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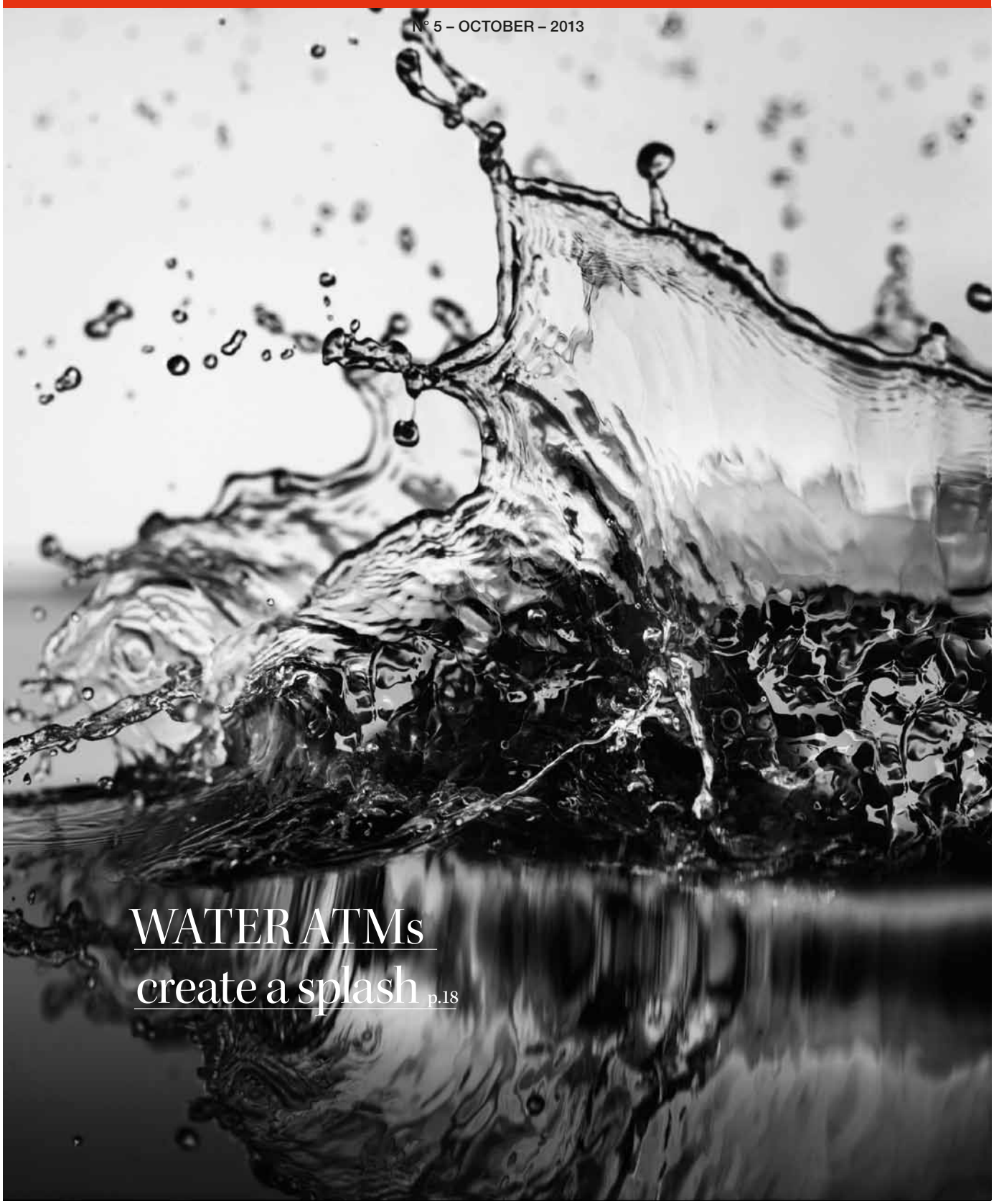

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Front cover:
A low-cost integrated water purification service developed by Sarvajal, an Indian social enterprise, purifies and monitors the quality of local water sources in remote and underserved communities creating local jobs and income in the process.

# Providing premier international IP SYSTEMS & SERVICES:

## An interview with Francis Gurry

Photo: Dhillon Photographics

As countries struggle to secure long-term economic growth and development, innovation and intellectual property (IP) have become priority policymaking areas. With a view to expanding access to IP-related knowledge in support of innovation, WIPO has developed a wide range of business solutions to support national IP offices in overcoming the many and varied operational challenges they face. WIPO Director General Francis Gurry shares his views on the progress made in this important area of WIPO's work.

***What is fuelling the need for a global IP support system?***

Over the last 30 years, the basis for value creation has shifted from tangible physical capital to intangible intellectual capital. As intellectual assets become ever more valuable, the IP rights associated with them become increasingly important. At the same time, technology owners are operating in global markets and seeking IP protection in many more countries. The resulting surge in demand for IP rights raises a number of practical questions: How can IP offices cope with bigger workloads and deliver useful and cost-effective services? What types of tools and services are needed to improve the IP system's overall quality and operating efficiency? How can international cooperation be enhanced to eliminate duplication in the system?

WIPO is developing and deploying various business solutions to support national IP offices in delivering professional, high-quality and cost-effective services. While these offices operate nationally, increasingly, the businesses that use IP operate globally. In this context, WIPO's role is to help coordinate cooperation among national IP authorities so as to build a seamless, efficient and accessible international IP system that supports modern business needs.

***How do you see WIPO's role in facilitating access to knowledge?***

One of the reasons we have a patent system is to get information about technology out into the open. The result is quite remarkable: the patent system has produced the world's most comprehensive and systematic record of humanity's

technology. A key function of the public authority responsible for the IP system is to make the information the system generates accessible to the public.

One way in which we do this is via WIPO's free global databases. Our PATENTSCOPE database makes publicly available the technology disclosures contained in some 32.5 million patent documents. And the Global Brand Database now contains over 11 million records relating to registered trademarks, appellations of origin, logos and emblems. We are also working on a global designs database.

WIPO also facilitates access to databases which are normally subscription-based. ARDI (Access to Research and Development for Innovation) and ASPI (Access to Specialized Patent Information) are especially important for developing and least developed countries. We work with leading scientific, technical and medical publishers and with specialized commercial patent information vendors, to provide ARDI and ASPI free-of-charge or at very low cost to many developing and least developed countries.

In 2009 WIPO launched the Technology and Innovation Support Center (TISC) program to develop know-how at the local level to use and extract value from the information contained in these IP databases. TISCs are a gateway to the reservoir of technical knowledge produced by the patent system - as well as to ancillary literature in science, technology and medical periodicals. In cooperation with our member states we have established over 320 TISCs in some 40 countries - in national IP offices, research centers and universities; and over 4,000 people have participated in TISC training programs. We have also launched the eTISC on-line platform to facilitate the exchange of information, ideas and expertise between participating centers and to offer e-learning opportunities.

We are already seeing some spectacular developments, for example, in Morocco, the Philippines, and the Russian Federation, where the buy-in, especially from the academic community, has been tremendous. TISCs have become integrated into national university and research networks and are already changing attitudes to IP within academia.

### *How is WIPO helping to alleviate the backlog in IP applications?*

The backlog in the processing of applications for IP rights remains a challenge. In 2011 (the latest figures we have), estimates showed that the number of unprocessed patent applications worldwide stood at 4.8 million. But there are grounds for optimism. In 2011, the total number of unprocessed applications worldwide declined by 4.9 percent on top of a 3.3 percent decrease in 2010.

WIPO is contributing to solutions through more effective international cooperation. The Patent Cooperation Treaty (PCT) - the original work-sharing program in the area of patents - is an enormously successful form of international cooperation. In 2012 some 194,400 international patent applications were filed under the PCT. This year, we expect over 200,000 applications.

We are also rolling-out new systems to enhance international cooperation, reduce duplication of work and improve the quality and efficiency of IP operations: The WIPO Digital Access Service (DAS), for example, offers a rapid, secure, easy, and inexpensive means of exchanging priority and similar documents and between IP offices. The Centralized Access to Search and Examination (CASE) platform facilitates the sharing of confidential search and examination information between IP offices.

CASE creates a more informed basis for taking decisions with respect to patent applications that are filed in parallel across multiple jurisdictions. It makes it possible to see the patent examination work that has been done and the bases for granting and refusing patent rights in other offices. So this will translate into better decision-making by patent authorities, improved efficiency and better quality patents. CASE is a very important and complex part of the global information technology (IT) support system. Its deployment is helping us to better understand what the nature and benefits of cooperation between IP offices can be in relation to IT platforms.

### *What are the main challenges confronting IP offices in developing countries?*

Developing countries face many pressing challenges and have few resources to deal with them. This means that IP is not always the number one priority. As such, IP offices do not always enjoy priority status within government. There is also the issue of capacity. Even with adequate resources and political support, a corps of professionals needs to be trained to operate and support the IP system within both the public and the private sectors. WIPO's extensive training programs are designed to help address this need.

These offices also face the challenge of building IT capacity to enable timely and cost-effective delivery of their services. WIPO's Intellectual Property Automation System (IPAS) is an important response to this. IPAS, which is now deployed in various stages in 60 developing countries, puts IP office operations on a modern footing and enables them to plug into global IP networks, including WIPO's global databases. As it is an immensely popular program, the main problem is finding the resources to keep pace with demand. But I believe we have gone through the toughest stage because many more countries are now familiar with IPAS and can assist us in implementing it more broadly.

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***How do you see the work of IP institutions evolving?***

IP offices have undergone a major transition in recent years. They are moving away from acting as a passive registration authority to proactively supporting the enterprise sector in protecting and monetizing their intellectual assets. WIPO is supporting this transition through its training programs and the implementation and support of enabling tools such as IPAS, DAS, CASE and other modernization programs.

***How can individual countries support WIPO's efforts at national level?***

The buy-in to these programs has been extraordinary. If we are to be in a position to satisfy the enormous demand for these tools and services, we need to find an appropriate balance between activities that are best performed by national IP offices and those where international assistance can add the most value. This will make it possible for WIPO to pump more resources into developing the technical infrastructure that is in such demand.

***How do you see IP infrastructure developing in the area of copyright?***

The implementation of the Marrakesh Treaty to Facilitate Access to Published Works for Persons Who Are Blind, Visually Impaired or Otherwise Disabled adopted in June 2013 is a priority for the year ahead, as is entry into force of the Beijing Treaty on Audiovisual Performances adopted in June 2012.

In terms of infrastructure to support the implementation of the Marrakesh Treaty, the Trusted Intermediaries Global Accessible Resources (TIGAR) initiative established by member states in 2008 under the Stakeholders' Platform for Visually Impaired Persons is a powerful vehicle for ensuring better access to published works by the visually impaired community. TIGAR complements the enabling framework established under the Marrakesh Treaty and is helping to improve the availability of works in formats relevant to the visually impaired community. (See *www.wipo.int/wipo_magazine/en/2013/04/article_0001.html*).

The interesting thing in the copyright world is that most of the infrastructure is in the private sector, whereas in the patent and trademark world it is largely in the public sector. A national copyright office is typically very small and deals mainly with legislative policy questions and voluntary registration where applicable. The day-to-day management of copyright transactions is often undertaken by collecting societies. While collecting societies have rather advanced operations there is no single mechanism to facilitate international cooperation for rights clearance for all categories of rightholders.

> **"One of the major issues in the copyright area is data management because this is the basis on which the global market will be built."**

In today's globalized world, there are clear advantages in enabling national collecting societies and other rightholders to interact effectively across an IT platform that provides access to a seamless global digital marketplace. For our part, the WIPOCOS initiative provides collective management societies in developing countries with an IT platform to facilitate participation in the global rights management networks. This is a hugely important area. One of the major issues in the copyright area is data management because this is the basis on which the global market will be built. A lot is already happening, but we will see many more new initiatives in this area, mainly in the creative sector, in the coming years.

***Is IT the key to strengthening the global IP support system?***

There are many factors involved but IT is a critical part of the public solution. In the 21st century, businesses need to be online to survive and the global IP business is no exception. Providing an adequate regulatory framework and building up the human resource capacity are other core elements. It is also important to have an enterprise sector that is capable of using IP to promote its own interests. But good IT leads to good processes, which in turn lead to a more accessible, efficient and user-friendly IP system. ◆

# PROMOTING ACCESS TO MEDICAL INNOVATION

*By **Anatole Krattiger**, Global Challenges Division, WIPO*

Over the last three decades, medical technologies have transformed many previously untreatable diseases – such as HIV/AIDS – into manageable long-term conditions. However, as the global disease burden evolves there is a continuing need to develop new and more effective medicines. The challenge for policymakers is to establish an environment that stimulates health innovation while ensuring widespread access to new, more effective products to address unmet global health needs.

The issues of innovation and access are inevitably intertwined, cutting across distinct policy areas, in particular, public health, intellectual property (IP) and international trade (see figure 1). Finding the right balance between health, trade and IP policies to sustain innovation and ensure widespread access to life-saving technologies is one of the primary public policy challenges of our time.

A recent study by the World Health Organization (WHO), WIPO and the World Trade Organization (WTO) entitled *Promoting Access to Medical Technologies and Innovation – Intersections between public health, intellectual property and trade*, seeks to improve understanding of the options available to policymakers in developing effective public health strategies that address the growing demand for innovation and access. Several elements of the IP system are relevant to this debate, in particular, patents, and the protection of test data.

## THE ROLE OF MEDICAL TECHNOLOGY

Technology is unquestionably an essential component of public health. Medicines such as antibiotics and antiretrovirals have dramatically improved health outcomes in the same way that technologies such as medical imaging have transformed diagnosis and treatment. Developing these complex products is an expensive and risky business. Unlike other areas of technological development, medical innovation is all the more challenging because of the ethical dimension of medical research, rigorous regulatory oversight, liability issues, high costs and high failure rate. This helps explain why IP protection is so important for companies involved in medical research and development (R&D).

## THE RATIONALE OF THE IP SYSTEM

The rationale of the intellectual property (IP) system in general, and the patent system in particular, is to make investment in innovation attractive and to offer a mechanism which ensures that the knowledge contained in patent applications is accessible to society. In this way, it seeks to balance competing private and public interests.

Anyone applying for a patent is required to disclose the details of their technology so that the public is aware of, and can eventually use, the knowledge contained in patent documents. Patent information available through public databases, such as WIPO's PATENTSCOPE, offers useful insights about innovation trends and freedom-to-operate, and can help shape patenting and licensing strategies. Data indicate overall long-term growth in patenting of medical technologies (a sign of renewed investment in this area) and that an increasingly diverse range of public and private users (see Figures 2 and 3), including from emerging economies, are using the international patent system.

While the patent system is designed to promote innovation by providing an incentive to invest in R&D, the impact of patents on access to medical technologies is complex and much debated. Just as the existence of a patent need not be a barrier to access, the absence of a patent right does not guarantee

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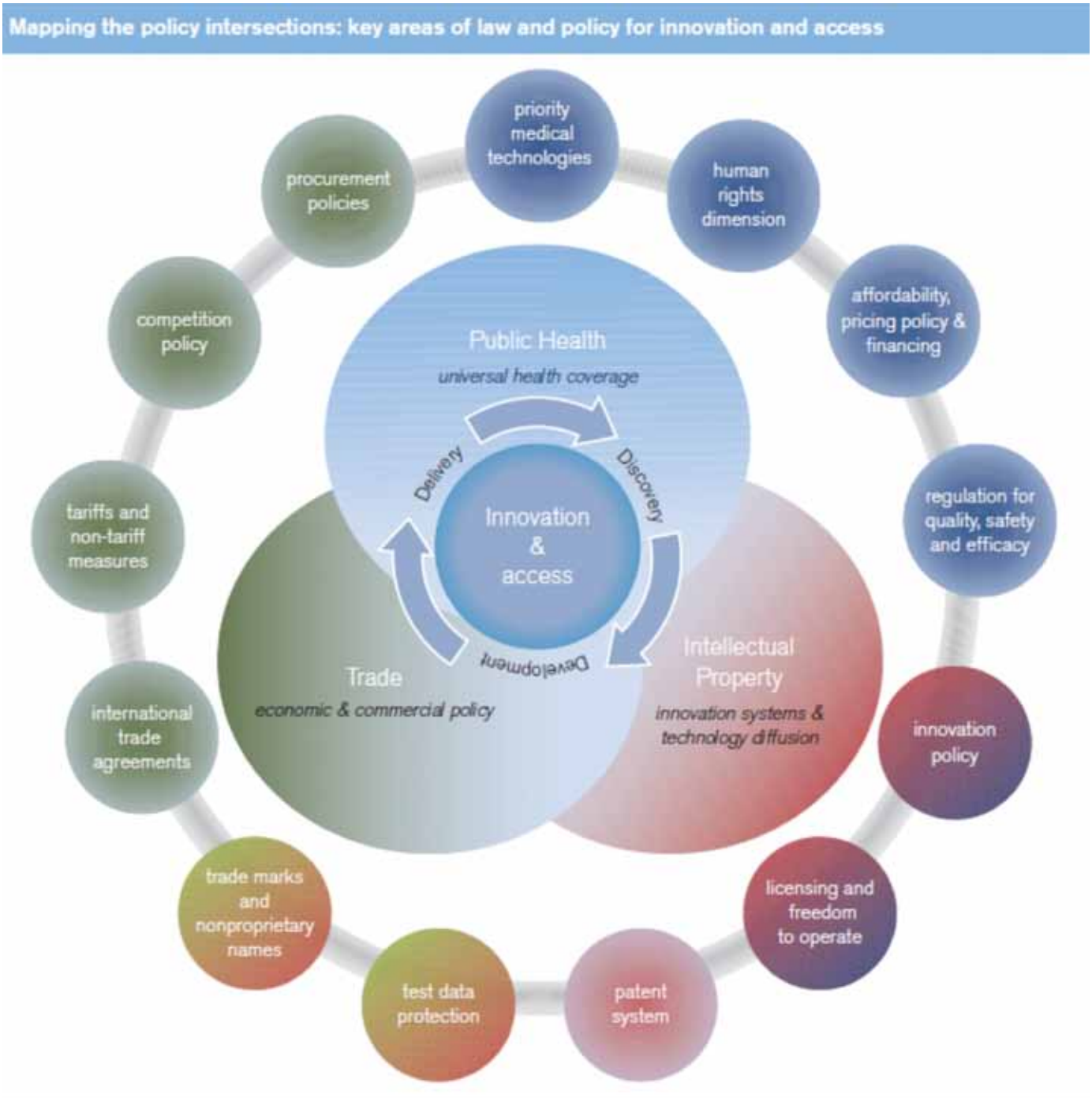
Figure. 1




Intersections between public health, intellectual property and trade

effective access. As noted in the WHO's Framework for Access to Medicines, access to medicines is rarely dependent on a single factor; it also includes rational selection and use of medicines, affordable prices, sustainable financing and reliable health and supply systems, among others.

## STRIKING AN APPROPRIATE BALANCE

Striking an appropriate balance between encouraging medical innovation and enabling access to it has been a major preoccupation of policymakers, health activists and the private sector, since the 1990s when concerns about access came to the fore in relation to the treatment of HIV/AIDS in many African countries. The *WTO's Doha Declaration on the TRIPs Agreement and Public Health* of 2001, clarified a number of rules specific to IP and helped reassure the global community that IP should not prevent access to the medicines needed in developing countries.

Medical technologies are usually very expensive to develop but relatively cheap to reproduce. Without the protection conferred by a patent it would not be financially viable for companies to continue investing in research, product development and regulatory approval. If competitors could "free ride" on the cost of developing a product and were able to immediately introduce their own versions, the inventor would not get the expected financial returns thereby weakening any incentive to develop new products.

## THE SEARCH FOR NEW MEDICAL INNOVATION STRATEGIES

In recent years, the rising cost of medical research has not been matched by a proportionate increase in new products entering the market. This has sparked a rich debate about how to improve innovation models and strategies and how to finance medical R&D to address unmet global health needs.

A variety of "push" and "pull" mechanisms are under discussion. "Push" mechanisms encourage medical research when the outcome is not clear, and may include grant funding and tax credits. They are particularly useful in building-up knowledge relating to neglected tropical diseases. "Pull" mechanisms include prizes, and Advance Market Commitments and Advanced Purchase Commitments which offer certain guarantees to encourage companies to develop solutions for diseases where no sustainable market exists.

In most developed countries, social insurance provides an infrastructure that enables patients to have access to healthcare technologies while also ensuring that those responsible for developing new medical products are paid for their innovations. In many developing and least developed countries (LDCs), however, social insurance systems are less comprehensive and many patients do not have access to the life-saving interventions they need.

## AN EVOLVING MEDICAL RESEARCH LANDSCAPE

Market-based innovation models have largely failed to address the neglected tropical diseases specific to developing countries. The identification of this gap in research has prompted significant developments in the medical research landscape.

Multi-sectoral public-private partnerships, for example, such as those developed to tackle the HIV/AIDS crisis, are proving instrumental in developing effective health products and policy solutions.

Product development partnerships usually involving non-profit organizations, foundations and industry are helping to identify and overcome bottlenecks to research into neglected tropical diseases and have significantly increased the number of products in development for these diseases.

Other partnership models are also emerging. The WIPO Re:Search initiative launched in October 2011, is designed to accelerate the development of drugs, vaccines and diagnostic tools to treat neglected tropical diseases, malaria and tuberculosis. The consortium, which now has over 70 members, brings together the private and public sector research communities to develop research partnerships and provide access to IP, on preferential terms, for pharmaceutical compounds, technologies, patents and most importantly, know-how and data for researchers working on these diseases. (See *Catalyzing research into neglected tropical diseases*: *www.wipo.int/wipo_magazine/en/2013/01/article_0004.html*).

## CREATIVE LICENSING STRATEGIES

Creative licensing strategies, such as patent pools, are also proving helpful in building the partnerships required to accelerate medical innovation. A patent pool is a consortium of at least two companies that agree to cross-license patents relating to a particular technology on fair, reasonable and non-discriminatory terms. Within the health field the Medicines Patent Pool Foundation aggregates antiretroviral drug patent rights and licenses them to generic drugs manufacturers. Similarly, MPEG LA's Librassay® service acts as a licensing "supermarket" for diagnostic and research tool patent rights in support of molecular diagnostic testing for the development of personalized medical therapies.

## THE IP OPERATING CONTEXT

The multilateral legal IP framework, as defined by various WIPO-administered treaties and the Agreement on Trade-Related Aspects of Intellectual Property (the TRIPS Agreement) administered by the WTO, provides the context and general guiding principles for the operation of national IP systems.

The TRIPs Agreement, which incorporates substantive provisions of several WIPO-administered treaties, has significant implications for the application of IP to medical technologies. In particular, it requires that patents are available for inventions in all fields of technology, provided they are new, involve an

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inventive step (or are non-obvious) and are capable of industrial application (or useful). It also seeks to balance the rights and obligations of producers and users of technological innovation when it comes to the protection and enforcement of IP rights. The TRIPS Agreement also requires the protection of clinical trial data against unfair commercial use although it leaves countries great scope in determining how to do so. This area further illustrates the complex relationship between IP, innovation and access and the dilemmas facing policymakers.

To obtain authorization to market new medicines, companies need to undertake pharmacological and toxicological tests and clinical trials to demonstrate safety and efficacy. In light of the considerable time and money required to produce these data they qualify for protection under the IP system. There is, however, often strong competing public interest in securing early access to these data for the manufacture of generics.

## BALANCING COMPETING INTERESTS

A wide range of policy options and flexibilities have been built into the IP regime to accommodate diverging national public health interests and objectives. Empirical evidence suggests, however, that a better understanding of how to implement these flexibilities is required to ensure that national IP regimes respond to the individual needs and policy objectives of each country.

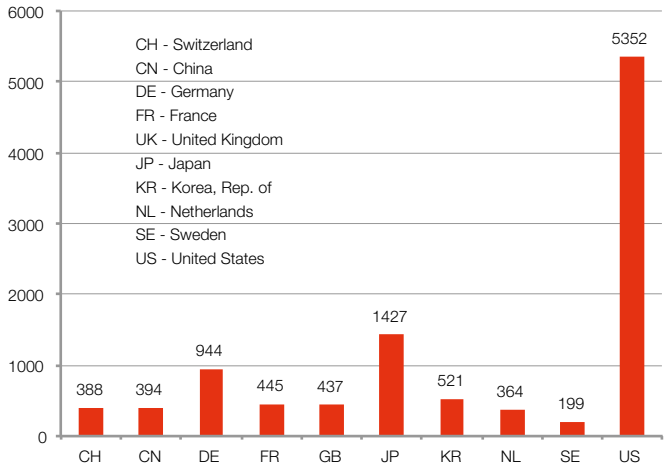
Key flexibilities in the field of patent law to improve access to medicines for both communicable and non-communicable diseases, include:

- transition periods for LDCs;
- choice of patent right exhaustion regimes - such regimes limit the extent to which patent holders can control a patented product after authorized sale;
- refining the criteria for grant of a patent;
- opposition procedures;
- exceptions and limitations to patent rights, including the regulatory review ("Bolar") exception to facilitate market entry of generics;
- compulsory licenses and government use authorization where the responsible authority grants specific permission to a person other than the patent owner to produce, import, sell or use a patent-protected product or process for a specific requirement.

## INTERNATIONAL TRADE AND ACCESS

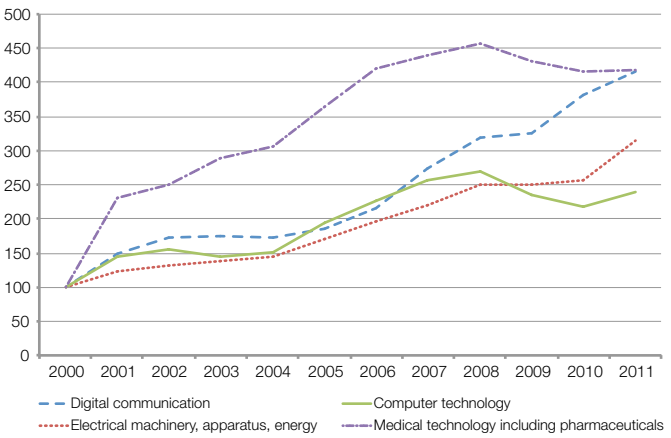
International trade is critical to enabling access to medicines, particularly for smaller countries with no domestic manufacturing capacity. Trade stimulates competition and improves economies of scale, which in turn reduce prices and spawn a wider range of suppliers, improving stability of supply. Trade policy also has an important bearing on efforts to build domestic production capacity in medical products and can directly affect accessibility to pharmaceutical ingredients and medical technologies.

Figure. 2
Main countries of origin of PCT applications in the field of medical technology, including pharmaceuticals, 2011




Among the top ten countries of origin are the United States, Japan, the Republic of Korea and a number of Western European countries

Figure. 3
Growth of the top four technology fields, 2000-2010




The term "medical technologies" as used in the study includes data relating to medical technology (6.6 percent of all PCT filings in 2011) and pharmaceuticals (4.7 percent of all PCT filings in 2011). In this consolidated form (11.3 per cent of all PCT filings in 2011), medical technologies, including pharmaceuticals, represent the field of technology with the highest number of PCT filings between 1978 and 2011.

The policy and legal framework for international trade has become more complex with the proliferation of bilateral and regional free trade agreements. The overall impact of these agreements on access to medicines, however, is yet to be systematically analyzed. Such analysis is necessary to ensure that future agreements retain an appropriate balance between innovation and access.

While there are no simple solutions to the complex challenge of spurring medical innovation while securing access, the trilateral study sheds light on the complex interplay between health, IP and trade policies and offers a sound basis for future policy debate and analysis. ◆

Information about WHO, WIPO and WTO trilateral cooperation is available at:
*www.who.int/entity/phi/implementation/trilateral_cooperation/en*
*www.wipo.int/globalchallenges/en/health/trilateral_cooperation.html* and
*www.wto.org/english/tratop_e/trips_e/who_wipo_wto_e.htm*

# CATALYZING CREATIVITY in Cape Verde

*By **Catherine Jewell**, Communications Division, WIPO*

Cape Verde, an archipelago of 10 islands, lies in the Atlantic Ocean some 350 miles west of the coast of Africa. Since 2001, the country has been undergoing a remarkable process of social and economic transformation. In 2007, it became only the second country, after Botswana, to shed its least developed country status, moving up to the rank of middle-income country. It is also one of the rare African countries to have achieved all the Millennium Development Goals. In this article, we explore how Cape Verde is leveraging its rich cultural resources to consolidate and build on its achievements and carve a pathway to a more prosperous future.

At the crossroads of three continents – Africa, the Americas and Europe – Cape Verde has been a trading hub since its discovery by the Portuguese in the 15th century. Today, in its drive to diversify and expand its economy and compete in global markets, the country is establishing itself as a high added-value services hub for tourism, the creative industries, transport, information and communications technologies (ICTs), renewable energy and agriculture.

## TOWARDS EXPANSION OF CAPE VERDE'S CREATIVE ECONOMY

As a small island state with few natural resources to speak of, Cape Verde is strongly committed to building a knowledge society. Leveraging the country's plentiful creative

Cape Verde's Minister of Culture, Mr. Mario Lucio Sousa, a musician in his own right, sings for delegates at a WIPO event in July.


Photos: EIF Cape Verde NIU

resources to expand the creative economy is a cornerstone of Cape Verde's economic development strategy. "The future of our country lies in our capacity to create, our capacity to innovate and that is why we are doing all we can to ensure that this happens. The creative economy must be a tool for social inclusion and global integration," said Prime Minister José Maria Neves at an event hosted by WIPO on the sidelines of the 4th Annual Review of Aid for Trade hosted by the World Trade Organization in July 2013.

**LEVERAGING A RICH CULTURAL HERITAGE**

For many, the first hint of Cape Verde's rich cultural heritage became apparent with the soulful tones of the late popular singer Cesária Évora. The internationally acclaimed "barefoot diva," did much to put Cape Verde's vibrant musical tradition on the world map. In a country said to have the greatest number of musicians per square kilometer, Cape Verde's Minister of Culture, Mr. Mario Lucio Sousa, said "life means music and music means life."

In line with the growing global recognition of their importance in generating jobs, driving economic growth and promoting cultural engagement, culture and creativity are at the heart of Cape Verde's economic and social transformation. "We are working hard to see how culture can be involved in the development of the country, how it can add value to tourism, how it can help reduce poverty, and how it can help Cape Verde become more competitive," said Mr. Sousa.

Culture and creativity are at the heart of Cape Verde's economic and social transformation. In the drive to catalyze the country's creative dynamic, the government has adopted various measures to support small communities in an endeavor to generate employment and boost livelihoods.

"In the last 10 years Cape Verde has invested a lot in creating infrastructure – harbors, airports, roads, schools, hospitals – we can call this a hardware decade, but to realize the potential of hardware you need to invest in software, so over the next few years we will have completed a decade of software," explained Mr. Sousa. "We are investing in the creative economy because we are living in an era where the intangible has a special value. We can add value to everything we produce and can ask a higher price for our products because each product encompasses our experience of life, our culture, and that is what people pay for," he explained.

In an endeavor to stimulate a creative dynamic within communities across the archipelago, the government is rolling out a range of initiatives and incentive packages to help individual creators and small entrepreneurs get their ideas off the ground.

**SUPPORTING CREATORS BY IMPROVING ACCESS TO FINANCE**

A priority has been the creation of a culture bank - a micro-credit facility - to facilitate access to finance for creators and small entrepreneurs across the islands. The initiative, launched in 2012, seeks to support the development of local businesses and foster a spirit of entrepreneurship among artists. "This is a kind of guaranty fund that allows the small entrepreneur to go directly to the bank and submit a project which is evaluated according to its intangible value," he said. "Small businesses can give momentum to the national economy, so we are giving resources directly to the people that produce. We go wherever they have something new to produce," Mr. Sousa said.

The government is also exploring how the creative economy can support the sustainability of the country's tourist industry which generates over 20 percent of the country's GDP. The Minister noted that everything created in Cape Verde differentiates the country, has value and can help make it more competitive in the global market.

Training is another priority. "We are working with teachers of music, theatre and dance and also with entrepreneurs," Mr. Sousa said. "This is essential to our success in creating new business clusters, expanding our product base and boosting growth."

**CATALYZING THE CREATIVITY OF ISLANDERS THROUGH NETWORKS**

In the drive to spur the creative dynamic of Cape Verdeans, the government is building up a series of networks across the islands. "We are establishing networks of museums, venues and festivals in Cape Verde to create a big cultural program that will ensure that every day culture is stimulating the economy," Mr. Sousa explained.

**"We are investing in the creative economy because we are living in an era where the intangible has a special value."**

Through these networks, "we work with small communities giving them the resources and the possibility to generate their own incomes from culture," the Minister said. The national network of handicrafts, for example, is designed to encourage the production of cultural products, generate employment and new sources of income. "Cape Verdeans are very creative people and can create wonderful objects with great value," the Minister said.

The Minister recounted the recent success of organizing the Atlantic Music Expo (AME). The three-day event demonstrated that "culture can trigger the value chain in Cape Verde". It brought together a wide range of music industry professionals from 40 countries, providing an excellent opportunity for local musicians, entrepreneurs and distributors to meet with their overseas counterparts and benefit from their experience. It also boosted demand for local products and support services creating opportunities across multiple sectors.

**SERVING THE IP NEEDS OF ALL COMMUNITIES**

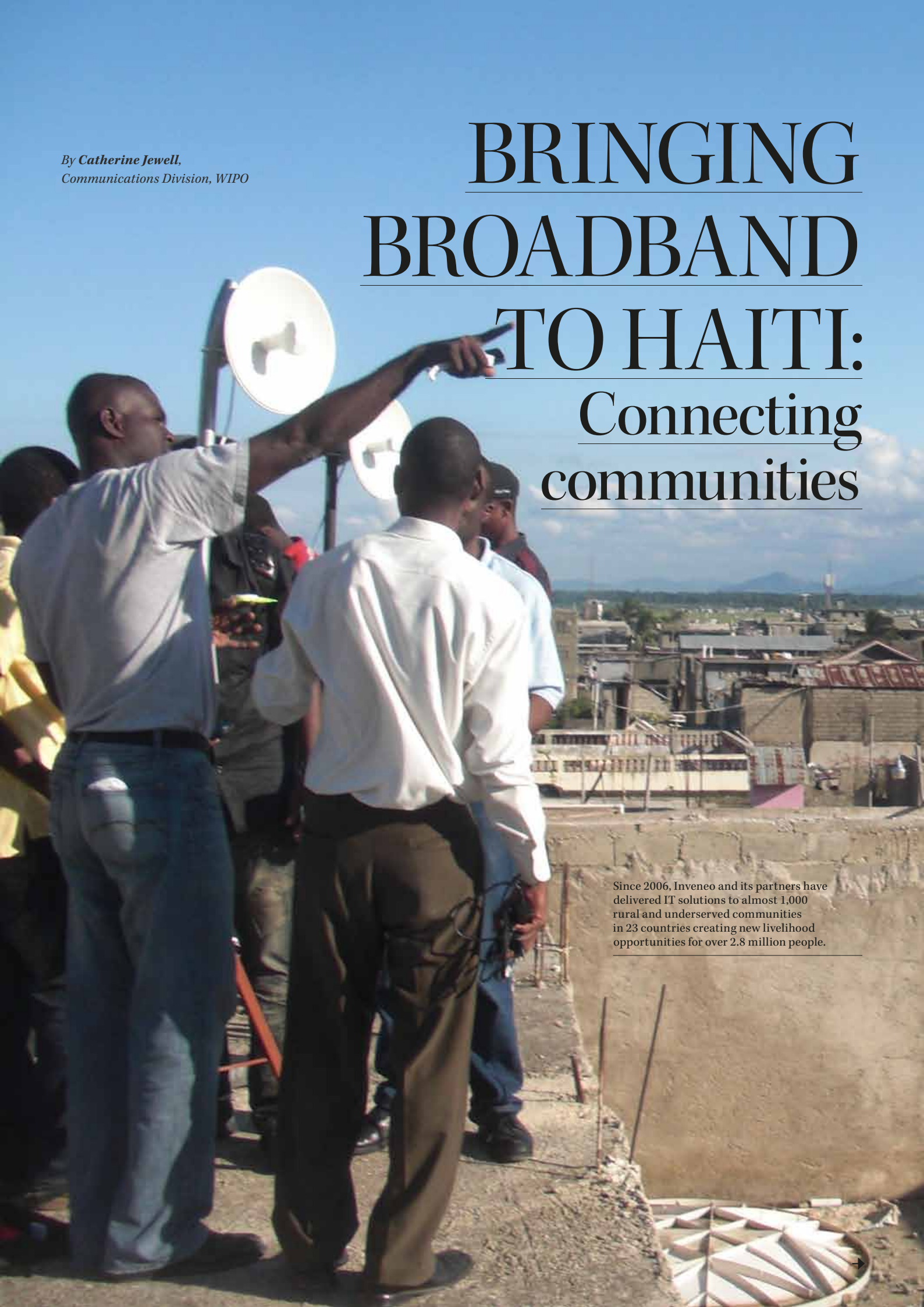
Mr. Sousa noted the important role intellectual property has to play in protecting the interests of creators and in converting creativity into saleable assets, but emphasized the importance of reflecting on how it might serve the needs of all communities, from the biggest to the smallest. "I support the protection of intellectual property," he said. "It is an important way to make money and protect what you do, but in the 21st century we need to better reflect on why it works in some parts of the world but not in others. Only then can we know how to perfect it."

While Cape Verde continues to face significant economic and social challenges, its creative and cultural resources are an engine for growth. "Cape Verde's experience demonstrates the widespread social and economic impact of the cultural sector," said Mr. Sousa. "Culture was the first basis for trade and commerce in the world and continues to be an important platform for development. That is why it is at the heart of Cape Verde's drive to achieve sustainability." ◆

*By **Catherine Jewell**,*
*Communications Division, WIPO*

# BRINGING BROADBAND TO HAITI:

## Connecting communities



Since 2006, Inveneo and its partners have delivered IT solutions to almost 1,000 rural and underserved communities in 23 countries creating new livelihood opportunities for over 2.8 million people.

In the devastating earthquake that struck Haiti in January 2010 over 200,000 people died, hundreds of thousands were left homeless, telecommunications and power systems were knocked out and many government buildings destroyed. The country's plight triggered a massive international response to support re-building efforts. Within days of the disaster, Inveneo, a US-based, non-profit social enterprise, set-up a critically important wireless network in the country's capital, Port-au-Prince, enabling all major aid agencies to communicate with each other and the rest of the world. In scoping Haiti's information technology landscape Inveneo found that broadband access was almost entirely concentrated in the capital. In line with its commitment to improve broadband access in poor, underserved communities, Inveneo began thinking about how it could extend broadband to Haiti's rural communities. These efforts culminated in the establishment in 2011 of the Haiti Rural Broadband Initiative (also known as Haiti Connect Cities Program). WIPO Magazine recently met with Bruce Baikie, Senior Director of Broadband Initiatives at Inveneo to find out more about the project and the role that intellectual property (IP) plays in it.

## THE HAITI RURAL BROADBAND INITIATIVE

The Haiti Rural Broadband Initiative is a collaborative program involving Haitian Internet Service Providers (ISPs), Haitian information technology (IT) entrepreneurs and a broad range of organizations, such as schools and hospitals, that can benefit from access to reliable and affordable broadband Internet. "The overriding goal is to look at appropriate technology and in most cases low power computing that has a low-cost telecommunications infrastructure, so that communities can benefit from access to broadband Internet," Mr. Baikie explained.

Deterred by the high costs and geographical challenges involved in servicing rural areas, Haitian telecommunications operators and ISPs had not ventured into these communities. Through its Haiti Rural Broadband Initiative, Inveneo set about bridging the technology gap facing them. "We identified seven regions that had no Internet connectivity to speak of. It can take up to eight hours to reach these communities. If you calculate the fuel costs and the time required to send a technician to connect clients, it wasn't feasible for national operators to cover these areas, but within a month of running our pilot, we had signed connectivity contracts worth US$100,000. This helped change their mind," he said.

Inveneo's business model eliminated costs associated with sending specialist technicians from the capital out to rural areas. "Our approach is to go in with the appropriate technology and train local partners in the technologies we use," he said explaining that Inveneo has built the wireless network – comprising 31 tower sites and thousands of pieces of equipment – in rural areas and is now sharing it with national telecommunications operations and ISPs. Local Inveneo-trained entrepreneurs are responsible for providing front-end services – marketing, installation and after-sales service – to local clients. "At first we work with them hand in hand to get the projects going and over time we hand them over to our local partners. They own the projects and they maintain them. It's all done locally," Mr. Baikie explained. "Our ability to hand over to our local partners is a benchmark of our success. That's how we ensure sustainability."

## DEVELOPING LOCAL EXPERTISE

To build up local IT capacity and establish a network of local IT specialists, Inveneo trained young people in rural areas with experience in IT and an interest in becoming entrepreneurs. Participants learned how to use, deploy and support broadband and computers in rural areas and also how to run their own businesses. "We train them in one week to become entrepreneurs. We also train them in the technical aspects of the appropriate technologies we use, so they can offer their clients the best available solution," he said explaining that the needs of a healthcare service seeking to interconnect multiple health centers in different areas are very different from those of a school that wants to set up an Intranet.

Photos: INVENEO

To date, 64 individuals have graduated from Inveneo's BATI (Bati Anfòmatik Teknisyen yo ak Inveneo) training programs. Upon graduation, BATI trainees are authorized to resell Inveneo-certified equipment. "As an Inveneo-certified partner we give them the rights to use our technology,"Mr. Baikie noted. Local partners receive a percentage of the revenue generated from each sale. This enables them to secure a reliable income and helps keep skills and IT knowledge in the community. "Usually if you live in a rural area and have a specialist skill you end up moving to a city. The brain drain happens within countries too! Providing the tools needed for connectivity in rural areas makes it possible for BATI trainees to build a thriving business, increase their incomes and generate local employment opportunities. It also opens the door to massive development opportunities within these communities," Mr. Baikie said.

**IMPROVING IP AWARENESS**

The BATI program introduces trainees to basic information about IP – why it is important, and how to use the system to best effect. "We are working with entrepreneurs in rural areas that have no idea of what IP is. It is important that we offer basic training in IP so they know that when they create something they need to protect it; so they understand the terms of our licensing agreement; and also so they are able to negotiate more favorable licensing deals for themselves," Mr. Baikie said.

Raising IP awareness among local partners is an important part of maintaining the sustainability of Inveneo's business model. On the one hand, Inveneo needs to protect the value added by its engineers in customizing the software (open source) needed to run and manage low-cost networks supporting multiple companies, ISPs and carriers, in challenging environments. "The open source software that we use needs to be fully integrated with the hardware and we need to put a user-friendly interface in front of it. That requires a 'secret sauce' that needs to be protected," Mr. Baikie said. On the other hand, Inveneo wants to make its software available to local partners both to add their own ideas to improve the system and also to give them a market advantage.

An association with the Inveneo brand offers certified partners a market advantage. "Inveneo training gives local entrepreneurs credibility and a market advantage in that clients are assured that our local partner has the backing of highly-trained engineers and will use the right equipment for the project," Mr. Baikie said. BATI trainees also benefit from a range of resources including Inveneo business salons, technical support, mentoring and other additional training. "Mentoring is crucial to the long-term survival of these businesses, that's why we teamed up with MicroMentor to build a mentor-support network that enables the entrepreneurs we train to get advice they need from seasoned business people," he said.

To further support BATI trainees in setting-up their businesses and to help expand the network, Inveneo has brokered partnerships between BATI graduates and ISPs. Many of them are now also being trained by national ISPs and telecommunications companies on the various packages, options and special deals each offers for schools or hospitals, for example. "The ISPs are OK with this because this is business that they never had before," he said. Of the original group, thirty have now been hired by different ISPs as their full-time representative.

Inveneo trains individuals in rural areas with experience in IT to build up local IT capacity. Trainees learn how to use, deploy and support broadband and computers in rural areas and how to run their own businesses. Inveneo's BATI training program is helping improve IP awareness in rural Haiti.

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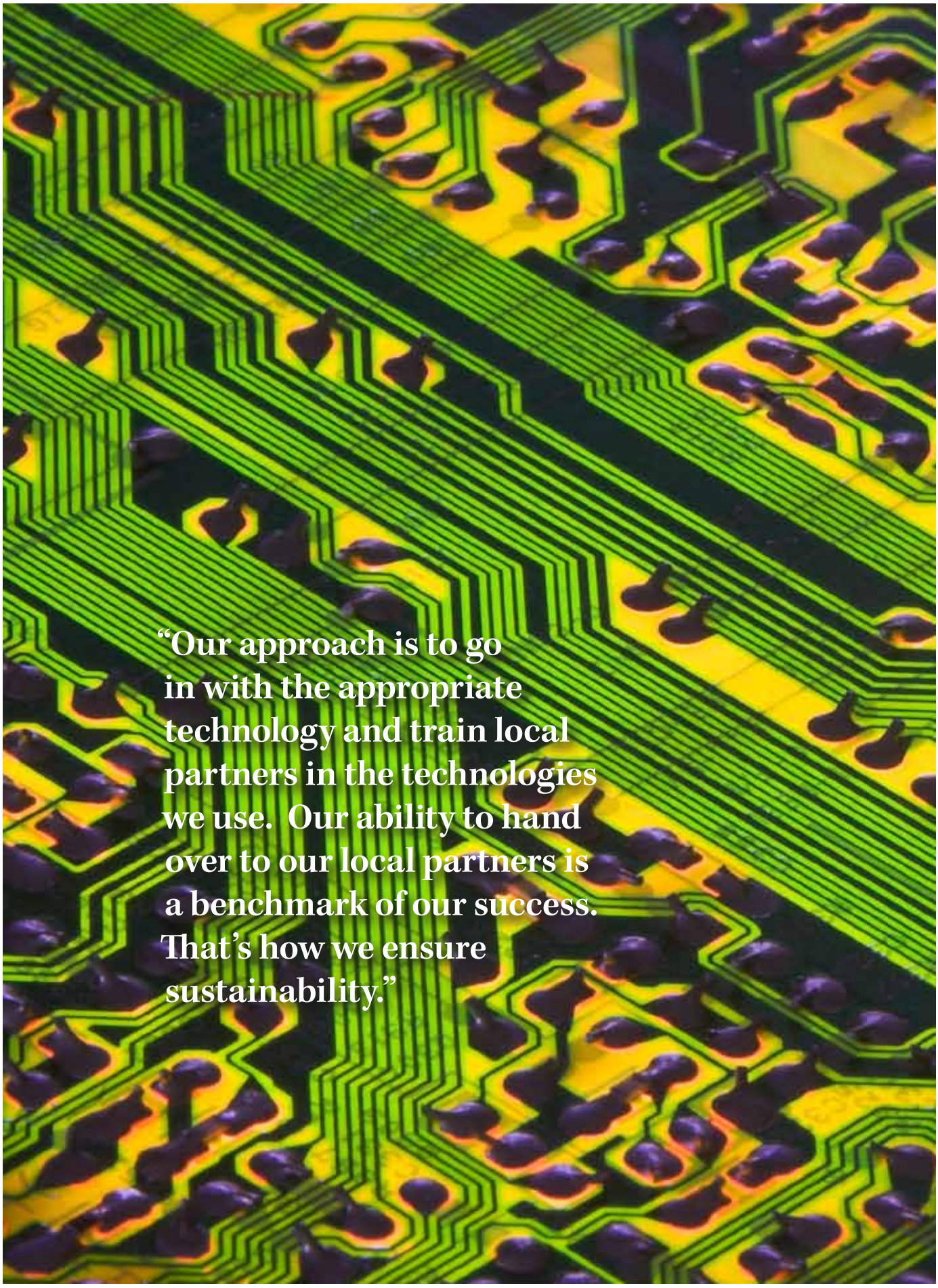
“Our approach is to go
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Thanks to these match-making efforts, Inveneo-trained ICT businesses are providing access to broadband Internet to over 20 percent of the Haitian population. Over 200 organizations in 20 major rural populations centers, including schools, hospitals, healthcare clinics, businesses and government agencies, now have access to broadband Internet and all the benefits that flow from it. In terms of the impact of broadband connectivity, "the opportunities vary dramatically, depending on whether you are talking about a healthcare clinic that now has access to health-care information, or a school where students now have masses of information and knowledge at their fingertips," Mr. Baikie said.

Within the framework of the Connected Schools Program, Inveneo, in partnership with Microsoft, World Vision and Hewlett Packard, is working to set up 40 ICT labs in rural schools across the regions where the broadband network has been rolled out. So far solar-powered computer labs have been installed in 40 schools, in four departments in Haiti and 98 teachers have received IT training. "Now that the materials, processes and qualified local human resources are in place, we anticipate a rapid increase in the number of schools with connectivity in rural Haiti," Mr. Baikie observed. With computer labs in place, local trainers are providing basic computer training to rural communities, transforming lives and creating livelihood opportunities in the process.

Inveneo's focus on deploying appropriate technologies to challenging environments is at the heart of the success of its model. "The hardware part of what we do is fairly easy, what's complex is managing and running the software." Working in some of the poorest, most technology-challenged communities in the world presents special challenges. "If there is no grid power, we have to be sure these technologies are easily powered by solar energy," Mr. Baikie explains. Technologies need to be affordable and capable of functioning in difficult environments "and need to be able to withstand heat, humidity and local wildlife," he said noting that easy maintenance and a user-friendly interface are other hallmarks of appropriate technologies in these environments. By sharing its deep technical know-how with its expanding network of partners, Inveneo is helping to ensure the long-term viability of critical infrastructure investments. Its work is creating new livelihood opportunities for millions of people, supporting the relief effort in Haiti and enabling the country to re-build itself.

The impact of Inveneo's work, however, goes well beyond the borders of Haiti. Its commitment to delivering technologies for sustainable computing and broadband access to underserved communities (together with a splash of "secret sauce") is opening new pathways for the development of a growing number of communities around the world. Since 2006, Inveneo and its 120 certified ICT partners have delivered solutions to almost 1,000 rural and underserved communities in 23 countries around the world from Haiti, to South Asia and sub-Saharan Africa, creating new opportunities for better education, healthcare, and employment for more than 2.8 million people. ◆

The Inveneo team visited the Ecole Nationale Ti Laurier in Ouanaminthe in June 2012. One of the students they interviewed said:

***"I did not even know the word odinate (meaning computer in French creole) before the school received these computers. But now, I have learned so many things in two months, I think I will be smarter day-to-day."***

# WATER ATMs create a splash

*By **Catherine Jewell**,*
*Communications Division, WIPO*

Photos: SARVAJAL

When it comes to access to clean drinking water the statistics are stark. Every 21 seconds a child dies from a water-borne illness. Some 783 million people around the world still lack access to clean water and are vulnerable to water borne diseases, including diarrhea, the leading cause of illness and death. Improved access to sanitation and clean drinking water could reduce diarrheal diseases by nearly 90 percent, saving lives and lifting the burden they place on the health budgets of developing countries. Providing drinking water via a piped grid especially to remote rural locations is costly and often not an option in many developing countries. Sarvajal, an Indian social enterprise, offers an alternative. Rather than transporting water to communities from external sources, Sarvajal sells an integrated water purification service that purifies and monitors the quality of local water sources for local consumption, creating local jobs and income in the process. WIPO Magazine recently met with Sarjaval's Chief Operation Officer, Anuj Sharma, to find out more both about how the company is expanding access to clean drinking water and the role that IP plays in supporting this goal.

**WATER FOR ALL**

Sarvajal, which means "water for all" in Sanskrit was established as a social enterprise in 2008 by the Piramal Foundation to find ways to provide reliable and safe drinking water to poor communities living in remote villages and urban slums. Some 97 million people living in India continue to lack access to clean water and are at risk of contracting waterborne diseases, which account for over 50 percent of illnesses requiring medical treatment. "If we were going to make any progress in reducing the burden of disease, it was clear we had to address the issue of water. Providing healthy drinking water is one of the most effective health initiatives," Mr. Sharma said.

Developing a workable solution was no easy task. Sarvarjal faced a number of challenges, not least poor roads and intermittent power supplies. Although there were a number of water purification technologies available on the market, the company recognized from the outset the need to develop a financially viable and sustainable business model that could be scaled up. "What was missing was a viable business model that offered incentives for people to provide water to an expanding number of households," Mr. Sharma said.

**A TECHNOLOGY-ENABLED SOLUTION**

To fill this gap, Sarjaval developed a technology-enabled franchising model. This model, not only facilitates the delivery of clean water to an expanding number of households, but also generates employment and income-earning opportunities for people in the communities it serves.

Much to its surprise, Savarjal found that households in target communities readily understood the link between clean water and health. Although people were unaccustomed to paying for clean water, the advantages of obtaining it for US$0.005 per liter (which was cheaper than any other outlet) were crystal clear, not least because up to 40 percent of annual household income went towards paying medical bills for water-related ailments.

**INCOME-GENERATING OPPORTUNITIES**

Sarvajal adopted a franchising model as it believed this would allow it to truly penetrate local markets. It created a network of suppliers by signing franchising agreements with local entrepreneurs who were much better placed to set-up and run these businesses than Sarvajal was, as an outsider. In effect, these franchisees act as community water stewards. They pre-pay Savarjal for the technology to filter water locally and sell it on to customers. The franchising model also proved a useful means of retrieving and managing the multiple cash payments generated by the sale of clean water.

"We operate a hub and spoke system," Mr. Sharma explains, "we work with local entrepreneurs, provide them with our water purification technology and support them in maintenance and other back end services. We also help with community awareness so they hit the numbers they need to make their businesses viable," he explained.

The uptake has been rapid. The company now has 154 franchisees on its books and delivers clean water to over 100,000 people every day.

Driven by its vision to make clean water readily available to even the remotest rural hamlets, the company developed the Water ATM™, a low-cost, solar-powered, self-contained water vending machine which stores clean water and can be re-filled by the nearest franchisee. "The metaphor of the ATM is very powerful," Mr. Sharma said. Customers buy a pre-paid smart card, which can be easily topped up using a mobile phone, they swipe it across a sensor on the machine to get information about the quality of the water and their credit balance. They select the amount of water they need and fill their containers. The Water ATM offers consumers around the clock access, seven days a week, to the quantities of clean water they need, significantly reducing the time spent on water collection; time which can be devoted to exploiting other income-generating opportunities. The Water ATM also proves an attractive business opportunity for the franchisees that operate them.


Sarvajal's Water ATM™ is a low-cost, solar-powered, self-contained water vending machine that stores clean water and can be re-filled by the nearest franchisee. Uptake of Sarvajal's low-cost water delivery solution has been rapid. The company now has 154 franchisees on its books and delivers clean water to over 100,000 people.

Women are generally responsible for water collection. Mothers and daughters spend on average 2 hours per day – up to 700 hours per year - collecting water from bore holes or delivery locations. Sarvajal's technology-enabled franchising model delivers clean drinking water to the last mile, enabling women to focus more time on childcare, income-generating activities and education.

If something goes wrong with one of the ATMs, Savarjal is informed immediately thanks to its customized enterprise resource planning (ERP) system, SEMS™, that manages water businesses from source to consumption. The system integrates Sarvajal's cloud-based Soochak™ system, which monitors the status of its reverse osmosis and ultra-violet filtration units, and the Water ATM™ with service, maintenance and supply chain operations. "To overcome all the problems we faced, we have developed an integrated remote sensing-enabled purification system that controls price, vouches for water quality and closes down the supply when the quality is not sufficient," Mr. Sharma explained.

Sarvajal's multiple water filtration system removes 99.9 percent of germs and ensures that minerals, such as fluoride which can be harmful in excess, fall within recommended levels. "Our system reduces the risk of unsafe water and saves on maintenance costs," Mr. Sharma said.

The system also makes it possible for the community to pool and reuse water resources. "It is a 100 percent water efficient system at the community level. Our model is water table friendly. There is no need to take water from one point and sell it elsewhere at prices that are inflated by fuel costs," Mr. Sharma said explaining that because of erratic power supplies, a standard household water purification system typically only uses a third of its capacity.

Maintaining water quality is critically important to Sarvajal and is one of the reasons for its strong commitment to protecting its intellectual property (IP). "We need to safeguard against someone copying our system and delivering a substandard service that causes harm," Mr. Sharma said.

**THE ROLE OF IP**

Driven by the belief that "IP can help deliver low cost services," the company recently obtained a patent on its system, in India and the United States. Sarvajal's entrepreneurial ethos means that its focus is on driving down costs while maximizing impact. "We established as a private company so we had the discipline that revenue drives. Every experiment you do has to have bang for the buck thinking behind it," he noted. "It also forced us to come up with better deals and to look at technology as an investment. Technology made the system possible and has driven down maintenance costs," he said, explaining that the company's smart thinking had enabled it to reduce the cost of producing its machines by two-thirds.

"IP can help deliver low cost services," Mr. Sharma stated, explaining that while the company was open to sharing its technology to advance its social goals, it would defend its rights against anyone seeking to exploit underserved communities. "It is inevitable that in future someone will find a way to deliver water to the same quality of water at a lower price. We have no argument with that because it means it will be possible to reach more people. Our goal is to be financially sustainable, not ultra-profitable, but if someone copies our system and uses it to charge much higher rates, we will not be happy."

Sarvajal sees IP as a means of safeguarding its long-term viability, "without IP, a company may not survive. IP is very important because it gives credibility," Mr. Sharma noted. This is key in terms of attracting and satisfying customers' needs for a consistently high-quality service, recruiting local franchisees and persuading banks to offer them loans to set-up or expand their business. It is also critical in engaging the support of municipal authorities, which is a pre-requisite to serving these communities. "Governments and big philanthropic organizations want to ensure that their money is not being wasted and that the target population is being served with clean drinking water," Mr. Sharma explained. "The real-time data that our system generates makes this possible. Once you have the technology it is a matter of production and getting a certain buy-in from the government side."

Sarjaval's experience demonstrates how IP can be used to make progress in tackling some of the tough development challenges facing countries around the world. Its technology-enabled business model is already generating tangible health benefits, environmental dividends and economic opportunities within communities at the bottom of the social pyramid.

Within the next year, Sarvajal plans to deliver clean water to at least 1 million additional households around the country and is currently in discussions with city authorities to establish its service within poor urban areas in New Delhi. Its decentralized integrated water purification services promise to have a huge impact on the health and quality of life of millions of households in underserved areas. ◆

# SCIENCE, TECHNOLOGY & INNOVATION in Saudi Arabia

*By **Sami Alsodais**, Director General, Saudi Patent Office, King Abdulaziz City for Science and Technology (KACST), Saudi Arabia*

We all agree that intellectual property (IP) is a stimulus for creativity and innovation in the world. It positively influences the global economy by encouraging fair competition, and developing innovative products and methods, as well as increasing literary creation.

In Saudi Arabia, IP laws have been regularly revised and updated to ensure that an effective legal framework is in place both to encourage innovation and creativity and to enforce IP rights. This has created a fertile seedbed for creativity and innovation and attracted higher levels of investment in these areas.

Innovation and technology development are integral to Saudi Arabia's long-term vision as set out in the National Science, Technology and Innovation Plan (NSTIP).

## TOWARDS A KNOWLEDGE-BASED ECONOMY

The aim of the NSTIP is to build a knowledge-based economy by developing the country's human resource capacities; supporting research and innovation activities in universities and research centers; funding innovative techniques; transferring and localizing technology; and enhancing the legislative and institutional framework to stimulate creativity and innovation.

Implementation of the NSTIP falls to the King Abdulaziz City for Science and Technology (KACST) and various Science, Technology and Innovation (STI) institutions; including 17 ministries, 10 universities, and 13 national agencies and commissions. The private sector also plays an important role and is involved in a number of projects. For example, the Saudi Arabian oil company ARAMCO is cooperating with KACST to advance research in oil and gas technology, particularly in the production of clean fuel. Similarly, SABIC, one of the world's largest petrochemicals manufacturers, is participating in a project to transfer and localize petrochemicals technology in communities across the country.

## TARGETING STRATEGIC AREAS

Various programs have been established under the NSTIP targeting strategic areas, including water technologies, biotechnology, advanced materials, nanotechnology, information technology, electronics, communication, oil and gas, petrochemicals technology, medical and health, space, energy, environment, agriculture, and construction. Mathematics and physics are also given emphasis to provide a strong basis for the other targeted technologies to flourish.

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## ABOUT THE NSTIP

The NSTIP is a comprehensive strategy to boost innovation. It covers a range of activities, these include:

**The Capacity Building Program for Scientific Research and Technology Development** which aims to establish research centers focusing on high priority fields of development such as oil and gas, environment, agriculture and medical and health.

**The Technology Transfer and Localization Program** which develops and implements strategies to support innovation and technology development and identifies hubs for the development of advanced industrial technologies. A range of initiatives are being rolled out under this program to establish:

- an SMEs development center;
- five technology incubators; and
- a development and localization city to provide infrastructure for technical industry.

**The STI Human Resources Program** which is responsible for:

- establishing and supporting creativity and scientific innovation centers;
- granting higher education scholarships for strategic technologies;
- designing a curriculum for research methods, creativity and innovation in public education; and
- honoring Saudi inventors and distinguished scientific researchers.

**The Knowledge Society Program** which oversees a range of initiatives including:

- publishing scientific journals for strategic technologies;
- developing national databases for STI indicators;
- developing a database for information technology, commercial and industrial services; and
- promoting culture awareness within schools and universities.

**The STI Laws Program** which is responsible for providing assistance in:

- drafting laws for the competent bodies; and
- drafting IP regulations for national research programs.

**The STI Organizational Structure Program** which handles STI management and investment and is working to establish science and technology units within the universities and institutions that are involved in implementing the NSTIP.

**The Diversification of STI Funding Sources Program** which is responsible for:

- establishing a fund for technology development;
- designing self-funding polices for R&D centers; and
- creating financial products to fund STI activities.

The government-owned Technology Development and Investment Company (TAQNIA), set-up specifically to leverage the results of national research, both commercially and industrially, is yet another indication of Saudi Arabia's commitment to innovation and technology development.

A range of projects, such as the King Abdullah's Initiative for Water Desalination using Solar Energy, implemented in collaboration with IBM, aim to ensure water security for the Kingdom through the development of advanced environmentally-friendly technological solutions.

Specialized research centers within national universities and other relevant government agencies provide an efficient and integrated system for transferring and localizing technology and play an important role in supporting the activities of technology incubators, science parks and technology development centers.

To bolster domestic innovative capacities, the government has been seeking to recruit competent scientific and technical academics in all of the strategic areas of technology. A number of scientific and technical cooperation agreements have also been signed with reputable international institutions to build up experience and acquire know-how.

## PROMOTING IP AWARENESS

With a view to promoting broader awareness and use of IP within Saudi society the government has launched a number of initiatives. These include:

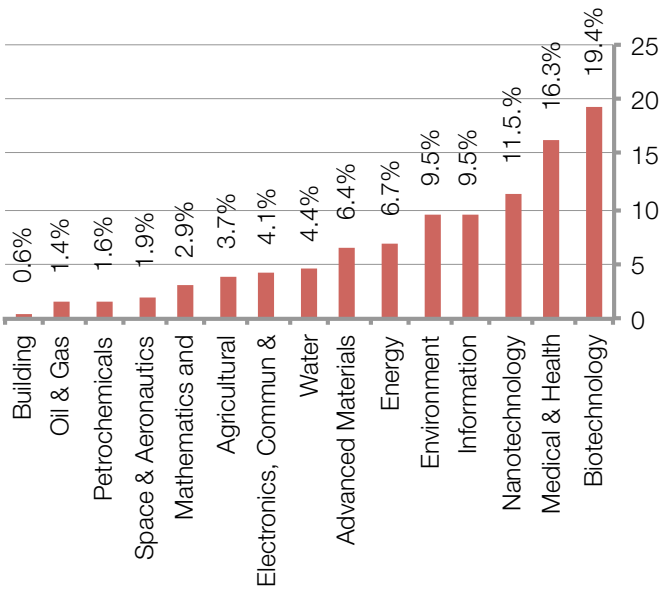
- an annual IP forum to promote discussion and improve understanding of IP issues within the academic and business communities;
- a website hosted by the Saudi Patent Office at KACST (*http://fikratech.kacst.edu.sa/*) that provides useful information and services for inventors, innovators, and others interested in IP rights;
- an animated film about inventions and the importance of protecting them;
- a series of IP awareness workshops targeting universities, research centers, and the industrial sector, with the support of WIPO.

## SUPPORTING SAUDI INVENTORS

We have also launched a number of initiatives to support and encourage individual Saudi inventors. These include the King's Award which honors distinguished inventors and other talented individuals. The Award is designed to encourage a spirit of creativity and innovation within the community and thereby to contribute to the development of science and technology in Saudi Arabia as it becomes an increasingly knowledge-based society. In 2012, the winning inventions were in several fields including biotechnology, medical and health, advanced materials and petrochemicals technology.

The King Abdulaziz and His Companions Foundation for Giftedness and Creativity (MAWHIBA), also supports talented innovators by showcasing their work in international exhibitions, such as iEna in Nuremburg (Germany), the International Exhibition of Inventions in Geneva (Switzerland) and the International Invention Fair in the Middle East (Kuwait). The national IBTIKAR exhibition organized by MAWHIBA is an opportunity for individual inventors to present their work and to attract financial backing to develop it.

Figure 1
The percentage of funded projects in various technology areas



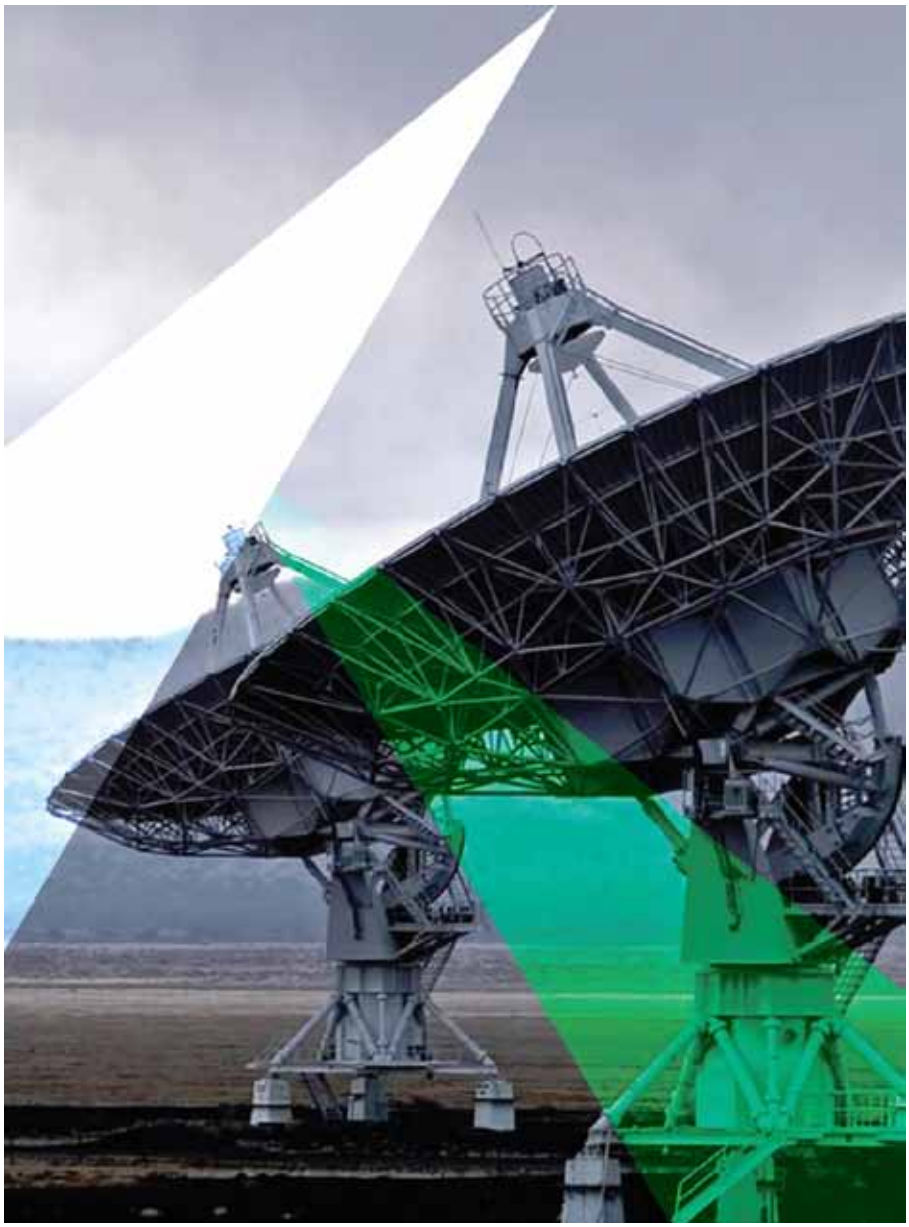

Source: (NSTIP Annual Report: 2012, *http://nstip.kacst.edu.sa*)

## NEW DEVELOPMENTS

In an endeavor to further catalyze interest in innovation and support the development of scientific endeavor in Saudi Arabia, an Arabic language version of the international scientific journal *Nature* has recently become available along with an Arabic version of the French journal *Science & Vie Junior*.

Since its establishment in 1982, the Saudi Patent Office has received over 18,670 patent applications. In 2012, the office granted 213 patents and 605 industrial design certificates. It also received 1,041 patent applications, 404 of which were national applications resulting from on-going research.

In May 2013, Saudi Arabia joined the Patent Cooperation Treaty (PCT). This important development promises to further boost the country's innovation landscape and to put us squarely on the global patenting map. While there is still much to accomplish, Saudi Arabia's strong commitment to innovation and technology development is catalyzing efforts for the country to become a fully-fledged knowledge economy in the coming years. ◆



Photos:KACST

Innovation and technology development are at the heart of Saudi Arabia's long-term vision. The aim of the NSTIP is to transform the country into a knowledge-based economy.

With the framework of the NSTIP, the private sector is supporting advanced research in key areas. For example, ARAMCO is cooperating with KACST to advance research in oil and gas technology, particularly in the production of clean fuel. Similarly, SABIC, one of the world's largest petrochemicals manufacturers is participating in a project to transfer and localize petrochemicals technology in communities across the Kingdom.

Researcher working on the production of clean fuel. Specialized research centers within national universities and other relevant government agencies provide an efficient and integrated system for transferring and localizing technology.

# Sharing expertise to boost PATENT QUALITY

*By **Fatima Beattie**,*
*Deputy Director General, IP Australia*

Photo: IP Australia

Patent examiners are on the front-line of the patent system. They are responsible for assessing whether the latest technological innovations, as outlined in patent applications, are sufficiently new and inventive to qualify for patent protection. It is a job that requires specialist technical knowledge as well as an in-depth understanding of patent law.

Training patent examiners to operate effectively takes time and commitment. In April 2013, IP Australia, the government agency responsible for administering patents in Australia, and the Association of South East Asian Nations (ASEAN) with the support of WIPO, launched the innovative Regional Patent Examination Training program (RPET). The aim is to boost the knowledge and skills of patent examiners in South East Asia and Africa to enable them to examine patents to international standards.

RPET is a modern, comprehensive and intensive online training program delivered remotely to participants in different countries and time zones using e-learning technologies. Eight examiners from Malaysia, Indonesia, the Philippines, Kenya and the African Regional Intellectual Property Organization (ARIPO) are participating in the current inaugural RPET program.

**PROGRAM GOALS**

The overall goal of the program is to build the patent examination capabilities of trainees from participating offices by:

- improving their competency to conduct search and examination to international standards (PCT standards - see Table);
- embedding learning into the workplace; and
- providing an opportunity to align domestic practices with international standards.

In April 2013, IP Australia, and the Association of South East Asian Nations (ASEAN) with the support of WIPO, launched the innovative Regional Patent ExaminationTraining program (RPET) to boost the knowledge and skills of patent examiners in South East Asia and Africa.

**RPET Curriculum and standards of practice**
The RPET program includes an induction and four training phases:

| Curriculum | Duration | Standards of practice to be achieved |
|---|---|---|
| Induction – Introduction to the RPET program, assessment framework and standards, and learning technologies | 2 weeks | Understanding of program, roles and responsibilities. |
| Phase A – Builds knowledge of key concepts of construction, novelty and inventive step. | 14 weeks | Basic skills and understanding of claim construction, lack of unity, novelty and inventive step. |
| Phase B – Divided into three stages:<br>I. Examination in trainees' technology specialisations.<br>II. Advanced skills: more complex examination, amendments and use of Foreign Examination Reports (FERs)<br>III. Searching: this includes a two- week intensive training course at IP Australia's Canberra office. | 14 weeks | Extended ability to apply concepts of construction, novelty and inventive step in technology-specific areas, with developing knowledge base in searching, handling attorney responses with amendments and arguments, and reporting. |
| Phase C – Consolidates examination practices in technology specialisation and to PCT standards | 6 weeks | Consolidated examination practice with complex examples in own technology, with support and oversight from local mentor. |
| Advanced skills: more complex examination, amendments and use of Foreign Examination Reports (FERs) | Until competency is achieved (up to 24 months from start of the program) | Independent and consistent examination practice on live cases in own technology with minimal supervision, and diminishing need for checking or correction. |

## *About RPET funding*

The RPET program is an activity of the Agreement Establishing the ASEAN-Australia-New Zealand Free Trade Area (AANZFTA) Economic Cooperation Work Program (ECWP), which is funded by the Australian Agency for International Development (AusAID) and the New Zealand Ministry of Foreign Affairs and Trade.

"The RPET program is an exciting capacity-building initiative. Sharing expertise is a practical way for countries to improve the quality of their domestic IP rights system. In turn, this can contribute to a more secure environment for investment in innovation and sustainable economic growth." said WIPO Director General Francis Gurry, during a recent visit to Australia.

"This initiative builds on WIPO's existing collaborations with national offices to assist least-developed and developing countries to promote and protect their creativity through the intellectual property system," he added. WIPO is providing support for African participation in the 2013 RPET program.

### A COMPETENCY-BASED PROGRAM

The RPET initiative is a competency-based program that focuses on search and examination procedures under WIPO's Patent Cooperation Treaty (PCT). It is modelled on the approach to examiner training introduced by IP Australia several years ago to improve training outcomes and the quality and consistency of its work.

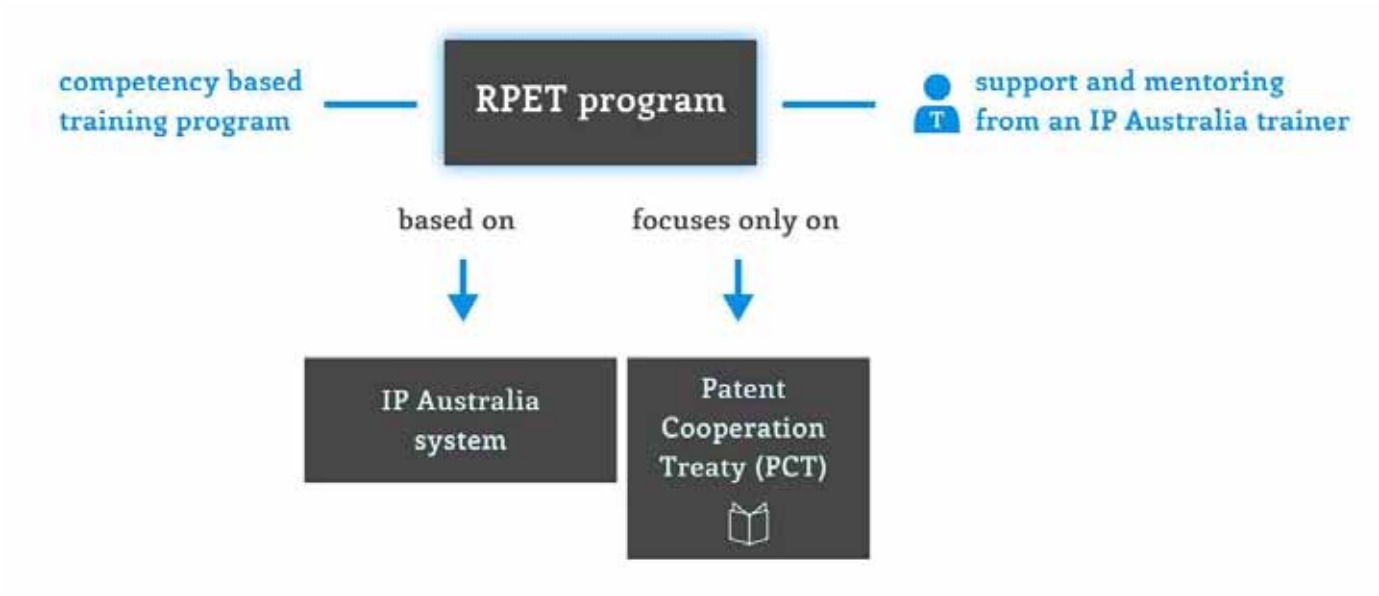
"IP Australia is uniquely placed to develop and deliver a program like RPET," said IP Australia's Director General Philip Noonan. "We have been administering and examining patents for over 110 years; and acting as an International Searching and Preliminary Examination Authority under the PCT for over 30 years. This experience, combined with our established training and internationally accredited quality systems, affords us the opportunity to assist other national patent offices to enhance their examination standards and contribute to a more effective PCT system."

### A LEARNER-FOCUSED DESIGN

The learner-focused design of the program means that trainees work through the program at their own pace, for up to a maximum of two years, to attain competency. Trainees with relevant prior knowledge of patent examination can attain competency more quickly. This means they will have demonstrated the skills required to examine applications independently, consistently and to international standards.

### ONE-ON-ONE MENTORING

Each trainee is supported by an experienced Australian examiner who provides one-on-one mentoring, on-the-job training and continuous assessment of trainees' work. Participating offices have also identified a local mentor to support each trainee in their local office and to work closely with the Australian trainers to monitor trainee progress.




**ONLINE LEARNING**

A virtual learning environment provides access to e-learning resources, including a multimedia handbook for participants, and serves as a platform for delivering training remotely. It also facilitates communication among all those involved in running the program: the trainees, local supervisors and their Australian trainers.

A hallmark of the RPET program is its emphasis on "community of practice". This creates an opportunity for trainees to discuss what they have learned and how it may be applied to domestic practices to bring the examination capability of their national office into line with international standards. Training is conducted in English and each week trainees are involved in a mixture of real-time virtual classroom sessions and online discussions.

The feedback from course participants has been very positive (see box). The trainers are also finding their experience of this innovative program rewarding. "I've really enjoyed seeing the participants begin to form relationships and share knowledge as part of a community of practice," said Edwina Vandine, RPET Trainer (Pharmaceutical), at IP Australia "The learning isn't one way. As trainers, we learn a lot from the participants about their culture, challenges and practices, and that's something I've found particularly satisfying."

Programs such as RPET hold great promise in enabling IP offices of developing countries to improve their patent examination capabilities in line with international standards. In time, this will lead to higher quality and more consistent IP rights being granted which will help boost business confidence in these markets. ◆

To find out more about the RPET story check out our video at: *www.youtube.com/watch?v=lzcscFZK7a8 or* visit *www.ipaustralia.gov.au*

## *What trainees are saying about the RPET program*

In an anonymous survey, trainees made the following comments about the program:

*"I have learnt a lot in Phase A which has definitely developed my effectiveness as an examiner."*

*"My knowledge is increasing after joining this Virtual Classroom and slowly I begin to be more confident on what am I doing as a patent examiner."*

*"My colleagues in the office really appreciate it when I transfer to them some of the examination skills I have acquired from the RPET program."*

# ICTs & INNOVATION: The view from a top PCT filer

*By **Ken Hu,** Rotating CEO and Deputy Chairman of Huawei*

At the beginning of the last century, Austrian economist Joseph Alois Schumpeter pointed out that, "the function of the entrepreneur is innovation", a view that is still widely held by many today. At Huawei, we firmly believe that we have the responsibility and capability to contribute to economic growth and social progress through continued innovation.

At present, openness and cooperation are two crucial characteristics that drive innovation. Enterprises need to obtain intellectual capacity globally, achieving success through cooperation with global value chain players. Open innovation is dependent upon an institutional environment that nurtures, protects, and spurs innovation continuously. The elements of such an environment include:

**First, markets that encourage open and fair trade practices and promote competition. These are the true engines of innovation that will drive industrial and social development.**

Two fundamental factors have contributed to the rapid economic development witnessed in the past 200 years: First is the advancement of technologies that significantly boosted productivity; second is the establishment of free trade that facilitated global resource reallocation and industry restructuring, maximizing the utilization of scientific and technological innovations. China's exponential economic growth in the past three decades is also attributable to these two factors. Huawei, in particular, is acutely aware of the importance of openness (open market and free trade practices continuing to be the main drivers of global economic growth) as we operate in the information and communications technology (ICT) industry. When looking at the history of communications technology, an open system always attracts more industry support and achieves greater success than a closed one. Consider, for example, the success of the Global System for Mobile Communications (GSM) of the past and today's Long-Term Evolution (LTE) networks. A closed approach tends to lead to limited success and often eventual withdrawal from the market.

Photos: Huawei Technologies

"At Huawei, we firmly believe that we have the responsibility and capability to contribute to economic growth and social progress through continued innovation," says Mr. Hu.

## *About the GII*

The Global Innovation Index (GII) 2013, in its 6th year, is co-published by Cornell University, INSEAD and WIPO with the support of knowledge partners Booz & Company, the Confederation of Indian Industry, du, and Huawei Technologies. GII 2013 benchmarks the innovation performance of 142 countries accounting for around 95 percent of the global population and almost 99 percent of global GDP. Using 84 indicators including the quality of top universities, availability of microfinance, and venture capital deals, it gauges innovation capabilities and measurable outputs.


**Second, an effective system to protect intellectual property rights (IPRs) must be in place before true innovation can surface.**

To protect IPRs is to safeguard innovation. Scientific and technological innovation requires significant investment in terms of time, funds, and intellectual capacity. Successful innovators should own the IPRs of the results of their innovative work and benefit from the associated rewards. Companies and individuals can be motivated to pursue innovative activity and invest more in this field if their results are protected appropriately. More than three hundred years have passed since the world's first IPR protection system was created. Though a latecomer, China has made remarkable progress in developing its IPR protection systems over the past three decades. This is a major reason why more and more innovative companies are emerging in China.

Huawei's headquarters in Shenzen, Guandong Province, China. Huawei's significant investment in R&D - it invests 10 percent of annual revenue in R&D every year – has translated into a rich patent portfolio. The company currently holds some 30,000 patents around the world and is one of the top users of WIPO's Patent Cooperation Treaty (PCT).

**Third, innovations rely on long-term investments in infrastructure.**

Investment in education provides the intellectual resources for innovative research. Construction of infrastructure, particularly ICT infrastructure, offers hardware that supports platforms for innovation.

## HUAWEI'S COMMITMENT TO INNOVATION

Huawei's growth can be attributed to our willingness to compete in global markets, and more importantly, to our customer-centric innovation strategies. Meeting customer needs is the starting point of our innovative efforts and reflects the value of our innovations. We place innovation at the core of our operating strategy. By capitalizing on optimal innovation mechanisms, Huawei continuously develops future-oriented technological advantages and capacity to better meet customer needs at faster speeds and lower costs. Our approach focuses on 5 main areas:

- Investment in research and development (R&D) on an ongoing basis: Since Huawei was founded in 1997 we have invested 10% of annual revenue in R&D every year. Of our 150,000 employees, more than 70,000 are directly engaged in R&D. In 2012, our R&D investment

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totaled US$4.8 billion, and the figure for the past decade amounts to US$19 billion. Our investment in R&D is a long-term commitment that will remain.

- Emphasis on fundamental technology innovations: Huawei categorizes innovations into three types: application innovations, product innovations, and fundamental technology innovations. What is important for us is to not only focus on application and product innovations that can be seen and experienced by customers, but also to emphasize fundamental technology innovations, which we believe are crucial to the success of the other two types of innovations even though they are often unseen.

- Integration of intellectual resources on a global scale: Our world is information-heavy, and economic and technological globalization is continually advancing. Against this backdrop, we have to focus our huge R&D investments on integrating resources globally with the highest possible efficiency. Huawei has set up 16 independent R&D centers around the globe, spanning North America, Europe, and the Asia Pacific. This enables Huawei to integrate the best intellectual resources from around the world and to develop innovation capabilities globally.

- Remaining open to cooperate with global partners: In the globalized era, the significance of openness and cooperation to innovation is clear. In terms of R&D, Huawei engages in cooperation initiatives at multiple levels. We cooperate with industry partners, organizations such as IBM, Intel as well as local government and customers in different countries. Our R&D strategy puts customers first as it is their needs that direct our future technology innovations. Joint innovation with customers is also an important part of Huawei's commitment to openness and cooperation. So far, Huawei has set up over 20 joint innovation centers with customers around the world, which have already created substantial value.

- Respecting and protecting innovative results: Huawei plays an active role in protecting IPRs in the industry. We respect the IPRs of industry partners and use those of our industry partners through cross-licensing and fee payments to accelerate the development of new innovations. We also adopt every legal measure to protect our own IPRs. So far, Huawei has filed over 40,000 patent applications in China and approximately 30,000 international and national patents in other countries. We use the Patent Cooperation Treaty (PCT) administered by WIPO which offers us great flexibility, enables us to save time and money and helps us to make the right decisions in relation to our patenting strategy. Huawei has been granted over 30,000 patents around the globe. In addition, Huawei pays around US$300 million in licensing fees to industry partners every year.

**LOOKING AHEAD**

Today, innovation has become an integral part of our daily lives. Looking ahead, the further integration of the digital and physical worlds will usher in new waves of digital development. Huawei is committed to providing wider and smarter information pipelines in an increasingly digital society, enabling ubiquitous broadband connections. We will continue to be open and innovative, to contribute to the Global Innovation Index (GII) and cooperate with WIPO and other stakeholders to help establish a favorable innovation environment and jointly promote scientific and technological innovation for the benefit of society. ◆

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