Rural Development — Tackling Global Food Insecurity and Poverty

Of the eight Millennium Development Goals (MDGs), relevant goals are shown in color.

In 2008, food prices peaked at their highest levels since 1973 due to poor harvests owing to bad weather and also to the flow of speculative money into cereal crops to meet stronger demand of biofuels. While prices subsequently declined, they continue to remain at a high level. In December 2010, food prices again skyrocketed as a result of export restrictions driven by poor harvests in major agricultural product exporting countries. There is concern that these price increases will have an impact on developing countries, and in particular on populations suffering from poverty, as many of these countries are dependent on imports for food.

In order to contribute to Goal 1 of the MDGs, to "eradicate extreme poverty and hunger," JICA implements various kinds of cooperation to address the issues of agricultural and rural development. In addition, JICA provides support for fisheries in farming and fishing villages. These villages are host to large numbers of poorer people and serve as bases for supplying food in developing countries.

Agricultural and Rural Development

Overview of Issue

The environment surrounding agricultural and rural development has been diversifying in recent years driven by such factors as the rapid advance of globalization, export restrictions imposed on agricultural products due to poor harvests, climate change, skyrocketing food and crude oil prices, growing demand for biofuels, global competition for farmland, and post-conflict rehabilitation. In many developing countries farmers account for the majority of the population, and most farmers suffer from poverty, which means that developing countries are likely to be strongly affected by these changes.

Stable Food Supply

According to an estimate by the Food and Agriculture Organization of the United Nations (FAO), the proportion of people in developing countries suffering from malnutrition has been rising since 2008, and now stands at 17%, reaching one billion for the first time in 2009.

In 2010, this number declined to 925 million, but the figure is still too high to ignore. It will therefore be difficult to achieve one of the targets of Goal 1 of the MDGs, namely to "Halve, between 1990 and 2015, the proportion of people who suffer from hunger."

Stably providing people with the food that they need (food security) is the foundation for economic and social stability and an important policy issue. However, the food security of many developing countries is easily affected by unstable climates and their citizens are exposed to food security threats due to such factors as lack of government planning and implementation capacity, underdeveloped agricultural infrastructure, and low levels of production technology.

This situation not only impacts people's health; the outflow of valuable foreign currency to pay for food imports combined with intensifying rural poverty also drives an increase in the numbers of people moving from rural to urban areas as well as abandoning farming. This in turn leads to a worsening of poverty in urban areas and is a contributory factor toward domestic social and economic instability.

Reducing Rural Poverty

According to a report compiled by the World Bank in October 2010, while the 2008 financial crisis did have a negative impact, overall it is expected that the size of poorest segment of the population, which numbered 1.8 billion people in 1990, will shrink significantly to 920 million by 2015. Nevertheless, there is still a major disparity between the rates of poverty reduction in different regions. In Sub-Saharan Africa, in particular, poverty is growing. Three-fourths of the poor in developing countries live in rural areas, so agriculture is not only a source of food but also a means of supporting the livelihood of these poor populations, which gives it an important role as a foundation for securing economic independence. Moreover, in regions such as South America and Southeast Asia, where self sufficiency rates for major grains have reached stable levels and the urban middle class is growing, there are areas in which diversifying food needs are providing opportunities for agricultural and rural development growth.

JICA Activities

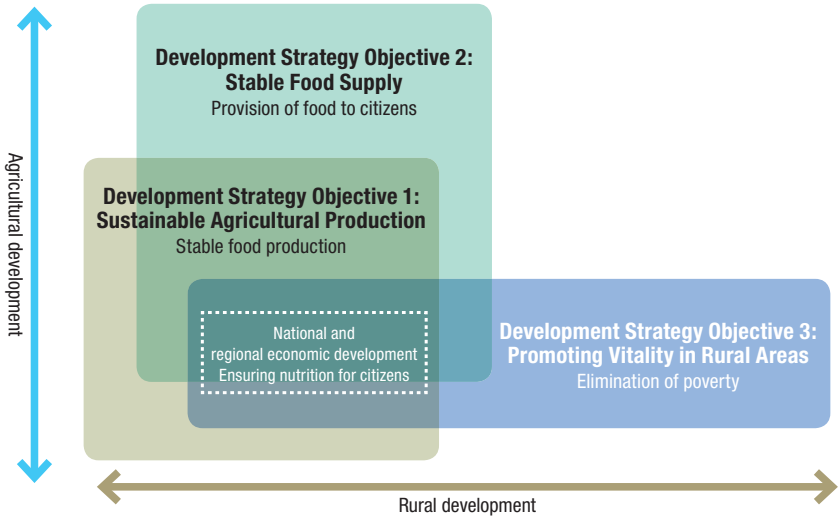
JICA's assistance in agricultural and rural development aims to ensure a stable food supply to people in both rural and urban areas, reduce poverty in rural communities and thereby drive economic development at national and regional levels. Through these activities JICA strives to contribute to achieving Goal 1 of the MDGs. Sustainable agricultural production is the basis of food security, while sustainable agricultural production and stable food supply are also the cornerstones of reducing poverty via rural development.

For this reason JICA has established the following three specific cooperation objectives: 1) sustainable agricultural production, 2) stable food supply, and 3) promoting vitality in rural areas.

1. Sustainable Agricultural Production

In developing countries, realizing sustainable agricultural

Agricultural and Rural Development Assistance Objectives, Philosophy and Goals



production is indispensable for ensuring a stable food supply for the entire nation as it alleviates food shortages in rural areas while also ensuring food provision to urban centers.

In its approach to enable stable agricultural production, first, JICA seeks to gain an understanding of the country's overall agricultural sector, analyze the various aspects, and draft agricultural policies that meet needs. Based on these policies, JICA extends various support to improve people's livelihoods by expanding agricultural production, enhancing productivity, and diversifying agricultural management through numerous initiatives. These include establishing, maintaining, and managing foundations for agricultural production such as irrigation systems, strengthening lab research and technical development, accelerating agricultural extension, and improving the procurement and consumption of agricultural equipment and materials. In this way JICA is working to secure nutrition and economic development for the peoples of developing countries **[➡ See the Case Studies on pages 113 and 127].**

Africa accounts for the largest portion of people suffering from malnutrition in the world (29% of the total population (2008)), and is in the greatest need of increased food production. The amount of rice consumed in Africa is growing at a rapid rate, while the potential of increasing production of this crop is high. Therefore, rice is believed to be the key to eradicating food insecurity on the continent. Together with other donors, JICA launched an initiative called the Coalition for African Rice Development (CARD) on May 2008 to double rice production (an increase of 14 million tons) in Africa within 10 years. Toward this target, JICA is supporting the formulation of National Rice Development Strategies in the 23 Africa rice-producing countries along with other efforts to increase rice production in line with the strategy **[➡ See the Case Studies on pages 61 and 112].**

2. Stable Food Supply

Risks related to food supply have recently surfaced amidst a complex intertwining of short-term factors such as poor harvests owning to bad weather and accompanying speculation, and long-term factors such as population increases in emerging economies, changes in the demand structure, restrictions on production resources such as land and water, vulnerability to climate change, and competition between rising demand for biofuel and food. In dealing with these issues it is therefore necessary to consider responses in accordance with their individual causes and in the light of the differing circumstances of each region. In order to respond to this diversity of problems, JICA is working to 1) provide short-term assistance via the provision of food and agricultural production materials and equipment, 2) provide medium- to long-term assistance through the development and dissemination of irrigation systems and technologies, 3) improve distribution

Efforts are made toward the development of cultivation and processing techniques aimed at improving income levels by allowing agricultural products to be shipped between seasons under Master Plan Study on Development of Agricultural Produce Marketing for Small Scale Farmers in the Upper Egypt. A large number of women participate in and play an important role in cultivation technique training, comprising hands-on training and lectures.

through the development of the value chain*, 4) develop biomass energy that does not compete with food production, and 5) strengthen the systems for stockpiling and agricultural statistics.

In Mozambique's tropical savanna, which has immense potential for expanding agricultural production, JICA is implementing triangular cooperation together with Brazil, which has become one of the world's leading exporters of agricultural products through the development of its cerrado, or savannah grasslands. This cooperation is aimed at alleviating poverty among small-scale farmers and reducing domestic food problems, and efforts are also being made to contribute to international food security by assisting medium- and large-scale farmers in expanding their exports to international markets.

3. Promoting Vitality in Rural Areas

The aims of rural development are to expand agricultural production for food security at the local and national levels as well as strengthen rural communities from the standpoints of economic development and enhancing the livelihood of people. For this reason it is necessary to go beyond simply improving productivity to combine support in a diverse range of fields, such as by improving agricultural management including distribution and marketing as well as by making efforts in diverse fields that transcend the framework of the agricultural sector, from strengthening local administrative functions and enhancing education and health services to developing rural infrastructure such as community roads and ensuring safe drinking water.

To stimulate rural development, JICA helps local administrative institutions to draft development plans with the participation of rural residents, for the establishment of implementation systems that enables the community to raise income and improve people's livelihood, as well as for improving the distribution and sale of agricultural products.

In the Philippines, in order to support farmers who have acquired new farmland in the course of the currently ongoing agricultural reform, for over 10 years JICA has been providing Loan Aid for communities formed of benefitting residents (ARC), which, is aimed at developing infrastructure (access roads to irrigation facilities, postharvest treatment facilities, and markets) in an integrated manner, while also improving agricultural productivity and the income level of farmers by strengthening agricultural cooperatives and irrigation associations. Meanwhile, in Egypt, JICA is providing support aimed at improving the additional value derived from quality assurance and processing after the implementation, shipment and harvest of agricultural products and varieties, based on providing small-scale farmers in Upper Egypt with information on markets and needs. Moreover, JICA is working to design action plans (master plans) in order to promote the development of rural communities through this support.

*Meaning the chain that allows for acquiring maximum value for individuals involved in each stage of the following process: production → processing → distribution → consumption → waste processing. (Kaplinsky, R. (1999). Journal of Development Studies 37 (2): 117–146. Kaplinsky, R. and M. Morris (2001). A Handbook for Value Chain Research, Institute of Development Studies, University of Sussex).

Case Study **Coalition for African Rice Development (CARD) Initiative**

Towards Drafting of National Rice Cultivation Plans and Strengthening Partnerships

Under the CARD initiative, which is aimed at boosting rice production in Sub-Saharan Africa, JICA works together with the World Bank, the African Development Bank, the International Rice Research Institute (IRRI), and other institutions to support the formulation of National Rice Development Strategies (NRDS) for 23 countries in the region and to strengthen partnerships between donors.

Collaborations Take on New Forms

Two JICA experts have been dispatched to the CARD Secretariat located at Nairobi Headquarters for the Alliance for a Green Revolution in Africa (AGRA). JICA is supporting the CARD Secretariat's activities, which include assessing the rice development situation and drafting systematic development strategies, as well as enhancing participation by all related stakeholders. At the same time, JICA conducts projects in relation to agricultural infrastructure development (irrigation development, farming field development, capacity building for irrigation engineers, etc.), the dissemination of rice cultivation techniques, capacity building for postharvest management, and marketing. Furthermore, JICA is also promoting new undertakings, such as a partner program with Viet Nam in Mozambique and a training program for African researchers in collaboration with IRRI.

Currently, the CARD initiative functions to create synergy in each country and also provides a forum for discussion on common issues under the following three topics: 1) support for working out agricultural investment plans in each country (the Comprehensive Africa Agriculture Development Programme*) and NRDS, 2) promotion of private sector investment in rice development, and 3) enhancing participation from a diverse range of donor countries and organizations including those from Asia.

The Fourth General Meeting of CARD is scheduled to take place in Uganda in November 2011, where discussions are expected to focus on the initiative's achievements over the past three years since its launch.

The Third CARD General Meeting held in Arusha, Tanzania in May 2010

* The Comprehensive Africa Agriculture Development Programme (CAADP) states that 10% or more of the national budget should be allotted to the agriculture sector.

Project for Improvement of Productive Technology in Small and Medium Scale Dairy Farms in Viet Nam

Boosting Community Milk Production 2.5-Fold Through Improved Technology

In 2000, JICA began providing support for breeding dairy cattle better suited to the climate of Viet Nam through the use of cattle artificial insemination (AI) technology. In order to link the results of these efforts to increased milk production at the individual farmer level, in 2006 JICA launched a technology improvement project for small- and medium-sized dairy farmers in northern Viet Nam. At model farms this project succeeded in boosting the average milk production per cow by from 30% to almost 50%, while overall milk production in the project's target areas increased by nearly 2.5-fold. This project significantly contributed to increasing milk production in these and other areas.

The Key to Improving Rural Life and Diversifying Agricultural Management

Agriculture is an important industry in Viet Nam that accounts for approximately 22% of GDP and occupies 58% of the working population. However, rice cultivation, which lies at the center of this industry, suffers from poor labor productivity and it is difficult for farmers to improve their income through rice cultivation alone.

Meanwhile, while consumption of milk as a source of protein with high nutritional value continues to increase domestically, Viet Nam relies on imports for 80% of its milk. As part of its strategy for boosting domestic milk self-sufficiency while also diversifying and stabilizing agricultural management, the Government of Viet Nam is promoting the introduction of dairies that can provide comparatively high and stable income levels, and JICA is supporting these promotional efforts.

Utilizing Multiple Extension Mechanisms

Under this project, efforts were made to strengthen the functions of the Station for Training and Extension of Dairy Technologies (STEDs), which was established for the express purpose of spreading dairy technologies in northern Viet Nam, through the development of training materials and the provision of education for trainers (national trainers (NTs)) while also improving the training of local dairy technical trainers (local trainers (LTs)).

During the first half of the project training was mostly provided for NTs and during the second half activities were promoted with an emphasis on local technology transfer while assisting LTs in their local extension activities. The initial flow of technology extension was from Japanese experts to NTs, LTs, and then finally to small- and medium-sized farmers. However, by skillfully utilizing local incentives and flexibly combining seminars for farmers conducted directly by Japanese experts and NTs along with technical demonstrations of appropriate technologies at model farms in the target areas, JICA was able to accelerate the expansion of technology to the surrounding farmers, which generated a ripple effect in terms of technology transfer between neighboring farms.

Up to the time of the project's conclusion in April 2011, a total of 147 training sessions and technical demonstration activities had been conducted and a total of 4,885 recipients had benefitted from these technology transfer efforts.

Cooling fans and anti-moisture devices were installed on the ceilings of cattle barns without walls as a heat management measure.

The use of grass chopping machines that make tough grass easier for cows to eat spread rapidly after they became less expensive by having them manufactured by local blacksmiths.

As a Model for Similar Projects

In order to promote the effective implementation of the disseminated activities regarding technology, periodical evaluation was carried out on farmers in the target areas on a quarterly basis to assess the degree to which they had adopted the new dairy skills related to dairy cattle milking and feeding methods. A "Technical Evaluation Sheet" was then introduced for use in assessing the level of improvement using a point system. After one year of monitoring, improvements were observed at between 80% and 95% of farms, according to the skill in question, providing tangible confirmation of the effects of the project.

This project has made a substantial contribution to educating central and local government technicians, testing effective dissemination methods, and boosting milk production. Accordingly, it is greatly anticipated that this project will become a model for similar projects in future.

From Our Expert

Satoshi Saito
Chief Advisor

The biggest achievement of this project has been the establishment of a system for dissemination and human resource development. Thanks to the platform created by the preceding project, and also because we had a clearly defined objective in the shape of improving the dissemination of technologies and boosting milk production levels, it was possible for everyone involved to carry out effective activities working towards a unified objective with limited investment, human resources, and time. It was the ability to break the boundaries of the existing framework and search for more flexible means and better methods that led this project to success.

From the Grassroots

A Local Trainer (LT) in the project area

The response of farmers has become better than before and they are actually using the knowledge and skills that we taught them. For instance, we had taught about the fermentation of grass (silage) before but the farmers were not practicing the method. Now, however, most farmers are making silage. This change was engendered by clearly teaching the farmers about the blending methods and merits following the STED training. Moreover, the farmers started to practice this method because those farmers who had participated in agricultural training were able to acquire a personal understanding of the practice.

Pamphlets for farmers, training materials, technical manuals, record logs, etc. were developed. Reproductive calendars, weight measurement tools, milking posters, and other materials were also created and distributed.

Fisheries

Overview of Issue

Fisheries resources from the oceans, rivers and lakes are important sources of food for people in developing countries that can be acquired at a relatively low cost. Nearly 20% of animal protein intake in developing countries is dependent upon fisheries, according to FAO. The fisheries industry is also a valuable means of securing food and livelihood for people without land or steady income. It provides a valuable livelihood for poorer segments of the population and women as well. Developing countries account for 50% of the world's exports of fisheries products in monetary terms and 61% in volume terms (2008), making this industry vital to the economies of these nations.

Global production volume of fisheries products increased almost sevenfold between 1950 (approximately 20 million tons) and 2008. Production volume of marine fisheries hit a peak and has reached its limit after the 1990s. Amid increasing pressure on natural resources, production volume in the fish farm industry has continued to grow since the 1990s, and now accounts for one-third of total fisheries production.

Even in the developing countries the decline in marine resources due to overfishing and the destruction of the environment is a serious problem. In the developing countries, however, the concept of resource management has not yet been sufficiently disseminated to fishermen, and as people who face hard living conditions have a strong tendency to prioritize immediate benefits, it is not easy to adequately manage fishing activities. Managing and preserving fisheries resources and encouraging a sustainable fisheries industry are key challenges.

African catfish cultivated in an aqua culture pond maintained by central farmers that oversee training for other farmers on inland aquaculture (Project for the Extension of Inland Aquaculture in Benin)

JICA Activities

While being a key sector for developing countries, the fisheries industry faces the problem of resources diminishing and becoming depleted through poor management and environmental degradation. It is important not only to develop the fishing industry but also to develop the fishing villages in order to improve their livelihood as coastal regions often tend to suffer from chronic poverty.

JICA's cooperation in the fisheries industry has three main objectives: ensure the stable supply of food to local people, eliminate malnutrition by providing valuable nutrition and reduce poverty by providing a livelihood to the poor. Appropriate preservation and management of fisheries resources are prerequisites to achieving these objectives and key to the development of fishing villages based on sustainable utilization of these resources. JICA is working toward the following three goals with these ideas in mind: 1) Vitality in local fishing communities, 2) Stable food supply (effective utilization of fisheries resources), and 3) Appropriate preservation and management of fisheries resources.

1. Vitality in Local Fishing Communities

The key to alleviating chronic poverty and bringing vitality to fishing communities is to provide support focusing on stabilizing household income. This can be accomplished through the correct and sustainable management of fisheries resources and appropriate technology selection. A comprehensive approach is required, including vitalization of agricultural and other industries, and provision of education and health services.

JICA supports efficient management and cost reduction of fishing activities by such measures as the construction of fish markets and strengthening of fishermen organizations. JICA also works to improve the capacity of fisheries organizations as well as activities by women's groups in small fishing villages, from fish processing to sales.

2. Stable Food Supply (Effective Utilization of Fisheries Resources)

Developing countries face the serious problem of food shortage due to rapidly rising populations, which puts further pressure on capturing fisheries resources.

JICA supports the development of extensive fish farming using traditional low-cost techniques from the perspective of securing animal protein intake in light of the severe conditions of marine

resources. In inland water aquaculture, JICA supports the combination of agriculture and livestock with fish farming for carp, tilapia and catfish by making use of ponds, paddy fields and irrigation canals. JICA also assists with the relatively simple ocean aquaculture of seaweed and shellfish. Elsewhere, efforts are made to construct facilities to promote and proliferate aquaculture and toward the integrated education of researchers, engineers, promoters and other human resources in this field.

Because marine products cannot be stored at normal temperatures, in developing countries where the distribution infrastructure is underdeveloped, they are often discarded due to deterioration or rotting. JICA is supporting efforts to improve the freshness and quality of marine products and promoting the effective use of marine resources by developing distribution facilities such as fishing platforms and fish markets, and improving the technologies for simple processing of dried-salted products and smoked products, as well as for frozen processing.

3. Appropriate Preservation and Management of Fisheries Resources

Unlike mineral resources, fisheries resources actively propagate and grow within the natural environment as long as catches can be controlled within certain limits. To make the most of this, it is important to restrict usage to an appropriate level in developing countries to maintain volume, which will enable a sustainable fisheries industry. It is important to first raise awareness among administrative circles and fishermen. Furthermore, in addition to developing scientific data and promoting broad cross-border initiatives, it is also necessary to focus on preservation of the marine environment as well as the management of rivers and forests upstream. These efforts to conserve marine resources must be taken from a long-term perspective with consideration of land and marine ecosystems.

JICA supports the formulation of fishing management systems in administration and enhanced operating capacity from the standpoints of fisheries resource management and fish environment preservation. This entails increasing awareness through a participatory approach that includes fishermen and local residents. With the participation of coastal fishing communities, JICA works to regenerate and preserve seaweed beds, which nurture fisheries resources, and to recover resources through artificial production and discharge of experimental seedlings **[➡ See the Case Study below]**.

Case Study

Formulation of a Master Plan on Sustainable Use of Fisheries Resources for Coastal Community Development in the Caribbean

Seeking Sustainable Usage Methods for Fisheries Resources with Local Organizations

JICA is cooperating with the Caribbean Regional Fisheries Mechanism (CRFM), an inter-governmental organization, in carrying out Technical Cooperation in conducting regional development plan surveys in the Caribbean region, where there are concerns over declining fisheries resources levels. Intended as a means of promoting the appropriate use of fisheries resources, this cooperation is aimed at drafting a master plan that is intended to serve as a region-wide marine resource management policy. This is the first Technical Cooperation for Development Planning project implemented with a local organization for the purpose of forming a master plan that will serve as a guideline for fisheries resources management for the whole region.

Verifying Alternate Income Sources

The surveys, which started in March 2009, comprise three phases. During Phase I, a baseline survey was used to clarify the needs of the agricultural and fishing community, as well as the development potential of pelagic fish resources and aquaculture. During Phase II, a pilot project is being carried out to verify effectiveness. During the final phase, the lessons learned in the course of the pilot project will be utilized to draft a highly realistic master plan.

A string of surveys are being carried out jointly by the CRFM and the marine product bureaus of its member countries, and these efforts are expected to improve the ability of administrative officers and individuals related to fishermen's organizations from each country to manage fisheries resources.

A characteristic of these surveys is that, if catch amounts decline due to management measures for fisheries resources (restrictions on the number of fishing boats, fishing gear, or trip numbers), alternative revenue sources for compensating for those losses have been proposed in accordance with a pilot project. For instance, the pelagic fish industry has been introduced on a trial basis into a pilot community that uses inland water culture and fish aggravating devices (FADs). If this project is confirmed to be effective it will be incorporated into the master plan.

A seminar held for fishermen during the verification project for aquaculture dissemination. The participants in the picture are observing a hatchery.

* Pelagic fish: Fish that mainly live near the surface or in the water column of coastal, ocean and lake waters. Pelagic fish species include bonito, cero, horse mackerel, sardines, and halfbeaks, as distinguished from fish that live on or near the bottom, such as fluke, flounder, etc.