

# Plowing Ahead with Rural Development

From spreading the cultivation of NERICA in Africa to replacing opium poppy fields with buckwheat in Myanmar, the Japan International Cooperation Agency (JICA) continues to make a difference to agriculture in developing countries. **Masaki Yamada** reports.

## Rice Research Techniques Training Course and Application in Uganda

It is early October, and the paddy fields at JICA Tsukuba in Tsukuba City, Ibaraki Prefecture, reveal a strange mix of rice plants swaying in the autumn breeze. Some have already developed golden panicles, while others nearby still have nothing to show except green leaves. Some are tall; others are short.

This is no outcome of a capricious climate. In JICA Tsukuba's rice fields, varieties from India, African countries and elsewhere, as well as Japanese rice varieties, are being cultivated under conditions in which levels of fertilizer, water and so on are varied. They are the subject of research being carried out by training participants invited from developing countries.

"I'm very lucky I was able to come here," says Alibu Simon, a participant from Uganda. "Through this program I've learned a great deal about rice, and now I have the confidence to teach others."

Simon came to Japan in February 2008 to take the Tsukuba Center's ten-month Group Training Course on "Rice Research Techniques." It was the fifth year this course was run, and besides Simon there were six other participants from Africa, such as Ghana, Tanzania and Nigeria, and two from Afghanistan.

JICA Tsukuba receives more than 1,000 participants from about 100 different countries each year. Its agricultural training courses cover vegetable cultivation, mechanization for agriculture, and irrigation, not only rice cultivation.

The Rice Research Techniques course consists of three parts. First come lectures about basic rice cultivation techniques. This is followed by a practical training and individual experimentation phase, to learn about rice physiology and ecology, fertilizing the soil, and so on through practical training out in the fields and through individual experiments. Finally, study tours and training trips to universities and research facilities all over Japan are arranged for participants to learn about the latest research in this area and the results it is yielding.

"Soils and climatic conditions are of course different in other countries," says technical advisor Kozo Toshimitsu. "But the training here provides knowledge and skills that can be applied regardless of those conditions."

"I've learned here how to conduct experiments," says Simon. "After going home I want to do more experimentation. Then I'll be able to develop new techniques that will benefit farmers directly."

Simon is a research assistant at Uganda's National Crops Resources Research Institute in the suburbs of Kampala, the capital. His work is divided between researching rice cultivation and teaching techniques for growing rice to agricultural extension workers, farmers and students who come from different regions of the country.

In Uganda, domestic rice production of about 100,000 tons a year has not been able to keep up with growing consumption, and great hopes have therefore been placed on a new type of rice called New Rice for Africa, or "NERICA."



Instructor Tatsuo Fujita (right) with training participant Alibu Simon in the rice fields at JICA Tsukuba

NERICA was developed at the Africa Rice Center of WARDA, the West African Rice Development Association, by crossing Asian and African varieties. It is well suited to African soils, resistant to pests, and its growing period of 90–100 days is thirty to fifty days shorter than native varieties. Best of all, NERICA yields about three metric tons per hectare, compared with an average of only one metric ton for local African varieties.

From 2004, JICA sent an expert, Tatsushi Tsuboi, to Uganda's National Crops Resources Research Institute, and together with Ugandan researchers he has selected NERICA varieties suited to Ugandan soils and climate, instructed farmers on cultivation methods and distributed seeds. From August, the NERICA Rice Promotion Project as technical cooperation started and two long-term and short-term experts have been dispatched to research and promote NERICA.

Rice cultivation is already bringing benefits. Demand is strong, and once harvested, rice can quickly be converted into cash income. One acre (0.4 ha) of NERICA provides an income of about 400 dollars—enough money to put a child through secondary school. Tsuboi calculates that the area under NERICA production in Uganda has grown rapidly, from about 4,000 hectares in 2003 to about 35,000 hectares in 2007.

To encourage further rice cultiva-

tion, farmers must be able to husk and mill the rice easily. For this purpose JICA has developed equipment for easy husking, and sends trucks loaded with rice milling equipment round the villages. JICA also brings farming experts from other African countries to Uganda to help spread the NERICA message more widely.

The JICA training participant Simon, after returning home, will be involved in researching and promoting the wider cultivation of NERICA.

“NERICA is best for Uganda and best for Africa,” he says. “It’s rice of hope, that can lift people out of poverty.”

### **Project for the Eradication of Opium Poppy Cultivation and Poverty Reduction in Kokang Special Region, Myanmar**

Most crops like NERICA do nothing but good, but there are some that cause considerable harm. One of these is the opium poppy, the source of opium and numerous other drugs.

In Myanmar’s agricultural economy, opium poppy cultivation has thrived for at least 150 years, largely in Shan State, which borders China, Thailand and Laos. The Kokang Special Region within Shan State, close to the Chinese border, is a base for drug production and smuggling into China, and is also the focus of the Myanmar government’s attempts to stamp out the drugs trade. According to estimates of the United Nations Office on Drugs and Crime, UNODC,

in 2001 the Kokang region alone had more than 9,000 hectares under poppy cultivation. Long-running conflict between the Kokang people and the Myanmar government was settled with an agreement signed in 1989 in which a degree of autonomy was granted in return for a commitment to eradicate poppy cultivation by 2003. At the same time, legal control of drug production was implemented.

To help in this situation, a suggestion came from Japan that *soba* (buckwheat) could be cultivated as a substitute crop for poppies. Minoru Yoshida, a JICA expert who has worked hard to see greater economic stability in the Kokang Special Region, explains, “It is not widely known that buckwheat originated in the mountainous areas of China’s Yuunan Province which borders Kokang Special Region. It’s suited to the cool climatic conditions, and growing buckwheat does not require any particular skills.”

The Japanese government’s assistance to developing countries in agriculture is based on the principle that crops should be suited to local conditions, and be grown with farming techniques appropriate for the area. Thus buckwheat is an ideal cereal to cultivate in this part of the world.

In response to Japan’s recommendation, a buckwheat growing project was launched in the Kokang Special Region in 1999 under the technical supervision of a team of JICA experts including Yoshida, with the Myanmar government’s Ministry of Progress of Border Areas, National Races and Development Affairs acting as counterpart.

“As a substitute for poppies, buckwheat provided rural families with a new source of income, and at the same time helped the government make progress in their negotiations with local people to get commitments from poppy farmers and stamp out drugs,” recalls Yoshida.

But introducing buckwheat cultivation was never going to be a quick answer to stabilizing the livelihoods of the rural population of the Kokang Special Region, particularly the ethnic minorities living in the mountains. As the government’s controls to eliminate opium came into force, farming fami-

lies suddenly lost their main source of income and suffered enormous negative impacts. The effects on the people of reduced incomes quickly became apparent in terms of declining health, school attendance, and other factors: an outbreak of malaria that lasted over 2003 and 2004 affected more than 4,000 people, and 270 died.

“To combat this tragic situation we realized we needed to provide more multi-faceted assistance than support for buckwheat cultivation alone,” says Yoshida.

So JICA drew up a new scheme called the “Project for the Eradication of Opium Poppy Cultivation and Poverty Reduction in Kokang Special Region No. 1.” This is a comprehensive project that covers five fields: agriculture, public health, infrastructure, education, and livelihood improvement.

Implementation began in April 2005, and the near-crisis conditions of food shortages, malaria infection, and lack of lifeline support have been somewhat alleviated. In the pilot area for the project, a range of assistance has been implemented including introduction of substitute crops such as buckwheat and tea, technical assistance for the marketing, promotion of livestock husbandry, construction of schools and water supply facilities. As a result, the lives of farmers have gradually improved.

“Over the longer term, diversifying substitute crops and achieving more comprehensive regional development will be a major challenge in a mountainous region where access is difficult and where there are big differences in language and culture among the ethnic minorities,” comments Yoshida.

The project remains ongoing, but positive outcomes linked to buckwheat cultivation are appearing in quantitative terms in addition to legal enforcement. According to UNODC, opium production in Myanmar peaked in 1993 at about 1,800 tons and has since fallen steadily, to about 800 tons in 2003 and 400 tons in 2007. In the Kokang special region, formerly a hotbed of the drugs trade, poppy cultivation was entirely eradicated in 2003. ■



COURTESY OF MINORU YOSHIDA

**A tea nursery in the Kokang Special Region of Myanmar, where once opium poppies flourished**

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