Giving Children a Better Chance

Pupils at an elementary school in Uganda wash their hands using simple hand-washing facilities provided by Saraya.

Despite stable economic growth, Africa still faces serious social issues, including poverty, low levels of education, and poor sanitation. The children who shoulder the destiny of the region live in a harsh environment. In Africa, it is still not uncommon for children to lose their lives because they have no access to safe drinking water or sanitary facilities. Many children have no opportunity to find a stable job or escape from poverty because they are denied a high-quality education. Toshio Matsubara and the *Japan Journal*'s Osamu Sawaji highlight two projects being conducted by Japan to improve this situation.

Improving Sanitation

In the 1950s, immediately after World War II, Japan was ravaged by many infectious diseases, such as dysentery. Saraya Co. in Osaka Prefecture, founded in 1952 amid these conditions, significantly helped to reduce the number of patients contracting infections by becoming the first company in Japan to develop and sell antibacterial liquid soaps for hand-washing. Since then, Saraya has worked to improve sanitation in Japan by making available a wide-range of sanitation-related products, including gargling solutions and alcohol hand sanitizers. The company is now harnessing the sanitation expertise it has built up over more than half a century to help people in Africa.

The target of Saraya's campaign is Uganda in East Africa. Uganda's under-five mortality rate is as high as 90 per 1,000 live births (according to FY2011 statistics). The leading causes of death are diarrhea and acute respiratory infection (pneumonia). The death rates for these diseases could be significantly reduced if people washed their hands with soap at appropriate times.

In 2010, Saraya and UNICEF launched the Wash a Million Hands Project to promote hand hygiene and save children's lives. The project involves conducting an information campaign on hand hygiene, establishing simple hand-washing facilities, and training volunteer staff to promote proper hand hygiene. As a result of the project, in the space of three years, more than a million mothers throughout forty districts of Uganda have learned about proper hand hygiene, 1.2 million simple hand-washing facilities have been

installed (by filling a plastic container or metal tank with water and fitting a simple tap), and volunteer staff have been trained in 13,500 villages throughout the forty districts. The project has helped reduce infectious diseases, as illustrated by the elementary school teacher who said "Cases of cholera decreased when we started washing our hands. There are also fewer children missing school because of cholera." From this year, the project was expanded to cover 107 districts, with the aim of giving more people access to improved sanitation.

In May 2011, Saraya established Saraya East Africa in Uganda, with the objective of achieving sustained improvement in sanitation through business, in addition to the Wash a Million Hands Project. The President of Saraya East Africa is Kazumasa Miyamoto, a former member of the Japan Overseas Cooperation Volunteers, who runs a microfinance NGO AISUD in Uganda, extending small loans mainly to farmers.

"The best way to pursue sustainable activities with limited resources is to follow market principles as far as possible," says Miyamoto. "Ugandan people have a high economic activity rate and there is enormous potential for expanding sanitation as a business in Uganda."

With the support of JICA, Saraya East Africa began by conducting research for the diffusion of alcohol hand sanitizers in Ugandan hospitals.

In many Ugandan hospitals, rates of hand-washing with soap are inadequate due to lack of water. There are also many hospitals that are unsanitary because they do not have flushing toilets. It is, therefore, not uncommon for children admitted to hospital with malaria to contract diarrhea while in hospital. Also, many mothers die immediately after giving birth due to sepsis. Alcohol hand sanitizers have the major advantage that they can kill bacteria even without water. However, they are not widely used in Uganda as only expensive imported products are available.

BOTH PHOTOS COURTESY OF SARAYA

Saraya President Kazumasa Miyamoto (center) alongside Ugandan and Japanese staff of Saraya East Africa.

In its research, Saraya East Africa introduced alcohol hand sanitizers made in Japan as a test to two public hospitals in Uganda, gave doctors, nurses and other medical staff guidance on how to use them, and then ensured that they always sanitized their hands with the alcohol hand sanitizers before meals and after going to the toilet.

Within six months of introducing the alcohol hand sanitizers, the benefits of doing so became apparent. According to the nursing staff of the hospitals targeted in the survey, there was a clear reduction in the number of children contracting diarrhea. The head of the hospitals also said that, whereas there had been four or five cases of maternal deaths per month due to sepsis before introduction of alcohol hand sanitizers, there were now no maternal deaths due to sepsis.

"Nurses say the alcohol hand sanitizers are fantastic and they are now happy to use them," says Miyamoto. "What is more, the nurses have taken the initiative and tell those accompanying hospital patients to sanitize their hands with the alcohol hand sanitizers."

Saraya East Africa has formed an alliance with a local sugar company and plans to start producing high-quality alcohol hand sanitizers using high-purity ethanol extracted from sugarcane grown in Uganda before the end of the year. Producing the sanitizers in Uganda not only reduces costs, but also helps create jobs locally.

"To begin with, we intend to sell the sanitizers mainly to public hospitals. We will then expand our target market to include schools and general households," says Miyamoto. "By doing this, we hope to save as many lives as possible." HJ

Toshio Matsubara is a freelance writer.

Strengthening Math and Science Education

In the 1990s, Kenya set forth a national plan of strengthening mathematics and science in secondary education to promote industrialization and achieve sustainable growth. In order to achieve this national goal, Kenya asked for support from the Japanese government, which had already been lending teaching support to institutions of higher education in Kenya in the areas of science and technology and mathematics. In 1998, the Japan International Cooperation Agency (JICA) and the Kenya Ministry of Education, Science and Technology launched the Strengthening of Mathematics and Science in Secondary Education (SMASSE) Project.

"In Kenya, all lessons used to be teacher-centered, with the teacher writing on the blackboard and explaining everything to the students, an approach commonly referred to as the 'Chalk and Talk' method. Mathematics and science lessons were no exception. It was difficult to engage students with this style of lesson," says Akiko Komori of JICA's Human Development Department. "One of the main objectives in starting SMASSE was to change these teacher-centered lessons into student-centered lessons."

In mathematics and science lessons at the lower secondary level in Japan, the emphasis is on experimentation to engage students and develop their ability to think for themselves. Teachers also make efforts to create teaching materials that help their students understand, and work with each other to improve teaching methods.

Using mathematics and science education in Japan as a reference, the SMASSE Project is reforming mathematics and science education in Kenya. The single most important step in achieving reform is the training of local teaching staff. At the Centre for Mathematics, Science and Technology Education in Africa (CEMASTEA), located in Nairobi, experts dispatched from Japan are working with Kenya's

As part of their biology studies, pupils learn how to nurture healthy livestock using a variety of real feed.

educational administrative bodies to improve teaching methods and prepare an in-service teacher training system. They provide advice and technical guidance to their Kenyan counterparts from a technical standpoint.

For a period of around one to two weeks, CEMASTEA trains the teachers who are going to teach in-service teachers. The teachers trained at CEMASTEA then train teachers at 108 public secondary schools outside Nairobi during the schools' vacation. Through this arrangement, around 20,000 secondary mathematics and science teachers have received training to date. Since 2010, the training program has been extended to cover the upper grades of primary education, and the training is provided to 60,000 teachers who are delivering mathematics and science to the upper grades of elementary schools.

In training, teachers are taught how to conduct science experiments and produce teaching materials using locally available materials, for example, learning about the refraction of light by placing a coin in the bottom of a glass so it cannot be seen and pouring water into the glass until the coin is visible without changing the viewing angle, or learning the mechanism of pulmonary respiration in humans by putting a balloon inside a plastic bottle and inflating and deflating the balloon. Using locally available materials is appropriate for the present situation in Africa, where it is difficult to introduce expensive equipment.

Teachers who have received the training have expressed the view that it was practically useful, saying, "I learned how to use teaching materials and other aids to support my teaching," and "I learned how to encourage learners to express their own ideas."

To respect Kenya's ownership of the project, Kenyans themselves facilitate training sessions, in principle, and JICA experts confine themselves to giving advice to these lecturers. Some of the Japan Overseas Cooperation Volunteers (JOCV) members dispatched from Japan are in charge of mathematics and science lessons at primary schools and

BOTH PHOTOS COURTESY OF JICA

A JOCV member supervises a science experiment at a school in Rwanda.

secondary schools in Kenya. These JOCV members sometimes evaluate the lessons of teachers who have received training and give them advice on ways to improve.

"In some cases, students grew to like mathematics and became qualified to enter university after being taught by teachers who had received training," says Komori. "For teachers, there is nothing more rewarding than for a student to grow to like a subject because of their lessons."

The SMASSE Project launched in Kenya has attracted interest from other countries and, in 2001, the SMASSE-WECSA (Strengthening of Math and Science Education in Western, Eastern, Central and Southern Africa) network was established. The SMASSE-WECSA network currently has thirty-five member countries, including observers, and its activities include training in Kenya for teachers from member countries, meetings to share knowledge and experience with member countries, and the dispatch of Kenyan trainers to member countries.

"Due to the success of the SMASSE Project, students participate in lessons more actively by encouraging teachers to use their ingenuity. Moreover, students' willingness to learn increases and the number of students who choose science and mathematics is also increasing. The Kenyan Government has decided to make training for in-service teachers a requirement. I believe the SMASSE Project has been instrumental in improving Kenya's sustainability," says Komori. "JICA intends to continue supporting basic education in the future." HJ