

# WIPO MAGAZINE

NOVEMBER  
2015

SPECIAL ISSUE



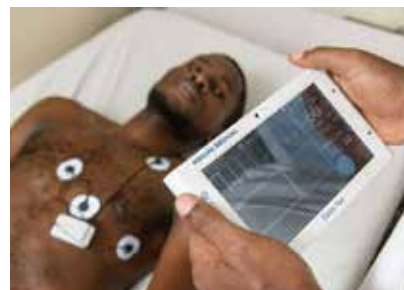
Didier Awadi on the future of music in Africa

p.4



Tanzanian entrepreneur develops innovative water filter

p.16



Cardiopad: reaching the hearts of rural communities in Africa

p.20

Intellectual  
property for an  
emerging Africa

p.2



# Table of Contents

2	Intellectual property for an emerging Africa
4	Didier Awadi on the future of music in Africa
6	Africa's innovators are open for business
11	Valuing Africa's creativity: an interview with TV entrepreneur Dorothy Ghattuba
14	Nigerian Innovators get connected: WIPO's TISC program
16	Tanzanian entrepreneur develops innovative water filter
20	Cardiopad: reaching the hearts of rural communities in Africa
25	Morocco's diaspora can help strengthen its innovation landscape

Editor: **Catherine Jewell**

Cover images:  
Right to left: kamikazz-photo Senegal;  
Dr. Askwar Hilonga;  
WIPO/Edward Harris  
main image: WIPO

© World Intellectual  
Property Organization

# Intellectual property for an emerging Africa

By **Francis Gurry**,  
Director General, WIPO  
October 2015



Photo: WIPO/Berrod

The *African Ministerial Conference 2015: Intellectual Property for an Emerging Africa* co-organized by the Government of Senegal and WIPO in cooperation with the African Union (AU), and the Japan Patent Office in Dakar, Senegal from November 3 to 5, is an opportunity to explore the relevance of intellectual property (IP) to African economies and its role in supporting the development of vibrant innovation ecosystems and creative industries across the continent.

In the global knowledge economy, innovation, creativity and IP hold far-reaching promise for spurring economic growth, trade and employment in countries at all stages of development. Realizing this promise, however, is not automatic. Each nation must find the right mix of policies to mobilize the innate innovative and creative potential of its economy.

Today, the intellectual component of production is far greater than in the past and IP is an indispensable mechanism for translating that know-how into a tradeable commercial asset and capturing the competitive advantage that it represents.

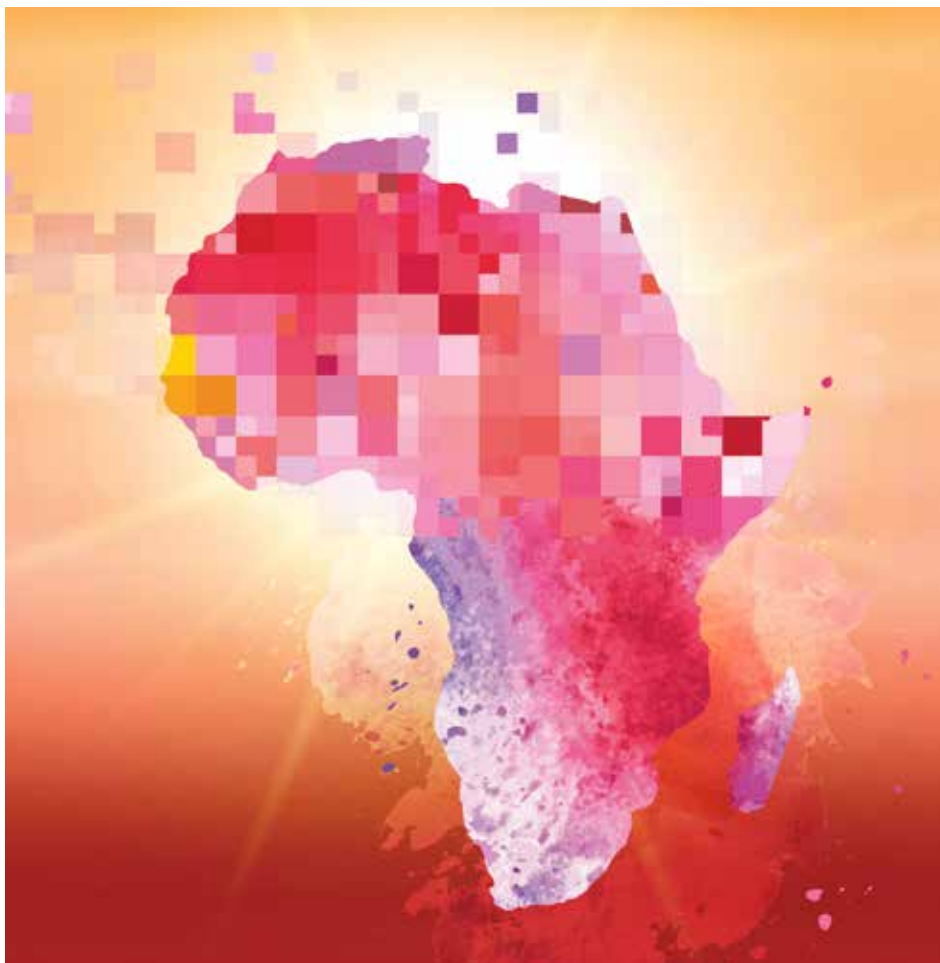
IP rights establish a secure legal framework for investment in - and commercialization of - innovation and creativity, enabling firms, including innovative start-ups, to navigate the perilous process of transforming an idea into a commercially viable product and to compete with success in the global marketplace, while safeguarding the public interest. As such, IP is a key factor in creating an environment in which innovation and creativity can flourish and generate future growth and prosperity.

It can only deliver these benefits, however, when the IP system is based on an appropriate policy mix that balances the often competing interests of producers on the one hand and consumers on the other hand. This is the challenge that faces policy-makers in Africa and across the world.

Over the years, the main IP focus in Africa has been to establish and develop basic IP infrastructure, regulatory frameworks, capacity-building, and human capital. The goal now is to put these IP tools to work in support of the economic objectives of African economies.

Africa has a great tradition of innovation and creativity and has extraordinary creative resources but has often struggled to realize their full economic potential. That is changing. Increasingly, African economies are seeking to add value to their innovative and creative resources through the IP system.

Although African economies still face many competing and compelling policy priorities, innovation and IP are slowly but surely rising up the African policy agenda.



I believe that Africa is on the cusp of something new and exciting. Today, the continent is home to some of the world's fastest growing economies and African nations are embracing the opportunities afforded by the knowledge economy and the digital revolution to reduce poverty, enhance agricultural productivity, and boost industrial competitiveness in their drive to secure sustainable and inclusive development.

The 2015 *Global Innovation Index (GII)* reveals positive developments in the African innovation landscape. Mauritius, South Africa and Senegal top the Sub-Saharan Africa rankings this year, and a growing number of African economies are punching above their economic weight in the area of innovation. For example, in Sub-Saharan Africa, low-income economies like Rwanda, Mozambique and Malawi are now performing on a par with middle-income economies. Similarly, Burkina Faso, Kenya, Mali, and Uganda are generally outperforming other economies with similar levels of development. Despite limited means, these African economies are proving efficient in translating the investments they make in innovation and the creative economy into concrete outputs.

The African Ministerial Conference 2015 is an opportunity to explore with policy- and thought-leaders how IP can best support the scientific and technological transformation of African economies, and to deepen understanding of the strategic importance of IP as a driver of economic and social development and poverty reduction across the continent.



Photo: kamikazz-photo Senegal

# Didier Awadi on the future of music in Africa

By **Catherine Jewell**,  
Communications Division, WIPO  
*October 2015*





Photos: WIPO/Berrod

“We artists have our rights – copyright and related rights – and these rights need to be respected by everyone, by consumers as well as the music industry at large.”

A high point of this year’s World Intellectual Property Day celebrations at WIPO’s headquarters in Geneva, Switzerland, was a panel discussion entitled *Get Up, Stand Up: What’s Ahead for Music?* The event brought together speakers from across the industry to explore the impact of the digital revolution, which is fundamentally changing the way creative works are produced, distributed and consumed. The following is a compilation of comments by the pioneering West African rap artist and music entrepreneur Didier Awadi, who took part in the event and shared his thoughts about what music means to him and the future of music in Africa.

#### **ON MUSIC**

Music provides peace of mind and is the expression of your soul, so for me music is a fundamental right. We artists have our rights – copyright and related rights – and these rights need to be respected by everyone, by consumers as well as the music industry at large.

#### **ON OPPORTUNITIES AND CHALLENGES IN DIGITAL ENVIRONMENT**

We have this wonderful opportunity provided by the Internet, but also by telephony. The level of telephone penetration in Africa is really astounding. Everyone has one, two or three mobile phones. All these phones, which are quite affordable, can be used to play music or download music or video, and telephone companies are doing everything to provide Internet free of charge and to make 4G telephones widely available. Mobile phones are the way of the future.

The challenges we face will depend on how we use mobile phones, the framework we have to regulate their use and whether our governments are willing to follow through with this great leap forward. We recording artists must do everything we can – we have to sit down, talk together and speak with one voice so all the different commercial players understand that we have rights and that we must be remunerated in an equitable fashion.





As part of this year's World Intellectual Property Day celebrations at WIPO's Geneva headquarters, Didier Awadi joined speakers from across the industry in a lively panel discussion on the future of music.

The digital context opens many panoramas. It is easy to create material, often with modest means, and to get it out onto music platforms which make it quick and easy for people to listen to our music, and which are global. That's wonderful. But of course, once the music is out there, it can be easily downloaded so that means a loss of income. Also, once you give your music up to a platform you don't really have any control over what they do with it. If your work is being broadcast over different platforms you can never be sure that you are being fairly compensated. There needs to be greater transparency about where the money is going to make sure creators get their fair share. This is especially important in the South, where the legal framework is all too often lacking. It is true we do have opportunities, but the only thing we really control today is live performance. That is where you can be really creative and do something original that can be heard around the world.

#### **ON THE IMPACT THAT NEW MUSIC BUSINESS MODELS WILL HAVE ON DEVELOPING COUNTRIES**

In many African countries, artists are up to speed on new subscription services for streaming but they don't really trust the system because it doesn't remunerate well. It really takes a lot of turnover to get a little money in your pocket. If African recording artists are not fairly remunerated they will not be interested in these new business models because we live in a constant state of emergency. If artists like Jay Z are creating their own streaming platform, it is because there is a problem in the way streaming is being implemented. If artists themselves want their own platform which remunerates them fairly, it is because the system is not transparent enough. As I see it, streaming is good for consumers

to access their playlists, but are artists getting properly remunerated for their creativity? It's true, streaming is interesting, but economically speaking it does not bring in much money. We are waiting to see what will happen. Telephone companies are signing mega deals with big record companies to have access to their catalogues but for the time being we do not really see what is in it for us.

#### **ON IMPROVING ARTISTS' RIGHTS IN AFRICA**

In Senegal things are starting to change for the better but it is an uphill battle. It is like crossing an ocean in a row boat, but things are moving forward. Generally speaking, every country has a collective management society that looks after authors' rights and these are all affiliated, so our rights are, in effect, protected by different societies the world over. Recording artists from many different African countries are working to defend their rights on streaming platforms through the Arterial Network in South Africa ([www.arterialnetwork.org/about/vision](http://www.arterialnetwork.org/about/vision)). We have to reach out to one another and share our knowledge, but governments also need to put proper legal structures in place. In Senegal we have fought hard to have our say in writing the recently enacted legislation on collective management of copyright and related rights, but bringing about this kind of change requires in-depth knowledge of copyright law. We need greater harmonization of copyright laws across Africa. For example, if a sub-regional organization like the Economic Community of West African States (ECOWAS) could harmonize its laws that could fan out across Africa. This needs to be done quickly. We already have a framework in place for terrestrial broadcasting, but we need a harmonized framework for online content.

#### **ON THE FUTURE**

In Africa, the revolution will not be television, it will be telephones. There is a cable running down the backbone of Africa from North to South and it is bringing in lots of data and content. The challenge for African recording artists is to create and produce content for our market, and to make it available to the world. We need to be looking outward towards the recording companies, the publishers, and streaming platforms and services to see to it that we can strike a fair deal in all countries. All too often we are reluctant to let go of our works and to release them to streaming platforms because transparency is lacking. I appeal to all countries to put into place the legal frameworks that we need so that we can earn a decent living from our creations like artists elsewhere in the world.

# Africa's innovators are open for business

By **Catherine Jewell**,  
Communications Division, WIPO  
October 2015



Photos: DEMO Africa

DEMO Africa, a flagship activity of the Liberalizing Innovation Opportunity Nations (LIONS@frica) initiative, is a public-private partnership established by the US Department of State together with various private sector partners, including Microsoft. Its aim is to strengthen the start-up and innovation ecosystems of fast-growing African economies.

“Africa is on the move,” US President Barack Obama told the Global Entrepreneurship Summit in Kenya this summer. A new generation of tech-savvy entrepreneurs with a “can do” attitude is injecting dynamism into Africa’s start-up scene, which is skyrocketing. The continent is abuzz with innovation and entrepreneurial activity. Tech hubs, incubators and other initiatives are popping up across the continent, fueling a spirit of optimism and unprecedented opportunities for growth. One such initiative is the public-private partnership, DEMO Africa. Harry Hare, Executive Producer of DEMO Africa, shares his views about Africa’s gathering technological revolution.

## ***What is DEMO Africa?***

DEMO Africa is a launchpad for new technology start-ups. It is a place where Africa’s most innovative companies can launch their products and tell Africa and the world what they have developed. Each year, technology start-ups from across Africa apply for a chance to promote their innovations at the annual DEMO Africa conference. We identify 40 of the most innovative start-ups to participate in that event. These are businesses that are solving real-world problems with high potential to succeed.

The DEMO Africa conference brings Africa’s tech ecosystem together in one place. It’s an opportunity for Africa’s top start-ups to pitch their innovations to venture capitalists, investors, technology buyers and the media from across the region and beyond, and to secure investment and attract publicity for their inventions.

## ***What makes the African technology sector so interesting?***

Africa’s tech space is fresh. Africa’s new entrepreneurs are passionate about what they do. They are skilled and ambitious and have a lot of energy. This is a potent mix which is generating a great deal of enthusiasm and belief in Africa’s potential to join the global stage.

A new generation of tech-savvy entrepreneurs with a “can do” attitude is injecting dynamism into Africa’s start-up scene.



The continent has a diverse and talented pool of young people and now we are beginning to see a commitment on the part of governments to utilize this massive source of brainpower to bring about positive change, especially through technology. Africa has many problems, from education to health and infrastructure, and the technologies that are coming out of Africa are solving real problems – this is what people are seeing and are interested in.

### ***How is the technology landscape in Africa changing?***

Since 2012, when DEMO Africa launched, the start-up scene has really taken off. The quantity of these businesses is quite remarkable, as is their quality.

One thing that really excites me about Africa’s technology landscape today is that for the first time in a long time, we are seeing technologies being built in Africa, by Africans, for Africans, but also usable anywhere in the world, and especially in other developing countries. Until now, Africa has been a net consumer of technology, but now we are seeing people developing and using home-grown technologies. We are also seeing African-built technologies being exported around the world. It is a very exciting time to be in Africa and to be working in the field of technology.

Africa faces two challenges which have become opportunities. The first is that we have a lot of problems. The second is that we are “under-wired.” This has fueled the massive uptake of mobile phones across the continent which is creating huge opportunities for mobile-based solutions. Start-ups have recognized that the widespread uptake of mobile technology in Africa means there is a huge and expanding market for their products. That explains why well over 50 percent of the applications launched through DEMO Africa are mobile based.

### ***What are the main challenges for African start-ups?***

The first is **access to capital**. Many find it difficult to attract the seed capital they need to establish proof of concept. Then, if they overcome that hurdle, they need capital to scale up their business.

A second challenge is **capacity**. Not technical capacity to develop the solutions, but the soft skills needed to get a product to market, to handle sales, marketing, human resources and so on. These skills are critical for building up and sustaining a business. Many of these start-ups were established by technical specialists who simply have never had an opportunity to learn the skills needed to run a business successfully.

A third challenge is **credibility**. Investors need to feel that start-ups are credible partners with solid technologies that offer viable business solutions. Creating that kind of credibility in the market is a big challenge. We are beginning to see changes in this, but it is happening very slowly.

The fourth challenge is **connectivity**. Today, business survival can hinge on having access to business or client networks, but many start-ups struggle because they do not have access to them. Most people still have a phobia of technology solutions coming from start-ups because they associate start-ups with uncertainty. But as big corporates start adopting technology solutions from start-ups and are increasingly willing to partner with them on their go-to-market strategies, there is some movement in this area also.

A fifth challenge relates to effective use of **intellectual property (IP)**. IP is fundamental to the success of these companies. They need to protect their innovative assets, but more needs to be done to change perceptions within the start-up community and to drive home the message that IP is a friend of business and can enable them to advance their goals.

Start-ups know they need to protect their ideas and their businesses, and are generally unwilling to share information about their products before a non-disclosure agreement (NDA) has been signed. But the way they use NDAs is often counterproductive. Overly preoccupied with their own interests, they often present potential investors with a one-sided, hostile NDA which does little to build trust or cement a fruitful outcome.

Start-ups need a supportive ecosystem to thrive. Government has a key role to play by putting into place a robust regulatory framework and business-friendly policies. By its nature, investment is a risky business, but governments can do a lot to help de-risk it.

### ***What is the key to ensuring the sustainability of Africa's technology sector?***

Markets are the key to sustainability. Markets are created by producing real solutions to real problems. When people can buy a product or a service that solves a practical problem they face, the market for that product will grow.

Africa has many challenges, but each of these is actually an opportunity to develop practical solutions and applications. We don't need to copy what others have done, we simply need to look at all the problems we have, identify a need and develop an application to meet it. Basically, we need to do our own thing in Africa. This is starting to happen and it is very exciting.

### ***Do you see any improvement in the investment climate?***

We are seeing growing recognition within the investment community that Africa's growing tech scene offers significant investment opportunities. Investors have a key role to play because investment takes entrepreneurs from where they are to where they want to be and the success of any start-up depends on its ability to scale-up its operations.

But we do still have some way to go with respect to engaging local investors, who are still more comfortable investing in brick-and-mortar projects. Until the local investment community fully recognizes the value of investing in technology, it will be very difficult to have sustainable investment in African start-ups. Many Silicon Valley and European investors don't really understand

the local environment, and therefore tend to shy away from investing heavily in start-ups, so local investors play a key role. It is a journey and we are slowly but surely making progress.

We are working with our partners to organize Angel Investor Bootcamps to help mobilize early-stage investors and to highlight the huge potential of the African tech sector. As part of DEMO Africa 2014, we organized the first Annual Angel Investor Summit, which was a great success and resulted in the formation of the African Business Angels Network (ABAN). A similar event is being organized as part of DEMO Africa 2015 and will bring together a growing number of investors from across the continent and elsewhere.

### ***What benefits do start-ups get from DEMO Africa?***

DEMO Africa offers start-ups a launchpad for their products and an opportunity to attract much-needed investment and publicity. They benefit from business support and advice provided by a team of coaches and mentors at our boot camps. These intensive three-day entrepreneurship training courses cover all aspects of business development, including intellectual property. We groom them to make an effective pitch at the launch event, and follow them for around six months after that to help them with any unforeseen challenges. Start-ups also benefit from extensive media exposure and crucially, they are plugged into DEMO Africa's global network. If a start-up launches at DEMO Africa, it can also launch at other DEMO events elsewhere. If they decide to enter the US market, for example, they can launch at DEMO in Silicon Valley, or if they want to enter the Brazilian market they can go to DEMO Brazil.

### ***What lies ahead?***

We are beginning to see world-class products and solutions coming out of Africa, and people outside the continent are taking note. We have also started seeing joint-venture projects between African entrepreneurs and their counterparts in other countries. But more importantly, we are seeing increased interest by venture capital firms from both within Africa and in Europe and the United States. All these factors point to a very fertile space where big-ticket solutions will start to emerge.

# Valuing Africa's creativity: an interview with TV entrepreneur Dorothy Ghattuba

By **Catherine Jewell**,  
Communications Division, WIPO  
June 2015



Photo: Spielworks Media

Dorothy Ghattuba's long-term vision is for Spielworks Media to become the biggest, the best, the boldest of creators, producers, developers and broadcasters of content with an African aesthetic.

Spielworks Media, a Nairobi-based television and digital media company, is one of a growing number of content production companies that are springing up and thriving in Kenya's vibrant media sector. In 2008, with little more than her passion for creativity, her drive and determination, the company's founder and CEO, Dorothy Ghattuba, returned to her native Kenya from Canada to follow her dream of becoming a TV entrepreneur who celebrates Africa's story-telling tradition.

To date, Spielworks Media has produced some 20 TV shows and employs 17 staff, though the number can swell to 700 depending on the creative project at hand. In this interview Ms. Ghattuba shares her experiences and aspirations and explains why copyright is critical to the long-term viability of her business.

## *How did you get involved in television?*

I have always been a creative person and loved theatre, drama and dancing at school. I soon realized that regular office work was not for me. I was restless. Creative people are always restless. During a holiday in Kenya, I saw a creative opportunity that made business sense. So I returned to Canada, packed my bags and came back home to become a TV entrepreneur producing content with an African aesthetic.

## *What challenges did you face?*

I arrived in Kenya with stars in my eyes and high hopes of starting a production company, producing and selling shows and making lots of money. I quickly sobered up. Raising the working capital to produce content continues to be a huge challenge. I can draw on my background in finance and my creativity, but it is tough. If a TV network gives me money in advance to create a show they will claim the rights in it and we will barely cover our production costs. So at Spielworks Media we borrow money from the bank. The good news is that we are now starting to make money and are beginning to finance our own shows.



“Creativity is financially viable, but only if we retain the copyright in our shows,” explains Dorothy Ghettuba.

### ***Why is copyright important for your business?***

There is no money in production. The only way to be profitable is through syndication, selling and re-selling our shows to multiple broadcasters. I dream of the day I will be able to sell one of our shows to 100 channels on a non-exclusive basis at the same time. This means retaining the intellectual property (IP) rights in our shows. I found that in Kenya broadcasters would buy all the rights to a show in perpetuity. This just didn't make sense nor was it an option for Spielworks Media. We would not and could not give away our IP for a few shillings. In show business everybody thinks you are making money, but in reality we could not cover production costs. We could only stay afloat if we carefully and strategically managed our IP rights. So we sold broadcasters only those rights they were going to exploit. We sold TV rights to TV networks, free-to-air rights to free-to-air stations, pay TV rights to pay TV platforms and so on. If they wanted additional rights, they could have them but they would have to pay for them. Our ability to control our IP rights means we can maximize the value of our shows and start making money.

### ***Can you give an example?***

For example, our show *Sumu La Penzi*, Swahili for “Poisonous Love,” which recounts the exciting journey of four young women living in Nairobi. It was initially licensed to M-Net exclusively for one year and on a non-exclusive basis for a second year. This meant that in the second

year we could sell it to another broadcaster. The money from the M-Net deal covered two-thirds of the production costs. The remaining third was absorbed by the company. The second screening of the show is now on a free-to-air TV network and the money from that deal will allow us to break even.

The beauty of this approach is that we can sell the show to any network in Swahili-speaking East Africa. We are very careful about how we manage the different bundles of rights associated with the distribution of our shows (e.g. video-on-demand, DVD, in-flight entertainment, and so on) because syndication is the only way to be profitable. Creativity is financially viable, but only if we retain the copyright in our shows. We recently launched our first, local language television channel, *Mwanyagetinge TV*. With digital migration, such a venture is more affordable. It is critical that we hold on to the rights in our content but also, to the extent possible, that we own the linear and digital platforms on which it is broadcast.

I started out in the business because I had a strong urge to produce African content, but I now realize the critical importance of intellectual property rights to the business. Strategic use of these rights makes it possible to ensure that everyone gets a share of the revenue derived from exploiting them. This makes it possible to motivate and retain staff. It creates a sense of ownership in the company. People work hard to create the best product because that is what will sell and that means more money

will come into the company. Our ability to control our IP rights means we can maximize the value of our shows and start making money.

***What new opportunities do you see for licensing the rights in your shows?***

With digital migration, Kenya's media sector is really going places. More channels are appearing, and more people want content. The boom in mobile telephony has huge potential. In Kenya most everyone has a mobile phone – there are around 40 million handsets. The future of entertainment is mobile, so we are starting to create shows specifically for the mobile platforms. We are also slicing existing shows into 3–5 minute “mobisodes” for viewers to watch on their mobile phones. We are working with Safaricom, which has some 26 million subscribers, to produce these. Today, telephone companies need people to consume data and for that they need content. Safaricom needs local content to create buy-in among Kenyans. Astute management of our mobile rights will enable us to create additional income for the company.

The democratization of the Internet in Africa is slow but growing. Broadband usage is expanding and will be everywhere within a few years. So we are also careful about how we manage our video-on-demand rights, which we believe have huge income-generating potential. If TV stations are smart, they will work in partnership with telephone companies and with content producers to expand viewership and generate more advertising revenues.

***What is your long-term goal?***

For Spielworks Media to become the biggest, the best, the boldest of creators, producers, developers and broadcasters of content with an African aesthetic. If someone wants African content I want them to knock at our door. We want to keep on creating and to support the viability of the industry in Kenya.

We really want to tell African stories, give the African perspective and share the African experience. Hyper-local content is the new rage. The success of Hollywood, Bollywood and Nollywood was built on local content and copyright protection. If the Kenyan industry is to thrive, it too needs local content and effective copyright laws.

***Is there a role for government?***

I think government has a key role in encouraging the creative sector. For example, subsidies or tax rebates would support the development of Kenya's creative sector. But policies need to be tailored to the needs of young people and the realities they face. Policy-makers need to

understand that we work very hard to create and produce our content, and that it is only fair that we are able to extract maximum value from it. Some people argue that IP rights inhibit access to content. But what greater access is there than when we sell mobile rights to a company like Safaricom and reach over 20 million Kenyans? There will be more access, not less, if content creators can manage and strategically exploit their IP rights. If content owners cannot do business in a profitable way, we all lose out.

We have to respect people's creativity. We must respect the effort they put in and we must ultimately reward it. This is about understanding what people have brought to the table and rewarding them for it. We can only do that if we are able to maximize the value of our IP.

***What needs to be done to boost IP awareness in Kenya?***

While the government has taken steps to improve IP awareness, there is still a lot to do. If we want to change mindsets, we need to target young people. In Africa more than 70 percent of the population is under 18 years of age. We need to find a palatable way to teach these young people about intellectual property. They need to understand that when they create something they have rights in their work. It is never too early to start teaching them.

***What message do you have for young creators?***

Create! Create! Create! Don't stop creating. Understand and embrace the value of your creativity. Protect yourself, protect your work. Develop a business mind as well as your creative mind and make them meet. It's a balancing act.

# Nigerian innovators get connected: WIPO's TISC program

By **Sunday Daniel**,  
freelance journalist, Nigeria  
February 2014

In a quiet room away from the heat and hustle of the Nigerian capital's streets, a half-dozen African innovators peer into computer screens, lost in concentration as they work on making their dreams come true.

They are using networked computer equipment to search overseas intellectual property (IP) databases, gleaning insight into the worldwide usage of patents, trademarks, industrial designs and other IP. The Technology and Innovation Support Center, or TISC, where they are working is one of many similar public-resource offices set up by governments in developing countries in collaboration with WIPO. The goal: help make the international IP system accessible to as many users as possible.

## **MAKING IP ACCESSIBLE TO ALL**

Ididunni Annette Roberts has been using the Abuja TISC, inaugurated in December 2012, in a quest to bring to market her "IBY Nature Pride Black Soap." Ms. Roberts has submitted the soap for testing by Nigeria's food and drug-safety unit and is now "seeking to register her trademark internationally."

"I am happy to have discovered this Center, which has given me the information I needed," she said and this has given me the confidence that what I am doing is scientific and global. I am satisfied that the product I have developed using the information from TISC, is entirely mine and is not being claimed by anyone else," she said.

## **PROMOTING BEST PRACTICES**

WIPO launched the TISC project in 2009. In the context of a joint engagement with national and regional industrial property authorities, WIPO supports the TISCs by facilitating access to databases and training (both of trainers and of local users, on-site and through distance learning); providing information and training materials; supporting awareness-raising activities; and

disseminating best practices and experiences among TISCs. TISCs are usually hosted within national and regional patent offices, universities and other academic institutions, science and research centers, local and regional technoparks, chambers of commerce or other similar public institutions.

The TISCs host Internet-enabled computers that access WIPO's international databases of intellectual property information, including PATENTSCOPE for patent information and the Global Brand Database for trademark-related information free of charge. TISC users can also access a range of scientific journals, technical literature and other commercial patent resources for free, where they may be fee-based for users in developed countries.

## **FREE ACCESS TO DATABASES FOR DEVELOPING COUNTRIES**

The goal is to help people like Edwin Nicholas Uwa and Mark Ogochukwu Abia turn their ideas into products that will boost their earnings. The pair, who are researching a dual-purpose air conditioner and refrigerator, used to spend time – and hard-earned cash – at local cybercafés. But without the guidance offered by the staff of the Abuja TISC, the duo found themselves adrift in a sea of confusing information.

"Before now, we used to go from one cybercafé to the other without really getting any value for our money. But now, we are happy to say that TISC has provided us with the kind of information we need for our research at no cost at all," said Mr. Abia.

## **"THE WORLD WILL ONE DAY CELEBRATE US"**

"We have been provided with fresh ideas on how to go about our research and development. Because of the information we are getting from the TISC, the world will one day celebrate us," said Mr. Uwa.





Photo: Gberniga Olamikan

Ibidunni Annette Roberts (right) has used the services of the WIPO-backed TISC in Abuja, Nigeria, to develop and market her new beauty products.

Since its inauguration in December 2012 by Nigeria's Trade and Industries Minister, Dr. Olusegun Aganga, dozens of Nigerians have made use of the facility inside the Federal Ministry of Trade and Investments. The users are normally researchers, students and potential inventors.

The Abuja TISC staffers, like Therie Essien, also organize training sessions for users, in the hope they can spread their knowledge further. One of the users already trained by the TISC, Ekwesilesi Nnam, is tutoring fellow Nigerians on how to develop their own products and become self-reliant in a country where unemployment runs high, especially among Nigeria's youth.

#### **CREATE INNOVATIVE PRODUCTS, BE YOUR OWN BOSS**

Each week, Sunday Apeji travels to the TISC in Abuja from his home in Jos, some 200 kilometers away. He is researching food and drug development from local plants known to have medicinal properties. He says he has already created four products he hopes to patent and is researching ten others.

"The knowledge I have acquired through the TISC has broadened my perspective on research and development and changed my whole outlook to patents and intellectual property," he says.

#### **BROADENING PERSPECTIVES**

The Registrar of the Trademarks, Patents and Designs Registry in the Federal Ministry of Trade and Investments in Nigeria, Nima Salman Mann, said that the Center had helped to open the eyes of Nigerians to their rights relating to IP and patents, emboldening them to seriously develop patents. "We have done our best to educate Nigerians to understand the importance of protecting their product patents and intellectual property. Intellectual property is wealth for life as nobody can take it away from the owner."

#### **"INTELLECTUAL PROPERTY IS A WAY OF LIFE"**

The Chairperson of the TISC Project and Head of the Patent Department in the Federal Ministry of Trade and Investment, Aisha Salihu, explained that the number of users of the Center has been on the increase.

Ms. Salihu said that the TISC had made it possible for Nigerians to approach their research and development with a sense of confidence and hope in themselves. "What Nigerians never knew existed has now been brought by TISC to their doorsteps and I do know that they are very happy with the facility's existence in Nigeria," she said.

# Tanzanian entrepreneur develops innovative water filter

By Catherine Jewell,  
Communications Division, WIPO  
August 2015



Photos: Dr. Askwar Hilonga

Dr. Hilonga is using his knowledge of nanomaterials to develop the Nanofilter®. His aim: to reduce the number of lives lost to waterborne diseases.

Tanzania is one of the poorest countries in the world, and like many countries in Africa, it faces acute water shortages. Although it borders three of Africa's Great Lakes, many people, especially those living in remote rural areas, lack access to safe drinking water. All too often, both surface water and groundwater sources are contaminated with toxic heavy metals, bacteria, viruses and other pollutants from mining, industrial effluent and poor sewage systems.

But there is hope. A local chemical engineer, Dr. Askwar Hilonga, has developed a low-cost customizable water filtration system that promises to transform the lives of many Africans. Dr. Hilonga who lectures at the Nelson Mandela African Institution of Science and Technology, recently won the first Africa Prize for Engineering Innovation from the UK's Royal Academy of Engineering. The prize of GBP25,000 (TZS79 million) seeks to encourage talented engineers in sub-Saharan Africa to find solutions to local challenges and develop them into businesses.

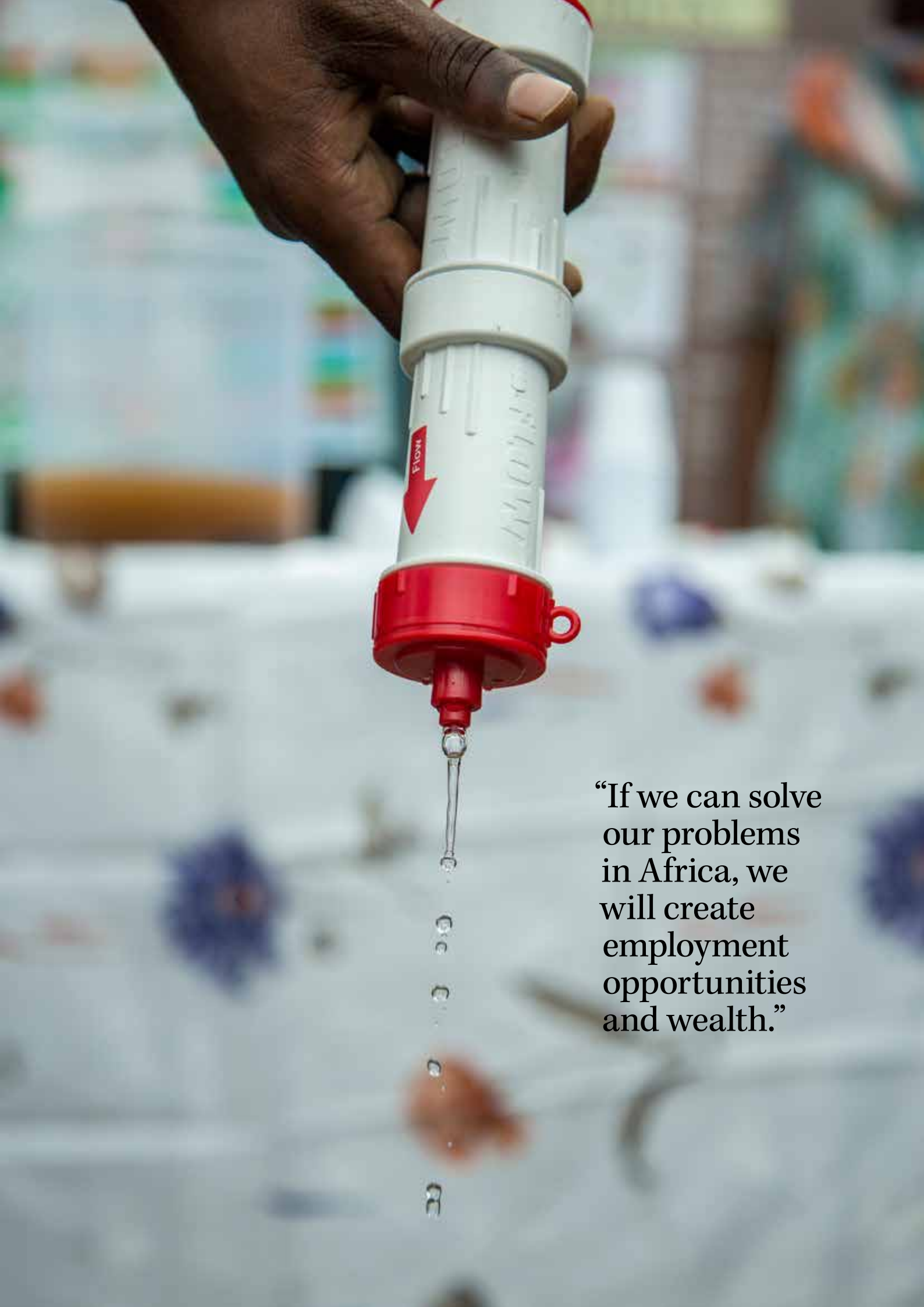
In this interview, Dr. Hilonga explains the significance of his invention and shares his aspirations for the future.

## ***What inspired you to develop your water filter system?***

The huge need in my community. I grew up in a very remote village in Tanzania and saw with my own eyes the suffering caused by waterborne diseases. Having obtained my PhD and published widely on nanomaterials, I asked myself what it all meant. At that point, I decided to apply my knowledge of nanomaterials to solve this problem in my community. That is how I come up with my Nanofilter®.

## ***Who is it for?***

Anyone can use the filter, but I am targeting rural areas in particular, because of their desperate need. In Tanzania today, out of every ten children who die, nine die from waterborne diseases.



“If we can solve our problems in Africa, we will create employment opportunities and wealth.”

### ***How does it work?***

Slow sand filters have been used in water purification for over a hundred years. While they are effective in removing bacteria and some microorganisms from water – which is what I use them for – they cannot remove heavy metals, such as copper, fluoride, or other chemical contaminants. My patented filtration system combines a slow sand filter with a combination of nanomaterials made from sodium silicate and silver to eliminate toxic heavy metals. Water first passes through the sand and then through the nanomaterials. Whereas other water filters on the market offer a “one-size-fits-all” solution, the Nanofilter® can be calibrated to target and eliminate contaminants that are specific to a particular geographic region.

Each region has its own challenges when it comes to water. In some areas excessive fluoride in water, which has a devastating effect on teeth and bones, is a problem. In others, for example where mining takes place, the quality of the water is compromised by heavy metals like copper and mercury. The Nanofilter® uses nanomaterials to remove those contaminants that cannot be removed by sand. The water that passes through the Nanofilter® is clean and safe for drinking.

### ***How much does a filter cost?***

A filter costs USD130 (around TZS284000). While we do sell them directly to households, there are many who cannot afford to buy them, so we are also working with local entrepreneurs to establish water stations. At present we are renting the filters to around 23 entrepreneurs who filter the water and sell it to their communities at a very affordable price. In addition to the filter itself, our company, Gongali Model Company, a university spin-off, which now employs five people, including myself, makes and sells these nanomaterials. But we are not just selling products we are providing a convenient service which includes water quality profiling and water testing.

### ***How long did it take to develop the Nanofilter®?***

I began work on the filter in 2010. It has taken me about five years to develop it. Developing and refining the nanomaterials used was the trickiest part. I developed my first prototype just in time to enter the Africa Prize for Engineering Innovation. In that competition I was one of 12 short-listed entrants who received six months of business training and mentoring. That’s where I learned

how to develop a business plan to commercialize my innovation. Thanks to the support of the Royal Academy of Engineering, the Nanofilter® is now on the market. In Tanzania alone 70 percent of nine million households do not use any kind of water filtration technology in their homes, but people are very interested in these filters.

### ***Why is it important to protect your innovation?***

If you don’t protect it, anyone can copy and use your name, come up with a low-quality product, and undermine your business interests. So, as part of my intellectual property (IP) strategy, I decided to register Nanofilter as a trademark. This enables me to protect and maintain the quality of our brand. When I began this venture, my market was Arusha; now there is interest from across sub-Saharan Africa and beyond. Countries like Ethiopia and Uganda share the same challenges with respect to water quality. Fluoride toxicity is a problem all around the Rift Valley. In this context, it is really important to have an effective IP strategy in place.

### ***What next?***

My focus now is to build the Nanofilter® into a sustainable business and to scale-up our operations to reach more and more people. There is a lot of interest in the Nanofilter®, so the challenge now is to build up our customer base and to ensure that our clients are happy with our product and the service we provide. My number one goal is to reach as many people as possible and to save lives and limit the number of children who die from waterborne diseases. This is what drives me.

### ***What message do you have for young innovators in Africa?***

Don’t look for jobs abroad. If we can solve our problems in Africa, we will create employment opportunities and wealth. We will have an impact and we will start building our reputation as a country and a continent that can solve grassroots challenges. Many young Africans dream of going to Europe or America but there is a lot of potential here at home. My experience demonstrates that if you go back home and serve your people, one day your community and the world will appreciate your efforts.



Photo: Dr. Askwar Hilianga

# Cardiopad: reaching the hearts of rural communities in Africa

By **Edward Harris**,  
Communications Division, WIPO  
*September 2014*



Photos: WIPO/Edward Harris

The Cardiopad developed by 26-year-old Cameroonian engineer, Arthur Zang (above), promises to bring high-quality cardiac care to remote rural communities.

In a remote clinic in Mbankomo, down a crimson-earthed road in Cameroon, a doctor attaches electrodes to the chest of a patient lying on an examining table. Murmuring reassurances, the generalist records the patient's heart data on an African-designed touch screen medical tablet. The readings are then transferred wirelessly, over the mobile-phone network to specialists in distant urban centers for interpretation, diagnosis and prescribed treatment.

By making it possible to perform tests, such as an electrocardiogram (ECG) in far-flung villages, the tablet is bringing high-quality cardiac care to remote and often poorly equipped countryside clinics where many Cameroonians go for their health care. It connects rural patients suffering from heart disease, many of whom do not have the means, the time, the contacts or the strength to travel to the big city, with Cameroon's few, primarily urban-based cardiologists.

The potentially life-saving Cardiopad – designed in Cameroon to address a Cameroonian problem, but which is also widespread across Africa – is the brainchild of 26-year-old engineer Arthur Zang. For now, the heart reading and interpretation are just a simulation – but that will change soon if Mr. Zang gets his way.

The winner of numerous overseas awards and grants, Mr. Zang hopes that his invention – imagine an iPad with home-build software built for deployment in the African bush – will revolutionize cardiac care in Cameroon. And for him, his business is also personal.

“There are a lot of people in my family who suffer from cardiac illness,” he says referring to the recent heart-related death of his uncle. “So personally, this has affected me but above all I would say it has impassioned me, because I know personally the daily existence of people living in the village ... I lived myself in a village and I know how difficult it is to get specialist care.”

According to Mr. Zang, Cameroon has only a few dozen cardiologists in a country of around 22 million people and these are clustered in urban centers like the capital, Yaounde, or the main seaport town of Douala. Roughly half of Cameroon's population lives in rural areas, according to the World Bank, while many others live in urban areas that do not have access to heart specialists.



## LIFE-SAVING POTENTIAL

The young engineer saw a problem and set out to try to fix it. In 2009, while still a student, Mr. Zang began developing a software product that could help doctors monitor the health of their patients' hearts. He made contact with a Yaounde-based cardiologist, Professor Samuel Kingué, who helped him better understand the type of technical solutions required. With these insights, the young engineer finally wrote a program that he loaded onto an off-the-shelf device. But he soon realized he needed the flexibility of his own platform, and so turned to developing his own hardware – the Cardiopad – the first medical tablet in Africa, says Mr. Zang.

The Cardiopad has a simple-to-use, touchscreen interface that is adapted to the needs of remote health workers who may lack familiarity with the latest computing devices and the know-how required to use them. In tests by the Cameroonian scientific community, the Cardiopad has proven 97.7 percent reliable. It is solidly built to withstand the humid climate and the shocks incurred while being carried over rutted, often unpaved dirt roads like the one leading to the clinic at Mbankomo. The device is also built to withstand the frequent power cuts experienced in Cameroon and across Africa. Equipped with a battery, it can run independently for around six hours at full power.

With some 30,000 euros funding from the Cameroonian government, Mr. Zang was able to create a prototype and eventually travel to China, where he found a factory that could produce a limited run of Cardiopads while he searched around for partners to help fund his venture. Obtaining investments has been difficult. Finding the right contact in overseas companies is a challenge and the pitch is no easier. The device is designed to help Africans in rural, impoverished communities; something that not all companies see as a promising prospect, Mr. Zang says. That's why he intends to tap into a very modern financing model – crowd-funding on platforms such as Kickstarter, where users can donate funds to, or purchase shares in, fledgling firms.

For now, he is searching for more funding, hoping to build upon the CHF 50,000 grant he received as a Rolex Award Young Laureate 2014. While funding issues have been a constraint, the pilot tablets he has been able to produce are now being tested in hospitals in Cameroon.

Mr. Zang's aim is to produce and sell his device for around 2,200 euros which is significantly cheaper than other commercially available, less portable devices. The hope is that hospitals purchasing the low-cost Cardiopad will be able to lower the price of medical examinations and speed-up medical diagnoses.

### **PATENTING THE CARDIOPAD**

In December 2011, he applied for a patent via the Organisation Africaine de la Propriété Intellectuelle (OAPI) in Yaounde. OAPI later granted him a patent (No. 16213) on his technology, covering some aspects of both the software and the hardware.

Obtaining a patent was an important step for Mr. Zang. "I did it to reassure myself," he said, "also to protect the product, and to have a lot more credibility in the eyes of, for example, partners with whom I wanted to sign contracts in order to be able to produce and then sell the product." When funds permit, he also plans to register the Cardiopad, and his company, Himore Medical, which currently produces the tablet, as trademarks.

"The intellectual property system can help us in Africa – it can add credibility to African products. And credibility has repercussions on the business plan because if you aren't credible, it's difficult to sell your product," says Mr. Zang.

### **DRIVING NEW DEVELOPMENTS**

For Mr. Zang, innovation requires a flexible mindset, a deep understanding of an entire economic ecosystem and an ability to commercialize ideas.

"You can't only have engineering ideas," he says. "We have to go further, into researching the problems confronting Africans and then pursue research into solutions, subsidize the creation of companies, create business incubators that can help nurture projects, researchers, engineers and really help them move from the laboratory to the factory."

### **PURSUING A DREAM**

Ultimately, Mr. Zang's dream is to continue working to "improve life conditions" by branching out into other areas of medical technology, envisioning specially adapted devices for echography and radiology.

In the Mbankomo clinic, the lack of these higher-end materials is evident. Surrounded by a tidy plot of well-brushed soil dotted with shade trees, the one-storey clinic is austere. Patient consulting rooms are cooled by open windows, but little advanced machinery is on display. Mr. Zang says doctors at the facility are overwhelmed by the health needs of patients, which range from the mundane to the mortal. Connecting these clinics to better-resourced hospitals elsewhere via the mobile phone system is establishing a lifeline.

Mr. Zang hopes ultimately to manufacture the Cardiopad in Cameroon, and to help the country develop as a manufacturing center for lower-cost devices specifically tailored to low-resource environments and markets, like those in West Africa.

"This will help lower the cost of medical exams and the cost of good health across the regions, in the villages," he says. "That's it, that's the dream that is smoldering in me."



# Morocco's diaspora can help strengthen its innovation landscape\*

By **Nour-Eddine Boukharouaa**, Moroccan Industrial and Commercial Property Office (OMPIC), chapter coordinator; **Marwan Berrada**, Ministry in Charge of Moroccans Living Abroad and Migration Affairs; **Abdelhak Chaibi**, Association R&D Morocco; **Salma Dinia**, National Centre for Scientific and Technical Research (CNRST); **Abdesselam El Ftouh**, Hassan II Foundation for Moroccans Living Abroad; **Adil El Maliki, Karima Farah**, and **Ilham Bennani**, Moroccan Industrial and Commercial Property Office (OMPIC); **Omar Elyoussoufi Attou**, Ministry of Higher Education, Scientific Research and Executive Training; and **Yassine Ouadirhi**, Ministry of Industry, Trade, Investment and the Digital Economy

October 2015

\*This article is a summary of Chapter 8 of the 2014 Global Innovation Index entitled *The Moroccan Diaspora and its Contribution to the Development of Innovation in Morocco*.

Morocco's location on the borders of three distinctive worlds – the Arab world, North Africa and Europe – and its proximity to the Atlantic Ocean and the Mediterranean Sea have meant its people are open to international cultural, economic and scientific exchange.

Today, the shortage of qualified human resources in a globalized and competitive marketplace that requires knowledge and know-how are new reasons for Morocco's population to be mobile. But could the talents and the expertise of Moroccans living abroad (MLAs) contribute to the development of the nation's emerging sectors? The Moroccan government thinks they can and for a number of years has been actively courting its expatriate community for that very purpose.

## MOROCCANS ACROSS THE WORLD

As at 2012, some 4.5 million Moroccans – 15 percent of its total population – were living abroad, many of them young and of working age. Some 400,000 of them were highly educated with either a bachelor's or graduate degree and over 32,000 were senior executives or professionals in the private sector or occupying research, research and development management or academic positions.

The trans-generational socioeconomic ascent of the immigrant population is poised to create a concentration of highly skilled workers living abroad. The Moroccan Diaspora is made up both of those who received their bachelor's degree in Morocco before emigrating as well as their children who are educated in their new country of residence. The share of university graduates among MLAs is, in fact, twice as high as the domestic graduate population.

The Moroccan Diaspora is mainly located in France (32 percent), Spain (20 percent), Italy (12 percent) and other European countries, Arab countries (6 percent), the United States of America and Canada (together 3 percent) and some African and Asian countries.

## THE MOROCCAN DIASPORA'S INNOVATIVE OUTPUT

Identifying expatriates who contribute actively to innovation is difficult because the data are often not available. However, analysis of patent applications filed under WIPO's Patent Cooperation Treaty (PCT), which specify

the place of residence and the nationality of applicants, reveals an increasing level of patenting activity among MLAs. During the period 1995 to 2011 some 876 patent applications were filed by MLAs under the PCT.

The analysis further reveals a correlation between the number of Moroccan students concentrated in France, Spain and the USA and the number of patent applications they file. A breakdown of PCT patent applications submitted by MLAs by technical field shows that 20 percent relate to medical sciences, 10 percent to organic chemistry and 8 percent to biochemistry.

Recent research on return migration by WIPO shows that few Moroccan emigrant inventors – just 2.39 percent – return to their home country to file their patent applications. These findings suggest that Moroccan talent abroad is contributing to global innovation and that there is significant scope to harness the scientific, creative and innovation potential of MLAs to boost Morocco's innovation goals.

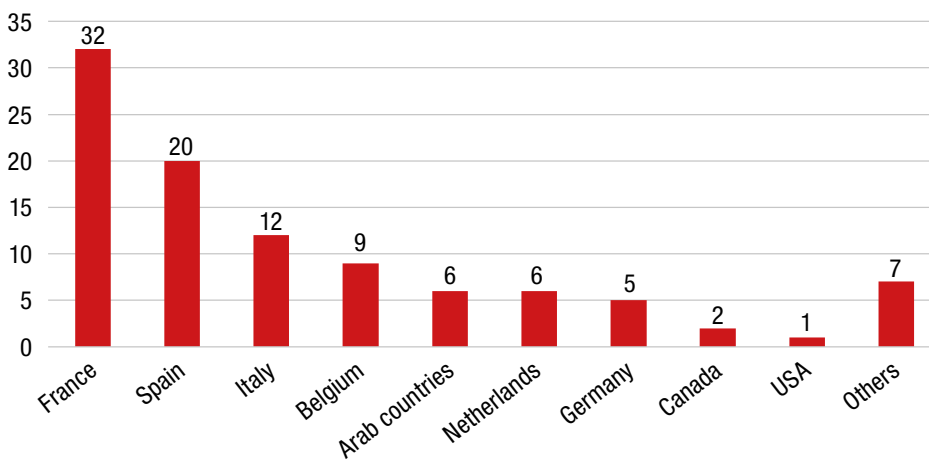
#### **MOBILIZING THE MOROCCAN DIASPORA**

Since the 1990s, the government of Morocco has actively sought to encourage the direct involvement of MLAs in contributing to Morocco's development strategy. Various MLA mobilization initiatives have been rolled out to this end. These include, the very successful "Mobilization Skills Program", which calls upon Moroccan professionals who are ready to contribute their expertise, experience and know-how to Morocco's development. The program keeps these professionals informed about opportunities to develop partnerships with Moroccan public and private actors and supports those who establish projects in Morocco. Other programs include the "MDM Invest", program which seeks to encourage investment into Moroccan enterprises and the United Nations' Transfer of Knowledge Through Expatriate Nationals (TOKTEN) program, which again seeks to encourage the engagement of MLAs in Morocco's development.

Launched in June 2009, "Innovation Morocco", the country's national innovation strategy, has galvanized efforts to strengthen Morocco's innovation ecosystem. The strategy covers four main areas, including mobilizing talent at home and abroad in support of the country's development goals (the other three are governance and regulatory framework, infrastructure and clusters, and funding and support).

A wide range of initiatives have been launched to strengthen Morocco's innovation landscape. For example, in 2011 the Moroccan Office for Industrial and Commercial Property, in partnership with the Ministry of Industry, established the Moroccan Innovation Club – a virtual platform dedicated to innovation – to create a network of Moroccan innovation actors both in Morocco and abroad. Similarly the Maghribcom web platform offers Moroccan professionals information about business, investment and employment opportunities, serving as a springboard to establish win-win partnerships between economic operators, universities and research institutions in Morocco as well as the Moroccan Diaspora.

### Geographic distribution of the Moroccan living abroad, 2013



Source: Ministry in Charge of Moroccans Living Abroad and Migration Affairs, 2013.

Recognizing the largely untapped scientific, innovative and creative potential of Moroccans living abroad, the government has fostered a rapprochement with its expat community with highly qualified individuals actively encouraged to create projects in Morocco. A 2012 study by the European Training Foundation shows that 81 percent of migrants that have returned to Morocco in the past decade were under the age of 54. Two-thirds of them owned their own businesses, many of which were highly innovative and built on experience acquired abroad.

In order to compete successfully in the global market for highly qualified professionals, policymakers need to ensure that the home country is attractive to those contributing from abroad. This means considering specific return campaigns centered around major technology projects; mobilizing targeted human resources for earmarked projects and creating attractive and favorable conditions to attract professionals who are abroad to engage in the development of innovation in Morocco.

While Morocco's efforts to promote return migration have enjoyed some success, a great deal remains to be done to realize the innovative potential of its highly educated professional workers. Morocco's experience highlights the importance of ensuring that the home country becomes more attractive to these migrants. This is an important early step. While return migration policies hold great promise, more and better data are required in this area.



For more information  
contact **WIPO** at [www.wipo.int](http://www.wipo.int)

World Intellectual Property Organization  
34, chemin des Colombettes  
P.O. Box 18  
CH-1211 Geneva 20  
Switzerland

Tel: +4122 338 91 11  
Fax: +4122 733 54 28

**WIPO Magazine** is published bimonthly and distributed free of charge by the World Intellectual Property Organization (WIPO), Geneva, Switzerland. It is intended to help broaden public understanding of intellectual property and of WIPO's work, and is not an official document of WIPO. Views expressed in articles and letters do not necessarily reflect those of WIPO.

For comments or questions, contact The Editor at [WipoMagazine@wipo.int](mailto:WipoMagazine@wipo.int). To order a print version of the WIPO Magazine, contact [publications.mail@wipo.int](mailto:publications.mail@wipo.int).

Copyright ©2015 World Intellectual Property Organization

All rights reserved. Articles contained herein may be reproduced for educational purposes. No part may, however, be reproduced for commercial purposes without the express written consent of the WIPO Communications Division at the above address.