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Infectious Disease Control

Japanese Technology Saving Lives

Special Feature

Infectious Disease Control

Japanese Technology Saving Lives

We live in an age of convenience where advanced transport systems take all types of goods and people to every corner of the globe. However, once bacteria, viruses, or parasites enter the body and cause an infectious disease, it can quickly become a contagious disease that easily jumps across borders from person to person and from animal to human. The spread of infectious disease is an issue that needs to be handled on a global scale, and many countries—including Japan—have established systems in accordance with the World Health Organization's International Health Regulations.

While access to health advice and immunization provided by health professionals is taken for granted in the developed world, many countries are yet to reach this level of service. Having created advanced infectious disease control systems and successfully garnered community participation, Japan is well positioned to help developing countries establish their own systems. Japan is committed to working with developing countries to enhance their capacities by implementing programs to strengthen health systems and train personnel capable of taking the lead in infectious disease control.

So how is JICA helping countries in need to develop their infectious disease control systems and save people's lives?

In this issue, we follow the Japanese working on the front lines to see what is being done.

Preparation and Emergency Response
—Establishing Systems

Fast and Accurate Health Surveillance through Cellular Networks

Technical cooperation in Kenya has helped establish an infectious disease rapid response system that utilizes cellular networks. The system uses common communication equipment, and enables instant sharing of reports of infectious diseases even from small hospitals in developing countries.

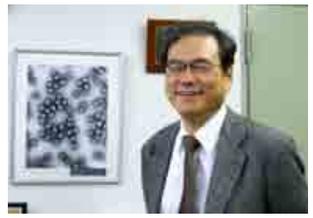
Upper: A Ministry of Health administrator checks information sent to the mobile terminal. Upper left: A situation report using the mSOS.

mSOS logo
Used as an icon for promoting the system in Kenya

A training seminar—which includes the operation of mSOS—held for public health professionals from various parts of Kenya.

mSOS data is organized for ease of viewing and displayed on the Internet.

Professor Kouichi Morita
Institute of Tropical Medicine, Nagasaki University
Coordinator for Nagasaki University Graduate School of Biomedical Sciences Doctoral Leadership Program. Currently training future leaders in the fields of tropical medicine and emerging infectious disease control.



Preventing the Spread of Epidemics with Mobile Phones

"If infectious diseases are not dealt with quickly, they can turn into epidemics," says Kouichi Morita, professor at Nagasaki University's Institute of Tropical Medicine. "Even minor cases in the countryside should be promptly and accurately reported to the central healthcare administration. In Kenya's rural areas, everyone from teenagers to tribal elders has access to a cell phone, so we came up with the idea of making an outbreak alert system using the cellular network." An experience in the World Health Organization (WHO) led Morita to turn his attention to cell phones. At that time he was assigned to oversee immunization programs in the Pacific. He recalled that they ran out of vaccines one day. When on location, it is standard practice to report this situation to the center using a two-way radio. However, the radio was broken so they couldn't get through. Morita observed that many people had mobile phones, and the public nurses were more familiar with mobile phones than with radios. Moreover, mobile phones enabled data to be centrally organized, thus Morita thought that they were the best tool for the job.

Under the motto "early detection, early containment," Nagasaki University has been working with the Kenya Medical Research Institute (KEMRI) since 2012 to develop rapid diagnostic tests and outbreak alert systems for yellow fever and Rift Valley fever. The project, based at KEMRI's research facility, has been using new technology from Japan, and the tests and analyses of the system are shared by the two institutions. The University is also contributing toward project staff's professional development by inviting researchers for sabbaticals in Japan. In addition to staff training, simultaneous development of both diagnostic tests and an early detection system is underway. An outbreak alert system is vital, and it requires something cheap and familiar to everyone—a mobile phone fits the bill perfectly.

Convenient Enough to Use

Kenya has a system in which information is sent from local medical centers to county officers, who then report to the central health administration. A special form describing symptoms and other conditions must be filed. The process of organizing and analyzing the paperwork takes time. To overcome this time lag, Morita's team decided to develop an SMS reporting system (mSOS) that allows all suspected cases of a notifiable infectious disease to be reported using mobile phones instead of the usual paper forms. The reports sent via SMS immediately undergo epidemiological analysis and are then displayed at the Ministry of Health (MOH). The results are forwarded to an administrator at the Ministry and to local medical centers if necessary. This enables MOH personnel and local surveillance officers to head to the site immediately.

Nagasaki University dispatched Mitsuru Toda (now a PhD degree holder currently working at the CDC* in the US) to trial the network with the Kenyan MOH and medical centers in Nairobi County, Kajiado County, and Busia County in the western region bordering Uganda. She held lectures for local health professionals about surveillance using mSOS, distributed cell phones to be used for the system, and explained how the system and the cell phones operate. The participants' reactions were positive, and comments such as "The mSOS system is good because you can also receive replies for confirmation instead of just sending messages one-way." were often heard. The MOH representatives appreciated how information could be obtained in real time. The trial showed that when mSOS was not used, only 2.56% of infectious disease cases were reported, a striking contrast to the sevenfold (19.23%) increase of reported cases with the use of mSOS. In light of these results, the Kenyan MOH decided to officially adopt the system, and with the help of organizations such as UNICEF, the CDC, and the WHO, it is now being deployed throughout the country.

The ease of feeding accurate information into the system not only helps to prevent epidemics, but also makes it possible to formulate further measures by analyzing past data. If the system is successfully adopted in Kenya, it can be rolled out over the entire continent, and it would greatly help in the fight against the spread of infectious diseases.

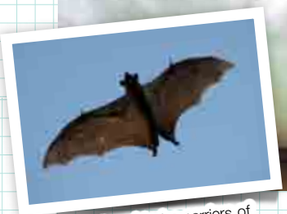
*Centers for Disease Control and Prevention

Preventing the Spread of Ebola

A technical cooperation project in Zambia has developed an effective rapid diagnostic kit for preventing the spread of Ebola. We trace its development with one of the foremost authorities on the virus.

Ebola virus
Therapeutic drugs are still under development.

More than 1,000 bats have been surveyed in Zambia so far.



Bats are believed to be carriers of various zoonoses.

Fieldwork conducted with researchers from the University of Zambia.

The QuickNavi™ series of rapid diagnostic kits developed for Ebola are compact and easy to use.

Professor Ayato Takada
Research Center for Zoonosis Control, Hokkaido University

Virologist. Researches zoonoses, such as influenza and Ebola. One of the foremost researchers contributing to the understanding of the Ebola infection mechanism and methods of controlling, diagnosing, and treating the disease. Awarded the Japan Society for Virology's Sugiura Incentive Award in 2005 for his work in elucidating the function of the Ebola virus surface glycoprotein.

Hokkaido University and the University of Zambia School of Veterinary Medicine (UNZA-SVM) have carried out joint research for many years.

With the collaborative research project members

The Ebola Virus and the Captured Bats

At the time of the 2014 Ebola outbreak in West Africa, Professor Ayato Takada of the Hokkaido University Research Center for Zoonosis Control was working with the University of Zambia School of Veterinary Medicine (UNZA-SVM) to develop and improve diagnostic techniques as part of a Science and Technology Research Partnership for Sustainable Development* (SATREPS) project to create a rapid diagnostic kit for Ebola. "The outbreak in West Africa could have been contained if we had a rapid diagnostic kit for Ebola at that time," he reflects.

Prof. Takada has been surveying bats in the forests of Zambia since late 2006. This has involved conducting ecological surveys of factors such as the distribution of viruses and their routes of transmission in nature, and evaluating the risk of infection to humans in order to minimize the spread of such infections. Once caught, the bats are anaesthetized and their blood is sampled on the spot. Fruit bats in particular are suspected of being natural hosts for the Ebola virus, and are considered to be an important species for clarifying how, and to what extent, viruses can spread. An investigation is also being carried out to determine whether or not the Zambian fruit bat carries the Ebola virus and the Marburg virus, which can also cause hemorrhagic fever.

Development of Handy Diagnostic Kits

Prof. Takada has been involved in developing a diagnostic kit for the influenza virus jointly with Denka Seiken Co. Ltd., a Japanese company that manufactures and sells medical testing equipment. Armed with the research materials and experiences he gained through the SATREPS, and using that kit as a basis, he worked with Denka Seiken to adapt the kit for use with Ebola. In March 2015, they successfully developed prototypes of what was to become the QuickNavi™ series of Ebola rapid diagnostic kits.

How effectively infectious diseases can be controlled depends on how quickly people who are suspected of being infected can be identified. "Although diagnostic methods such as genetic analysis are highly sensitive, treatment is typically delayed because it takes several hours to get a result, meaning that the limited supplies of medicine do not get to the people who really need it. Furthermore, there is often a lack of infrastructure in places where outbreaks occur. Diagnosis can be delayed and diseases can further spread in small villages with unreliable power supplies if test methods require that diagnostic reagents be kept refrigerated or frozen, and if the testing equipment itself requires electricity to function. Therefore, we needed easy-to-use rapid diagnostic kits that could be kept at room temperature."

Two years after the rapid diagnostic kits were developed, the neighboring Democratic Republic of the Congo (DR Congo) reported Ebola outbreaks in 2017 and 2018. A JICA expert soon consulted Prof. Takada, who helped to arrange the donation of more than 3,000 Denka Seiken rapid diagnostic kits to help control the outbreak.

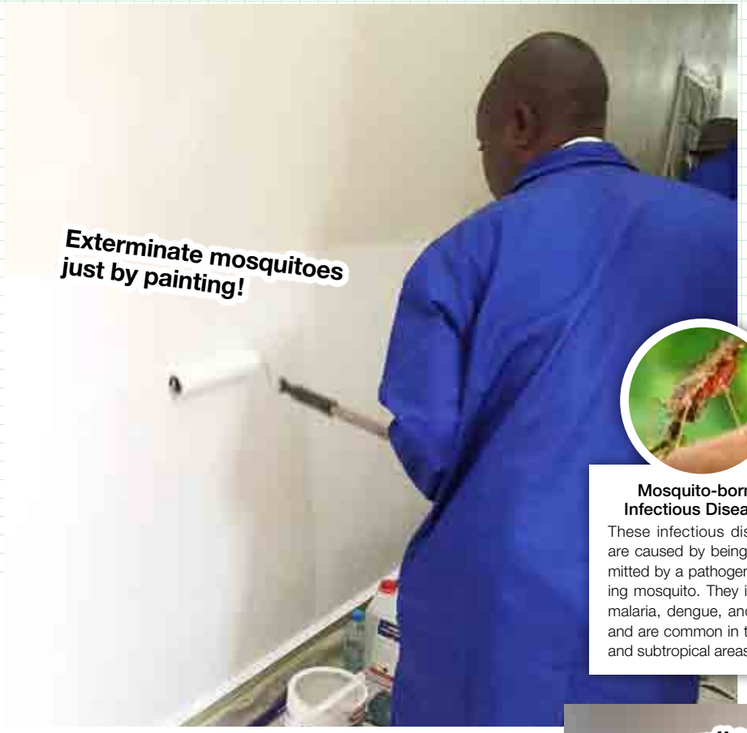
"Early detection, early containment." Rapid diagnosis of infection can save many lives. While continuing his work in Zambia, Prof. Takeda will launch a new project in 2019 that aims to identify the natural hosts and the routes of transmission involved in the many outbreaks of Ebola that occur in DR Congo. He also continues to work with Denka Seiken to develop rapid diagnostic kits for viral hemorrhagic fevers other than Ebola.

*Technical cooperation provided through joint research for solving global issues, conducted in conjunction with researchers in developing countries by the Japan Science and Technology Agency (JST), the Japan Agency for Medical Research and Development (AMED), and JICA

Development of Innovative Technology
—Collaboration with Industry

Innovative Paint Prevents Mosquito-borne Infectious Diseases

In Zambia, each year approximately 5.5 million people (33%) are infected with malaria, and more than 3,000 people are said to die from this disease. Kansai Paint has developed an anti-mosquito paint with the aim of creating a safe living environment.



The AMP demonstration tests were initially carried out in three areas, after which two more areas were added. 400 households are currently involved.

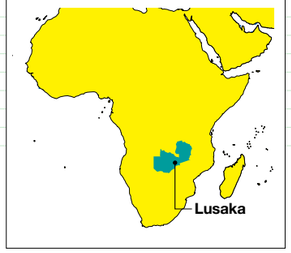
Mosquito-borne Infectious Diseases

These infectious diseases are caused by being transmitted by a pathogen-bearing mosquito. They include malaria, dengue, and Zika, and are common in tropical and subtropical areas.

Zambia

Name: Republic of Zambia
Capital: Lusaka
Currency: Zambian kwacha (ZMW)
Population: 16.59 million
(as of 2016 - World Bank)
Languages: English (official), Bemba, Nyanja, and Tonga

Located in southern Africa, Zambia is a landlocked country twice the size of Japan. It is well known as an area prone to malaria, and although the capital Lusaka has a relatively low rate of infection due to its high altitude, people still contract the disease throughout the year.



The cone test involved trapping mosquitoes inside a conical cup on a panel that had been coated with AMP. After forcing the mosquitoes to come into contact with the coated panel, the fatality rate was observed after 24 to 96 hours.

Anti-Mosquito Paint: Functional, Protective, and Beautifying

Kansai Paint, based in Osaka, Japan, is a global manufacturer of paints and coatings that is committed to helping people in developing countries who are vulnerable to the spread of infectious diseases. Through its affiliate networks in Southeast Asia and Africa, they understand how quickly and easily healthy local people can be struck down with an infectious disease.

In order to prevent infectious diseases such as malaria, dengue, and Zika, the company developed Kansai Anti-Mosquito Paint (AMP), an interior paint that contains an active ingredient that knocks down mosquitoes. AMP went on sale in 2014 in Malaysia, followed by Indonesia, Myanmar, Cambodia, Thailand, and Singapore.

Efforts to disseminate the technology have been underway in Zambia since 2017 as part of JICA's Private Sector Technology Dissemination Program in Africa. A study in which the paint was applied in 400 households in five different areas of the country has yielded very positive results. Comments like "I've previously had malaria twice, but never again since we applied the paint nine months ago" and "I used to have 20 to 30 mosquitoes in the room, but now there are only one or two" are frequently heard from participants.

Tests using AMP were also carried out at a primary school in Thailand. Because mosquitoes would avoid the classroom where AMP was applied, many children came to the classroom to sleep during the afternoon break.

AMP is on sale in ASEAN countries, as well as African countries such as Zambia and Uganda. It has no detrimental effect on the human body, making it safe for use in homes, public facilities, and commercial establishments. AMP's effect lasts for two years.

Kansai Paint's Toshikazu Kutsuna (left) from the Corporate Headquarters and Hiroyuki Nagano (middle) from the Paint Division.

Messrs. Kutsuna and Nagano visited Zambia at the beginning of November 2018 to conduct demonstration tests. Their efforts garnered much attention in the local media.

Hiroyuki Nagano of Kansai Paint, who was involved in the development of the product, explains how it works: "The paint contains a substance that disrupts a mosquito's nervous system and has an insecticidal effect. It is safe, however, for us humans and most mammals because we can break down and excrete that substance. Not only does this paint protect our homes, it makes them more beautiful, which also has a positive psychological effect."

Collaboration with JICA Made it Possible

Although demonstration tests are still ongoing, the Zambia Environmental Management Agency has already acknowledged the benefits of AMP and has certified and approved it for sale from October 1, 2018, six months ahead of the company's expectations.

"This success would not have been possible if we had been working alone," says Toshikazu Kutsuna, head of the company's dissemination activities. "Although work on this project started back in 2015, at that time the Zambian government had no relevant testing standards because using paint to exterminate mosquitoes was a brand new concept to them. It took some time to develop evaluation methods, and talks ground to a halt," he continues.

"We explained to them that the product was sound, but I guess it wasn't convincing since we were the ones selling the product. We then started to work with JICA and things started to go more smoothly. JICA was well aware of the situation in Zambia, and was closely acquainted with key people working in government institutions. Thanks to their advocacy we were able to talk with all the right people, and the Zambians came to have a more positive stance and accelerated the approval process. Staff who were involved at the time told me that it was like the fog had lifted."

Standard countermeasures against malaria currently include the use of treated mosquito nets and spraying of insecticides. In the future we expect such measures to also include AMP, allowing even greater results to be achieved. Significant progress has been made in the field of infectious disease control thanks to Japanese technology.

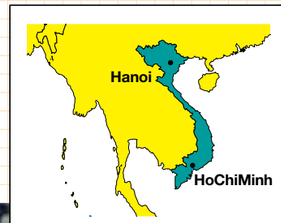
Paint roller: N_Sakarin / Shutterstock.com

Testing System to Support Early Detection

Stop the Spread of Infectious Disease by Improving Testing Capabilities!

Viet Nam—exposed to the threat of various infectious diseases. For more than 10 years, Japan has been supporting the country's infectious disease control initiatives by networking and enhancing the capabilities of key laboratories.


Rabies test training



Viet Nam

Name: Socialist Republic of Viet Nam
Capital: Hanoi
Currency: Dong (VND)
Population: 95.54 million
(as of 2017, World Bank)
Official Language: Vietnamese

The Vietnamese government has identified the prevention of infectious disease epidemics as one of its most serious challenges, and has placed special emphasis on the urgent development of fast and accurate testing systems. With the ever-increasing pace of globalization, strengthening Viet Nam's infectious disease control is something that will contribute to international society as a whole.

Rapid Testing Prevents Outbreaks

In November 2002, a respiratory disease of unknown cause was reported in Guangdong Province, China. This new form of pneumonia, named SARS (severe acute respiratory syndrome), soon spread beyond the borders of China and ran rampant, mostly throughout East Asia, infecting 8,096 people and killing 774 over the course of approximately nine months. Then, in 2004, avian influenza broke out throughout the entire Southeast Asian region. Even though relatively few people were infected, it was highly virulent with a mortality rate of 60 to 70 percent. Viet Nam, with approximately 40 fatalities, was especially hard hit during the outbreak.

These outbreaks prompted the Vietnamese government to create a national infectious disease epidemic prevention system in 2006. JICA, which was asked to assist, has continued to provide tangible and intangible support, establishing a Biosafety Level 3 (BSL-3) laboratory at the National Institute of Hygiene and Epidemiology (NIHE) in Hanoi, and providing a mobile BSL-3 laboratory to the Pasteur Institute in Ho Chi Minh City (PI-HCMC), as well as providing technical cooperation to improve pathogen testing capabilities. As a result, high-risk pathogens can now be tested internally, rather than having to send them to advanced laboratories outside the country. In fact, the epidemic of measles in 2014 was quickly suppressed thanks to these improved testing capabilities. JICA has also networked institutions such as NIHE and PI-HCMC with regional Preventive Medicine Centers, helping to harmonize rules for transportation procedures and other matters, and making it possible to carry out pathogen testing faster and more accurately.

Masanori Kai, chief advisor of the Project for Capacity Development for Medical Laboratory Network on Biosafety and Examination of Highly Hazardous Infectious Pathogens in Viet Nam, Laos and Cambodia, explains how the improvement in laboratory testing capabilities prevents the spread of infectious diseases. "With many infectious diseases, it is vital to detect the disease early and accurately and to promptly treat the patient, who is the potential source of the outbreak, and, when necessary, other people with whom that person has been in contact." However, there are challenges in Viet Nam, especially in regional areas. "The results of Phases 1 and 2 of this project, which started in 2006, have been evident in large research institutions such as the NIHE, and in some regional areas where training has been carried out. They now have the capability to quickly carry out diagnosis. However, laboratories at many of the nation's Preventive Medicine Centers still lack the requisite skills and equipment to quickly carry out the standard tests necessary to prevent epidemics. Consequently, our efforts to support the centers are now focused on providing essential equipment and training in new molecular biological pathogen detection methods."

Appropriate Handling of Pathogens

Biosafety, protecting the body from pathogens and preventing pathogens from escaping laboratories, is a primary area of assistance. Emphasis is placed on teaching basic safety management practices, such as the need to wear gloves, masks, and gowns, not eating or drinking in the laboratory, and the need to strictly follow procedures such as sterilization and disinfection when entering and leaving the laboratory. It is an ongoing process, and even in Japanese laboratories biosafety training programs are conducted yearly. Kai elaborates, "Since there are plans to establish an additional permanent BSL-3 laboratory at PI-HCMC, it is necessary for laboratory personnel to thoroughly study the situation in Japan. Visiting laboratory equipment manufacturers and seeing firsthand the strict guidelines in place at Japanese facilities offers a training environment that's unavailable in Viet Nam."

In the long run, Kai wishes to establish a system whereby Vietnamese personnel can continue to deal with infectious diseases independently, even after the completion of the project.

"NIHE's biosafety capabilities have definitely improved since the start of the project, and the number of cases in which pathogens are tested for is steadily increasing. We want to continue to contribute to infectious disease control in Viet Nam by enhancing testing capabilities and improving the content of training, for example, creating manuals for laboratory techniques for an ever-increasing number of pathogens."

Left: A lecture on the features of biosafety during the training on dengue fever in Bac Giang Province (June 2018). Bottom: Dengue fever has shown a tendency to spread throughout Asia. The photo shows Preventive Medicine Center staff who attended training on dengue fever at PI-HCMC (March 2018).

Laboratories that Do Not Leak Pathogens

Facilities handling microbes and pathogens adhere to a particular biosafety level (1 to 4) determined by meeting specific standards such as high-performance filters and interlocking doors. Facilities with a higher biosafety level are able to handle higher-risk pathogens. With the BSL-3 laboratories introduced through Japanese assistance, Viet Nam is now able to handle high-risk pathogens such as rabies, avian influenza, and multidrug-resistant tuberculosis.

Laboratory dishes: science photo / Shutterstock.com

Preparation and Emergency Response

Myanmar

Emphasis on Control Measures in Remote Communities

Malaria had been claiming more lives in Myanmar than in any other country in Southeast Asia when JICA began its malaria control and prevention activities in Myanmar's Bago Region in 2005. With JICA's technical cooperation, the region saw a dramatic decrease in the number of malaria patients and mortalities in the subsequent 10 years, and these figures have now declined to insignificant levels throughout the country as a whole.

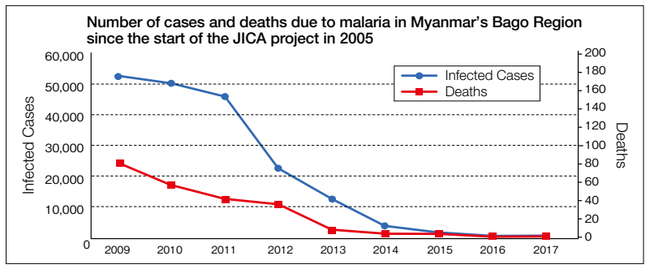
In recent years, however, drug-resistant malaria appeared and began to spread in the Mekong region. This has become a problem of global concern, and in 2014 the East Asia Summit adopted a resolution to eliminate malaria from Asia and Oceania by 2030. Myanmar is committed to eliminating malaria, and is taking its first step toward this goal.

We asked JICA expert Masatoshi Nakamura, who has worked on malaria control in Myanmar for many years, to give us a picture of the situation. "Malaria is as common as ever in areas near the western border, and the number of cases hasn't lowered since 2015. Evidently, current public health initiatives for dealing with malaria are inadequate. The disease also needs to be eliminated in remote communities, and in settlements where people depend on forest-related work such as slash-and-burn cultivation."

Falciparum malaria, which is prevalent in Myanmar, is a serious disease that occurs suddenly, and is fatal unless diagnosed rapidly and treated successfully. Nakamura elaborates, "Volunteer community health workers (CHWs) chosen from remote communities play an important role in places where there are no medical services." After attending trainings, CHWs use rapid diagnostic tests for malaria to provide appropriate diagnoses and treatments. "We have now trained over 600 workers, and we still check up on them periodically to give them instruction and encouragement," he continues.

In cooperation with the Myanmar Ministry of Health and the Myanmar Forest Department, Nakamura is currently working toward the elimination of malaria in Myanmar and is focused on investigating the prevalence and risk of the disease in remote communities.

"We've entered the second half of the project. The CHWs are keeping the number of malaria cases low by intensifying their efforts and focusing on endemic areas. However, the malaria-transmitting Anopheles mosquitoes are still there, and the disease is still endemic in border areas. We are now designing a malaria early-warning system and working on a way to detect cases as soon as they appear."



Malaria testing at a local health center

Examining children in a village. "The project also aims to protect these children living in remote areas," says Nakamura.

Accessing remote areas, sometimes by elephant, in collaboration with the Forest Department

Benin

An Engaging Way to Teach Public Health

Yuma Matsuoka has been a JICA overseas cooperation volunteer in the West African country of Benin (population: approx. 10 million) since 2017. Here she has worked with local NGOs at regional health bureaus to teach healthy lifestyles to rural communities. An important part of her work is teaching people how to prevent malaria and infectious diarrheal diseases.

Matsuoka uses quizzes and picture-card storytelling to teach about medical treatment and hygiene, as many people in Benin still rely on traditional medicine and have insufficient medical knowledge. "Picture cards make it easy to explain how infectious bacteria are transferred from flies to food to people, and how proper handwashing and toilet habits can prevent diarrhea and improve environmental hygiene. Handwashing is particularly important, so we always provide a demonstration and do it with them." She and her colleagues hold events where people can enjoy themselves and learn about health at the same time; these include inter-village health quiz competitions and shows where children perform songs, plays, and poetry about disease prevention and health.

However, there are problems that education alone cannot solve. Relatively clean water can be had in city centers, but in areas where there is no electricity or water supply system, there is no clean water that can be used for handwashing. "It hurts to admit it, but no matter how much effort we put into education, putting the things they learn into practice is still an entirely different matter," said Matsuoka.

Matsuoka learned, however, that a young woman from the village, a winner in one of the inter-village health quiz competitions, would regularly visit each family and teach people about hygiene.

Matsuoka recounts, "She told me that in her village, which is a long way from the health center, many people who get sick die without receiving proper treatment. She thought that if a small amount of habitual caution would reduce the number of deaths then it would be worth it. I was so happy to know that, through our efforts, there was someone who got inspired enough to try and improve her own village." Matsuoka continues to work in Benin in the hope that her efforts will somehow help people to lead healthier lives.

Matsuoka demonstrates how to properly wash hands at a primary school

Teaching villagers about water and hygiene

A typical water source for people from villages without a well

Trends

South Sudan

JICA President Shinichi Kitaoka Brings Message of Cooperation to South Sudan

A group photo after talks with President Salva Kiir Mayardit.

This January, JICA President Shinichi Kitaoka made a three-day visit to South Sudan to meet with government dignitaries and visit the sites of ODA projects. In the capital of Juba, Mr. Kitaoka held talks with President Salva Kiir Mayardit and cabinet ministers. During the wide-ranging discussions, Mr. Kitaoka was thanked for JICA's long years of cooperation, and everyone present expressed their hope for the early resumption and completion of JICA grant aid projects, particularly the Freedom Bridge and water supply facilities in Juba. Mr. Kitaoka was also an invited guest to the opening ceremony of National Unity Day. Here he talked about the significance of promoting peace and social cohesion through sports, and reflected on the elements essential to the development of the country, such as a sense of unity and acceptance of fairness and diversity. He added that he wants all participants to take a leading role and act as peace ambassadors to promote peace and development in South Sudan.

Accompanied by the Minister of Roads and Bridges Rebecca Joshua Okwaci, Mr. Kitaoka visited the site of Freedom Bridge, the construction of which has been suspended since the unfortunate events that occurred in South Sudan in July 2016. South Sudanese government officials told Mr. Kitaoka that all South Sudanese people eagerly await the resumption and completion of the project. While acknowledging that humanitarian assistance is essential, Mr. Kitaoka said that in order to achieve peace and stability in South Sudan, and advance as a nation, South Sudan needs development projects such as the Freedom Bridge, and JICA is committed to cooperating on restarting the bridge project and completing it quickly. In his role as JICA president, Mr Kitaoka was able to reconfirm JICA's commitment to further contribute to the peace, stability, and economic development of South Sudan, and expressed his heartfelt desire to actively foster stronger relationships with the country.

Africa

Africa Aims for Growth in the Blue Economy

The new container terminal at the Port of Mombasa (foreground).

The Blue Economy is a concept used to promote sustainable economic growth through oceans, rivers, lakes and other water resources. This dual idea of environmental protection and development is getting attention in Africa, not only because it provides employment and critical nutrition to some of the continent's most vulnerable communities, but also for its potential to transform the broader economy of a country. JICA is supporting the Blue Economy in Africa through cooperation for fisheries, maritime transport and logistics, and infrastructure development.

People from more than 170 countries and international agencies attended the Sustainable Blue Economy Conference 2018, held last November in Nairobi, Kenya. During one of the thematic panel discussions, Shunji Sugiyama, a JICA senior advisor, explained his work in helping the Morocco government encourage small-scale fishers and develop aquaculture, and highlighted the Blue Economy's potential for generating employment when integrated with tourism and local product development. He is also supporting South-South cooperation by Morocco with countries in sub-Saharan Africa, in which Morocco is sharing its experience of the fisheries sector development in partnership with Japan. At a plenary session on smart shipping and port development, Masahiko Furuichi, a JICA senior advisor, emphasized the importance of ports in the global supply chain, and the challenge of significant congestion they face as world maritime trade increases. Improving the connectivity of ports and hinterland by inland railways and roads in one integrated system enables smooth evacuation of containers and helps ease port congestion. Supported by JICA's loan assistance and technical cooperation, a new container terminal to facilitate international trade to and from Africa was completed in February 2016 at the Port of Mombasa, Kenya. JICA is committed to the ongoing improvement of port-related infrastructure as part of its contribution to the wider development of the Blue Economy.

Western Balkans

Businesses in the Western Balkans Learning from Japan

A mentor advises a Macedonian SME manager.

Well known for providing detailed management advice, Japanese-style support for small and medium-sized enterprises (SMEs) is spreading to the Western Balkan countries, a part of Europe still coming to terms with the aftermath of conflict. SMEs make up the majority of domestic companies in this region and are considered key to stimulating the economy and expanding employment. However, due to limited resources and qualified personnel, it has been difficult to provide sufficient high-quality government services for assisting SMEs.

The Business Adviser System is a system unique to Japan that enables public institutions to support SMEs. JICA has trained employees of public SME support agencies in the region to become mentors. While learning business fundamentals in the classroom, the mentors actually visit SMEs and interview the managers on the problems they face, and undertake workplace training after being certified. SMEs, especially recent start-ups, rarely can afford to pay consulting fees to private consultants and have a hard time getting the advice they need. A government's dispatching of mentors to SMEs that want management advice is an effective solution to this problem. Unlike consultants who tend to provide too-professional and overly-technical methods that SMEs may find difficult to follow, mentors are reassuring supporters who get close to managers and carry on a dialogue to support them in improving business results. The 10-year-plus initiative has succeeded in starting a comprehensive mentoring service; in Serbia, 55 graduates are currently working as mentors to advise SMEs, and the service has spread from Serbia to surrounding countries. This successful model of Japanese-style support for SMEs is now being adopted in other countries in the Western Balkans, and is even spreading to other areas such as Viet Nam and Ethiopia.

Voices from the Field

Helping Build A Better Health Future

Five years working as a clinician in a large rural hospital helped Dr.Raymond Mufwaya understand the urgent need for public health interventions in the Democratic Republic of Congo (DRC), especially in the areas of preventive, curative and promotional medicine. After returning to graduate school to specialize in Public Health, he came across a newspaper job advert for team members to establish JICA's health program in the DRC. After doing some research he was very impressed with the philosophy, values, vision and achievements of the organization. This was 2009, and since then he has been happily working for JICA. Dr.Mufwaya's primary role is Program Officer in charge of the sectors of Health, Water and Sanitation, and most of his time is divided between formulation, implementation, monitoring and evaluation in these sectors. He is also responsible for the centralization of relations between the counterpart ministries and JICA, and he assists in surveying these sectors and participating in the Health, Water and Sanitation Coordination Group, both at the ministry level, as well as working directly with donors, technical and financial partners.

When asked his thoughts of JICA's work in the DRC, he identifies three main areas of significant progress. First is JICA's work in developing Human Resources for Health (HRH) in the DRC, in particular, improving the governance and management systems for HRH, developing an HRH database, and improving the curricula and training for nurses and midwives. Second, is the continuous improvement of the work processes and work practices through the application of Japan's 5S-Kaïzen-TQM approach in the nation's health facilities. Third, and just as important, is the ongoing development of the National Institute for Biomedical Research (INRB) with biosafety level 3 laboratories. This project has raised JICA's profile to become a major partner in the field of disease surveillance in the DRC. In fact, upgrading the technical platform of this regional reference laboratory will help shorten diagnosis periods, allow the supervision of satellite laboratories, and help respond more effectively to epidemics such as the Ebola virus.

He notes that JICA has consistently supported the integrated training of staff for the management of epidemics, particularly that of the Ebola virus, including organizing several training sessions for local staff, as well as regional training and sharing experiences between the DRC and other French-speaking African countries. Dr.Mufwaya is positive about the future. He looks forward to the day when all of the communicable disease projects work in synergy, positively impacting on the resilience of the country's health system, improving its universal health coverage, and to seeing this progress rapidly expanded to other provinces.

Dr.Raymond Mufwaya

Program Officer, JICA Democratic Republic of Congo Office

Africa Needs a New Public Health Order

Dr. John Nkengasong

Founding Director of the Africa Centres for Disease Control and Prevention

Africa is challenged by rapid population growth, which is leading to increased and rapid population movement across the continent and the world. This mobility exacerbates the dangers of existing endemic diseases such as HIV, TB, and Malaria, emerging infectious pathogens, and non-communicable diseases. Two years ago, on January 31, 2017, the Africa Centres for Disease Control and Prevention (Africa CDC) was officially launched in Addis Ababa. The Africa CDC mission is to strengthen the capacities, capabilities, and partnerships of Africa's public health institutions based on science, policy, and data-driven interventions and programs.

Africa is at a pivotal moment in its history as it moves towards greater integration. Developments such as the opening up of the continent's skies with the single African air transport market, the African continent-wide free trade agreement, and freeing the movement of people across borders will bring the continent increasingly closer together. Though powerful boosters to economic growth, we must be mindful of the significant public health implications of these changes. In order to adequately position the continent to meet the public challenges associated with such economic and political integration, we at the Africa CDC are calling for the establishment of a New Public Health Order. This new health standard for Africa should focus on: 1) strengthening the national public health institutes of member states; 2) establishing the Regional Integrated Surveillance and Laboratory Network (RISLNET) that can pool existing assets in each geographic region; 3) developing the public health workforce; 4) enhancing the culture of data acquisition, storage, timely use, and sharing; 5) public private partnerships; and 6) enhancing the coordination of partners and donors and their efforts in alignment with the Agenda 2063 for health.

In view of this, in December 2017, Africa CDC and the Japan International Cooperation Agency (JICA) signed a letter of intent for collaboration. JICA is committed to working with Africa CDC to strengthen the Regional Collaborating Centres and the RISLNET; support public health emergency preparedness and response; strengthen laboratory capacity and networks; support short, medium and long-term field epidemiological and laboratory training programs; strengthen health systems; and support collaborative research. JICA has supported several African countries to develop state-of-the-art public health facilities in Ghana, Zambia, Kenya, and others. Such efforts are clearly welcome, and will contribute significantly to improving public health outcomes and impact on the continent, leading to a high indigenous capacity to respond to disease threats. As JICA continues to support Africa to improve public health outcomes on the continent, it is critical that the capacity of indigenous implementing partners and universities are strengthened and supported.

Profile:
Born in Cameroon, Dr. John Nkengasong is the director of the Africa CDC. He received a doctorate in Medical Sciences (Virology) from the University of Brussels, and has over 20 years of experience in researching and working in the field of disease control.

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Cover:
Laboratory staff from Viet Nam's five northern provinces' Preventive Medicine Centers undergoing training for detection of dengue fever pathogens at Quang Ninh Provincial Disease Prevention Center (March 2018).

The Japan International Cooperation Agency (JICA) is one of the world's largest bilateral development organizations, operating in some 150 countries to help some of the globe's most vulnerable people.