

Agricultural and Rural Development / Fisheries

Addressing Global Food Security and Poverty



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

Since rising sharply in 2008, the price of food has hit peaks again in 2011 and 2012. Even after these three peaks, food prices have continued to rise. These soaring prices pose a threat to the food security of developing nations. They are particularly damaging to the urban poor and to the rural poor; such as small-scale farmers and fishers who cannot even produce and catch enough food to meet their own needs.

JICA is providing cooperation to address the issues of agricultural, maritime and rural development. The goal is to contribute to the Millennium Development Goal (MDG) of “eradicating extreme poverty and hunger” and its successive agenda Sustainable Development Goals by offering aid for food production, food supply and nutrition to the residents of both rural and urban areas.

Agricultural and Rural Development

● Overview of the Issue

The environment surrounding agricultural and rural development has been diversifying because of such factors as the rapid advance of globalization, climate change, skyrocketing food prices, growing demand for biofuels, changing food preferences as personal incomes rise, the expanding participation of the private sector, global competition for farmland, and post-conflict rehabilitation. As in many developing countries, farmers account for the majority of the population and three-fourths of impoverished people live in rural areas, rural residents in developing countries are greatly affected by these changes.

Stable Food Supply

According to an estimate by the Food and Agriculture Organization of the United Nations (FAO), the number of people in developing countries suffering from malnutrition is expected to be around 805 million during the period from 2012 to 2014, remaining at a high level. 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.”

Consistently 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 due to such factors as insufficient capacity of government in planning and implementation, underdeveloped agricultural infrastructure, low levels of production technology, and inadequate distribution systems that threaten the food security of citizens.

Consequently, this situation results in health deterioration, causes the outflow of valuable foreign currency to pay for food imports, and accelerates urban shifts as well as the abandonment of farming. These influences in turn lead to a worsening of poverty in urban areas, a contributory factor to social and economic instability in a country.

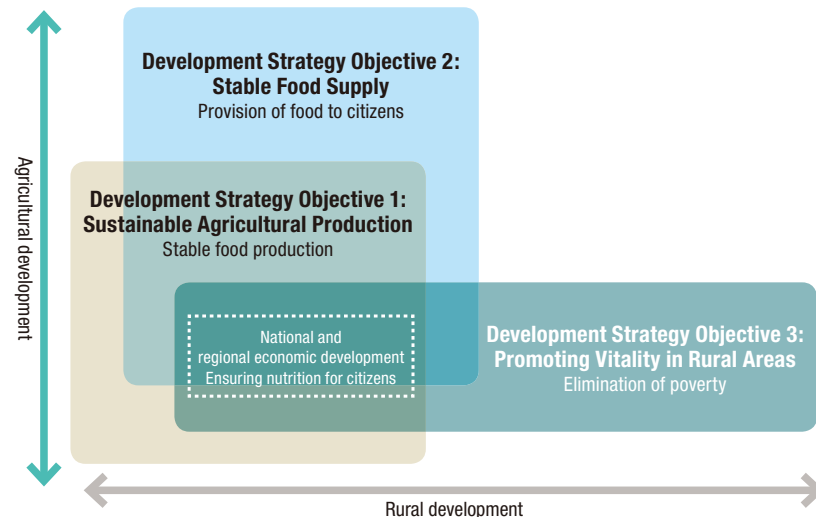
Reducing Rural Poverty

According to the World Bank’s 2013 report, the number of people living in extreme poverty (on less than \$1.25 a day) dropped remarkably over the last 30 years. In 1981, half the population of developing countries lived in extreme poverty; this rate dropped to 21%. However, this reduction owes much to the

economic development of East Asia, and in real numbers, 1.2 billion people still live in extreme poverty. Currently, one-third of these extremely poor people live in Sub-Saharan Africa. On the other hand, while self-sufficiency rates for major grains have improved somewhat and the urban middle class is growing in such regions as South America and Southeast Asia, urban and rural disparities exist. In these regions, there is a need to devise ways to narrow the increasing economic gap between urban and rural areas.

It has been reported that the poverty reduction effect of growth driven by agriculture is at least twice that of growth driven by other industries. Moreover, in countries with lower income levels, such as in Sub-Saharan Africa, the high proportion of agriculture in the GDP means that

Agricultural and Rural Development Assistance Objectives, Philosophy and Goals



in many cases people are pinning their hopes on agriculture as the source of economic growth.

● JICA Activities

JICA's cooperation in agricultural and rural development aims to ensure a stable food supply to people in both rural and urban areas and reduce poverty in rural communities — thereby driving economic development at national and regional levels. Through these activities JICA strives to contribute to achieving goals and targets of the MDGs and SDGs.

For this reason JICA has established the following three specific cooperation objectives.

1. Sustainable Agricultural Production

Risks involving the food supply are a complex combination of short-term and long-term factors. Short-term risk factors include poor harvests owing to bad weather and accompanying speculation. Long-term factors involve population growth in emerging countries, changes in the demand structure in those countries, limitations on production resources such as land and water, vulnerability to climate change, and competition between rising demand for biofuel and food. As a result, dealing with these issues requires determining measures for each cause based on the differing circumstances of each region. JICA is aiming to achieve sustainable agricultural production in order to address these diverse problems.

In its approach to enable stable agricultural production, first, JICA provides aid for drafting agricultural policies reflecting the characteristics of the partner country's overall agricultural sector. Based on these policies, JICA provides cooperation from the perspective of the overall value chain, from production

to distribution and sales. Initiatives include establishing, maintaining, and managing infrastructures for agricultural production such as irrigation systems; improving the procurement and use of seeds, fertilizer and other agricultural production materials; and establishing and utilizing production technology for grain, livestock and other items while supporting institutional strengthening of associated organizations.

In addition, JICA is taking action regarding increasing the resilience of agriculture to climate change. Activities include facilitating sustainable land use, development and study on appropriate technology, developing second-generation biomass energy that does not compete with food production, establishing stockpiling systems, using agricultural statistics and introducing weather insurance, and promoting the private sector's entry into the market [→ see the Case Study below].

For example, in Myanmar, irrigation systems have been maintained by ODA Loan to improve productivity and profitability of farmers. At the same time, JICA is preparing comprehensive cooperative projects, including developing policies and systems for the promotion of irrigated agriculture, improving production technology of major crops using irrigation water, properly introducing and handling agricultural machines and materials, and facilitating cooperation with the private sector.

Furthermore, along with their rising incomes, citizens of developing countries are increasingly demanding high value added agricultural and livestock products as well as taking a greater interest in such food issues as quality and safety. These issues also need to be addressed.

2. Stable Food Supply

Sustainable production is the premise for the provision of a

Case Study

Ethiopia: Project for Enhancing Development and Dissemination of Agricultural Innovations through Farmer Research Groups (FRGs)

To Conduct Research More Relevant to Farmers

JICA extended its support by introducing the Farmer Research Group (FRG) approach,* in which groups of farmers participate in technological study and development that is relevant to farmers, so that the results of agricultural research link more directly to actual production activities.

Introduction of the Farmer Research Group Approach

In this project, JICA trained and supported Ethiopian agricultural researchers to implement the FRG approach, in order to ensure that the researchers understand the needs of the farmers as to what technologies are useful, and will conduct research accordingly from the planning stage of research projects.

In five years, 1,316 researchers participated in the FRG approach training that was supported by this project, and 43 research projects were conducted under the supervision of the project from the project planning stages to the completion of papers to conclude results.

In Ethiopia, agricultural research is sometimes conducted without a good understanding

of the needs of farmers. There are quite a few cases where a newly developed technology is not actually used by farmers. Through promotion of the FRG approach, JICA has tried to contribute to the improvement of cooperation between researchers and farmers, as well as to the overall enhancement of agricultural productivity in Ethiopia.

The Ethiopian government recognizes the effectiveness of the FRG approach that JICA supported for 10 years as of March 2015, including its preceding project. The importance of the approach is expected to be mentioned in the upcoming five-year National Growth and Transformation Plan. The FRG approach is attracting further attention, with the agricultural departments of several universities



A JICA expert supervising the research at a research farm

considering starting courses on this subject.

The same approach is also incorporated in projects run by the World Bank in East Africa, and it is hoped that the FRG approach will be promoted in all other African countries.

* A research approach in which researchers conduct research at farmers' fields in cooperation with groups of farmers involved in the research.

stable food supply to the people of a country. In addition, ensuring a stable supply requires the establishment of food supply and demand policies for an entire country that reflect international food security. Creation of a framework for food imports and the proper use of food aid are also necessary [→ see the Case Study below].

Africa accounts for the largest portion of people suffering from malnutrition in the world (35% of the total population in 2011), and is in great need of expanded food production. The amount of rice consumed in Africa is growing rapidly and there are excellent prospects for achieving sustainable growth in rice production. Therefore, rice is believed to be the key to eradicating the lack of food security on the continent.

With other donors, JICA launched an initiative called the Coalition for African Rice Development (CARD) in 2008. In order to contribute to food security, the goal is to double rice production in Africa from 14 million tons to 28 million tons over the 10-year period ending in 2018. To reach this target, JICA is providing aid for the formulation of National Rice Development Strategies in the 23 rice-producing countries in Africa and for boosting rice production in line with the strategy of each country. As for the entire Sub-Saharan Africa region including CARD member countries, rice production increased 59 % from 14 million tons in the reference year to 22.23 million tons in 2013.

3. Promoting Dynamic Rural Communities

For rural development that reduces poverty, it is important to aim for social changes and invigoration in rural villages from the standpoint of developing agricultural economies and enhancing the livelihood of people. Accomplishing this goal requires going beyond simply raising productivity. For instance, the distribution

and sale of food must be improved, the food processing sector energized, export promotion measures strengthened, and agricultural management must also be upgraded to increase non-agricultural income and such.

Furthermore, aid is needed that brings together a diverse range of fields. Local administrative functions must be strengthened and rural infrastructures such as community roads and drinking water supplies established. The rural living environment must be improved and level of health and education for residents enhanced. Other examples of aid are the participatory development of rural areas and narrowing gender gap.

Moreover, for post-conflict countries, because agricultural and rural development is often a key component of aid, JICA gives priority to these activities.

To stimulate rural development, JICA supplies aid to local administrative institutions in drafting development plans with the participation of rural residents. JICA also provides aid for the establishment of implementation systems that enable the community to raise income and improve people's livelihood, through improving the processing, distribution and sale of agricultural products.

For example, in the technical cooperation projects implemented in Kenya to support improvement of smallholder farmers' livelihoods, the Smallholder Horticulture Empowerment and Promotion Project (SHEP, 2006–2009) and the following Smallholder Horticulture Empowerment and Promotion Unit Project (SHEP UP, 2010–2015) have supported the farmer groups to change their attitudes from “grow and sell” to “grow to sell,” introducing the concept of market-oriented farming. As a result of various support activities — the SHEP Approach — to make farmers manage market-oriented agriculture by themselves,

Case Study

Cuba: Project for Extension and Diffusion of Technologies for Certified Rice Seed Production in the Central Zone of Cuba

To Support Production and Diffusion of Certified Rice Seed and to Contribute to Improvement of Rice Self-Sufficiency

In recent years, Cuba has prioritized the growth of food production as an important national policy, and has implemented measures such as granting permission for private farmers to utilize unused land for agricultural production. Through its cooperation, for over 10 years, JICA has contributed to increased production of rice, a major food staple for Cuban people.

Continuous Support to Improve Rice Self-Sufficiency

Rice is a major food staple in Cuba, as it is in Japan, but its self-sufficiency rate is low, at 36% (a 2009 estimate). Increasing the production and self-sufficiency rate of rice is an important policy of the Cuban government. JICA has worked on developing Cuban agricultural engineers with a cultivation technique for highly productive rice, through activities such as training in Japan, dispatch of experts to Cuba, formulation of a development plan, and technical cooperation projects for more than 10 years since 2003.

The quality of rice seed used for rice production in Cuba used to be low, which was a limitation to increased rice production. In

response to this, the Cuban government has provided unused land to private farmers to increase the number of rice producers and expand cultivation areas, and at the same time has made efforts to extend production of high-quality certified seed to improve productivity. This project, which started in 2012, supported these efforts of the Cuban government and extended technical cooperation to improve cultivation techniques of certified rice seed as well as to establish an extension system.

The project has trained and developed 68 extension workers, 112 leader seed producers, and 32 seed inspectors as of November 2014. With the Cuban government's strong

initiative and the Cuban people's serious efforts, the production of certified seed, which was 130 tons in 2009, exceeded 9,000 tons, well beyond the original project target of 2,000 tons. Nationwide demand for certified rice seed is expected to grow even more. JICA continues to provide support for further increase in rice seed production.

In future, it is expected that the framework for agricultural extension that was established in this project on a trial basis will expand to the whole nation, and the seed production techniques that were used in this project will be applied nationwide, not just in the five provinces in the central zone of Cuba.



Training for the selection of sample seed in a farm field



Farmers conducting a market survey on their own in Kenya

the horticultural incomes of the farm households involved in the projects have increased. The effectiveness of the SHEP approach has been recognized by other donors, including the United States Agency for International Development (USAID), and Japanese Prime Minister Shinzo Abe also touched on it at the opening session of the Fifth Tokyo International Conference on African Development (TICAD V) in 2013. In response to this, JICA places priority on implementing the SHEP approach in other African countries, and it is being implemented in 18 countries as of June 2015. Meanwhile, the third phase of the SHEP Project, the Smallholder Horticulture Empowerment and Promotion for Local and Upscaling (SHEP PLUS, 2015–2020), started in Kenya in March 2015. SHEP PLUS works on establishing implementation mechanisms for further promoting SHEP approach in Kenya, where a devolution process has taken place, through reflecting the lessons learned by supporting other African countries.

Fisheries

● Overview of the Issue

Fisheries resources from the oceans, rivers and lakes are important sources of food for people in developing countries. According to FAO, fishery products constitute nearly 20% of animal protein intake in developing countries and they are often among limited choices of affordable protein source. As such, the fisheries sector plays an important role in terms of providing a valuable means of livelihood for most vulnerable population such as women-headed households and those people who do not possess production assets. Developing countries account for 54% of the world's exports of fisheries products in value terms and 60% in volume terms (estimated live fish weight in 2012). These rates have been increasing for the past 10 years, making this industry vital to the economies of developing countries.

World fisheries and aquaculture production is currently 158 million tons (as of 2012). However, the capture production from marine waters reached a peak in the 1990s and it is believed that these resources have been almost fully utilized since then. In

recent years, the stagnant capture production has been supplemented by rapidly growing aquaculture production, which now accounts for 40% of total fisheries production.

Even in the developing countries the decline in fishery resources is evident, probably due to overfishing and the destruction of the natural environment and ecosystems. However, the practice of proper management of fishery resources has not yet been sufficiently adopted by fishers. Fishers are often deprived of alternative means of livelihood and hence they have a strong tendency to prioritize immediate economic returns rather than long-term sustainable benefits. Therefore, implementing effective management of fisheries resources, which can be accepted by a majority of fishers, is a key challenge in these countries.

● JICA Activities

As mentioned above, lack of proper management of fisheries and deterioration of environment, which causes further decrease in valuable fisheries resources, is a major issue in the fishery sector. Fishing villages, which are often located in rural marginalized areas, also face a wide range of social issues including chronic poverty. It is hence fundamental that fisheries management issues are addressed within the overarching framework of “fishing communities (villages) development,” which adequately incorporates the aspect of the livelihoods of all members of the fishing community.

JICA's cooperation in the fishery sector has three main objectives: (1) ensure the stable supply of food to local people, (2) eliminate malnutrition by providing valuable nutrition and (3) reduce poverty by providing a means of earning livelihoods to the poor. Adequate management of fisheries resources will provide a good basis for achieving these objectives and is a key to fishing village development. JICA has set the following three pillars for its cooperation.

1. Vitality in Local Fishing Communities

Empowering fishing communities to alleviate chronic poverty requires a comprehensive approach. The efforts to promote sustainable fisheries resource management would be more effective if these are supplemented by activities that stabilize communities' livelihoods. These may include the promotion of alternative income generation activities such as agriculture, and the provision of education, health services and other social development programs.

JICA provides support for fisheries infrastructure development such as construction of landing ports and markets that promote efficient fish marketing as well as community members' collective actions. JICA also works to improve the capacity of fisheries organizations as well as women's group fish processing and sales activities.

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

Food security issues are getting more serious in a number of developing countries due mainly to rapidly growing population. This situation inevitably puts further pressure on utilization of

fisheries resources. In order to ensure sustainable supply of fish while avoiding overexploitation of resources, the fisheries sector urgently needs to make a major shift in production efforts; from “fishing” to “fish farming.” In response to such needs, JICA is now exerting efforts on promoting fish farming [→ see the **Case Study below**]. In promotion of aquaculture in rural areas, JICA takes a unique approach of “farmer-to-farmer training.” In addition, JICA is assisting human resources development in aquaculture, targeting researchers, technicians and extension workers.

Fish and fishery products are highly perishable. In developing countries where the distribution infrastructure is underdeveloped, post-harvest loss is an issue. JICA provides support for improvement of related facilities of fish landing, distribution and marketing for better quality and hygienic control. Such efforts are complemented by technical assistance on fish processing and preservation.

3. Appropriate Preservation and Management of Fisheries Resources

Fisheries resources are basically “renewable” resources if proper management is put in place. Having learned the lesson that government led top-down approaches may not be an effective way to promote fisheries resource management, JICA is applying a co-management approach, incorporating awareness building and capacity development among groups of fishers and facilitating collaboration mechanisms among key stakeholders.

JICA also put its emphasis on capacity development of fisheries administration for supportive policy framework and effective implementation. Collection of scientific data for informed decision-making and support for regional initiatives are also a part of this direction. With the participation of local fishers, JICA works to preserve and restore critical habitats of marine and inland water ecosystems, including seagrass beds.

Case Study Thailand: Development of Aquaculture Technology for Food Security and Food Safety in the Next Generation

Stopping the Spread of Infection among Cultured Shrimp

In Thailand, which is ranked as the world’s eighth largest in aquaculture production and where cultured shrimp are the major product, JICA, in cooperation with the Japan Science and Technology Agency (JST), is developing aquaculture techniques that reduce fish farmers’ risk as well as breeding techniques to promote safety and industrialization of aquaculture products.

Toward Reduction of Production Risks and Establishment of a New Aquaculture System

Further increases in aquaculture production are required to feed the increasing global population. However, aquaculture producers in developing countries face harsh business conditions and have no option but to take high risks such as the spread of infections among fish and shellfish. Combined with low incomes in aquaculture, the industry may face a lack of workers in the future.

In particular, infectious diseases of fish and shellfish lead to a serious negative impact on aquaculture production once they spread. In Thailand, for example, the production of shrimp sharply decreased from 600,000 tons in 2011 to 280,000 tons in 2013 due to a disease called early mortality syndrome (EMS). Shrimp prices soared in Japan at the end of 2013, and it was reported, for instance, that some restaurants temporarily stopped serving shrimp.

This project succeeded in establishing a method to diagnose EMS with 100% accuracy in its third year. A technical service for this diagnostic method is already provided to farmers by the Department of Fishery of the Thai Ministry of Agriculture and Cooperatives. Furthermore, joint research on an EMS control method is planned among the Tokyo University of Marine Science and Technology, certain pharmaceutical companies, the Thai Department of Fishery and the Thai Agricultural

Research Development Agency. The research is expected to disseminate the outcomes of the project and widely benefit society.

The project also aims to establish “a comprehensive aquaculture system” that covers from production to selling. Groupers, sea bass, and tiger shrimps are target products as they are in high demand in the market. The project plans to develop next-generation technologies to increase food production and promote industrialization in various advanced technological areas, such as molecular breeding, surrogate brood-stock technology, immunization and vaccines, development of feed alternatives, and establishment of stricter seafood safety

protocols, through joint research with institutions in Thailand.

Such investment in aquaculture research projects requires government staff to attain high-level knowledge of scientific technologies. Hence, JICA has selected this project as one of the projects for the Science and Technology Research Partnership for Sustainable Development (SATREPS). In cooperation with the Tokyo University of Marine Science and Technology, the Japan International Research Center for Agricultural Sciences, the National Research Institute of Fisheries Science, and research institutions in Thailand, JICA is working on the establishment of a new aquaculture system. It is expected that the outcomes of the project’s research will spread and contribute to an increase in food production and the vitalization of the food industry, not only in Thailand but in other countries in Southeast Asia.



A JICA expert giving training on sample checking