku Yamanishi



Photo: SYC

**Suike Art Rice, the trademarked "meibutsu" that the SYC sells for 1,000 Yen in 3-kilogram packages**

**An example of Eco Advertising**

# MAKING A MARK IN GLOBAL MARKETS

Trademarks are an integral part of any shopping experience. They not only attract, lure and seduce us, but also act as a quick and reliable guide to the quality of a particular product or service. A world without marks is hard to imagine. How could we, as consumers, otherwise be sure of the origin of the products and services we purchase? How would companies build up their reputation in the market and instill consumer confidence and trust in, and loyalty for, their goods and services?

Trademarks underpin brands, which are now widely recognized as key factors in creating business value. Strong brands command customer loyalty and premium prices and contribute to healthy profit margins and growth, enabling companies to distinguish themselves and their products and services from those of their competitors. Successful brands underpinned by trademark protection are a key to a company's sustained financial viability.

Often the most valuable commercial asset of a business, marks frequently command market values far exceeding the value of a company's physical assets. Take Coca Cola for example. Its physical assets are valued at an estimated US\$20 billion, while its brand value is an estimated US\$70 billion, according to the Interbrand Consultancy. The way a company develops and manages its marks is a key determinant of commercial success.

In the face of rising levels of trade in counterfeit goods, tough market conditions and slow economic growth, it is critically important that companies defend their products. A necessary first step is to secure the legal right to prevent a third party from using a trademark for their own business purposes. Trademark registration establishes an official record of a trademark owner's rights to a particular mark. Businesses need to be able to secure and manage their trademarks cost-effectively and easily.

WIPO's Madrid System for the International Registration of Marks – the Madrid system – offers a low-cost and smart business solution for any company seeking to protect and manage its marks in international markets. What do compa-

nies such as the multinational food company, Nestlé, tech giants Google and Apple, and small and medium-sized enterprises (SMEs) such as Austrian eco company Grüne Erde have in common? They each have recognized the advantages of registering their trademarks under the Madrid system. Interestingly, some 80 percent of the users of the system are SMEs holding one or two marks.

In its 120-year history the Madrid system has constantly expanded and evolved in tandem with the changing commercial landscape. Since its establishment in 1891, it has helped businesses establish over a million trademarks worldwide. A brief scan of the International Register reveals a colorful array of iconic trademarks from Disney characters (Bambi, Mickey Mouse, Pluto and Pinocchio, etc.) to Lego (toys), Rolex (watches), Renault (cars), Miele (consumer goods) and even British Airways. The first international trademark was registered in 1893 by Swiss chocolate-maker Russ-Suchard & Company. That same year, the Swiss watchmaker Longines registered what is the oldest international trademark registration still in effect (as a result of multiple renewals).

In the 15 years since the Protocol Relating to the Madrid Agreement Concerning the International Registration of Marks, one of the two treaties governing the system, became operational on April 1, 1996, the system's membership has expanded from 49 to 85 contracting parties. The Protocol introduced greater flexibility to the system, enhancing its attractiveness as an option for companies to register their domestic trademarks abroad. Today, it is dynamic and expanding.

At present, the Madrid system has 85<sup>1</sup> members. These include major economies like China, the USA, Japan, the Russian Federation, the European Union (EU), Turkey and the Nordic countries. "Global IP systems are an essential element of the global economy," said WIPO Director General Francis Gurry in a recent interview. "We are seeing an increasing interest in the Madrid system, and I am very confident that it will expand from its current membership of 85 to well over 100 in the next three or four years."

<sup>1</sup> [www.wipo.int/export/sites/www/treaties/en/documents/pdf/madrid\\_marks.pdf](http://www.wipo.int/export/sites/www/treaties/en/documents/pdf/madrid_marks.pdf)

On-going discussions with members and experts at WIPO are focusing on how to further refine the system so that it continues to meet the needs of established users and attract emerging companies seeking to operate in international markets.

In a highly competitive marketplace, a company's fortunes will depend in large part on its ability to break into established markets and to create new markets for its existing and new product ranges. It makes little sense – unless there is no alternative –

complies with formal requirements and the mark is recorded in the International Register and published online in the *WIPO Gazette of International Marks*. Protection begins from the date of the international registration.<sup>2</sup> WIPO then notifies the trademark offices of all countries (or regions) designated in the international application which confirm or reject the international registration within a prescribed period of 12 or 18+ months. If a refusal has not been received within the applicable period, the applicant can legally assume



for a company to add to its advertising and packaging costs by trading the same products under different trademarks in different countries.

The Madrid system is a “one stop shop” for the registration and renewal of trademarks. Not only does it streamline the process of registering and renewing trademarks internationally, it also offers valuable business information about the legal status of trademarks held by competitors.

### How does the Madrid system work?

In possession of a national trademark application or registration – a so-called “basic” application or registration – an applicant can file a single international application, in one language (English, French or Spanish), and pay fees in one currency (Swiss francs). The applicant ends up with one international registration covering a number of countries with just one renewal date to monitor. This cuts the administrative work involved and saves trademark owners time and money.

Once the trademark office of the territory concerned – the “office of origin”- certifies and forwards the application for international trademark registration to WIPO, it is checked to ensure it

that the trademark is protected in that country. As of January 1, 2011, offices designated in an international application are required to issue a statement of grant of protection once an application has been examined. This gives trademark holders timely and positive information about the status of their mark. The rights in a registered mark may be maintained indefinitely by paying a prescribed fee every 10 years.

As companies expand into new markets – beyond those in which their trademark is protected – they can extend territorial protection of their internationally registered trademarks to other contracting parties in a single, affordable step. This does not change the fact that there is still just one international registration number and one renewal date to manage. As new countries join the system, these too can be added to an international registration. Subsequent amendments to a trademark registration – changes in company name or address or ownership – may also be easily and inexpensively recorded.

The Madrid system increases predictability and its flexibility makes it easier for companies to protect their trademarks abroad.

<sup>2</sup> This will be, in principle, the same as the date on which the international application was received by the office of origin.



## WIPO's Global Brand Database

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In March 2011, WIPO launched its Global Brand Database, a new free, online tool that allows simultaneous brand-related searches of over 640,000 records relating to internationally protected trademarks, appellations of origin and armorial bearings, flags and other state emblems as well as the names, abbreviations and emblems of intergovernmental organizations. Additional national collections are expected to be added in the future.

Commenting on the launch, WIPO Director General Francis Gurry said, "This is an important part of WIPO's efforts to facilitate access to such valuable assets and reflects the Organization's commitment to narrowing the global knowledge gap by improving access to, and use of, IP information."

The Global Brand Database builds on existing brand-related search resources by providing a centralized platform to search multiple sources. A novelty is the addition of an advanced function that allows searching for fuzzy and phonetic terms.

The service will be integrated into **WIPO GOLD**, which provides quick and easy online access to a broad collection of searchable IP data and tools relating to, for example, technology, brands, designs, statistics, WIPO standards, and international classification systems.

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### Supporting applicants

WIPO offers a range of useful online tools and services which support trademark owners in registering and managing their marks and which are also a rich source of useful business information. Available online at [www.wipo.int/madrid/en/](http://www.wipo.int/madrid/en/) and free of charge, they include:

- an international application simulator;<sup>3</sup>
- a fee calculator<sup>4</sup> (applicants from least developed countries benefit from a 90 percent reduction in the basic fee);
- *The WIPO Gazette of International Marks* (online);
- The ROMARIN database containing information on all international marks recorded in the International Register and currently in force or that have expired in the past six months. It also includes data on international applications and subsequent designations currently being processed by WIPO;
- Country fact sheets on national/regional IP office procedures;
- Online payment for selected transactions and renewal of international registrations;
- Madrid Goods and Services (G&S) Manager – a new online tool to help trademark applicants compile the list of goods and services that must be submitted when filing an international application;
- The Madrid Portfolio Manager, a web-based tool designed to enable trademark holders and

their attorneys to access and manage their trademark portfolio directly is currently being tested;

- The Madrid Electronic Alerts System is also under development. Once operational, companies will be able to keep track of the activities of competitors and to identify future trends through a system of e-mail alerts which inform users about changes in international registration as and when they occur.

Trademarks drive business development and can significantly enhance company value. These valuable business identifiers also support economic growth and international trade by enabling companies to gain access to new markets, develop their export potential and help create a more favorable climate for foreign investment in home markets. They are also an essential tool in combating illegal counterfeit products. Companies seeking to protect these important business assets abroad want to be able to do so quickly, efficiently and cost-effectively. WIPO's Madrid system is a smart business solution for all companies seeking to license or otherwise commercialize their products in overseas markets.

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<sup>3</sup> [www.wipo.int/madrid/en/madrid\\_simulator/](http://www.wipo.int/madrid/en/madrid_simulator/)

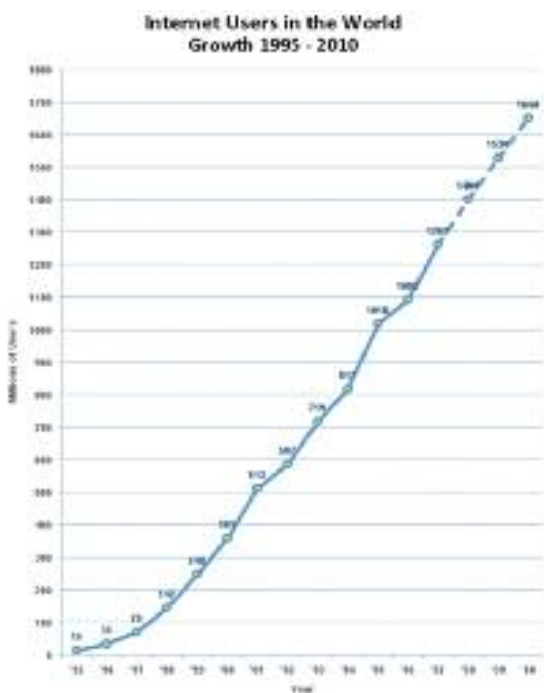
<sup>4</sup> [www.wipo.int/madrid/feecalc/FirstStep](http://www.wipo.int/madrid/feecalc/FirstStep)

# IP Infringement Online

## THE DARK SIDE OF DIGITAL

German attorney and Legal Counsel of the World Federation of the Sporting Goods Industry (WFSGI), **Dr. Jochen M. Schaefer** reflects on what companies need to do to defend their brands online.

Recent estimates by major search engines, such as Google and Yahoo, suggest that in just eight years, the Internet has expanded by a factor of 1,000 – the number of web pages rising from some 29 million in 1998 to an estimated 25 billion pages by 2006. In February 2011, the number of indexed websites totaled some 13.86 billion.<sup>1</sup>



Source: [www.internetworldstats.com](http://www.internetworldstats.com) - January 2009  
Copyright © 2005, Minnesota Marketing Center

The Internet has created enormous opportunities for companies to communicate their brand messages. Its global reach, openness, versatility and largely unregulated character have, however, also created fertile ground for trademark abuse, and all that it entails.

Online brand misuse in its broadest sense<sup>2</sup> covers the “classic” actions such as the sale of fake products on or through the Internet as well as a range of practices including search engine optimization (SEO),<sup>3</sup> unsolicited email, phishing<sup>4</sup> and cybersquatting.<sup>5</sup> These activities make up what many consider the dark side of the digital universe.

With estimated sales of US\$133 billion in 2009,<sup>6</sup> the fastest growing area of counterfeit trade is online. Companies cannot simply rely on conventional legal remedies to combat brand abuse on the Internet. A multi-faceted and proactive trademark protection strategy that complements existing legal protection is an imperative.

A holistic trademark protection strategy – built around multiple and complementary “detection, prevention and response mechanisms”<sup>7</sup> – offers an effective means of adapting to the challenges of the online environment. According to MarkMonitor®, a global leader in brand protection, “the desired, holistic brand protection approach means assessing every channel, every tactic abusers may leverage, including those in offline settings.” It also requires, “working across organizational boundaries to achieve the synergy needed to effectively safeguard a brand.”<sup>8</sup>

A holistic and proactive trademark protection strategy can enable companies to overcome some of the limitations of a conventional legal approach. Trademark law, like other areas of intellectual property (IP) law, is governed by principles of territoriality. In the online environment, however, where it is relatively easy to maintain an anonymous identity, using “offshore” Internet service providers (ISPs) or servers, for example, infringers can dodge legal action initiated by courts or administrative bodies in the countries in which they have a virtual presence and in which they generate profits.

The difficulties associated with successfully pursuing online IP infringers using a conventional legal approach are further compounded by a lack of uniformity in the legal landscape. While there is a degree of harmonization of the laws and regulations governing IP rights and their enforcement, these are not unified. Varying laws and practices in different jurisdictions make it difficult to navigate the legal landscape, fuelling legal uncertain-

- 1 [www.worldwideweb.size.com](http://www.worldwideweb.size.com)
- 2 Encompassing all illegal online activities and damages incurred by an established brand or company
- 3 The art of tweaking websites to rank high in popular search engines for keywords related to a company's products and services
- 4 The process of fraudulently attempting to acquire sensitive information such as usernames, passwords and credit card details by masquerading as a trustworthy e-commerce entity
- 5 The abusive registration of trademarks as domain names
- 6 “Protecting Your Brand Online: The New Marketing Imperative” – White Paper, *Mark Monitor*®, July 2009
- 7 *Ibid.*
- 8 *Ibid.*



ty about outcomes. Against this backdrop, some commentators have cast the law as a lame duck limping behind dynamic new commercial and technological developments in the real world.

All is not lost, however. A growing range of technologies and specialized brand monitoring services are available to support online brand protection. Companies that have leveraged these technologies as part of a holistic trademark strategy that is not exclusively legally based have seen positive results in terms of reducing trademark abuses and safeguarding brand equity.

Broadly speaking, a company's "brand," its single most distinctive identifying element, is frequently its most valuable financial asset, particularly in launching an initial public offering (IPO)<sup>9</sup> or in mergers and acquisitions (M&As). In today's knowledge-driven economy, a company's intangible IP assets typically account for some 80 percent of business value.

A strategic brand protection program is indispensable in protecting this highly valuable asset base. Such an approach can provide information to support successful legal prosecution of infringement and also offers additional business advantages. For example, automated trademark monitoring systems and services help prevent the registration of confusingly similar or even identical marks by third parties. They may also include surveillance mechanisms to monitor trademark use by legitimate third parties across the value chain from product development right up to the point of sale and/or distribution. These services can also monitor and track all activities – advertising, marketing, negative or defamatory statements in video clips, blogs and other online communication platforms – that may have a bearing on brand value and integrity.

For a company to single-handedly keep track of the uses of its trademarks in the high-speed digital universe is not feasible. Automated trademark monitoring systems and services are extremely valuable tools for gathering business intelligence and for signaling to infringers that a trademark is

actively defended. For best results, such services will link up with high volume online marketplaces such as eBay® and B2B platforms like Alibaba®.

In November 2009, the Organisation for Economic Co-operation and Development (OECD) stated that "the share of counterfeit and pirated goods in world trade is estimated to have increased from 1.85% in 2000 to 1.95% in 2007," representing a value of some US\$ 250 billion worldwide.<sup>10</sup>

That said, the non-material damage to a brand – the impact on its reputation and consumer confidence – often exceeds any loss in turnover. Concerns about direct revenue loss pale in significance compared to the damage caused when fake products cause fatal auto or air accidents or when counterfeit drugs bought from rogue online pharmacies cause harm. In these circumstances the very existence of a brand is threatened as the public, albeit erroneously, holds the legitimate brand owner responsible. The hard fact is that customers duped into purchasing counterfeit products displaying a particular brand tend to associate any negative experience with that brand.

Right owners who fall victim to online brand misuse often face specific problems associated with securing evidence. Infringing websites continuously morph and change, as do the identities of online IP infringers. If a company has any chance of tracking these infringers and bringing them to account, then it needs to use specialized expertise and IT tools. Specialized web monitoring services such as those offered by MarkMonitor® for example, can be indispensable in identifying online market platforms where counterfeiting and piracy activities occur. Such services gather data, such as screenshots and Internet protocols of infringing sites, required by judicial authorities in prosecuting infringement.

## Options and Priorities

Doing nothing is not an option for any company seeking to safeguard its brand equity in the online (and offline) world. A first priority is to put a

<sup>9</sup> IPO takes place when a company issues stocks and shares to the public for the first time. IPOs are typically undertaken by smaller, younger companies seeking capital to expand but can also be done by large privately-owned companies looking to become publicly traded.

<sup>10</sup> [www.oecd.org/dataoecd/57/27/44088872.pdf](http://www.oecd.org/dataoecd/57/27/44088872.pdf)

stop to infringing activities – and rapidly. This requires immediate action to ensure that incriminating content is no longer accessible on the Internet. Cease and desist are the buzzwords here. Web screening companies that link up with ISPs and leading e-commerce platforms can help to detect and disable infringing sites. Time is of the essence as each minute that an infringing site operates exponentially increases the risks that the targeted brand will suffer irreversible damage. A proactive, multi-faceted trademark protection strategy allows a company to act swiftly and effectively against infringers on multiple fronts. It discourages would-be infringers and also sends a strong message to customers that the brand owner is actively seeking to safeguard their interests.

Claiming damages from infringers in the borderless digital environment can prove extremely difficult. From a purely pragmatic viewpoint, when a brand is under attack by an infringer whose identity is not easily traceable, damages are of secondary importance. That said, recovering damages (including the costs associated with the cease-and-desist measures) can be a number one priority when companies are defending themselves against unfair online activities of competitors.

While the courts and competent administrative authorities play a key role in stopping illegal use of brands online, the importance for right holders to secure the underlying facts and accompanying evidence cannot be overstated. If a company is to win its day in court, it is critical that emphasis be placed on gathering this information prior to and during litigation and particularly for interim relief proceedings.

IP infringers are equipped with the latest tools and technologies. Against such an unremitting and formidable foe, companies need to think out of the box to protect their interests. Prevention is much easier than repairing damage to a brand. While this is the reality, many companies vulnerable to infringement or that have suffered first hand remain reluctant to adequately invest (in financial and personnel terms) in brand protection.

In practice, in-house legal departments are loath to add to already heavy workloads. Management competences in this area are typically poorly defined and scattered across the business. Ideally, an effective brand protection strategy is holistic, multi-faceted, driven by top management, adequately funded and staffed and operates across the organization in close cooperation with external advisors.

Photo: iStockphoto.com/parcorex



Sophisticated technological tools and providers of specialized services exist and can be powerful allies in tackling these problems, helping to manage risks in a cost-efficient, professional and effective way.

While anyone who has fallen foul of online IP infringers may wish for an adequate and globally applicable set of laws to govern the universe that is the Internet, for the moment this is a pipe dream. Currently, there is no choice but to navigate the complex web of rules that exist in different jurisdictions and to complement conventional legal approaches with an effective IP protection strategy underpinned by the growing range of tools and services available to monitor and curtail IP abuse.

As Albert Einstein said, “We can’t solve problems by using the same kind of thinking we used when we created them.” The business landscape has been transformed thanks to the Internet, and companies need to adapt their trademark protection strategies accordingly if they are to successfully outsmart IP infringers in the online marketplace.

# EXPLORING RAS TAFARI CULTURE

Jamaican attorney, **Marcus Goffe**, Legal Advisor to the Ethio-Africa Diaspora Union Millennium Council, introduces the Ras Tafari culture and explores what the community is doing to protect and preserve its cultural identity.

Ras Tafari is a unique and distinctive community and culture comprising mainly Africans and descendants of the African Diaspora. Its formation was inspired by the coronation, on November 2, 1930, of a black African named Ras Tafari Makonnen as Emperor Haile Selassie I of Ethiopia.<sup>1</sup> His followers, known as Rastafarians, believe that, according to Christian biblical prophecy<sup>2</sup> the Emperor was the manifestation of God or “Jah” on earth. The Ras Tafari community seeks to preserve its African ancestry and the traditions it has inherited and sustained in the face of slavery and colonialism. The community has always strongly affirmed its desire for repatriation to Africa, the physical and spiritual homeland of its ancestors, millions of whom were forcibly displaced during the 400-year transatlantic slave trade.

Although a relatively young community, Ras Tafari culture has a broad reach, permeating popular culture globally. This is in large part due to its influence on reggae music and the success of musicians like Bob Marley, whose work has spread Ras Tafari philosophy far and wide. Migration has also expanded the culture’s reach with communities established most notably in Africa, the Caribbean, the United States, the United Kingdom and other European countries, as well as in countries of Central and South America. The Ras Tafari community is trans-boundary, physically rooted in Jamaica, but spiritually rooted in Africa generally and Ethiopia in particular.

Although considered indigenous to Jamaica, in the non-legal sense, the Ras Tafari community does not qualify as an indigenous community under prevailing international norms, because it did not exist prior to colonization. The Ras Tafari community emerged against a backdrop of poverty and oppression and identifies its members as descendants of indigenous Africans forcibly displaced to Jamaica by slavery and colonialism.

The Ras Tafari culture is a unique fusion of African cultural traditions and Caribbean cultural influences. Having adopted the red, gold and green colors of Africa, Rastafarians can be easily identi-

fied by their traditional hand-knitted tams (“crowns”), scarves and other adornments, as well as by the traditional dreadlocks worn by many.

With the broad appeal of the Ras Tafari worldview and the global standing of reggae music, traditional Ras Tafari symbols and imagery have been popularized and used extensively in commercial products ranging from T-shirts, jewelry, arts and crafts items, smoking paraphernalia, hats, clothes, bags and shoes. Very few of these products are made by Rastafarians, and none of the monies accrued from their sale benefits the Ras Tafari community.

The Ras Tafari community is most often associated with creating and popularizing reggae. At the root of this distinctive music are the oral testimonies relating the Ras Tafari’s struggle to preserve their religious and cultural identity in Jamaica. Originally inspired by their experience as marginalized Africans in Jamaica, reggae music evolved from traditional Ras Tafari drumming pat-

Photos: Jike Honsik, International Rastafari Archives Project, Smithsonian Institution, USA



**“Nyabingi” is a fusion of earlier African-Jamaican forms. Ras Sarge seated before a three-drum ensemble (repeater, bass and funde).**

terns and the community’s spiritual ideology.

Although much has been written about the Ras Tafari over the past 80 years, to date it has largely come from secondary sources. Little has been based on anthropological research involving first-hand interviews of community members. This has often led to the Ras Tafari being misunderstood and misrepresented, in turn fuelling prejudice and discrimination against the community.

1 Revered as the King of Kings, Conquering Lion of the Tribe of Judah  
2 Christian Bible - Revelation 5:5 and Revelation 19:16



Empowering the Ras Tafari to tell their own history and define their identity themselves can help to overcome such misrepresentation, misappropriation, and discrimination, thereby safeguarding the interests of the community. With a diminishing number of community elders, there is a growing urgency to document their testimony as a legacy for future generations.

Similarly, there is a need to further explore and record the evolution of traditional drumming techniques, chanting and ceremonial rituals, with a view to their preservation and protection. These ceremonies form the basis of Ras Tafari traditional cultural expressions (TCEs) and community continuity, enabling them to bond and interact as a cohesive whole. Many of these ceremonies – so-called “grounations” or “nyabinghis” – have been featured in documentaries made by those outside the community, but little research has been undertaken by the community itself.

The Ras Tafari believe that “word, sound is power!” according great importance and significance to the community’s distinctive chants and rhythmic drumming. The ceremonial beating of decorative Ras Tafari drums, handmade from goatskin or cow-hide, along with the spiritual cleanliness of community members, is believed to evoke protective as well as offensive powers. Allowing the community’s traditions to be recorded and preserved and its cultural products to be produced by outsiders heightens the risks of misinterpreting their symbolism and meaning. If the community itself does not record its cultural expressions and interpret their meaning, its core identity and cohesion is weakened, and outsiders’ interpretations become the primary reference.

Unlike its TCEs, little is known about the wealth of Ras Tafari traditional knowledge (TK). As strong advocates and adherents of a natural (“i-tal”) lifestyle, the Ras Tafari are, for the most part, vegetarians. I-tal signifies the unity of the individual with nature and includes a diet of natural foods that increases life energy or “livity”. Many Ras Tafari are agriculturalists and, along with others in Jamaica, continue the traditional agricultural and farming practices and methodologies passed on by previous generations. Traditional Ras Tafari land-based cottage industries include the pro-



I-tal garden

duction of artistic works, sculpture, jewelry, and clothing from coconut, banana, calabash and other natural fibers. These typically bear the distinctive Ras Tafari images, colors and symbols.

The community’s TK also includes know-how in relation to preparing and using herbal medicines in the treatment of a range of ailments and illnesses. The community is well known for its root wines or tonics, which are widely produced in Jamaica and the Caribbean. As holders of a rich heritage of TK and TCEs, the Ras Tafari community can be understandably upset, frustrated and at times angered by the misappropriation of their cultural assets by outsiders. Today, thousands of products and services are being passed off as affiliated with, or representative of, the Ras Tafari community – a problem that has been magnified by the Internet and the expanding online market place. Protecting the rights of the Ras Tafari community and regulating the sale of authentic Ras Tafari products is no easy task.

With the assistance of the World Intellectual Property Organization (WIPO) and the Jamaica Intellectual Property Office (JIPO), the Ras Tafari community has embarked on several initiatives aimed at protecting the community’s rights over its TK and TCEs. In June 2007, the leaders of several branches or “mansions”<sup>3</sup> and organizations of Ras Tafari met to establish the Ethio-Africa Diaspora Union Millennium Council (the Millennium Council), an umbrella organization seeking to advance the common interests of the Ras Tafari com-

<sup>3</sup> These include Bobo Shanti, the Nyabinghi, the Twelve Tribes of Israel and others. The term is taken from the Christian bible, verse John 14:2, “In my Father’s house are many mansions.”



munity, particularly in relation to cultural heritage and intellectual property (IP) rights.

In July 2007, the Millennium Council invited South African lawyer Roger Chennells to Jamaica. Mr. Chennells is well known for having represented the San people of southern Africa in their efforts to protect their TK of the appetite-suppressing “hoodia” plant. Together with WIPO, Mr. Chennells led a series of seminars in Jamaica

The setting up, in 2008, of a WIPO Working Group for the establishment of a framework for protection of TK, TCEs and genetic resources in CARICOM<sup>5</sup> countries is further evidence of positive progress. The Ras Tafari community actively participates in these consultations and looks forward to the creation of an effective regional legal framework to protect the TK, TCEs and genetic resources of indigenous, local and other cultural communities in the Caribbean.

**Unauthorized commodification trivializes Ras Tafari cultural practices.**



on TK and TCEs. These events were well attended by members of the Ras Tafari community as well as those of the Maroon<sup>4</sup> community. The seminars were especially important because, although cultural misappropriation had been a hot topic for many years, this was the community’s first opportunity to formally consider how IP, among other tools, could be used to empower them to do something about the misuse.

In 2008, the Millennium Council became an *ad hoc* observer to the WIPO Intergovernmental Committee on Intellectual Property, Genetic Resources, Traditional Knowledge and Folklore (IGC) and has since actively participated in its international deliberations. The Council also works closely with WIPO and JIPO to develop and implement a range of tools to protect Ras Tafari cultural traditions.

The Council has developed a model IP contract for use when researchers, filmmakers and others visit Ras Tafari communities to make audio or visual recordings. It has also drawn up an Intellectual Property and Cultural Heritage Policy, outlining the procedures outsiders must follow in order to access the community’s TK or use its TCEs. The JIPO fully supports these community initiatives and is working with the community to implement and enforce them.

In August 2010, the Millennium Council organized, in cooperation with WIPO and the JIPO, the Ras Tafari Global Fora in Kingston, Jamaica, on the theme of “Traditional Knowledge and Community Rights”. The various forums focused on identifying and clarifying the rights of communities, in particular in relation to human rights, cultural laws, IP laws and TK norms. This provided an ideal opportunity for the Ras Tafari and other communities to better learn how to use the IP system to protect their cultural and commercial interests. The Millennium Council, through JIPO, has also requested WIPO to assist with an audit of Ras Tafari IP assets, TK, TCEs and genetic resources. Plans are also in place for the community to identify and register collective trademarks to protect authentic and original Ras Tafari assets.

The Ras Tafari hope that, in 2011, Jamaica and the Caribbean will be able to take part in WIPO’s successful Creative Heritage Project ([www.wipo.int/tk/en/culturalheritage/](http://www.wipo.int/tk/en/culturalheritage/)). This would go a long way to empowering certain communities in Jamaica, including the Ras Tafari, to document and archive their living heritage and culture. With the assistance of WIPO, the JIPO and others, the Ras Tafari community in Jamaica will continue to work to preserve, protect and manage its cultural assets and to realize its collective right to cultural self-determination and development.

<sup>4</sup> Communities of runaway slaves were established in Jamaica in the 17<sup>th</sup> century. The term “maroon” is derived from the Spanish word “cimarrón”, meaning fugitive or runaway.

<sup>5</sup> The Caribbean Community

# PATENTING NANOTECHNOLOGY: EXPLORING THE CHALLENGES

Nanotechnology is one of the most promising and radical new technological frontiers. It involves the engineering of functional systems or the design, production and application of materials at the molecular scale<sup>1</sup> that is, with structures around 40,000 times smaller than the width of a human hair. It holds enormous promise for the development of new materials and devices with a vast range of applications. It is the “global economy’s fastest growing information and investment sector”.<sup>2</sup> In this article, **Aparna Watal**, Legal Officer (Asia-Pacific) Atomic Labs, Inc., and **Professor Thomas A. Faunce**, Faculty of Law, Australian National University (ANU), explore some of the challenges patenting authorities face when dealing with nanotechnology.

## About nanometers

Nanotechnology uses a basic unit of measure called a “nanometer” (nm) derived from the Greek word for midget. A nanometer is a billionth part ( $10^{-9}$ ) of a meter, with each nm being only three to five atoms wide. A sheet of paper is 100,000 nms thick.

At the nanoscale, materials can express unusual or distinctive physical, chemical, and biological properties, which differ in important ways from bulk materials and single atoms or molecules.<sup>3</sup> At the nanoscale, the laws of quantum physics take over and new physical properties emerge enabling exciting new applications. Nanotechnology is about building functional mechanisms with nanoscale dimensions, such as supercomputers the size of a sugar cube with the power of a billion laptops. In sum, “by taking advantage of quantum-level properties,” nanotechnology “allows for unprecedented control of the material world.”<sup>4</sup>

The technology is already evident in an increasing range of consumer products such as cosmetics and sunscreen lotions. Zinc oxide, for example, a key ingredient of sunscreen lotions leaves a chalky-white residue on the skin. Using nanoscale zinc oxide particles, the lotion becomes clear and leaves no visible trace. Clothing manufacturers also use nanotechnology to create stain and grime repellent clothing. Nanocomposite materials that offer advantages in

weight, strength and durability are increasingly used in manufacturing car parts and sports equipment, such as golf clubs and tennis rackets. Nanomaterials can serve infinitely varied applications, from site-specific drug delivery mechanisms and biomarkers that light up cancer cells to cost-effective and energy efficient photovoltaic cells.

In the past 20 years, nanotechnology has enjoyed phenomenal growth, with the “nanotech” market projected to be worth a trillion US dollars by 2015. This has fuelled an upsurge in nanotech-related patent applications filed worldwide which grew more than 50-fold between 1991 and 2008.<sup>5</sup> The push to protect nanotechnologies has highlighted a number of issues relating to the patent system.

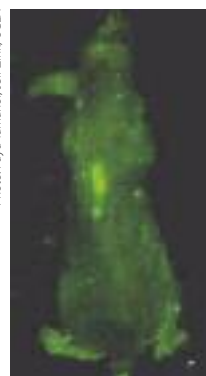
## Size matters

Size is everything in the world of nanotechnology. It also raises a number of interesting questions when it comes to determining the validity and enforceability of nanotechnology patents. Is “nanoscale” a sufficiently precise term to include in a patent claim? Are current patent examination practices – to determine the patentability of a claimed invention<sup>6</sup> – sufficient to effectively scrutinize nanoscale inventions? What are the difficulties in assessing the novelty of an invention in this emerging area where, in general, extensive prior art is considered to be lacking. What are the difficulties associated with enforcing nanotechnology patents? What happens if the size range mentioned in a nanoscale patent application overlaps with that featured in the prior art? Is downsizing in itself obvious for the person skilled in the art? Although, case law on these issues is not unique to nanotechnology there is an emerging consensus about how to address these issues under existing patent laws.



**One red blood cell has a diameter of around 7,500 nanometers**

Photo: iStockphoto.com/Kirill Putchenko



**Researchers use nanoparticles to shrink tumors in mice. Fluorescence shows accumulation of nanoparticles in tumor.**

the technology is already evident in an increasing range of consumer products such as cosmetics and sunscreen lotions. Zinc oxide, for example, a key ingredient of sunscreen lotions leaves a chalky-white residue on the skin. Using nanoscale zinc oxide particles, the lotion becomes clear and leaves no visible trace. Clothing manufacturers also use nanotechnology to create stain and grime repellent clothing. Nanocomposite materials that offer advantages in

1 [www.crnano.org/whatis.htm](http://www.crnano.org/whatis.htm)

2 [www.nanotech-now.com/](http://www.nanotech-now.com/)

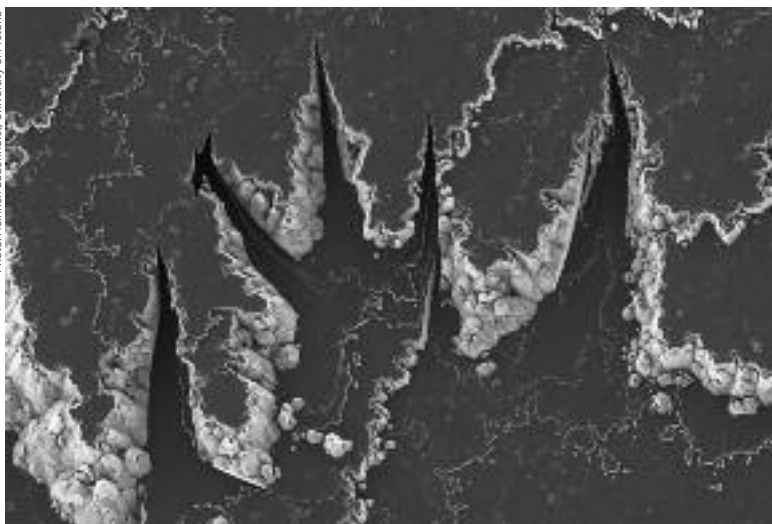
3 [www.nano.gov/html/facts/whatisNano.html](http://www.nano.gov/html/facts/whatisNano.html)

4 [www.nanotech-now.com/basics.htm](http://www.nanotech-now.com/basics.htm)

5 Yan Dang, Yulei Zhang, Li Fan, Hsinchun Chen, Mihail C. Roco, ‘Trends in worldwide nanotechnology patent applications: 1991 to 2008’ (2010) *Journal of Nanoparticle Research* 12: 687-706.

6 To merit a patent, among other requirements, an invention must be novel, involve an inventive step (be non-obvious) and must have industrial application (utility).





**Nanoshapes arising from catalytic impurities particles – around 5 to 20 nanometers – which burrow into graphite, causing massive fissures and caves and dramatically influence the properties of graphite.**

## Defining nanotechnology for patent claims

A precise and uniform definition of the terms nanotechnology and nano-scale has long eluded scientists and patent offices. Lack of a standardized definition has implications for patent search and classification, and for tracking patenting trends. It magnifies the risk that relevant prior art remains undetected and creates uncertainty about how an ordinary person skilled in the art – one of the yardsticks against which patentability is established – might interpret “nanoscale”. It heightens the risk of a nanotechnology patent being invalidated and of overlapping or conflicting patents being granted.

The three key nanotechnology patent powerhouses – the USPTO, EPO and JPO<sup>7</sup> – have each sought to resolve this issue by respectively adopting definitions that generally speaking restrict nanotechnology inventions to a length scale of less than 100 nms. This effectively excludes applications that claim nanoscale measures according to different nanomeasures. But the situation is further compounded by the use in patent applications of ambiguous or undefined terms, such as “nanoagglomerates,” creating uncertainty and making it difficult for patent examiners to assess how an invention differs from the prior art.

## A multidisciplinary field

The inherently multidisciplinary nature of nanotechnology<sup>8</sup> presents significant challenges for patent granting authorities. In practice, applications are assigned to examiners with the expertise most relevant to an invention. As nanotechnology patent applications typically span multiple scientific and engineering fields, it is unlikely that any single examiner has the required expertise to appropriately assess the patentability of such an application.

This heightens the risk of overlooking relevant prior art and inaccurately assessing an invention’s novelty or inventiveness. It also increases the chances of granting substandard patents that may not stand up in court.

Amid the rising number of nanotechnology patent applications, the EPO, JPO and USPTO are exploring ways to address the problem – for example, by placing greater emphasis on training examiners to carry out more specialized prior art searches for nanotechnology applications. The introduction of new nanotechnology tags in patent classification systems “Y01N” (EPO), “ZNM” (Japan) and “977” (USPTO) – is also helping to enrich and improve the quality of these searches.

### When is a nanotechnology novel?

As a general rule, size is not a sufficient condition to establish the novelty of an invention. Some nanotechnology inventions, however, involve nanoscale formulations of previously disclosed chemical compounds, structures and materials. Does this mean that these inventions are not patentable?

When nanoscale inventions exhibit properties that are, in some measure, unanticipated or different from those found in larger scale prior art, exceptions have been made. For example, in *BASF v Orica Australia*,<sup>9</sup> the EPO’s Technical Board of Appeals (TBA) held that a prior patent which disclosed polymer nanoparticles larger than 111 nms did not destroy the novelty of a subsequent application by Orica for nanoparticles smaller than 100 nms. Orica’s smaller particles exhibited remarkably improved technical properties resulting in a glossier coat compared to the larger particles protected under the prior patent. The difference in properties was held to be sufficient to impart novelty. But does an invention lack novelty if it claims to use particles in a range of sizes that overlap with those disclosed in the prior art? Generally, even the slightest overlap is sufficient to destroy novelty but exceptions have been liberally applied to nanoscale inventions.

Under the EPO’s approach to assessing novelty of these so-called “selection inventions”, the overlap must be narrow relative to the larger prior art range, sufficiently far removed from the larger range and indicative of an invention, for

<sup>7</sup> The United States Patent and Trademark Office (USPTO); the European Patent Office (EPO); and the Japan Patent Office (JPO)

<sup>8</sup> Nanotechnology derives its scientific knowledge base from a range of disciplines, including physics, chemistry, materials science, engineering, computational sciences and biotechnology.

<sup>9</sup> *BASF v Orica Australia* Boards of Appeal of the EPO, T-0547/99 (8 January 2002)

**The movement of these particles can at times be controlled and used to cut shapes in graphite a few hundred atoms across. These nano-shapes may potentially be used in future electronics applications.**

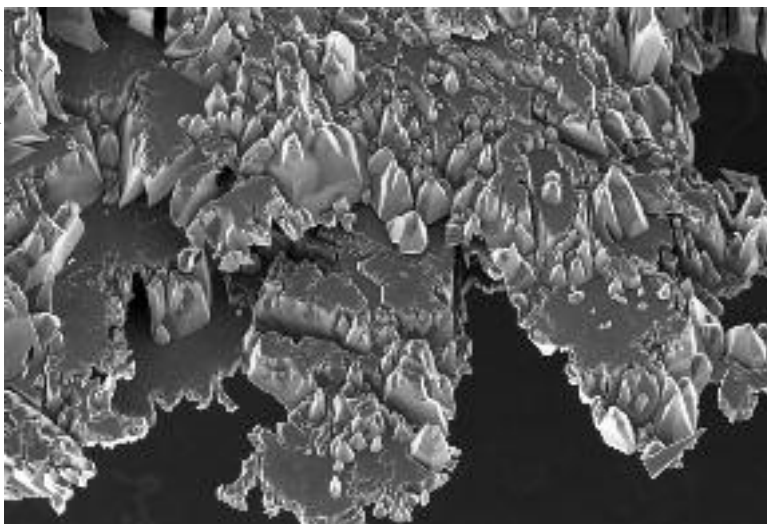
example, by exhibiting a new or unexpected effect that occurs only within the selected sub-range. The new effect does not, of itself, render the sub-range novel; rather, it permits the inference that the sub-range has been specifically selected to provide a technical advantage or resolve a technical issue in the prior art and that it is, therefore, novel. Additionally, the EPO assesses the relevance of the sub-range to prior art documents by asking whether a person skilled in the art would seriously contemplate applying the technical teachings of the prior art in the range of overlap. The EPO's TBA applied this measure in a recent case involving *Smithkline Beecham Biologicals v Wyeth Holdings Corporation*.<sup>10</sup> The question was whether Smithkline's patent application on a Hepatitis B vaccine adjuvant<sup>11</sup> lipid measuring 60-120 nms lacked novelty in light of a prior patent on a similar adjuvant with particles measuring 80-500 nms. The TBA found that Smithkline's patent was novel because the overlap was:

- narrow – only 10% of the larger range in the earlier patent;
- at the extreme lower end of the prior art range; and
- exhibited significantly improved adjuvancy – the smaller particles resulted in an unexpected and favorable shift in immune response.

Moreover, the prior art gave little guidance on how to prepare the smaller particles. A skilled person who followed the vaccine supplier's protocol would have produced particles of between 115 and 951 nms. The technical teachings in the prior art were, therefore, not considered relevant to Smithkline's patent application.

Granting patents for inventions falling within such overlapping ranges has become more common in nanotechnology than in any other field. Arguably, this creates a fragmented patent proprietorship landscape with multiple "blocking" patents on the same invention. The existence of "a dense web of overlapping rights" creates uncertainty and inhibits inventors in "designing around" existing patents. Such a dead weight of patents for inventions falling within overlapping ranges already overshadows research on nanotubes, nanowires, nanocrystals and nanoemulsions and threatens to severely arrest innovation and the further development of the nanotechnology sector.

Photo: Heinrich Badenhorst, University of Pretoria



### When is a nanotechnology non-obvious/inventive?<sup>12</sup>

In addition to proving novelty, a nanotechnology patent application must pass the test of non-obviousness. Generally, an invention is considered obvious if it miniaturizes known elements, performing the same function, and yields no more than might be expected from the diminished size. Technology is considered non-obvious if it produces new and unexpected results or serves previously unrecognized functions that overcome a technical problem relating to the prior art. As practically all nanoscale technologies display these characteristics, only those results which are not likely to emerge from extrapolations by a skilled person working with smaller structures are deemed patentable.

In the *Smithkline Beecham Biologicals v Wyeth Holdings Corporation* case, the vaccine adjuvant was held to be inventive because of its unexpectedly improved effect and the fact that nothing in the prior art had suggested that a skilled person might consider reducing the particle size to achieve that advantage.

Nanotechnology applications can pass the non-obvious test if the invention affords a significant technological advantage over prior art, for example, by enabling a skilled person to practice the previously disclosed invention at the nanoscale for the first time. In *BASF v Orica Australia*,<sup>13</sup> Orica's claimed invention involved manufacturing polymer particles at 100 nms or less by initiating polymerization at temperatures below 40°C. BASF argued that the invention was obvious because a prior patent had disclosed the same manufacturing process using temperatures below 50°C to yield particles averaging 111 nms or more. They argued that a skilled person exercising no inventive effort and repeating reactions on a trial-and-

<sup>10</sup> *Smithkline Beecham Biologicals v Wyeth Holdings Corporation* Boards of Appeal of the EPO, T-0552/00 (30 October 2003).

<sup>11</sup> An adjuvant is a pharmacological or immunological agent often included in vaccines to enhance the recipient's immune response to a supplied antigen.

<sup>12</sup> Both terms are equivalent. A novel invention can be non-obvious if it represents a sufficient advance in relation to the state of the art to be considered worth patenting. If an invention would be obvious to a person of ordinary skill in the field concerned, it would not denote progress to the stage qualifying for patent protection.

<sup>13</sup> *BASF v Orica Australia* Boards of Appeal of the EPO, T-0547/99 (8 January 2002).



error basis for all temperatures between 0°C and 50°C would have derived sub-100 nm particles at temperatures below 40°C.

The EPO rejected this argument and reasoned that the prior patent suggested using temperatures not exceeding 50°C. While this “did not rule out the use of temperatures below 40°C, it was far from suggesting their use.” Moreover, the patent was aimed at manufacturing particles larger than 111 nms only. A skilled person following the teachings of the prior patent would not have used temperatures below 40°C or foreseen that lower temperatures would result in particles smaller than 100 nms. The TBA held that Orica’s invention provided, for the first time, a method of creating smaller variants of polymer nanoparticles and was, therefore, inventive.

## Detecting Abuses

The cross-industry application of nanotechnology, as well as the tendency to grant patents on “selected inventions” (those using particles in a range of sizes that overlap) makes policing and enforcement of nanotechnology patents prohibitively expensive and practically impossible. There is no easy way for a patentee to know whether a competitor or a firm operating in another sector is using a protected technology without authorization. The only way to determine whether a marketed end product infringes a nanotechnology patent is to use sophisticated and expensive microscopy techniques and equipment. Analysis of every suspect product is beyond the purse of most outfits. Moreover, as much of the current nanotechnology research is guarded behind closed doors in corporate research facilities and university laboratories, it is often difficult to establish a legal basis for an infringement action even if abuse is detected.

These factors risk undermining the primary incentive for patent disclosure, namely, to obtain an exclusive monopoly to use and commercialize an invention.

## A complex legal landscape

By their very nature, nanotechnologies are “universal” technologies that provide an enabling platform for manufacturing processes and products in multiple technologies and industries. While its cross-industry character has created an enormous buzz about its potential, this very quality presents significant challenges for anyone seeking to develop and commercialize products in this space. A basic patent on carbon nanotubes or semiconducting nanocrystals or processes for functionalizing them, for example, has applications in many fields – semiconductor design, biotechnology, construction, pharmaceuticals, agriculture and telecommunications. A patentee, however, may only be operational in one or two of these fields. Any company seeking to develop and commercialize a nanotechnology-related product, then, must take a comprehensive view of the nanotech patent landscape to ensure that all patents owned by third parties are identified. This, coupled with a well planned licensing strategy – to ensure that all relevant patented technologies are licensed – can greatly facilitate the process of establishing freedom to operate and help avoid potentially costly and unforeseen legal wrangles.

When framing patent claims, nanotech patentees also need to keep in mind the complexities of the international patent landscape. The fact that different jurisdictions interpret principles governing patent law in various ways can impact the patentability of an invention. The German Federal Supreme Court, for instance, has in the past invalidated a nanotechnology patent granted by the EPO for a “selection invention,” on the grounds of lack of novelty.<sup>14</sup>

So far, the difficulties involved in tracking patent infringement and enforcement have, arguably, granted researchers and inventors a tacit and much needed freedom to operate. However, overlooking these patents will become riskier and harder as more nanotechnology products reach the market. The challenge for the future will be to foster sustained nanotechnology innovation by ensuring that the intellectual property regime affords innovators ample freedom to operate and to develop novel nanotechnology applications, without substantially undercutting the incentives for patent disclosure and investment.

<sup>14</sup> Bundesgerichtshof [BGH] Federal Court of Justice, *Inkrustierungsinhibitoren*, 2000, 591 GRUR (F.R.G).

# IN THE NEWS

## A glimpse into the “nanoscopic” world

A team of U.K. researchers recently demonstrated the world’s most powerful optical microscope offering scientists a glimpse of the “nanoscopic” world using tiny glass beads to capture and channel “evanescent waves” of light to a standard microscope. This new technique reported in Nature Communications allows researchers to simply look down a microscope to see with their own eyes details which are normally only visible using indirect methods such as atomic force microscopy or scanning electron microscopy. The team believes that this breakthrough is very promising for biological research, particularly in studying the activities of cells, bacteria and viruses at the nanoscale. ■

## Morocco launches new fund for innovation

The Government of Morocco is to allocate some US\$56 million to promote innovation and encourage partnerships between universities and research institutes and the business community. The initiative was announced by Morocco’s Minister for Industry, Commerce and New Technologies, Ahmed Reda, at the Second Conference on Innovation in Skhirat, Morocco on March 1, 2011. The funds are being launched within the context of a comprehensive national plan to promote research and innovation for economic development. ■

## European Union registers 1,000<sup>th</sup> quality food name

On February 15, 2011, the European Commission registered the 1000<sup>th</sup> quality food name, *Piacentinu Ennes*, an Italian sheep’s cheese from the Sicilian province of Enna. Since 1992, the EC has operated two registers for the names of agricultural products and foodstuffs – the register for protected designations of origin (PDO) and protected geographical indications (PGI)

and the register for traditional specialties guaranteed (TSG). Registration of such quality products is designed to prevent fraud and imitation. Of the thousand products registered, 506 are PDOs, 465 are PGIs and 30 are TSGs. European PDO-PGI products represented an estimated turnover of some 14.2 billion euros in 2007 according to an EC study. ■

## New rights delivery platform simplifies copyright clearance

The U.S.-based Copyright Clearance Center, Inc. (CCC), a not-for-profit organization and leading provider of licensing solutions, recently launched its Rights Delivery Platform. For the first time, using the copyright.com platform users can search for and obtain permission to use and share content from the world’s leading titles in a wide range of fields including science, technology, medicine, humanities, news, business, and finance. “Our goal continues to be simplifying the process of obtaining copyright permissions,” said Diane Pierson, Vice President, Marketing, Copyright Clearance Center. “Our one-stop-shop portal now has millions more rights than ever before.” The platform also offers enhanced search by publication type, country of publication or language and allows international customers to pay via credit card in their local currency. ■

## YouTube signs deal with Polish artists

YouTube and the Association of Polish Authors and Composers (ZAIKS) recently signed a licensing agreement which took effect on January 1, 2011 to protect the copyright of Polish artists and guarantees royalty payments for video-clips in which they feature on YouTube.

Mr. Artur Waliszewski, the business manager for Google (Poland) which owns YouTube, said the agreement is a milestone for Polish artists offering them both promotional opportunities and financial compensation.

Under the agreement, Polish artists registered at ZAIKS will receive an undisclosed percentage of the revenue YouTube earns from adverts displayed alongside the video-clips.

YouTube has signed more than 10,000 similar agreements with copyright organizations around the world.

# NEW PRODUCTS



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