Approaches for Systematic Planning of Development Projects

〈 Agricultural and Rural Development 〉

February 2005

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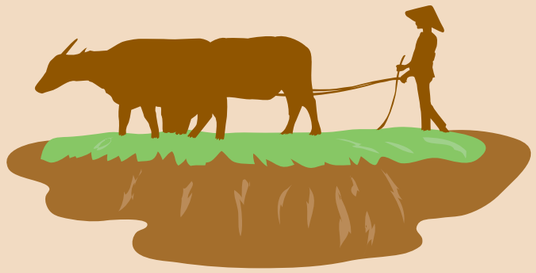

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Since FY2002, the Japan International Cooperation Agency (JICA) has referred to scheme types such as Project-Type Technical Cooperation, Individual Expert Team Dispatch, and Research Cooperation collectively as Technical Cooperation Projects. However, since there is a possibility of confusion with the original names of scheme types, this report also uses the current term Technical Cooperation Projects with reference to projects that started prior to FY2001 for consistency.

Similarly, collaborative projects with other entities such as NGOs have been collectively referred to as JICA Partnership Programs since FY2002, and this report, therefore, uses the term Partnership Program with reference to projects that started prior to FY2001 for consistency.

Published by: Institute for International Cooperation (IFIC)
Japan International Cooperation Agency (JICA)
10-5, Ichigaya Honmura-cho,
Shinjuku-ku, Tokyo 162-8433 Japan
FAX: +81 -3-3269-2185
E-mail: iictae@jica.go.jp

Foreword

The Japan International Cooperation Agency (JICA) has been working toward the enhancement of its country-specific and issue-specific approaches by formulating JICA Country Programs, implementing Project Request Surveys, and drafting Thematic Guidelines. At present there are significant differences between countries in terms of progress levels or categorizations of development issues and cooperation programs. To improve further JICA Country Programs and deal with important development issues requires appropriate formulation of programs and projects based on a fundamental understanding of development issue and effective approaches toward them, while recognizing that situations and issues differ from country to country. JICA must clarify the priority areas for cooperation, based on both the actual conditions of each target country and a systematic approach for each development issue.

Therefore in FY2001 and FY2002 as a part of an effort to promote country-specific approaches by enhancing issue-specific approaches JICA conducted the study on "Approaches for Systematic Planning of Development Projects" in eight issues: Basic Education, HIV/AIDS, Rural Development, Promotion of Small and Medium Enterprises (SMEs), Poverty Reduction, Trade and Investment Promotion, Higher Education, and Information and Communication Technology. The study systematized these issues and specified the indicators to be used as references in planning, monitoring and evaluating JICA's activities. Furthermore, the study reviewed JICA's previous projects and summarized their trends, matters of concern and representative cases for each issue, based on Development Objectives Charts.

Due to a growing demand for systematization of other issues as well, a further study was carried out in FY2003. Three new development issues were taken up: Water Resources, Reproductive Health, Agricultural and Rural Development.

The findings of this study will be incorporated into the JICA Thematic Guidelines and further developed by the Agency Thematic Network.

In conducting the study and preparing this report, a task force was set up, chaired by Mr. Hiroshi Kato, JICA Director of Planning Group, Planning and Coordination Department, and comprising JICA staff of related departments, JICA Senior Advisors, Associate Specialists, and external consultants. A considerable number of JICA staff members, as well as external experts, further contributed by offering valuable comments on the draft report. I would like to take this opportunity to acknowledge the efforts and contribution of all of these individuals.

Finally, it is my sincere hope that this report will prove a worthwhile step in the enhancement of issue-specific approaches.

August 2004

Toru TAGUCHI
Director General,
Institute for International Cooperation
Japan International Cooperation Agency

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Contents

Outline of Study

1. Background and Purpose of the Study

This study is part of Phase III of the study on Approaches for Systematic Planning of Development Projects conducted in FY 2003. The study is designed to enhance country-specific approaches by strengthening issue-specific approaches. The previous studies, phase I and II focused on eight major development issues: Basic Education, Anti-HIV/AIDS Measures, Promotion of Small and Medium Enterprises, Rural Development, Poverty Reduction, Trade and Investment Promotion, Higher Education, and Information and Communication Technology. Problems and other matters associated with each of these issues were systematized and effective approaches to them were identified. Furthermore, the program reviewed JICA's activities based on Development Objectives Charts and compiled the findings into a series of reports titled "Approaches for Systematic Planning of Development Projects."

Amid mounting calls for similar systematization for other development issues, IFIC consulted with other departments concerned within JICA. Based on this consultation, IFIC decided to work on three other issues – Water Resources, Reproductive Health, and Agricultural and Rural Development – during FY2003.

IFIC expects the findings of this study to be constructive in the following ways:

- Serve as basic information for formulating and revising Development Objectives Matrices for JICA Country Programs.
- Serve as basic information for project formation (including studies for this purpose) and program formulation.
- Serve as basic information for program evaluations and country-specific evaluations,
- Serve as literature when JICA staff, survey missions, or experts explain JICA's views on development issues to recipient countries and other donors in the consultation process.
- To be stored in the JICA Thematic Database and shared within JICA with respect to views and approaches to development issues.

2. Organization of this Report [1]

Chapter 1 Overview of the Issue (Current Situation, Definition, International Trends, Trends in Japanese Assistance)

Chapter 2 Effective Approaches to the Issue (Objectives, Effective Approaches)
*This chapter explains approaches to the development issue and reviews JICA's activities on the issue based on the Development Objectives Chart.

Chapter 3 JICA's Cooperation Policy (JICA's Priorities and Points of Concern, Items for Future Consideration)

[1] As the findings of the study are to be utilized in developing JICA's Thematic Guidelines, the organization of this report is designed to be consistent with the standard organization of such guidelines.

3. Structure of the Development Objectives Chart

This study program has come up with a Development Objectives Chart as shown below for each development issue.

An Excerpt of the Development Objectives Chart for the Issue of Information and Communication Technology Developed in FY2002

Development Objectives	Mid-term Objectives	Sub-goals of Mid-term Objectives	Examples of Activities
1. Improvement of Ability to Formulate IT Policies	1-1 Establishment of Telecommunications Policy	Introduction of Competitive Market Principle	× Support formulation of foreign capital investment policy × Support policy to promote private investment × Support deregulation of market entry ○ Support formation of competitive markets

＊Marks in the column of Examples of Activities indicate how often JICA has implemented relevant projects.
◎: JICA has considerable experience, ○: JICA has certain experience,
△: JICA has experience as a component of projects, and ×: JICA has little experience.

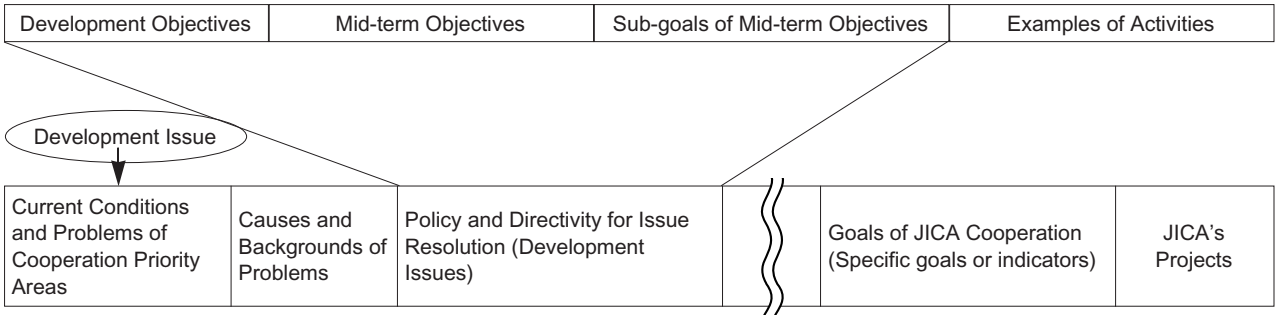
"Development Objectives," "Mid-term Objectives," and "Sub-goals of Mid-term Objectives" in the above chart represent a multi-level breakdown of the development issue.

In this report, the complete Development Objectives Chart, which covers all items ranging from "Development Objectives" to "Examples of Activities," appears later in this section, Outline of Study. In addition, the items for each Development Objective, ranging from "Mid-term Objectives" to "Examples of Activities" appear in the corresponding subsection in Chapter 2.

The relationship between the Development Objectives Chart and the corresponding JICA Country Program depends on the recipient country or sector in question. A rule of thumb, however, is that the Development Issue in the Chart corresponds to the Priority Sector in the Development Objectives Matrix of the JICA Country Program. Likewise, Development Objectives, Mid-term Objectives, and Sub-goals of Mid-term Objectives in the Chart correspond to Policy and Direction for Solving the Problems (Development Issues)" in the Matrix. (These objectives/targets levels corresponding to Development Issues in the Matrix depend on the recipient country or sector in question.)

Relationship Between the Development Objectives Chart and the Development Objectives Matrix of the JICA Country Program

<Development Objectives Chart>



<JICA Country Program, Development Objectives Matrix>

4. Task Force

The members of the task force for the study are listed below. Within the task force, the group on each of the three development issues drew up an interim draft report, which was examined at the plenary meetings of the task force. With inputs from JICA staffs at overseas offices and headquarters as well as external experts, the task force added amendments to the three interim draft reports to produce the final reports.

Members of the task force

Chief	Director, Planning Group, Planning and Coordination Department	Hiroshi KATO
Knowledge Site	Program Planning Team, Planning Group, Planning and Coordination Department	Hironobu MURAKAMI
Regional Departments	Director, Team II, Program Coordination Group, Planning and Coordination Department	Naoyuki KOBAYASHI
	Director, Administration Team, Regional Department II	Kenzo IWAKAMI
	Deputy Director, JICA Mexico Office	Atsushi KAMISHIMA (until March 2004)
	Director, Administration Team, Regional Department III	Naoki KAMIJO (from April 2004)
	Director, Southwest Africa Team, Regional Department IV	Koichi KITO
Water Resources	Director, Group III (Water Resources and Disaster Management), Global Environment Department	Itsu ADACHI
	Director, Administration Team, Administration Group, IFIC	Taisuke WATANABE
	Director, Administrative Team, Rural Development Department	Noriaki NAGATOMO
	Director, Group I (Poverty Reduction and Paddy Fields Based Farming Area), Rural Development Department	Takahiro MORITA
	Team I, Group III (Water Resources and Disaster Management), Global Environment Department	Shinichi MASUDA
	Water and Sanitation Team, Project Management Group I, Grant Aid Management Department	Shigeyuki MATSUMOTO
	Water and Sanitation Team, Project Management Group I, Grant Aid Management Department	Junko UNO
	Sectoral Support Team, Administration and Coordination Group, Secretariat of Japan Overseas Cooperation Volunteers	Junko MIMAKI
	Team II, Group III (Water Resources and Disaster Management), Global Environment Department	Yutaka FUKASE
	Team I, Group III (Water Resources and Disaster Management), Global Environment Department	Hisakatsu OKUDA

Water Resources	Team I, Group III (Water Resources and Disaster Management), Global Environment Department	Izumi SHOJI
	General Coordination Team, General Affairs Group, General Affairs Department	Kosuke ODAWARA
	Expert at health administrative management projects in Morogoro Region, Tanzania (Associate Expert)	Mari TSUDA
	"Water Resources" Support Unit, JICA Thematic Network	Akira WADA (from April 2004)
		Shiuko KAMADA (from February through March 2004)
		Satoko TSUTSUI (until January 2004)
	Manager, Engineering Division, Overseas Services Department, Nihon Suido Consultants Co., Ltd.	Takemasa MAMIYA
Reproductive Health	Senior Advisor, IFIC	Tokiko SATO
	Director, Reproductive Health Team, Group IV (Health II), Human Development Department	Yoshiharu YONEYAMA
	West and Central Africa Team, Regional Department IV	Keiichi TAKEMOTO
	Reproductive Health Team, Group IV (Health II), Human Development Department	Ritsuko SAKAMOTO
	Training Team, Domestic Affairs Group, Secretariat of Japan Overseas Cooperation Volunteers	Mai OKADA
	Reproductive Health Team, Group IV (Health II), Human Development Department	Kyoko TAKASHIMA
	UNFPA; Associate Expert, Phase II	Kayako SAKISAKA
	Associate Expert, Reproductive Health Team, Group IV (Health II), Human Development Department	Shoko SATO
	"Health Care" Support Unit, JICA Thematic Network	Eiichi SHIMIZU (until March 2004)
	HANDS (NPO)	Tomoyo WADA
Agricultural and Rural Development	Director, Group II(Field Corp Based Farming Area), Rural Development Department	Seiichi YOKOI
	Director, Administration Team, Global Environment Department	Manabu AIBA
	Senior Advisor, IFIC	Shiro AKAMATSU
	Senior Advisor, IFIC	Hikaru NIKI
	Extension Researcher, IFIC	Hideo OSAWA
	Team II, Group III (Arid and Semi-Arid Farming Area / Fisheries), Rural Development Department	Hitoshi FUJIIE
	Team II, Group III (Arid and Semi-Arid Farming Area / Fisheries), Rural Development Department	Hiroaki NAKABORI
	Associate Expert, East Africa Team, Regional Department IV (Africa)	Hiromi ISEJI
	"Agricultural and Rural Development" Support Unit, JICA Thematic Network	Tetsuo DOKIYA (from April 2004)
		Masayo TANIMOTO (from April 2004)
		Minako IGARASHI (until March 2004)
	Agricultural Development Department, Nippon Koei Co., Ltd	Hajime KAMO
Secretariat	Director, Second Research and Development Division, IFIC (now Director, JICA Colombia Office)	Ryozo HANYA (until January 2004)
	Director, Research Group, IFIC	Kyoko KUWAJIMA (from February 2004)
	Deputy Director, Second Research and Development Division, IFIC (now Director, Evaluation Planning and Coordination Team, Office of Evaluation Group)	Kazuaki SATO
	Director, Aid Effectiveness Team, Research Group, IFIC	Naoko UEDA (from December 2003)
	Aid Strategy Team, Research Group, IFIC	Sota SEKINE
	Researcher, Second Research and Development Division, IFIC	Ayano INAMI (until March 2004)
	Researcher, Aid Effectiveness Team, Research Group, IFIC	Yasuko DOGUCHI (from April 2004)

Development Objectives Chart for Agricultural and Rural Development (1)

Development Objective	Mid-term Objective		Sub-goals of Mid-term Objective	Examples of Project Activities
1. Sustainable Agricultural Production	1-1 Capacity Building for Macro-level Agricultural Policy Planning and Implementation		Capacity Building for Agricultural Policy Planning	◎Formulation of agricultural development projects ○Improvement of agriculture-related legal systems ○Promotion of agrarian reform
			Capacity Building for Agricultural Financial Policy Planning	×Formulation and management of agricultural budgets ×**Improvement of agriculture-related tax systems**
			Capacity Building for Agricultural Statistics Related Policy Planning	○Improvement of agricultural statistics
			Government Personnel Training	◎Training government agricultural administrators and engineers, training local government agricultural administrators and engineers
	1-2 Expanding Agricultural Production and Improving Productivity	1-2-1 Improving, Maintaining and Managing Production Infrastructure	Development and Improvement of Farmland	○Removal of gravel and other unsuitable materials ○Improving agricultural fields ×Replotting
			Conservation of Farmland	◎Civil engineering for slope leveling ◎**Implementation of contour farming**
			Improvement of Irrigation and Drainage Facilities	◎Agricultural dams, groundwater development, waterway construction ◎Utilization of river water and ponds ◎Maintenance and repair of irrigation and drainage facilities ◎Removal of sedimentary soil, sand and plants from irrigation waterways
			Developing Water-Users Associations	◎Understanding incentives for farmers ◎Farmer training and development ○Drafting guidelines
			Improvement of Livestock Production Infrastructure	○Improving livestock barns, grasslands used for foraging and ranches ○Improving silo and milk storage facilities ○Turning unused resources into feed
		1-2-2 Strengthening Research and Technological Development	Strengthening and Development Research Organizations	◎**Improving experiment and research organization facilities, equipment and personnel**
			Improvement of Production Technology	◎**Crop breed improvement (improving soybean seeds, hay seeds, etc.)** ◎**Improving cultivation techniques (fertility management, pest control, weed control, cultivation systems, etc.)** ◎**Improving agricultural machinery** ◎**Improving irrigation and drainage technology** ◎**Preventing soil erosion and brine damage, studying soil improvement**
			Conservation of Plant Genetic Resources	◎**Search, collection, preservation, evaluation, data management and distribution of plant genetic resources** ◎**Studying productivity improvement using plant genetic resources**
			Improving Post-Harvest Technology	◎**Improving grain threshing, drying and milling technology** ◎**Retaining quality and freshness of vegetables, fruits, meats, milk products, etc.** ◎**Storage and processing of agricultural products** ○**Researching grading and packaging technology** ◎**Establishing product quality standards and stability, strengthening inspection systems**
			Developing Livestock Production Technology	◎**Animal disease study, diagnosis and quarantine** ◎**Animal breeding through artificial insemination** ◎**Improving animal husbandry management** ◎**Improving animal breeding technology** ◎**Improving animal product processing**
		1-2-3 Promoting Agricultural Extension	Improving Systems for Disseminating Agricultural Technology & Information	○**Building dissemination measures and systems in central and local governments** ◎**Cooperation between agricultural dissemination organizations and testing research organizations** ◎**Construction and improvement of agricultural dissemination centers**
			Improving Methods of Disseminating Agricultural Technology	◎Understanding the abilities and needs of farmers ○Improving dissemination from farmer to farmer ○Partnership with NGOs and educational organizations ◎Developing dissemination manual and materials ◎Providing workshops and other training opportunities for farmers

Development Objectives Chart for Agricultural and Rural Development (2)

Development Objective	Mid-term Objective		Sub-goals of Mid-term Objective	Examples of Project Activities
			Human Capacity Building for Agricultural Extension Workers	×Securing appropriate numbers of agricultural extension workers ◎Improving incentives for agricultural extension workers ◎Training for agricultural extension workers
		1-2-4 Improving Farm Management	Managerial Capacity Building	◎Improving individual farmer technology ○Improving individual farmer business policy ×Reinforcing various subsidy programs and price guarantees
			Reinforced and Strengthened Agricultural Financing	◎Reinforcing financing from public agencies ○Reinforcing financing from informal organizations ×Capacity building for farmers as borrowers
			Organizing Farmers	◎Improving farmer income through agriculture cooperatives and other means ◎Implementing suitable water management through water user association
		1-2-5 Securing Agricultural Production Equipment/ Materials, Improving their Use	Agricultural Machinery and Equipment	×Establishing agricultural equipment safety standards ○Improving agricultural equipment inspection systems ◎Training agricultural equipment maintenance engineers ×Improving spare parts distribution systems
			Stable Seed Supplies	○Improving seed multiplication systems ×Improving seed distribution systems
			Appropriate Use of Agro-chemicals	○Establishing pesticide use safety standards ○Implementing education for safe use of pesticides
			Stable Supply and Appropriate Use of Fertilizers	×Establishing fertilizer quality standards ○Establishing fertilizer use standards ×Improving fertilizer distribution systems
			Supply of Livestock Farming Equipment/Materials	×Establishing quality standards ×Establishing use standards ×Improving distribution systems
	1-3 Strengthening Export Promotion Measures		Capacity Building for Planning Export Policies	○Support for establishing export promotion plans and agricultural industry promotion measures ◎Training government administrators
			Improving Export Systems and Structures	○Improving export-related legal systems ×Improving export-related financial organizations and systems
			Strengthening Export Competitiveness	○Expanding agricultural production and improving productivity (see Intermediate Goal 1-2) △Establishing systematic standards certification system and standardization ○Improving testing, inspection and quarantine technology ○Training engineers and quarantine officers
			Improving International Marketing Capabilities	○Capacity building for trade promotion organizations ○Increasing government support for developing private sector ×Holding marketing seminars, trade fairs and product exhibitions ○Gathering overseas market information
	1-4 More Careful Consideration of the Environment		Disposal of Agricultural Waste and its Utilization	○Promoting zero emission agriculture projects ×Expanding environmental conservation budget ×Improving waste disposal facilities ×Improving farmer awareness
			Reducing Burden on Environment from Fertilizers and Agro-chemicals	○Establishing Agro-chemicals and fertilizer use standards (see Intermediate Goal 1-2-5 Activity Examples) ○Training on proper use (see Intermediate Goal 1-2-5 Activity Examples)
			Maintaining and Developing Multi-functions, Promoting Environmental Education	◎Appropriate agricultural land management ×Promoting environmental education
	1-5 Strengthening Agriculture-Related Higher Education		Improving Educational Activity	◎Technical training for educators and improved teaching techniques ◎Developing and improving textbooks and establishing appropriate curriculum ◎Improving facilities and equipment including classroom, laboratory and materials ×Improving scholarship systems

Development Objectives Chart for Agricultural and Rural Development (3)

Development Objective	Mid-term Objective		Sub-goals of Mid-term Objective	Examples of Project Activities
			Strengthening Research Functions	◎See Intermediate Goal 1-2-2 "Strengthening Research" ◎Training researchers ◎Holding seminars and workshops on university research results
			Improving Management	△Improving management procedures of agricultural higher education organizations ×Operational capacity building for clerical staff ×Securing and assigning necessary numbers of faculty △Establishing supervision, management and maintenance systems for materials, equipment and laboratory
			Strengthening Coordination with Related Organizations, Local Areas and Regions	○Linkage with agricultural dissemination systems
			Strengthening Function as the Base for Promoting Agriculture	×Improving partnerships with agricultural universities in advanced countries and student exchange systems △Strengthening partnerships with agricultural research bodies and the private sector △Strengthening cooperation with local areas
2. Stable Food Supply	**2-1 Formulating Food Supply/Demand Policy**		**Understanding National Nutritional Status**	△Conducting national nutrition surveys △Capacity building for nutritional status analysis △Allocating and cultivating community workers
			Improving Food Production and Marketing Statistics	○**See Intermediate Goal 1-1-1 "Improving Agricultural Statistics"**
			Selecting Main Staples Food	×**Constructing food supply and demand models** ×**Statistical analysis capacity building**
			Improving Distribution and Market Related Laws and Regulations	×Assisting in development of legal systems
			Implementing Agricultural Product Pricing Policies	○Constructing agricultural product price stability systems
			Improving Food Stockpiling Schemes	○**Establishing food stockpiling master plans**
	2-2 Improving Food Distribution Functions		**Improving Distribution Market Facilities and Infrastructure**	◎Improving highways and railways ○Improving feeder roads ○Improving cargo consolidation and shipment facilities, retail markets and wholesale markets
			Management and Use of Distribution Facilities and Equipment	○Capacity building for distribution facilities management ○Constructing maintenance and management systems
			Improving Market Distribution Information Systems	×Building food inventory information gathering systems ○Building food pricing information systems
			Improving Transport Systems	×Establishing public transport systems improvement project ×Cultivating private sector transporters
			Improving Stockpile Systems	○Improving stockpile and storage warehouses
	2-3 Improving Import Systems		**Improving Quarantine and Invading Diseases and Insectpests Prevention Systems**	○Improving testing and inspection facilities ○Cultivating inspection personnel
			Improving Infrastructure	○Improving coastal facilities, roads and railway networks △Building maintenance and management systems
	2-4 Proper Use of Food Aid		**Building Food Aid Distribution Systems**	×Establishing method of natural disaster emergency aid ×Establishing method of food aid to help the poorest segments of society ×Establishing distribution routes and procedures
			Constructing Monitoring Systems	×Establishing monitoring techniques

Development Objectives Chart for Agricultural and Rural Development (4)

Development Objective	Mid-term Objective	Sub-goals of Mid-term Objective	Examples of Project Activities
3. Promoting Rural Development	3-1 Implementing Policies Related to Promotion of Rural Areas	Capacity Building for Coordination and Implementation on a National Level	◎Developing government administrator personnel ○Promoting understanding of participatory development ◎Establishing participatory rural development projects
		Capacity Building for Coordination and Implementation on Regional and Local Levels	◎Cultivating local government administrative personnel ◎Verifying participatory rural development
	3-2 Improving Off-farm Incomes	Assisting in Establishment of Rural Community Commerce and Industry	○Promoting industry-specific cooperatives ×Improving sales facilities
		Providing Job Training Opportunities	○Providing job training opportunities
		Organizing and Providing Rural Employment Information	×Establishing information collection and provision systems
		Introducing and Propagating Specialty Product Manufacturing Activities	○Improving specialty products manufacturing technology ○Adoption of “One Village One Product” Campaign △Implementing product shows (contests)
		Developing and Providing Information on Rural Financing	○(See Intermediate Goal 1-2-4 Activity Examples)
	3-3 Promoting Agricultural Processing Industry	Improving Processing Facilities	○Developing and improving processing facilities
		Developing Private Processing Companies	◎Assisting in development of processing technology △Cultivating engineers
		Improving Manufactured Foods Safety Standards	○Improving food safety regulations and standards ×Propagating food safety standards
		Capacity Building for Marketing Related to Agricultural Products	×Developing market information provision systems ×Assisting in the introduction of IT to trade boards and helping build networks
	3-4 Improving Rural Infrastructure	Improving Rural Roads	◎Designing and constructing rural roads ◎Maintaining and managing rural roads
		Rural Electrification and Improving Water Supply Plants	○Facilitation of grid-electricity system ◎Drilling clean water wells and construction of facilities for cleaning surface water
		Improving Telephone and Other Communications Infrastructure	×Improving telephone, postal and wireless systems
		Implementing Community Public Utilities Works	○Improving health care centers and rural medical institutions (see "Poverty Reduction" Intermediate Goal 3-2) ◎Establishing schools and assembly halls (see "Poverty Reduction" Intermediate Goal 3-1) ×Improving domestic waste disposal facilities
	3-5 Protecting Rural Environment	Promoting Environmental Conservation of Community Hills, Rivers and Shores	○Understanding the state of farmland and natural ecologies (survey) and the pursuit of sustainability (terraced paddy field conservation policies, etc.) ◎Integrating environmental conservation into rural promotion policy ×Rural environment research and researcher cultivation projects at higher education facilities ×Increasing amenities and entertainment opportunities (ranch improvement, nature trails installation, river improvement, etc.) ○Rural tourism development projects
	3-6 Promoting Livelihood Improvement	Enhancing Dissemination Systems for Livelihood Improvement	◎Improving awareness of agricultural extension workers ○Training agricultural extension workers
		Enhancing Dissemination Methods for Livelihood Improvement	○Developing and improving manuals, textbooks, etc. ○Various participatory projects (strengthening the community)

Development Objectives Chart for Agricultural and Rural Development (5)

Development Objective	Mid-term Objective	Sub-goals of Mid-term Objective	Examples of Project Activities
	3-7 Promoting Rural Community Activities	Promoting Village Activities	◎Various organizational strengthening projects (agricultural cooperatives, water-users associations, producers associations, etc.)
		Cultural Traditions	×Study and activation projects for rural area traditional arts and culture
		Promoting Various Project Proposals	○Activation projects for youth and housewives associations ○"One Village One Product" Campaign ○Small-scale financing and savings promotion campaigns
	3-8 Improving Health Standards among Residents	Improving Health and Medical Services	○See "Poverty Reduction" Intermediate Goal 3-2
		Disseminating Health Knowledge	○See "Poverty Reduction" Intermediate Goal 3-2
		HIV/AIDS Prevention and Control	See "HIV/AIDS" Effective Approaches
	3-9 Improving Educational Standards among Residents	Enhancing Basic Education	○See "Basic Education" Effective Approaches
		Expanding Educational Services	See "Poverty Reduction" Intermediate Goal 3-1
		Promoting Understanding About Education	See "Poverty Reduction" Intermediate Goal 3-1

◎＝Projects in which 5 or more "project activity examples" are included as project goals In the case of individual experts and Japan Overseas Cooperation Volunteers, projects in which 10 or more people are dispatched
○＝Projects in which there are "project activity examples" included as project goals
△＝Projects in which "project activity examples" are not included as project goals, but are included as a single element of that project
×＝Cases in which very few results have been achieved or there has only been dispatch of short-term experts and planning and research officers

Effective Approaches to Agricultrural and Rural Development: Summary

1. Agricultural and Rural Development

1-1 Significance of Agricultural and Rural Development

In many developing countries, people who are engaged in agriculture account for more than half of their entire populations and many of them remain in grinding poverty. In addition, the agricultural sector plays a vital role in the national economies of developing countries. Because of these reasons, cooperation in agricultural and rural development is important in enabling developing countries to tackle the key issues of food security, poverty reduction and economic development.

Providing stable supplies of food people need (food security) is a prerequisite for bringing about economic and political stability. In many developing countries, frequent food shortages are impairing the health of a portion of their populations and creating hunger. The exodus of refugees into neighboring countries is disrupting order in the international society, forming the background of regional conflicts. For food-importing countries, the stable production and supply of food are extremely serious economic issues also in efforts to prevent a foreign currency drain. The stabilization of food supply in developing countries is important for Japan's food security as well.

Cooperation in rural development is an important component for poverty reduction. There are three major reasons for this: 1) many poor people in developing countries live in rural areas, 2) improvements in the living standards and income levels in rural areas will help curb the flow of people from rural to urban areas, a demographic movement which is responsible for creating poverty in major cities, and 3) the stability and development of rural areas will serve as a social safety net and is essential for the stability of society in developing countries.

1-2 Definition of Agricultural and Rural Development

"Agricultural development" aims mainly at bio-production, or an increase in bio-production, involving production environments and considering people, land and capital as production assets or means of production. Agricultural development includes not only activities directly involved in the production of agricultural goods but also a wide range of other activities related to production and supply of food. Among them are research and development of technology, improvement of agricultural extension services, infrastructures, marketing as well as agriculture-related legal systems and agricultural policies.

In the approach discussed in this report, "rural development," in addition to agriculture as a primary means of earning a livelihood for rural residents as well as agriculture-related industries, covers the development of rural areas that includes healthcare and sanitation, education, environment, social infrastructure improvement and empowerment of community members. However, healthcare, sanitation and education will be discussed only in connection with the characteristics they show in rural areas, since separate thematic guidelines have been set for them.

1-3 Trends in International Aid

Amid the rapid progress in globalization in human and economic activities in recent years, the gap in wealth among countries and between rich and poor within the same country has widened, despite the benefits produced by world economic growth and improved living standards. Also, the importance of cross-boundary issues like organized international crime and the spread of HIV/AIDS as well as related issues including the

environment and energy the problems of global warming and destruction of the earth's ozone layers, have grown.

Furthermore, the collapse of the Cold War structure has led to frequent conflicts in the world, and the problems of human rights violations, refugees and internally displaced people have become more pronounced.

In the midst of these developments sprang a school of thought that placed emphasis on the importance of protecting individuals from the threats against human survival, life and dignity and realizing abundant possibilities people may possess. In other words, in addition to the traditional way of thinking about the "national," the idea of "human security" that values the perspectives of each individual as well as attention to the mutual supportive relation of them have come to have more importance.

Since the September 11th terrorist attacks in the United States, the awareness that poverty in developing countries amid globalization will become a hotbed of terror and will threaten the world's security has rapidly deepened.

Thus, circumstances involving development and aid have changed along with the progress in globalization, affecting approaches to agricultural and rural development as well.

1-4 Trends in Japan's Development Aid

Up until the 1980s, Japan focused its assistance mainly on increasing food production through large-scale government-led projects designed to develop farmland and modernize agriculture and thereby spur economic growth. Its approach rested largely on agricultural development, which included improvements in the infrastructure like irrigation systems to increase food supplies, agricultural technology development, betterment of farm management and technology transfers to recipient government organizations. In the 1990s, however, the form of assistance that incorporated social factors in development aid came into growing demand, and a pattern of aid that focused on rural development like integrated agricultural-rural development surfaced aimed at sustainable and varied development promoted mainly by rural residents.

Japan's aid in recent years has increasingly come to cover different sectors, revolving around assistance like the expansion of aid to local governments and introduction of participatory development. For effective implementation, it is necessary to carry out varied projects in an integrated manner, and Japan in recent years has been trying to be more flexible in providing aid, as illustrated by the implementation of verification studies at the village level in development studies.

2. Effective Approaches to Agricultural and Rural Development

2-1 Objective of Cooperation in Agricultural and Rural Development

As has been observed, the objective of cooperation in agricultural and rural development is to provide stable supplies of food to both rural and urban residents, reduce poverty in rural areas and promote national or regional economic growth – in a symbolic expression, "eradication of hunger and poverty."

Sustainable agricultural production is the basis for stable food supply. It is also an important component in developing rural areas and in eradicating poverty in those areas.

On the basis of these perspectives, we have established three Development Strategy Goals. (Chart 2-1)

2-2 Effective Approaches to Agricultural and Rural Development

Development Strategy Goal 1: Sustainable Agricultural Production

Sustainable agricultural production is a prerequisite for stable food supplies and for the promotion of vibrant rural areas.

In the approach to sustainable agricultural production, it is important to accurately assess conditions in the

agricultural sector on the macro-level and to formulate and implement an appropriate agricultural policy that will effectively respond to those conditions (Intermediate Goal 1-1: Capacity Building for Macro-level Agricultural Policy Planning and Implementation). It is also important to expand agricultural production and increase productivity by strengthening and managing production infrastructure, developing and disseminating technology and by improving the management capabilities of people involved in agriculture. (Intermediate Goal 1-2: Expanding Agricultural Production and Improving Productivity). In cases where the aim is to acquire foreign currency and stimulate economic growth through export promotion, it is necessary to make efforts to improve the export system and strengthen export competitiveness (Intermediate Goal 1-3: Strengthening Export Promotion Measures). It is also crucial to consider the environment carefully in order to maintain agricultural production for an extended period of time (Intermediate Goal 1-4: More Careful Consideration of the Environment). In addition, it is essential to train people by upgrading agricultural and agronomical education in the senior high school, college and graduate school levels in order to secure sustainable development for the agricultural sector as a whole in the future (Intermediate Goal 1-5: Strengthening Agriculture-Related Higher Education).

Development Strategy Goal 2: Stable Food Supply

In attempting to secure macro-level food supplies for the entire country including urban areas, it is essential for a government to secure both stable sources of imports and appropriate levels of food stockpiles while at the same time stabilizing and improving domestic agricultural productivity. For this purpose, it is necessary for the government first to understand the conditions under which its citizens find themselves and then map out a strategy on how it proposes to secure food for its citizens (Intermediate Goal 2-1: Formulating Food Supply/Demand Policy). It is also essential to set up an efficient domestic distribution system in order to ensure a fair distribution of food on the micro-level (Intermediate Goal 2-2: Improving Food Distribution Functions). In case a country cannot secure the necessary amount of food by the domestic production, it has to supplement the shortage with imports and for this purpose it has to improve its import system (Intermediate Goal 2-3: Improving Import Systems). If the country is receiving food aid, it needs to ensure an equitable distribution of the food provided (Intermediate Goal 2-4 Proper Use of Food Aid).

Development Strategy Goal 3: Promoting Rural Development

In order to eliminate hunger and poverty and promote vibrant rural areas, it is effective to establish and implement policies that will efficiently meet the prevailing conditions in the areas concerned (Intermediate Goal 3-1: Implementing Policies Related to Promotion of Rural Areas). From the viewpoint of poverty reduction and economical empowerment, it is also effective to step up a variety of economic activities like handicraft making and small size retailing, in addition to the improvement of agricultural production and use and sales of agricultural products (Intermediate Goal: 3-2 Improving Off-farm Incomes), especially among these to promote the processing of agricultural products that are close to rural residents (Intermediate Goal 3-3: Promoting Agricultural Processing Industry).

To maintain and improve living standards, it is also important to build rural infrastructure like roads and drinking-water facilities (Intermediate Goal 3-4: Improving Rural Infrastructure), protect the environment in and around villages (Intermediate Goal 3-5: Protecting Rural Environment) and improve life skills and living conditions of rural residents (Intermediate Goal 3-6: Promoting Livelihood Improvement).

Further, it is important to organize rural residents, taking advantage of the presence of traditional hamlets and groups based on local connections (Intermediate Goal 3-7: Promoting Rural Community Activities), and promote the empowerment of residents by raising their health standards (Intermediate Goal 3-8: Improving Health Standards among Residents) and their education levels (Intermediate Goal 3-9: Improving Educational Standards among Residents).

3. JICA's Cooperation Policy

3-1 Approaches on which JICA Should Put Priority and Points to Consider

3-1-1 Basic Concept

Our fundamental perception of key issues to be addressed in agricultural and rural development is two-fold: 1) assistance toward stable food production and supply (food security) and 2) responses to the poverty issue (rural development). The problems resulting from these issues are very much intertwined. In order to achieve effective cooperation, we must understand that assistance toward achieving food security from macro-level (nation) to micro-level (village) and assistance for rural development designed to cope with a variety of micro-level development issues are like a "pair of wheels" and it is necessary to strike a balance between these two aspects in carrying out development projects. (Chart 3-1)

3-1-2 Priority Issues

(1) Common Issues

1) Promoting Wide-area Cooperation

In neighboring countries where conditions are similar, there are many similarities in terms of agricultural issues to be addressed and applicable technologies, and it may be effective to carry out cooperation over a wide area consisting of several countries. In particular, where the results of concentrated activities carried out over a certain period of time in a particular country can be applied, with the cooperation of local parties, to neighboring countries, this can also be an example of effective South-South cooperation among developing countries.

2) Making Use of Japan's Experience

Japan has its own unique history of agricultural and rural development, many aspects of which can be applied to the development of developing countries. Examples include organizations for the participatory management of water resources, livelihood improvement movements and the "one village, one product" campaign. When providing assistance to developing countries, it is useful to pass on Japan's domestic experience while giving full consideration to the social conditions of the recipient country.

3) Strengthening Environmental Concerns

Agriculture places strains on the environment through the use of agricultural chemicals and fertilizers and through the danger of soil erosion, but it also provides benefits to the environment through the maintenance of biological diversity and the landscape. When carrying out agricultural development, it is essential to conduct preliminary assessments in accordance with the "Guidelines for Confirmation of Environmental and Social Considerations." It is also necessary to make efforts to reduce the burden on the environment and consider enhancing environmental benefits (so-called multi-functionality of agriculture).

4) Post-conflict Reconstruction and Disaster Relief

When providing reconstruction assistance following conflicts or natural disasters, it is important to address problems related to agriculture from the standpoint of economic recovery and securing food supply. It is important to provide foodstuffs in emergency aid when food supply is insufficient, to urgently restore agricultural infrastructure like irrigation systems when it is destroyed and to restore supplying systems for fertilizers, agricultural chemicals, seeds and other production materials. It is also important at later stage to encourage the process of transfer from reconstruction to ordinary development.

(2) Regional Priority Issues

1) Asia Regions

In the ASEAN Region, there are still a number of countries with large economic discrepancies between urban and rural areas. It is necessary to provide support for agricultural and rural development from the perspective of eliminating this imbalance.

In countries of Indochina, levels of income remain low and, in addition to the procurement of food, a large proportion of the economy relies on agriculture. Therefore, assistance must focus on integrated agricultural and rural development.

In China, there is room to consider providing assistance to the country's efforts to build systems for sustainable agricultural development and technology dissemination which take the environment into consideration.

In Southwest Asia with a large number of poor people, assistance focuses on improving food productivity through the establishment of basic agricultural infrastructure and the development and dissemination of agricultural technology from the standpoint of establishing food security and combating poverty.

In Mongolia and countries in Central Asia and Caucasus, the focus of assistance is on improving and systematizing distribution of agricultural products in order to contribute to the shift to a market economy.

2) Central and South America

Cooperation projects must be considered from the twin points of view of environmental conservation and stable world food supply. Because there are many countries in the region with wide income discrepancies among their domestic population, JICA will place emphasis on assistance for poor areas and subsistence farmers. As many people of Japanese descent have played a valuable role in the development of the region, JICA will consider the possibility of making use of those people when providing technical assistance.

3) Middle and Near East

Areas where the natural conditions are conducive to agriculture are limited. Cooperation should focus on appropriate management and use of water resources to realize sustainable agriculture in semi-arid areas.

4) Africa

JICA will take a comprehensive approach encompassing both agricultural development aiming to increase agricultural production and rural development focusing on the improvement of livelihood of farmers in order to help combat poverty and secure food security. In agricultural development, cooperation will focus particularly on the promotion of rice farming in West Africa and other areas, the improvement of rain-fed farming in semi-arid areas and appropriate water resources management. Also, JICA's cooperation will consider the establishment of sustainable farm management systems through the use of technologies in harmony with the environment.

3-1-3 Points to Consider in Extending Cooperation

(1) Coordinating Aid for Food Security with Aid for Rural Development

As explained in the basic concept, in order to make cooperation effective, it is necessary to implement projects while coordinating food security aid with rural development aid. Agricultural and rural development projects should take into account the stage of development and regional differences in the developing country in question. It is important to implement such projects through a systematized and balanced approach so that they are able to respond to the dynamically changing external environments.

(2) Providing Support according to the Stage of Development

An examination of support for agricultural and rural development on the basis of individual programs and projects shows that the objectives range from the elimination of poverty and hunger on an individual level to economic development and food security on a national level.

The aims and methods of individual cooperation projects may vary significantly depending on the economic situation of the recipient country or region, the degree of agricultural development, the food security situation, the required role of agriculture in the light of the prior factors, and the actual target of cooperation. Careful assessment needs to be made in this respect.

(3) Considering Agricultural Activities as a Means of Livelihood

In many cases, agriculture is the central economic activity in rural areas. It may also be the only possible way those in poverty have of earning a livelihood. In rural development, it is important to consider agriculture not only from the perspective of producing and supplying food but understand that it is a means of livelihood and to extend cooperation in a way that contributes to the development of rural families and communities through the improvement of their economic capacity.

(4) Positive Cycle of Farm Management, Social Capital and Project Targets

The sale of surplus produce may increase profits and allow for an increase in capital. Such capital and surplus labor can then be used for investment in agriculture-related areas and non-agricultural areas to create new businesses and employment. The increase in cash income from those new resources permits improvements in infant nutrition, primary school attendance and the treatment of the sick. These results combine to build up the economic and human capacities of rural residents, often forming a positive cycle that leads to the establishment of agriculture which takes advantage of more advanced techniques and materials. From a mid-to long-term perspective, such a positive cycle, though limited in scope, can work as a means of offering various opportunities for members of the society's other strata. Approaches which take social capital into consideration are being used more widely than before.

(5) Japan's Agricultural Trade Policies and Assistance

Japanese Agriculture lacks price competitiveness on the international market and domestic production centers are under constant threat from growing imports of cheaper produce. When formulating and carrying out cooperation projects in the agricultural sector, it is important to identify appropriate areas of need from the point of view of the recipient country while considering their impact on our domestic industry. Japan may offer, for instance, assistance to improve the recipient country's general administrative services, which does not have direct impacts on Japan's own agriculture in stead of cooperation in those area that may cause difficulties (depending on the type of product and technology).

3-2 Issues for Future Consideration

(1) Promoting Aid Coordination

The situation in developing countries, sub-Saharan African countries in particular, clearly and strongly indicates the need to take a comprehensive approach to the issues they face. It is important to serve as a coordinator and be proactive in disseminating information, while confirming the status of the project within the recipient country. Regarding new projects, project details should be made available to other donors and related organizations at the preliminary evaluation stage. It is also strongly advisable to make efforts to ensure that there are opportunities for information exchange led by government officials of the recipient country.

(2) Cooperation from Mid- and Long-term Perspectives and Reconsideration of "Integrated Rural Development"

"Integrated Rural Development" is an approach which was first proposed in the 1970s, the basic philosophy of which is to implement sector projects needed for the development of rural areas in an integrated manner. Under the circumstances then prevailing, it was difficult to implement this approach, but the environment surrounding the development of developing countries, as evidenced by the progress in decentralization, have changed considerably. It is the time for us to examine again whether it is feasible to implement the basic principles of "integrated rural development" focusing on mid- and long-term perspectives and multi-sector programs.

(3) Gender Mainstreaming

In agricultural and rural development, it is important to improve the relevant systems and social environments for promoting the concept of "putting gender into the mainstream." At the same time, through individual projects, more opportunities should be provided to women who are living in poverty or are socially disadvantaged, with a view to helping them make use of their potential capacities. In addition, it is important to try, based on a long-term outlook, to transform various systems, customs and structures that give rise to gender disparity.

Chapter 1 An Overview of Agricultural and Rural Development

1-1 Significance of Agricultural and Rural Development and Conditions in Recent Years

Many people in developing countries are engaged in agriculture and a large number of them remain in poverty. Agriculture holds an important position in the national economies of those countries.

In many developing countries, people who are engaged in agriculture account for more than half of their entire populations and many of them remain in grinding poverty. In addition, the agricultural sector plays a vital role in the national economies of developing countries. Because of these reasons, cooperation in agricultural and rural development is important in enabling developing countries to tackle the key issues of food security,[1] poverty reduction and economic development. Following, on the basis of this perspective, is a basic summary of the issues that are considered in this approach.

1-1-1 Stable Production and Supply of Food (Food Security)

Food security is a prerequisite for bringing about economic and political stability.

Providing stable supplies of food people need (food security) is a prerequisite for bringing about economic and political stability. In many developing countries, frequent food shortages are impairing the health of a portion of their populations and creating hunger. The exodus of refugees into neighboring countries is disrupting order in the international society, forming the background of regional conflicts. For food-importing countries, the stable production and supply of food are extremely serious economic issues also in efforts to prevent a foreign currency drain. The stabilization of food supply in developing countries is important for Japan's food security as well.[2]

The profitability of agricultural production in many food-importing developing countries, especially those in Africa, has deteriorated drastically in recent years as a result of the falling domestic prices of agricultural products stemming from the opening of their markets under the conditionality of the World Bank and the International Monetary Fund, subsidized grain exports by advanced countries and also from declining international prices brought about by the exports of low-priced grain by advanced developing nations.

[1] In this approach, no distinction has been made in the use of words "food" and "staple food," and "food" has been used throughout. Needless to say, more emphasis is placed on "staple food" (main food crop) in discussions of agriculture in developing countries.

[2] The Basic Law on Food, Agriculture and Rural Areas (Law No. 106 enacted on July 16, 1999) stipulates in Section 2, Article 20 concerning policy on securing stable food supply that the State shall endeavor to promote international cooperation, including technical and financial cooperation for the development of agriculture and rural areas in developing countries as well as food aid, in order to contribute to the long-term stability of the world's food supply and demand.

Nevertheless, the stable production and supply of basic food is the foundation for "human security," and assistance for efforts to maintain a certain level of food production as a national responsibility is a moral and political issue for the international community. Thus, continuous assistance for such efforts is considered to be extremely important.

Developing countries in search of food security are seeking aid not only for the strengthening of their production base, dissemination of production technology, and research and development, which all have formed the pillar of technical cooperation in the agricultural sector to date, but also assistance in a variety of other areas including market distribution, the promotion of food processing and sales as well as agriculture-related policies. It is also required to promote "agriculture in rural development" with an emphasis on poverty reduction, that will be discussed the next reaction, or food production from this viewpoint of pursuing "human security."

Cooperation in rural development is an important component for poverty reduction.

1-1-2 Responses to the Poverty Issue (Rural Development)

Cooperation in rural development is an important component for poverty reduction. There are three major reasons for this: 1) many of the poor in developing countries are residents in rural areas, 2) many of the urban poor are laborers who have migrated to cities from rural areas or former farmers who have left rural areas, and improvements in the living and income standards in rural areas will help curb the flow of people from rural to urban areas and will contribute to the improvement of social environments in urban areas, and 3) the stability and development of rural communities will serve as a social safety net at a time of recession and is essential for the stability of society in developing countries.[3]

The rapid urbanization in developing countries itself is a symbol of inequality between rural and urban areas in a variety of development opportunities. It is also a result of the priority that has been lavished on urban areas in the allocation of resources. Furthermore, even though residents in rural areas are supposed to utilize natural resources as well as protect and manage the natural environment in a sustainable way, there exists a vicious circle in which the destruction of the environment stemming from population pressure is further exacerbating conditions in rural areas of many developing countries that have already been debilitated by these social malaise.

The development of rural areas in developing countries as a whole is an international challenge that has to be met in order to put a stop to the vicious circle of poverty and environmental destruction, to manage natural resources in a sustainable manner and thus to ensure the security of people in rural areas through food production for maintenance of life. In other words, it is an

[3] During the Asian Financial Crisis of 1997-1998, for example, many people in Indonesia returned from cities to their home villages in search of new opportunities, and a program to help them find work was initiated as a safety net.

important development issue from a standpoint of the scale and the potential impact it entails.

Africa has been constantly mired in civil wars and other conflicts, and rural development designed to promote the resettlement of refugees or former soldiers and to bring rural areas back to life for indigenous and socially disadvantaged people as part of national reconstruction has become an urgent task.

An active response to these issues is consistent with the aim of concerted action called for in the DAC New Development Strategy and the UN Millennium Development Goals (MDGs) that have expressed a determination to strengthen assistance to the poor, from the perspective of "human security" as well as from the perspective of achieving a more stable development of the international community.

Recent developments
- Progress in globalization
- Reduction in aid
- Comprehensive approaches
- Decentralization of authority

1-1-3 Recent Conditions Surrounding Agriculture and Rural Areas

In the post-Cold War world, several important changes have occurred through market-based economic liberalization and globalization. Not only in advanced countries but also in many developing nations, farming that had no comparative advantage because it was under policy protection has been exposed to the giant international market. As a result, developing countries, where the agricultural sector occupies a disproportionately large share of their economies and more than half of their populations depend on agriculture for living, sought to switch from self-sufficient to commercial agriculture in an effort to cope with the impact of the international market. Meanwhile, the number of poor people has increased and the gap between rich and poor has expanded as small farmers started contract production under large farm owners or as they loose their farm land to become tenant farmers or farm laborers – the results of the negative impact of globalization.

One of the important factors behind the establishment of the Millennium Development Goals is a decline in the amount of development aid to LLDCs after the Cold War, by about 30% by West-Bloc countries and by some 50% if assistance by East-Bloc countries is included.

Also, many developing countries are preparing Poverty Reduction Strategy Papers (PRSP) in return for receiving financing from the World Bank (IDA). This indicates that they now face a situation where they find it extremely difficult to come up with their own visions of development just by dealing with individual development issues; they have no option other than to introduce more comprehensive approaches.

We should also take a look at how various institutional reforms linked to international aid organizations, especially those in sub-Saharan developing countries in Africa, are going on. They have made progress only for a short

period of time on a provisional basis. In particular, administrative reforms including decentralization of authority that is important for comprehensive rural development have got off the ground only recently and improvements in local administration are still too insufficient to enable rural areas to effectively deal with the issues they face.

The needs of developing countries have changed as a result of the progress in development and shifting social conditions in rural areas, and approaches and targets in providing aid have become correspondingly diversified. We are now expected to think that these varying needs require not only a simple diversification of aid projects but also an implementation of more strategic projects that will adequately respond to the challenges that have become more sophisticated and complicated.

Japan's ODA policy, as related to our approach under consideration here, is exemplified by Japan's Medium-Term Policy on Official Development Assistance (August, 1999) and by Japan's Official Development Charter which was reviewed and revised in August, 2003. In dealing with the poverty issue, the former emphasizes "a fair distribution of the results of economic growth and implementation of cooperation focused on aid to the poor as its direct goal." It also points to the importance of "support for poor rural areas in remedying regional disparities, along with aid for basic education, health and medical care, safe water supplies as well as support for women in developing countries. The latter, while proclaiming the "importance of stressing Japan's national interest," also emphasizes "human security."

Box 1-1 Food Security in Developing Countries

Food shortages and malnutrition are concentrated in developing countries. As of October, 2003, 38 countries in the world are facing serious food shortages – 24 in Africa, 5 in Asia, 2 in the Middle East, 5 in Central and South America, and 2 in Europe. Most of them are developing countries in sub-Saharan Africa.[4]

Meanwhile, 842 million people in the world are found undernourished (1999-2001), with 798 million of them believed to be in developing countries.[5] Some 75% of them live in rural areas, but food supplies in cities have also been fast deteriorating because of rapid urbanization.[6]

The population of undernourished people in the world and in developing countries increased following a slight decline in the first half of the 1990s. Countries with a dwindling population of undernourished people reported higher economic growth than those that showed an increase in the number of such people. They also registered higher paces of growth in agricultural production, lower rates of population increase and HIV infection as well as extremely few cases of critical food shortages.[7]

[4] FAO Japan Office (2003); for original data, refer to FAO (2003a)
[5] FAO (2003b) p.6
[6] FAO (2003c)
[7] FAO (2003b) p.8; details on the world food and agriculture situation (FAO (2003b)) are available in the materials concerning the FAO general assembly held in Rome between Nov. 29 and Dec. 10, 2003. Also the Japanese translation provided by the Japan FAO Association (2004) pp. 4-15.

Box 1-2 Poverty and Hunger in Rural Areas of Developing Countries

Poverty and hunger are closely entwined in rural areas of developing countries, with each influencing the other. It is difficult for poor farmers to produce enough food since the means of production including land, water and improved seeds are limited and they often cannot acquire technology or credit they need.[8] Non-farming residents in rural areas cannot purchase food. Meanwhile, people suffering from hunger, unable to work like others and more liable to become ill, often find themselves at an economic disadvantage and, dreading failure, cannot make wise investments. Furthermore, children born from parents suffering from malnutrition are inherently small, incurring unfavorable conditions almost from birth.[9]

In agriculture, people often go through vicious circles: they cannot buy seeds or fertilizer necessary for agricultural production which forms the core of economic activity in rural areas because of poverty; they are weak and tend to become ill and, when they do, cannot maintain the physical strength they need to work because they are unable to receive medical treatment; they have difficulty understanding and using new technologies because of their lack of education and, because of the resulting low agricultural production, can neither acquire enough food or income nor pull themselves out of poverty and hunger.

In rural areas, low agricultural productivity, hunger and poverty are one and the same thing. It is important, therefore, to promote rural development and improve agricultural production simultaneously, as if they were a pair of wheels, from a micro standpoint involving individuals, groups and regions and also from a standpoint of "human security."

From a macro standpoint of food security including urban areas, it is important to establish a system for the distribution and supply of food as well as to improve agricultural production.

1-2 Definition of Terms

In this approach, "agriculture" means crop farming and livestock farming.

Agriculture

The word "agriculture" includes forestry in a broader sense and, at times, fishery as well. In the approach under consideration here, however, it is defined as a limited primary industry centering around the sub-sectors of crop farming and livestock farming. Crop farming is an industry to grow useful plants such as grain, vegetables and garden products by tilling land. Livestock farming is an industry in which daily necessities like milk, meat, eggs and furs are obtained by keeping livestock and poultry and by producing fodder and feeding them with it.

"Rural area" is a relative concept in contrast with that of the urban area that differs from country to country and from region to region.

Rural Area

This is a concept that is used generally in contrast with that of cities. In reality, however, the use of this term differs very widely from country to country and from region to region. Generally, it is understood to refer to areas where many residents are engaged in agriculture in a broad sense. However, it is more

[8] FAO (1996b) Paragraph 2
[9] FAO (2003c) Paragraph 7

appropriate to use the term as representing a concept relative to that of cities in social, economic and natural conditions.

"Agricultural development" means development that is primarily aimed at production or an increase in production of agricultural goods.

Agricultural Development

This refers to development whose main purpose is bio-production and an increase in bio-production, involving living things and production environments and considering people, land and capital as production resources or means of production. Agricultural development includes not only activities directly involved in the production of agricultural goods but also a wide range of other activities. Among them are research and development of technology, improvement of agricultural promotion systems and infrastructures, market distribution, agriculture-related laws and systems, agricultural policy as well as production and supply of food.

"Rural development" is development of rural areas that include a broad range of activities like agriculture, health and sanitation, education and social infrastructure.

Rural Development

In the approach under consideration in this report, "rural development," in addition to agriculture as a primary means of earning a living for rural residents as well as agriculture-related industries, refers to the development of rural areas that includes healthcare and sanitation, education, environment, social infrastructure improvement and empowerment of community members.[10] However, healthcare, sanitation and education will be discussed only in connection with the characteristics they show in rural areas since separate, issue-specific guidelines have been set for them.

"Rural development" is development of rural areas that include a broad range of activities like agriculture, health and sanitation, education and social infrastructure.

Poverty

JICA's "Issue-specific Guidelines – Poverty Reduction" (2002a) defines poverty as "a condition in which human beings are deprived of an opportunity to develop their potential capacity to spend a basic life as human beings and are excluded from the social and development process."[11] Also, the "the poor" in referring to the goal for cooperation means people below the poverty line, or a specific level set by each country in accordance with its prevailing conditions on the income for purchasing the basic necessities for life or spending.[12]

"Undernourished population" is the number of people whose intake of calories from food is below the levels set for countries and races.

Hunger and Undernourished Population

Hunger means "to starve because of lack of food" (the Dai Jirin Dictionary, Second Edition), but FAO defines the undernourished population as the number of people whose intake of calories from food is below the standard

[10] In recent years, the term "rural development" is used to refer to a more limited range of actions including development aimed at the sustainable improvement of life among the poor or an approach to the development of poor rural areas. This is because the poor in rural areas, or the increasing poverty in those areas, has become an important development issue.

[11] JICA (2002a) p.10

[12] For details on poverty and poverty reduction, refer to JICA (2002b)

calculated for each country or race to enable them to maintain a certain body weight when they undertake a certain amount of labor.[13] It is used as an index for reducing the number of undernourished people in poverty eradication efforts.[14,15]

Food security is a condition in which all people have access to appropriate food at all times.

Food Security

The Plan of Action of the World Food Summit stipulates that "Food security exists when all people, at all times, have physical and economic access to sufficient, safe and nutritious food to meet their dietary needs and food preferences for an active and healthy life."[16]

1-3 International Trends

The approach and concept in the development of rural areas of developing countries is closely related to changes in the conditions that surround them. The concept of rural development has undergone many changes in parallel with shifting historical backgrounds and priority issues that attracted attention at different times. Following are major trends in its history.[17]

Emphasis on commercialism (1950s - early 1970s)

(1) Emphasis on Commercialization (1950s to early 1970s)

This was an approach that emphasized commercialization like the introduction of cash crops. This approach was criticized later as inducing differences between regions where conditions in agricultural production were favorable and those where they were not.

BHN Approach (late 1960s-1970s)

(2) Emphasis on Social Aspects (BHN Approach: Late 1960s to 1970s)

This approach was symbolized by the "Nairobi Speech" on the eradication of poverty which World Bank President Robert McNamara delivered in 1973. Its direct objective was the expansion of social services among the rural poor who were beyond the reach of "trickle-down" benefits. Despite its effectiveness as a short-term aid measure, this approach often fell short of achieving sufficient medium- and long-term results.[18]

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[13] FAO (2002a)

[14] For example, the Rome Declaration issued at the World Food Summit held in 1996, states: "We pledge our political will and our common and national commitment to achieving food security for all and to an on-going effort to eradicate hunger in all countries, with an immediate view to reducing the number of undernourished people to half their present level no later than 2015."

[15] While starvation as indicated by the number of undernourished people mainly represents a chronic condition, hunger means a shortage of food resulting from a temporary but extremely poor harvest.

[16] "Food security exists when all people, at all times, have physical and economic access to sufficient, safe and nutritious food to meet their dietary needs and food preferences for an active and healthy life." FAO (1996b) Paragraph 1

[17] The following sentence is revised and added to on the basis of JICA (2001b) pp. 1-3.

[18] The following main causes are cited: ① In reality, it is politically difficult to narrow the target down to the poor (Political parties or local governments to represent them do not often exist) and it entails technical costs to identify the poor. ② It was difficult to find the engine for short- and medium-term economic growth and attempts to attain such growth often did not have fiscal support. ③ Even when the living standards of the poor slightly improved, the wealthy accumulated profits two or three times as fast because of top-down policies of donor countries and, as a result, the gap between rich and poor expanded further.

Emphasis on food self-sufficiency (1975-)

(3) Emphasis on Food Self-Sufficiency (Production System) (1975-)

The hunger in the Sahel and Ethiopia as the result of a drought that had devastated the regions since the 1970s led to an increase in the interest in food security, spawning a trend that focused on another antithesis, namely food security (production system). In reality, however, this policy was carried out to provide inexpensive food to urban areas and did not result in many cases in a rise in rural incomes.

Incidentally, the Green Revolution, which has spread since the mid-1960s to achieve dramatic increases in high cereal grain yields, introduced an agricultural production process that applied science for continuous, uninterrupted improvements in crops. Throughout this period, irrigation systems and agricultural infrastructures were improved, in addition to the introduction of high-yield varieties and production assets like chemical fertilizer and agricultural machinery. And production of staple food like wheat and paddy rice increased dramatically. "The Green Revolution" had the effect of transferring the modern growth process to agriculture and agricultural societies in developing countries and had a revolutionary impact on those countries and the "Farming System Research," a study of regional agricultural and farm management systems, has developed.

Structural adjustment policies (1980s)

(4) Structural Adjustment Policy – Change in the Approach to Sustainable Development (1980s)

Changes like declining primary-product prices and stagnation in demand stemming from a slowdown in the economies of industrialized countries brought to the surface structural problems that had remained largely unnoticed behind the economic growth. Beginning in the 1980s, debt problems prompted the introduction of structural adjustment policies.

Structural adjustment benefited the poor by holding down inflation, improving overseas competitiveness through lower foreign exchange rates and invigorating farm markets through privatization of state-run agricultural corporations. In the short term, however, criticism grew that it brought unfavorable results especially to the poor, such as the abolishment of food subsidies, rising costs of public services including public transportation and cuts in education and medical budgets. Higher food and other prices tended to trigger a political crisis arising from simmering dissatisfaction among urban residents, while confusion in government policies served to delay the implementation of structural adjustment measures.

Residents' participatory approach (1990s)

(5) Resident-Participatory Rural Development Approach (1990s)

As financial aid to developing countries dwindled, more effective rural development methods were explored, with those involved in aid projects learning from the past mistakes and experiences. For instance, as a result of ① the

fostering of ownership by residents and governments, ② support for measures to improve residents' awareness of their problems and to strengthen planning and implementation capabilities and ③ promotion of plans for decentralization of authority, the division of roles for different organizations has progressed, with central governments formulating and adjusting policies and local governments implementing them.

Common for this series of steps is a stance to support people in aid-receiving countries to involve themselves from the initial stages in becoming aware of the issues and problems they face and in developing, implementing and monitoring plans to address them on their own initiative. Here, hopes grew that residents' organizations would replace not only governments in recipient countries but also government functions that had been steadily shrinking.

Against this background emerged a participatory approach in which residents identified problems confronting their regions, considered measures to address them, worked out action plans and carried them out. This has become the mainstream approach since the 1990s, regardless of the countries involved and also among donor countries, international organizations and international or local NGOs.

Response to progress in globalization (2000s)

(6) Response to the Progress in Globalization (2000s)

Amid the rapid progress in globalization in human and economic activities, inequality among countries and between rich and poor within the same country has widened, although globalization helped spur world economic growth and raise living standards in many parts of the world. Also, the importance of cross-boundary issues like organized international crime and the spread of HIV/AIDS as well as the problems of global warming, destruction of the earth's ozone layers, the environment and energy has grown. Furthermore, the collapse of the Cold War structure has led to frequent conflicts in the world, and the problems of human rights violations, refugees and internally displaced people have become more pronounced.

In the midst of these developments sprang a school of thought that placed emphasis on the importance of protecting individuals from the threats against human survival, life and dignity and realizing abundant possibilities they may possess. In other words, in addition to the traditional way of thinking about the security of a nation, "human security" that values the perspectives of each individual has come to play a more important role.[19] The Commission on Human Security issued a final report in May, 2003.[20]

Since the September 11th terrorist attacks in the United States, the awareness that poverty in developing countries amid globalization will become a hotbed of terror and will threaten the world's security has rapidly deepened.

[19] Ministry of Foreign Affairs (2002)
[20] Commission on Human Security (2003)

Because of this, the United States and EU countries announced plans to increase ODA at the UN International Conference on Financing for Development held in Monterrey, Mexico, in March, 2002.[21]

Thus, circumstances involving development and aid have changed along with the progress in globalization.

(7) Major International Declarations

Here, we will briefly discuss international declarations and major reports made in recent years.

Copenhagen Declaration on Social Development (1995)

At the World Summit on Social Development held in 1995, "the Copenhagen Declaration on Social Development" was adopted, setting the goals for attaining social development focused on human well-being and for halving absolute poverty in the world. The declaration refers to the eradication of hunger and undernourishment and to food security as the targets for eliminating the fundamental causes of poverty.[22]

OECD New Development Strategy (1996)

The DAC member development ministers of the OECD adopted "Shaping the 21st Century: the Contribution of Development Cooperation" in May, 1996. The DAC new development strategy called for a 50% reduction in the population of the world suffering from extreme poverty by 2015 from the 1990 level, but it touched on agriculture and food only as the background for discussing poverty.

Rome Declaration on World Food Security (1996)

Meanwhile, "the Rome Declaration on World Food Security"[23] adopted at the World Food Summit held in October, 1996, "reaffirmed the right of everyone to have access to safe and nutritious food, consistent with the right to adequate food and the fundamental right of everyone to be free from hunger" and pledged efforts to reduce the number of undernourished people to half by no later than 2015. The summit also agreed to pursue sustainable agriculture, fishery, forestry and rural development policies as one of its commitments.

Millennium Development Goals (2000)

The UN Summit (Millennium Summit) was held in 2000 and adopted the Millennium Development Goals (MDGs) based on the international development goals that had been agreed upon in the past. One of the MDGs was the eradication of extreme poverty and hunger. The summit pledged to halve by 2015 the conditions of poverty and extreme hunger that existed in 1990.[24]

World Food Summit five years later (2002)

The meeting held in 2002 as a follow-up to the 1996 World Food Summit reaffirmed the Rome Declaration, admitting at the same time that the goals were insufficiently attained. The meeting expressed its determination to accelerate the implementation of actions to reduce the population of undernourished people by half by no later than 2015. Also, it stressed the needs for the improvement of agricultural productivity and an increase in food production and allocation in

[21] While the United States cited governance, education, health, economic policy and investment as the target areas for increased aid, the EU made no references to any specific areas.
[22] UN (1995)
[23] FAO (1996a)
[24] UN (2000)

order to achieve food security and eradication of poverty.[25]

Johannesburg Declaration on Sustainable Development (2002)

The Johannesburg Declaration on Sustainable Development adopted in August, 2002, at the UN World Summit on Sustainable Development cited food security, along with clean water, sanitation, proper housing, energy and health care, as one of the fundamental conditions for human dignity and expressed a determination to accelerate access to it.[26]

Final report by Commission on Human Security (2003)

Further, the final report of the Commission on Human Security submitted in May, 2003, took up hunger as one of the special problems concerning human security and pointed to the need for a long-term approach to sustainable food production as well as to short-term emergency food aid.[27]

As has been observed above, major international conferences have taken up the eradication of poverty and food supply (food security) as important issues.

Poverty eradication and food security important issues at major international conferences

On the other hand, there have been no significant references to agricultural production except in relation to the Food Summit. This is also true regarding statements by donor countries. For example, the awareness that poverty in developing countries will create a hotbed for terror that will threaten world security has deepened since the Sept. 11 terrorist attacks, and the United States and the EU declared plans to increase ODA at the meeting on financing held in Monterrey in March, 2002. But the United States set its focus on governance, education, sanitation, economic policy and investment as its target areas and the EU made no references to specific areas.[28]

Few references to agricultural development at international conferences

1-4 Trends in Japan's Assistance

Historically, Japan's cooperation oriented toward development of rice-farming and other types of agriculture.

Japan started providing development aid in the 1950s to replace its post-war reparations[29] but cooperation in rice growing played the main role in early stages in its assistance for agricultural and rural development since it was Japan's specialized technical field. In other words, Japan made contributions to food supplies in developing countries by transferring Japanese-style rice-growing techniques.

In the 1960s, as many countries introduced high-yield varieties, Japan

[25] FAO (2002b)
[26] UN (2002)
[27] Commission on Human Security (2003) p. 14
[28] In the background, it has been pointed out, are political conditions in major donor countries like the United States, European Countries and Japan. In other words, the United States and European Countries, in effect, regard developing countries as their markets for exporting surplus farm products (54% of US agricultural product exports in 2002 went to developing countries. For data, refer to the USDA website, http://www.fas.usda.gov/scriptsw/bico/bico_frm.asp). An increase in agricultural production in developing countries could result in competition between their own exports and those (including agricultural products as part of food aid) by industrialized countries, and also in price declines in international markets. Japan's case is opposite of that of the United States and European Countries. Many people in Japan are concerned that agricultural imports from developing countries may compete with locally grown products, pressuring their own agricultural industry. Approaches to cooperation in agricultural development under these conditions will be discussed in Chapter 3.
[29] Details on changes in Japan's overall technical cooperation are available in JICA (1999).

In the 1960s-80s, the focus was on an increase in food production through agriculture modernization.

established the form of assistance in which it helped governments in other countries to set up systems for the dissemination of rice-growing techniques by opening agricultural (dissemination) centers and model farms. Also on the rise was Japan's technical aid for the establishment of irrigation systems and the use of pesticides and fertilizer needed to push ahead with the "Green Revolution."[30]

In the 1970s, Japan attempted to shift the focus of its assistance that had centered until then around agricultural centers to regional agricultural development. Later, it included cooperation in agricultural research out of the recognition that the technical base for agriculture in many developing countries is still not fully developed.

Thus, up until the 1980s, Japan focused its assistance mainly on increasing food production through large-scale government-led projects designed to develop farmland and modernize agriculture and thereby spur economic growth. Its approach rested largely on agricultural development, which included improvements in the infrastructure like irrigation systems to increase food supplies, agricultural technology development, farm management and technology transfers to recipient government organizations. Instances of cooperation that encompassed other sectors from the perspective of developing rural areas were limited.

In the 1990s, rural development promoted mostly by farmers started.

In the 1990s, however, the form of assistance that incorporated social factors in development aid came into growing demand, and a pattern of aid that focused on rural development like integrated agricultural/rural development surfaced aimed at sustainable and varied development promoted mainly by rural residents.

In recent years, aid covers many sectors and local areas.

Japan's aid in recent years has increasingly come to cover different sectors, revolving around assistance like the expansion of aid to local governments in various regions and introduction of participatory development. For effective implementation, it is necessary to carry out varied projects comprehensively, and Japan in recent years has been trying to be more flexible in providing aid.[31]

Target areas for rural development can be varied in size, ranging from villages of several families to 20-30 families and to all areas other than urban centers. For instance, many of JICA's technical cooperation projects and verification studies as a type of development studies have traditionally been targeted at areas made up of a few villages, while a whole country or a wide region can be chosen when it comes to the formulation of rural development plans (master and action plans) as part of development studies.

[30] The "Green Revolution" refers to increases in the production of wheat, rice and other agricultural products achieved by Mexico and developing countries in Asia in the 1950s-1960s through the development and introduction of high-yield varieties. Resources like fertilizer and pesticides as well as the supply of water are necessary to produce high-yield crops.

[31] In recent years, village-level verification studies on a wide range of areas including agriculture, small-scale commerce and industry, health care, life infrastructure and literacy education are often conducted when national- or regional-level agricultural and rural development plans are drawn up in development studies.

Chapter 2 Effective Approaches to Agricultural and Rural Development

2-1 Objective of Cooperation in Agricultural and Rural Development

Objective of cooperation in agricultural and rural development is elimination of poverty and hunger.

As has been observed in Chapter 1, the objective of cooperation in agricultural and rural development is to provide stable supplies of food to both rural and urban residents, eradicate poverty in rural areas and promote national or regional economic growth – in a symbolic expression, "eradication of hunger and poverty."[32]

Sustainable agricultural production is the basis for stable food supply. It is also an important component in developing rural areas and in eradicating poverty in those areas.

On the basis of these perspectives, we have established three Development Strategy Goals. (Chart 2-1)

Development Objective 1: Sustainable Agricultural Production

(1) Development Objective 1: Sustainable Agricultural Production

In attempting to ensure food security on a national level, including urban residents, it is important, together with imports and reserves, to obtain and maintain a certain degree of domestic agricultural production capacity.[33] Also, in many developing countries, agriculture holds an important position in spurring national economic growth and acquiring foreign currency.

In rural areas, increasing and stabilizing the production of basic food is a prerequisite for eliminating food shortages, and agricultural production occupies an important position as an economic activity for eradicating poverty.

In any case, it is important to promote and maintain agricultural productivity[34] in a way that is sustainable for a long time. In other words, sustainable agricultural production is a pre-condition for stable food supply and development of vibrant rural areas.

Development Objective 2: Stable Food Supply

(2) Development Objective 2: Stable Food Supply

To ensure food security, it is necessary for any country to acquire and

[32] From the standpoint of Japan, which depends on other countries for much of its food supplies, it is an important goal of cooperation to ensure food security through a stable balance of supply and demand in the world.

[33] It requires a highly political judgment to decide how much domestic production should be maintained for adequate food security.

[34] Based on an unfavorable review of high-input agriculture, some people call low-input and environmentally friendly agriculture sustainable. In addition to environmental considerations, however, economic viability (economic sustainability) and contributions to social development (social sustainability) are necessary. The Johannesburg Declaration (2002) states that economic development, social development and protection of the environment are the three pillars of sustainable development.

maintain, in addition to stability and improvement in domestic agricultural production, stable sources of imports and appropriate food reserves. Improvements in policies, rules and regulations, systems as well as infrastructure like transportation and storage facilities are also required in order to supply imported or locally produced food to consumers.

As seen above, ensuring and maintaining sustainable agricultural production is crucial for stable food supply. Falling in Goal 2 here are those approaches to stable food supply that are not included in Goal 1.

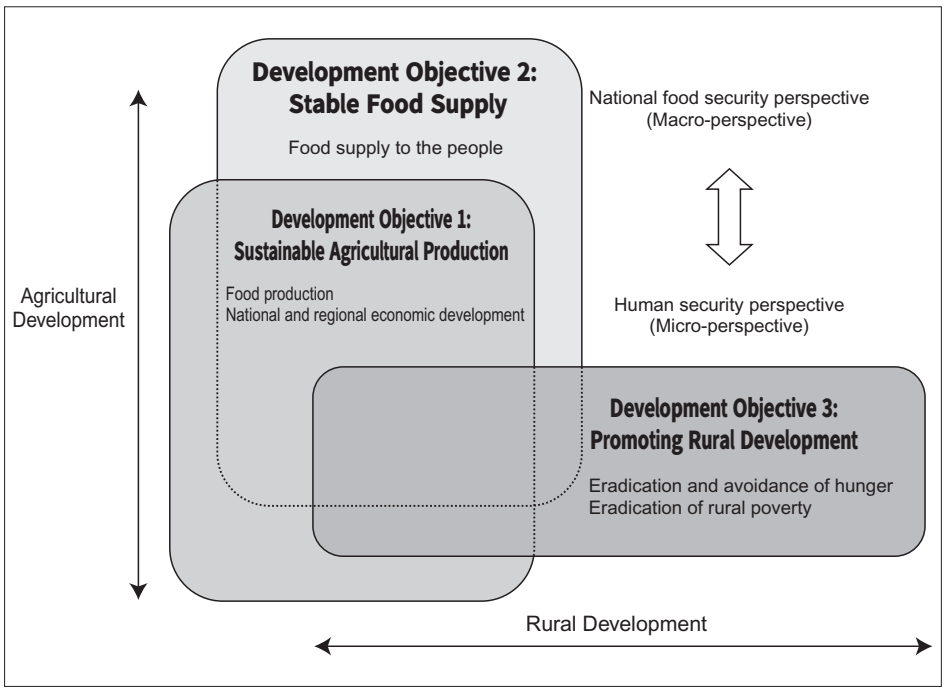
Development Objective 3: Promoting Rural Development

(3) Development Objective 3: Promoting Rural Development

To develop vibrant rural areas through the elimination of rural hunger and poverty, it is important to step up the empowerment of local residents by promoting a variety of economic activities like handicraft and other small businesses, improving and organizing rural infrastructure such as roads and drinking water supply and enhancing sanitation and education standards. This is all in addition to increasing agricultural production and utilizing and selling agricultural products.

Although sustainable agricultural production is an important element for any attempt to promote vibrant rural areas, here, we have grouped in Goal 3 those approaches that are not included in Goal 1.

Chart 2-1 Development Objective and Perspectives/Purposes of Cooperation



Source: Author

So-called "agricultural development" represents an attempt to attain Objective 2 on the basis of Objective 1, and "rural development" an attempt to achieve Objective 3 while incorporating Objective 1.

Needless to say, conditions in each country and region are broadly different, and it is necessary to accurately assess those divergent conditions in interpreting the Development Objectives and Mid-term Objectives. Also, sub-goals of the Mid-term Objective as shown in the system chart are taken from the examples of past projects and are likewise to be applied flexibly in accordance with varying regional conditions. In "Development Objective 3: Promoting Rural Development" in particular, it is necessary to keep in mind that a broad range of indices on the social and economic aspects of rural communities become the prerequisite for the formulation and implementation of projects.

2-2 Effective Approaches to Agricultural and Rural Development

Development Objective 1: Sustainable Agricultural Production

Development Objective 1: Sustainable Agricultural Production

It is extremely important to achieve "sustainable agricultural production" not only for eradicating hunger and strengthening the means of promoting economic activity in rural areas but also for stimulating economic growth in developing countries. In addition, "sustainable agricultural production" is an important element for providing stable food supplies to all regions including urban areas and for achieving the goal of promoting vibrant rural areas.

In the approach to "sustainable agricultural production," it is important to accurately assess conditions in the agricultural sector on the macro-level and to formulate and implement an appropriate agricultural policy that will effectively respond to those conditions (Mid-term Objective 1-1: Capacity Building for Macro-level Agricultural Policy Planning and Implementation). It is also important to expand agricultural production and increase productivity while improving policies (Mid-term Objective 1-2: Expanding Agricultural Production and Improving Productivity). In cases where the aim is to acquire foreign currency and stimulate economic growth through export promotion, it is necessary to make efforts to improve the export system and strengthen export competitiveness (Mid-term Objective 1-3: Strengthening Export Promotion Measures). It is also crucial to consider the environment carefully in order to maintain agricultural production for an extended period of time (Mid-term Objective 1-4: More Careful Consideration of the Environment). In addition, it is essential to train people by upgrading agricultural and agronomical education on the senior high school, college and graduate school levels in order to secure sustainable development for the agricultural sector as a whole in the future (Mid-term Objective 1-5: Strengthening Agriculture-related Higher Education).

Mid-term Objective 1-1: Capacity Building for Macro-level Agricultural Policy Planning and Implementation

Mid-term Objective 1-1: Capacity Building for Macro-level Agricultural Policy Planning and Implementation

When cooperating in agricultural development, it is necessary to accurately grasp the present and future supply-demand conditions for agricultural products and the agricultural labor force in recipient countries, foresee desirable future directions and to present feasible plans for implementation.

Necessary approach: coordination of macro-level (national-level) and micro-level (regional-level) activities is important in providing agricultural policy aid.

Improvements in agricultural policy include those on the macro-level (national level) that should be led by central government authorities, such as reform in agricultural systems, the securing of agricultural budgets, promotion of land reform, better distribution systems, effective management of agricultural trade, compilation of detailed national agricultural statistics and data, and human resources development focusing on central agricultural administrators. Among those on the micro (regional) level that should be handled by local governments, NGOs and local residents are better regional agricultural systems, the development of farmers' organizations, the distribution of agricultural extension (promotion) workers, the improvement of local agricultural markets and the introduction of financing systems for farmers. Problems on these two levels influence each other, and their solutions are also closely related. It is important, therefore, to keep the two levels in proper balance in order to ensure the success of development projects. If one of them does not function properly, agricultural and rural development in a given recipient country does not make any progress.

What is important is to consider aid activities on the macro and micro levels as a whole and always formulate and implement projects while taking overall benefits of each of the two levels into consideration. Even in macro-level activities, it is necessary to grasp the needs of specific regions and examine the results of the projects on the regional basis as well. In implementing micro-level projects, we should likewise consider their repercussions on the national level. Also, aid for policies and institutions is equally necessary for "Sustainable Agricultural Production," "Stable Food Supply" and "Promoting Vibrant Rural Areas" in the Development Strategy Goals. Such aid is important regardless of the nature of projects that are to be carried out.

It is often said to be difficult to identify and formulate macro-level agricultural policy aid because Japan possesses neither adequate personnel nor enough experience in the area, cost-effectiveness is hard to gauge compared with individual agricultural technology transfers which usually show more pronounced results and because such aid could subtly influence the agricultural policy of a recipient country itself. Recipient countries, on their part, sometimes did not understand the importance of macro-level agricultural policy aid and tended to place priority on infrastructure improvements, equipment provision

and other "hard" aid projects. In the future, however, we hope to actively provide such policy aid projects in order to promote truly effective agricultural development and also to provide assistance that is in line with Japan's policy intentions.

JICA's Approach:
- Policy advisors, planners-researchers, sector program development studies, agricultural management training courses
- Locating and training personnel capable of handling policy aid is an urgent task

JICA's Activities

Our approach to providing support for capacity building for macro-level agricultural policy planning and implementation typically includes the dispatch of policy advisers to the agriculture and other departments of recipient countries, the dispatch of planners and researchers, as well as sector program development studies and group training on agricultural administration. At the same time, policy discussions on national-level sectors take place at annual consultative group (CG) meetings and sector-specific donor meetings at overseas JICA offices, through which we try to help improve the capacities of policy planners in recipient countries. Also, besides specialized projects with this Mid-term Objective, there are many others that offer support for policy formulation in a broader sense. Capacity building by organizations in recipient countries is thus extremely important in formulating and implementing technical cooperation projects.

Aid for supporting policy formulation is a relatively new type of assistance in need, and it is difficult to find experienced consultants, experts and specialists in sufficient numbers. Therefore, it is urgently necessary to locate and train people who are capable of participating in policy discussions on development issues with senior officials in recipient countries and among international donors. Also, as effective implementation of policy support aid as well as identification and formulation of projects with strategic intentions require the building of an intellectual network that is strong enough to support the processes, it is vital that a base for intellectual contributions to policy aid be created in Japan.

Mid-term Objective 1-2: Expanding Agricultural Production and Improving Productivity

Mid-term Objective 1-2: Expanding Agricultural Production and Improving Productivity

"Expanding agricultural production and improving productivity" is important to raise farming-family incomes and to bolster food supply. A variety of approaches is necessary to attain this goal, but we will take up the following five approaches in this report.

Since "land" and "water" are basic elements in agricultural production, it is essential to strengthen production infrastructures involving them, and maintain and manage them on a sustainable basis. (1-2-1: Improving, Maintaining and Managing Production Infrastructure). Next, it becomes extremely important for testing and research organizations to conduct basic research and develop

technologies that are suitable for any given region attempting to expand agricultural production. This is because agriculture is strongly susceptible to natural and social conditions. (1-2-2: Strengthening Research and Technological Development). Further, since the results of technological improvement and development brought about by research organizations and farmers themselves can lead to expansion in agricultural production and productivity improvement only when they are widely disseminated, it is necessary to strengthen dissemination efforts. (1-2-3: Promoting Agricultural Extension). Also, management capacities of individual farming households must be improved since farmers in developing countries generally face difficult conditions. (1-2-4: Improving Farm Management). It is also necessary to secure and make proper use of agricultural production resources (agricultural machinery, fertilizer, seeds, etc.) in order to stabilize and streamline agricultural production. (1-2-5: Securing Agricultural Production Equipment/Materials, Improving their Use).

It is necessary to consider specific means of agricultural production, mindful of the importance of this Mid-term Objective in raising farming household incomes.

Mid-term Objective 1-2-1: Improving, Maintaining and Managing Production Infrastructure

Necessary approach:
- Developing and improving farmland
- Conserving farmland
- Improving irrigation and drainage facilities
- Developing water use associations
- Improving livestock production infrastructure

1-2-1: Improving, Maintaining and Managing Production Infrastructure

The majority of people in developing countries live in rural areas, engaging in agriculture, fisheries and forestry. The population is rapidly growing, leading to the expansion and excessive use of farmland, which in turn is causing the degradation of natural resources like soil degradation, desertification, water shortage and shrinking tropical forests. Because of this, appropriate use of farmland and water is becoming increasingly important.

Both “land” and “water,” the most basic elements of nature, are vital for agricultural production. The “securing of agricultural land” and the “securing of water” lead directly to higher farm incomes through improved agricultural productivity, while the “conservation of farmland” is closely related to the preservation of the environment in rural areas and the “securing of irrigation water” to better living conditions through the acquisition of water not only for agricultural but other purposes as well.

Thus, in order to improve agricultural infrastructure, it is important to make sure that the attempt will progress smoothly after ascertaining the capacities of the central government, local governments, agricultural organizations and farmers of any given country. Also, it is important to consider integrated development programs including improvements in farm management and distribution together with those in physical facilities so they will result in higher agricultural production and farm incomes.

(1) Development and Improvement of Farmland

The development and improvement of farmland means to create farmland with higher productivity with measures like the creation and improvement of crop fields, land readjustment, soil improvement and land re-plotting.

The improvement of farmland can lead to higher productivity by making land slopes less steep, irrigating farmland and removing gravel out of it. In the case of paddy fields, not only improved rice productivity but also crop rotation and cultivation of off-season crops become possible depending on how far farmland improvement is implemented.

(2) Conservation of Farmland

This means protecting farmland from natural disasters and depredations. Specifically, it means protecting soil from erosion (wind and rain erosion), contamination, floods, landslides and deterioration in water quality.

Among measures designed to prevent soil erosion, in addition to engineering work to make land slopes less steep, are planting crops along field contours, or contour cropping, and a farm management approach like planting pulses and feed crops on slopes.

In approaches regarding farmland including the development and improvement of farmland, it is necessary for farmers, who are land users, to become motivated and participate in them. It is important that farmers are sufficiently aware of the importance of the development, improvement and conservation of farmland and participate in various projects voluntarily. Since farmland is an essential element in agriculture and is deeply connected to the customs and religious practices of various regions, it is necessary to keep these factors in mind.

(3) Improvement of Irrigation and Drainage Facilities

Irrigation and drainage are extremely important in securing improvement in agricultural production. There are cases, however, where large-scale irrigation and drainage systems prove less than entirely effective. Various reasons are cited for this: they require a considerable amount of initial investment as well as maintenance cost; it takes a long time to build them; they have a strong impact on the environment; and water use associations are not as effective as they should be. On the rise in recent years is the number of projects aimed at renovating the existing irrigation/drainage systems, developing small-scale systems and training farmers to manage them. In line with this trend, issues regarding the know-how for maintenance and management of the existing facilities and effective water management and use are becoming important along with the traditional technical cooperation that has focused on the improvement, including planning, designing and implementation, of physical facilities.

Up until now, high-standard infrastructure improvement projects have

often been implemented only in limited areas. In the future, it is necessary to consider expanding them to wider areas. For this purpose, it is important to think, for instance, not only about building facilities that require sophisticated technology but also constructing those with relatively lower standards in many easy-to-manage and relatively small rural areas with the use of local labor and technology.

In improving irrigation and drainage facilities, ownership of people in rural areas who will benefit from them is necessary. It is also important for them to possess adequate knowledge about irrigation and for us to ask them to participate in projects from the planning stages and to incorporate their wishes and desires. Further, considering social conditions, participatory water management that calls for the voluntary participation of rural residents is important for continuous maintenance and management of the facilities after their completion. It is necessary for technical experts to carefully assess the local residents' wishes and desires, however, since some of the projects that the residents describe as beneficial to them may prove economically and technologically unfeasible to implement.

(4) Developing Water-Users Associations

In developing water-users associations, advice for the revitalization of existing associations and improvement of systems and personnel training is necessary, as is cooperation in establishing new associations, training personnel and drafting guidelines.

In cases where farmers' organizations already exist, it is necessary to actively incorporate their activities and sense of solidarity in creating water-users associations. Where no such organizations exist, on the other hand, water-users associations consisting of rural residents have to be newly set up with the help of donors. In these cases, effective incentives will be necessary if the rural residents are to remain active in the new organizations and pay for the use of water and other costs. For rural residents, the best incentive is to see their production and income grow. For this purpose, it is necessary not only to draw water to their farmland through irrigation projects but also to provide technical assistance for farm management, improved marketing and other areas of their business. Only when all these come together, sustainable management of water-users associations becomes possible.

It also becomes necessary to train people in the central government and related organizations since their institutional and legal support may be required for effective management of water-users associations. Also, when a donor carries out an irrigation project and creates a water-users association, it is necessary to ascertain that local residents will be able to manage it properly on their own after the period of cooperation ends.

(5) Improvement of Livestock Production Infrastructure

Domestic livestock not only produces and provides animal proteins, leather, hair, fertilizer and household fuels, but also plays other roles, serving, for instance, as draft animals, forming investment and assets, and increasing job opportunities for women and children. The means of effectively utilizing those domestic animals include improving the base for feed production (amelioration and proper use of grassland, growing feed crops, turning unutilized resources to effective use, etc.), upgrading livestock barns, silos and other related facilities. In developing countries, family-managed garden livestock raising with an insufficient production base plays a dominant role. Thus, it becomes necessary to improve the production base like this in order to enable farming families to maintain stable livestock production. To secure livestock feed for dry seasons, it is important to adjust silage, utilize feed trees and turn such presently unutilized resources as agricultural by-products and leftovers from food-processing plants including brewer's grain into livestock feed.

JICA's Approach
- Support as part of agricultural development projects
- Support as water resource and water channel projects
- Support as water use association projects
- Support as livestock farming projects

JICA's Approach

Many JICA projects for the development, improvement and conservation of farmland have already been in progress as part of an attempt to develop rice farming and irrigated agriculture.

JICA has been implementing many projects whose main objective is the improvement of irrigation and drainage facilities. Japan has been extending aid in the planning, construction and maintenance of agricultural dams, river embankments and other water resources facilities as well as main and subsidiary waterways in the form of technical cooperation and grant and loan aid. In providing cooperation, it bears in mind that the costs of building facilities should not be high, farmers can maintain and manage the facilities on their own and also that existing facilities should be repaired and effectively utilized. Also being implemented are projects to build irrigation systems that are designed not only to draw water into certain areas but also to obtain ripple-effects for neighboring areas.

The development of water-users associations could be part of a project to improve irrigation and drainage facilities, or it could be the main purpose of a project itself. In the future, it will become more necessary than ever to develop water-users associations to ensure sufficient maintenance and management of irrigation and drainage facilities.

JICA is undertaking the improvement of livestock production infrastructure as an area of cooperation related to livestock farming in the form of upgrading animal barns and grassland in order to help acquire improved feed, among others. It is also providing cooperation whose main purpose is to improve feed produce.

Mid-term Objective 1-2-2: Strengthening Research and Technological Development

1-2-2: Strengthening Research and Technological Development

Here, "strengthening research and technological development" refers to basic research conducted by research organizations and the development of appropriate technologies, while "promoting the spread of agriculture" to be discussed later is defined as attempts by agricultural extension workers and other promotion staffs to widely spread the use of technologies developed by research organizations. Technical improvement by farmers will be included in "1-2-4: Improving Farm Management."

Necessary approach:
- Strengthening research organizations
- Establishing production technology
- Protecting plant genetic resources
- Improving post-harvest technology
- Developing livestock raising technology

(1) Strengthening Research and Development Organizations

Basic research and technology development by testing and research organizations are essential for the expansion of agricultural production and improvement of agricultural productivity. In many cases, however, those organizations in developing countries face technical problems as well as lack of funds, organizational systems and personnel. They often cannot function as fully as they are expected. Because of this, with a view to reinforcing and strengthening them, it is necessary to provide advice on personnel training, installation and improvement of facilities and the way of conducting research, as well as extending side support for securing funds.

Also, it is necessary to make sure that technologies under research are appropriate for meeting the natural, social, economic and other conditions of regions involved. The technologies that have been developed should exert no excessive burden on the environment. Neither should they impose an economic burden. They should be easy to use and of the kind that allows ready access to anyone. We should also keep in mind not only development of new technologies but also improvement of existing ones as well.

(2) Improvement of Production Technology

Research on production technology includes improvement of plant varieties, cultivation techniques and agricultural machinery as well as conservation of farmland and effective use of water resources. It is important that the technologies that have been developed are accepted by rural residents and take root in their areas. Also, problems afflicting farmers should be swiftly brought to the attention of research organizations through agricultural extension workers and solutions found by researchers should be fed back to the farmers as swiftly.

1) Breed Improvement

In improving plant varieties, cross-breeding of the same kinds and varieties of plants is conducted, in addition to introducing and selecting them

from inside as well as outside the country. Many of those plants are high-yielding varieties, but it is necessary to produce the kinds and varieties of plants (drought-, heat-, pest-, salt- and acid-resistant) that are suitable for climatic, soil and other agricultural environments in developing countries. Since the improvement of plant varieties takes time, labor and money, it is necessary to accurately gauge demand first.

In introducing genetically modified crops, it is necessary to pay close attention to whether there is public acceptance or not, in addition to sufficiently assessing their safety as well as their impact on the environment.

2) Improving Cultivation Techniques

Research on the field level includes an attempt to improve cultivation techniques. More specifically, it deals with sowing, seedling nursery, fix planting, planting density, pruning, thinning, fertilizer management, pest control, weeding and cropping systems, among others. Important as sustainable cultivation techniques in developing countries are crop rotation, mixed cropping, agro-forestry, no-tilling farming and agriculture combined with livestock raising.

3) Improving Agricultural Machinery/Equipment

The use of agricultural machinery helps farmers streamline their work and save energy. This makes it possible for them to expand farming land, engage in farm work at appropriate times and shorten cropping periods, which in turn enable them to improve their cropping system, including more effective use of their land and the diversification of crops through the introduction of value-added crops. Because of this, cooperation in the development and improvement of agricultural machinery is necessary. It is also important to make effective use of farm tools suitable for agricultural and livestock-farming conditions in recipient countries.

4) Improving Irrigation and Drainage Technology

Irrigation and drainage have been discussed in detail in "1-2-1: Improving, Maintaining and Managing Production Infrastructure." Improvements in technology in this field include more effective use of limited water resources as well as irrigation water, and better cultivation environments through the removal of excess water. Technologies related to water harvesting and water conservation, among others, are also important in semi-arid areas.

5) Conservation of Farmland

This research aims at conservation and effective use of farmland and development of appropriate technology. The idea is to ensure that limited farmland overcomes natural conditions like sharp slopes and such climatic

conditions as floods and droughts. Specifically, the research involves prevention of soil erosion and salt damage as well as soil improvement, all of which are important not only for improving agricultural productivity but also for pursuing sustainable agriculture. They will also lead to better living conditions and serve to protect the earth environment through reduction in soil erosion.

(3) Conservation of Plant Genetic Resources

Although there are a wide variety of plant genetic resources in tropical and semi-tropical developing countries, they have been rapidly lost in recent years because of such human factors as the introduction and spread of new species and regional development projects and also because of changes in the natural environment.

The purpose of conserving plant genetic resources is utilization of those resources. For this, a series of activities – search, collection, preservation, evaluation, data management and distribution – are necessary. It is important, of course, to preserve precious species facing possible extinction, but it is also necessary for the future to protect indigenous species and those for which no use has yet been found to date. In this respect, farming families play an important role because they can preserve those species on their own by participating in relevant programs.

It is also vital to have the International Treaty on Plant Genetic Resources for Food and Agriculture (ITPGR)[35] go into effect and improve relevant domestic laws and regulations.

(4) Improving Post-Harvest Technology

Research on the improvement of post-harvest technology involves reducing losses of harvested agricultural products, improving quality to promote sales and establishing shipping standards. More specifically, it covers threshing, drying and milling techniques, preservation of the freshness and quality of perishable food, establishment of storage, processing, selection, packaging and quality standards as well as improvement of safety-inspection systems.

The development of post-harvest technology usually takes place during the process of agricultural production. On the other hand, only when an improvement in post-harvest technology is secured, do increased production and improved productivity result in a rise in farming-family incomes and make stable supplies of agricultural products to consumers possible.

In establishing quality standards, it is necessary to carefully consider their ripple-effects since they are intimately related to traditional vested interests and also involve exports and imports.

[35] The International Treaty on Plant Genetic Resources for Food and Agriculture (ITPGR). The treaty became effective on 29 June 2004. At that time, Japan's affiliation was still under consideration.

(5) Developing Livestock Production Technology

Livestock farming in developing countries plays an extremely important role in supplying food and animal labor, improving soil and promoting investment. A vital issue in livestock farming that embraces these important functions is how to maintain sanitation of livestock in order to prevent losses resulting from infectious diseases. There are also issues of reproduction, artificial insemination, feeding management, feed production and breeding improvement.

In many developing countries, the development of livestock raising technology will become increasingly important in the future in the face of economic and dietary changes.

JICA's Approach:
- Support for research institutes
- Support for research on breed improvement, cultivation, agricultural machinery
- Support for search, collection and preservation of plant genetic resources
- Support for food processing and distribution
- Support involving animal disease and artificial insemination

JICA's Approach

In an effort to help reinforce and strengthen research organizations in developing countries, JICA extends cooperation in the fields of breed improvement, cultivation techniques, water resources, plant genetic resources and livestock farming. Such cooperation takes a variety of forms, including cooperation designed to directly support research organizations, such as the construction of facilities and procurement of equipment with grant aid as well as the dispatch of experts and acceptance of trainees through technical cooperation projects. Cooperation is also extended as part of an integrated agricultural development project, or in the form of dispatching agricultural research specialists and of training in Japan of technicians from research organizations in developing countries.

As for the development of production technology, JICA supports research on breed improvement, cultivation, agricultural machinery and irrigation and drainage, among others. JICA's support in this respect has played a crucial role to date in its overall agricultural aid. In research on production technology like this, we have to keep in mind the importance of disseminating the results widely to farmers, whether the studies are made at research organizations or on the field level. From this perspective, JICA has extended aid to agricultural technology centers, irrigation technology centers and agricultural machinery centers that combine the functions of agricultural research, training and dissemination. Among these projects are many that involve on-farm trials designed to determine whether or not dissemination of improved technology is possible.

JICA has undertaken projects on plant genetic resources in Chile (project-type technical cooperation completed in 1995), Sri Lanka (project-type technical cooperation completed), Myanmar (project-type technical cooperation completed in 2002) and Pakistan (aftercare cooperation completed in 2003). These are grant-aid projects, and JICA has helped establish research institutes, procure equipment and carry out search, collection, preservation, evaluation, data management and distribution of genetic resources centering on beans and

grain like rice and wheat.

In the field of post-harvest technology, JICA has cooperated in research aimed at improving technology to process food including dairy products and to handle harvested rice as well as research for establishing quality and collection/shipment standards for fruit and vegetables distributed through markets. In addition, there are cases where cooperation has been extended as part of an integrated agricultural development project or as a component of a post-harvest processing improvement plan worked out in development studies (Uganda, Cambodia).

JICA's projects to cooperate in research on livestock raising technology include those aimed at improving the diagnosis of animal disease, animal quarantine and vaccine production. Since these projects cover specialized areas, it is necessary to implement them in close coordination with research institutes of the Ministry of Agriculture, Forestry and Fisheries as well as university departments of veterinary medicine in Japan. Meanwhile, since livestock disease tends to spread across the borders of developing countries, JICA has been implementing wide-area technical cooperation projects and third-country projects, providing aid not only to aid-receiving countries but to neighboring nations as well (livestock disease projects for Thailand and neighboring countries and for Central and South American Countries under consideration). Among other projects concerning research in livestock farming are those on feed production management, artificial insemination, feeding management for cows and other animals, and livestock processing.

Mid-term Objective 1-2-3: Promoting Agricultural Extension

Necessary approach:
- Establishing promotion policies and systems
- Improving promotion centers
- Developing promotion manuals
- Holding workshops
- Training promotion personnel

1-2-3: Promoting Agricultural Extension

The "promotion of the spread of agriculture" is defined here as an attempt to disseminate appropriate techniques developed by research organizations, as described previously, or techniques developed by farmers themselves or their already existing techniques, as will be discussed later, widely to farmers through agricultural extension workers and other promotion staffs.

In developing countries, it is often difficult to spread the results of technological development research to farmers because promotion organizations lack personnel, facilities and funds. In addition, market-oriented government policies in recent years, as illustrated by structural adjustment policies, have led to sharp spending cuts, accelerated the weakening of promotion organizations and created staff shortages. Because of this, the role of the private sector, grassroots organizations like NGOs, educational institutes and farmers' schools has become more important along with efforts to strengthen promotion organizations and train their staffs.

Also, since research and development in terms of on-site techniques becomes significant only when the results are spread to farmers, it is necessary

to consider how to disseminate them even while the research is in progress and to feed back the status of dissemination to researchers. Thus, research and dissemination of its results should be treated as part of the same system.

Researchers, promotion staffs and farmers are the main actors in spreading research results, and it is necessary for all of them to be aware of their individual roles and capabilities, and perform their respective duties accordingly. Roughly speaking, there are two ways of disseminating research results – a) from farmer to farmer and b) from agricultural extension workers and promotion centers to farmers.

The farmer-to-farmer dissemination rests on the fundamental nature of farmers to want to plant the same kind of crop that has brought higher profits to neighboring farmers who have already tried it – a pattern in which core farmers and more advanced farmers spread techniques to those around them. In another form of farmer-to-farmer dissemination, those who are engaged in agriculture for generations inherit techniques and skills from their parents.

For effective dissemination through promotion staffs, it is necessary ① to improve dissemination systems by establishing promotion centers and reinforcing promotion departments in local governments, ② to improve dissemination methods by creating model farms, developing manuals and promotion materials and providing training for farmers in workshops, ③ to strengthen the capacities of extension workers through training and guidance and ④ to secure the means of transportation (or movement) for agricultural extension workers and other promotion staffs.

In spreading agricultural techniques in developing countries, it is necessary to develop and promote the kinds that are appropriate for conditions unique to each country while taking Japan's own experiences into account, instead of merely transplanting Japan's home-grown skills. For this purpose, it is necessary to grasp natural, economic, cultural and social conditions of recipient countries. It is also important to understand their traditional agricultural methods, dietary habits, labor practices, economic incentives and the role of female farmers. It is necessary, in addition, to employ promotion methods that fit the conditions and needs of recipient countries so they can continue to use the methods on their own in a sustainable way even after technical cooperation is over.

JICA's approach:
- Support as part of agricultural projects
- Improving methods for agricultural promotion

JICA's Approach

JICA considers the promotion of the spread of agriculture an important part of many of its technical cooperation projects in the field of agriculture. Some of the projects are directly aimed at agricultural extension workers with a view to enhancing their capabilities. In countries where promotion systems are fragile and promotion staffs not sufficiently posted, JICA utilizes farmers, NGOs and private organizations to enhance the spread of agriculture. It also organizes

JOCV-led grassroots activities for spreading agriculture as well as training courses in Japan for overseas promotion staffs.

As has been discussed in "1-2-2: Strengthening Research and Technical Development," JICA's efforts towards the promotion of the spread of agriculture are often made together with aid for research and technical development. In many cases, they are implemented as part of the main activities of agricultural technology centers and other organizations or as part of integrated agricultural development projects.

Mid-term Objective 1-2-4: Improving Farm Management

1-2-4: Improving Farm Management

In developing countries, circumstances surrounding farm management are difficult because various subsidy and price-guarantee systems have been scaled back under structural adjustment policies and also because systems for the support of farmers including lending systems are insufficient.

Against this background, we will discuss the ways and means of improving management capacities of individual farmers as well as financing systems for farmers and creation of farmers' organizations. Coming under the category of improvement of farmers' management capacities are reforms in technology and management plans of individual farmers, an increase in added values, marketing with advantageous prices and various government-run subsidy and price-guarantee systems. Technical improvements by individual farmers include a farm management system aimed at increasing the volume of production with a combination of plant cultivation and livestock raising.[36]

Necessary Approach:
- Technical improvement by farmers
- Management policy improvement by farmers
- Improving subsidy and price guarantee systems
- Strengthening agricultural financing
- Organizing farmers

Farmers' improved management capacities are necessary because they lead to better income, high social position and economic independence for them. Here, we should stress that a farming family, even a tiny one, is an independent economic entity that, rising from the level of merely satisfying their own needs, tries to improve its income by pouring labor and capital into agriculture. It is necessary for us to keep in mind that farmers, exercising their own judgment, are always attempting to increase revenue and profit with small labor and capital.

Regarding financing, we have to figure out how to enable farmers and local residents to borrow, in other words, how to finance the poor who have not been able to take advantage of lending by financial institutions, as well as how to stabilize their production and life and thus improve their living standards. It is also necessary to consider how to improve the capacities of local residents as borrowers (① capacities to negotiate with financial institutions, ② accounting capacities, ③ capacities to repay loans) and also raise their saving capacities, a step that will also help financial institutions manage themselves smoothly.

In creating farmers' organizations, it is necessary to develop agricultural

[36] Specifically, there are forms of agriculture that are combined with agro-forestry and livestock raising.

cooperatives, water use associations and collection/shipment associations so they can make effective use of production technology, production infrastructure and distribution and financing systems, which will lead to higher incomes, and cope with problems they cannot successfully or effectively resolve individually. In order to develop these organizations, it is necessary for farmers to create and manage them through voluntary participation while taking the issue of gender balance into consideration, after being made aware of the needs to improve agricultural management and appropriate management of facilities and of the advantages of joint marketing and incentives to aspire for higher living standards. The development of water use associations and land reform districts[37] is essential today when the maintenance and management of irrigation facilities and effective water management are considered important. It is necessary to start with the development of organizations designed to achieve specific goals in production, marketing, water management and such other areas as immediately necessary, instead of creating complex organizations like general agricultural cooperatives found in Japan.

JICA's Approach:
- Training farmers
- Support for agricultural financing
- Support for organizing farmers

JICA's Approach

Because most partners in JICA's technical cooperation are administrative organizations and research institutes of recipient countries, assistance that is of direct benefit to individual farmers for the improvement of their management capacities is not necessarily sufficient, though farmers may directly take part in training courses held under JICA projects. In the future, however, the number of projects directly targeting farmers is expected to increase as part of the attempt to implement projects more efficiently and to enhance grassroots-level cooperation.

JICA has been strengthening financing for farmers as part of its activities involving agricultural cooperatives, integrated agricultural development projects and training courses in Japan. Agricultural financing brings great benefits to farmers. But since JICA cannot provide capital for financing directly out of its own budget, it has been providing materials that will lead to the creation of capital or making use of part of funds set aside for verification projects.[38]

More often than not, creation of farmers' organizations is part of other plans, like those for strengthening water-users associations in irrigation projects and for improving agricultural cooperatives in integrated agricultural development projects. In order to sustain the results of technical cooperation more efficiently, however, it is necessary to place more emphasis on organizing farmers.

[37] In accordance with the Land Reform Law that was enacted in 1949, "land reform districts" consisting of local farmers are managing water resources in Japan, including the construction and management of irrigation and water drainage facilities.

[38] Examples include a rural development program study in a semi-acrid area of Baringo District in Kenya and a desertification prevention program study in the southern Segou Region in Mali.

Mid-term Objective 1-2-5: Securing Agricultural Production Equipment/ Materials, Improving their Use

Necessary approach:
- Strengthening market mechanism
- Improving supplementary supply system to improve market access
- Improving inspection/certification systems for agricultural production equipment/materials
- Improving standards for safe use of agricultural production equipment/materials
- Establishing service for providing information on agricultural production equipment/materials
- Agricultural production equipment/materials (machinery, chemicals, seeds, fertilizers, livestock-raising materials)

1-2-5: Securing Agricultural Production Equipment/Materials, Improving their Use

Agricultural production equipment/materials make stabilization and rationalization of agricultural possible and help farmers to engage in agricultural work at appropriate times and reduce their labor. In employing them, however, it is necessary to closely examine their effectiveness and drawbacks. In securing agricultural production equipment/materials, it is necessary, while utilizing the resources distribution functions of the market, to build such supplementary supply mechanisms as community- and cooperative-managed purchasing systems for small farmers who lack market access.

Generally speaking, developing countries are often plagued by shoddy or defective agricultural production equipment/materials, and those that do not satisfy their agricultural conditions (farmland, climate, cultivation systems, etc.) are imported in large quantities. In many cases, there are no established standards for their use, either. It is necessary for the governments of developing countries, therefore, to create an inspection system, improve the existing certification system and set up safety standards while also building an information system on agricultural production equipment/materials for the benefit of farmers.

(1) Agricultural Machinery and Equipment

The introduction and promotion of agricultural machinery and equipment[39] enables farmers to work with the kind of speed that is impossible with manual labor and also leads to more efficient use of land.[40]

Many developing countries are using agricultural machinery and equipment that are introduced from other countries. Although the ultimate goal is to assist them to manufacture on their own agricultural machinery and equipment that will meet their agricultural production needs, it is important to take a step-by-step approach after first assessing the present conditions of agricultural production, administration and research systems (for details, refer to Mid-term Objective 1-2-2) as well as machinery makers and the structure of the agricultural machinery industry in those countries. It is also important to develop a series of industries to repair agricultural machines when they break down, improve the distribution system for spare parts and the inspection system for the safe use of machinery, train skillful operators and to develop a variety of financing resources for machinery purchases.

[39] In this report, mechanization includes improvement in agricultural machinery, including the use of agricultural machinery operated with animal labor.

[40] People tend to think that introduction of agricultural machinery will take jobs away from farmers, but it will also serve to expand production and increase agriculture-related demand, leading to the formation of a more sophisticated industrial structure.

(2) Stable Seed Supplies

The introduction of high-yielding varieties has achieved the most prominent success in history in improving agricultural productivity.[41] From this perspective, the building of a stable supply system for seeds that meet varying conditions in producer regions and maximize cost-effectiveness is the most important element in agricultural production.[42]

In developing countries, small farmers have only limited access to high-yielding varieties as governments fail to work as hard on the spread of agriculture as before.[43] It is especially important for the governments of developing countries to improve systems for the propagation, production and distribution of quality seeds. In many developing countries, no adequate seed inspection system is in place. As a result, bad seeds are in circulation and the quality of seeds deteriorates as farmers too poor to pay for seeds repeat cultivating their own seeds, creating serious production problems.[44]

To cope with these problems, it is necessary to take an approach that includes the creation of a system for the preservation and utilization of plant genetic resources and improvements in seed-selection, inspection and propagation systems. The approach could also embrace promotion and distribution of improved seeds and support for the improvement of technology to enable farmers to cultivate their own seeds. (For breed improvement, refer to Mid-term Objective 1-2-2)

(3) Appropriate Use of Agro-chemicals

Pesticides are an important production material for the improvement of agricultural production. When appropriately used, they will protect agricultural products from harmful insects and weeds and also cut down on labor.

In many developing countries, large quantities of pesticides are marketed without any standards being set up for their use, and an excessive dependence on agricultural chemicals has resulted in many problems. They include condensation of pesticides on the ground through residues and the food chain, and the emergence of harmful insects, germs and weeds that are resistant to

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[41] CGIAR and other international agricultural research organizations are stepping up efforts to improve and develop seeds. The development of high-yielding varieties by the International Rice Research Institute (IRRI) in the 1970s, called the "Green Revolution," has made dramatic increases in cereal grain yields possible. The development of the New Rice for Africa (NERICA) through cross-breeding by the West Africa Rice Development Association (WARDA) in the second half of the 1990s is said to have potential to bring the Green Revolution to many people in African Countries who are trying to stem their ravenous hunger by drinking rain water.

[42] Since high-yielding varieties do not produce expected harvests unless agricultural production resources and materials like water, fertilizers and agricultural chemicals are properly combined, it is necessary to consider the possibility of using other materials that are technically and economically more feasible in introducing them.

[43] Since the 1980s, many countries have been carrying out structural adjustment programs, but agriculture-related budgets and personnel have been reduced because of fiscal spending cuts, privatization projects and shifts to a market economy. The result is a serious setback in agricultural research and improvement promotion projects with their public nature.

[44] Generally speaking, the quality of seeds with their own specific characteristics will deteriorate if home production is repeated with improper technology, and it will become difficult to obtain the expected property.

agricultural chemicals.

To resolve these problems, it is necessary to pursue an approach that calls for the establishment of standards for the amounts of agricultural chemicals allowed to remain on food as well as those for the use of such chemicals. The approach should also incorporate improvements in the guidance system to promote appropriate use of chemicals, development of methods to do away with agricultural chemicals using varieties resistant to insects and weeds, biological control with natural enemies, and improvements in monitoring and information disclosure systems.

(4) Stable Supply and Appropriate Use of Fertilizers

Fertilizers are an important element in raising agricultural productivity. They improve the chemical and physical qualities of soil, which is the foundation for the growth of plants.

Many developing countries are importing chemical fertilizers, but neither their quality nor quantity is sufficient to meet the demand of farmers, as is the availability of information about their use. Selection of fertilizers that are suitable for the soil of specific agricultural regions is essential for enhancing agricultural productivity. It is important to cooperate in the development of technical methods for soil diagnosis that helps identify the characteristics of regional agricultural productivity, in the selection of appropriate fertilizers, and in the improvement of assessing and testing capabilities. Evaluating the quality of fertilizers on the market and controlling fertilizer registrations are also necessary. Many farmers are using fertilizers recommended by retailers without adequate knowledge about them, making it necessary to provide them with sufficient information about the selection and use of appropriate fertilizers based on soil tests. For those small farmers without access to the market, introduction and promotion of barnyard manure may be considered.

(5) Stable Supply of Livestock Farming Equipment/Materials

In livestock farming, it is important to create an environment for raising healthy animals with a means that is appropriate for their growth and without giving them undue stress. In many developing countries, it is difficult to create the most desirable environment for livestock because of the circulation of low-quality materials and fragile maintenance and management systems, leading to low livestock productivity. Here, an effective approach includes more efficient use of animal raising equipment/materials through the establishment of livestock farmers' organizations and the improvement of users' manuals on machinery and equipment.

Livestock farming materials are broadly classified into those for livestock feed, sanitation and propagation, and management.

For livestock farmers, feed accounts for the largest portion of their

production costs, and it is desirable for them to make and blend it on their own. At the same time, however, it is important to purchase feed that gives the necessary nutrition for different stages of livestock growth. It is necessary to provide farmers with information they need to determine which feed combination is best to improve livestock productivity.

It is often difficult for livestock farmers alone to purchase and manage equipment/materials for animal sanitation and propagation like inoculation and artificial insemination. Therefore, public support in the form, for instance, of a guidance service by livestock extension officer and veterinarians is necessary.

Materials for the construction of barns and ranch facilities as well as machinery and equipment for the creation of grass fields are expensive and difficult for small livestock farmers to gain access to. It is important, therefore, to create a system that will enable them to purchase, at the lowest cost possible, equipment/materials that are easy to manage and maintain on their own.

JICA's approach:
- Support for improving legal system for agricultural production equipment/material market
- Support for organizing farmers
- Support for micro-financing (use of 2KR counterpart fund and grassroots-level aid)
- Support for inspection/certification organizations
- Support for improving standards for safe use of agricultural production equipment/materials

JICA's Approach

In securing agricultural production equipment/materials, it is fundamental to rely on the market distribution mechanism, and support usually centers on extending know-how like ways to improve market laws and regulations. For small farmers without access to the market, however, it is necessary to build such supplementary supply systems as one for group purchasing, making the formation of farmers' organizations all the more important.

As part of grant aid cooperation, Japan has been implementing the Grant Aid for Increase of Food Production (2KR) for developing countries whose GNP is below certain levels,[45] providing them with funds for buying agricultural production equipment and materials like agricultural machinery and fertilizers, and linkage with this scheme represents an efficient means of securing agricultural equipment/materials for recipient countries. JICA is responsible for conducting prior surveys for the scheme and promoting implementation.

It is necessary to improve and strengthen agricultural financing to make it possible for farmers to purchase production equipment/materials. Effective also are the development of human resources through the acceptance of overseas trainees and the promotion of small-scale financing linked to 2KR counterpart funds and grassroots grant aid cooperation.

Cooperation focusing on public organizations conducting inspections of agricultural production equipment/materials is one of JICA's specialized areas, and future demand is expected to remain strong. In recent years, the needs for the acquisition of know-how such as for the establishment of safety standards in the use of agricultural production equipment/materials have been growing, and JICA has been providing assistance centering on capacity-building for technical

[45] 2KR, similar to general grant aid cooperation, is applied to countries whose per-capita GNP is below $1,415 (fiscal year 2003).

guidance leaders by accepting trainees to and dispatching experts from Japan.

Mid-term Objective 1-3: Strengthening Export Promotion Measures

Mid-term Objective 1-3: Strengthening Export Promotion Measures

In developing countries where the primary industry plays a dominant role, promoting exports of agricultural products is an effective means of spurring economic growth and gaining precious foreign currency. Generally speaking, however, agricultural products of developing countries lack competitiveness in price and quality. Since donors like the United States and European countries have been pushing their own exports to developing countries with massive export subsidies, cooperation in export-promotion efforts of developing countries has never been a major theme of aid. But as globalization progresses in the world today and the free trade system is promoted under the World Trade Organization (WTO), developing countries face the need to work out their own export-promotion policies in line with their agricultural development strategies.

Necessary approach:
- Improving policy planning capabilities
- Strengthening systems and structures
- Strengthening competitiveness
- Improving international market information network and marketing capabilities

(1) Capacity Building for Planning Export Policies

In formulating macro-level policy for the promotion of agricultural exports, it is necessary to clearly define its position within the national and agriculture-sector development strategies, and also keep it in balance with the domestic food security and agricultural development policies. When providing support for formulating such macro-level export promotion policy, there is a need to modify the approach depending on various prevailing factors – for example, how large a share exports hold in a given country's agricultural sector, whether systems and standards necessary for export promotion are in place and how strong the private sector is. In other words, since exports incur the risks of being significantly influenced by the domestic agricultural promotion and trade policies of importing countries, it is necessary to help formulate export-promotion policy that responds to domestic food security conditions and risk levels. For example, at a stage where it is impossible to diversify risks, top priority may be placed on the promotion of domestic agricultural production while aid may be provided for drawing up policy for promoting the exports of agricultural products whose international markets have been well-established and stable.

(2) Improving Export Systems and Structures

In implementing the policy that has been set, it is necessary to make export systems and procedures transparent and to train personnel who are engaged in exports.

Generally, aid for the least-developed countries such as those in Africa could involve establishment of laws, regulations and systems concerning export

promotion from a medium- and long-term perspective. Advice on existing export promotion policy could also be considered along with support for measures aimed at diversifying export destinations and products or strengthening mechanisms to promote exports and funds to manage major agricultural export products. In addition, it is important to provide comprehensive advice on agricultural policy since it is necessary to appropriately distribute foreign currency gained through exports not only to stepped-up export promotion efforts but also to the domestic agricultural sector. Regarding aid for major agricultural export countries, it is important to take "boomerang effects" to Japan into consideration in selecting aid targets.

(3) Strengthening Export Competitiveness

It is necessary to improve export competitiveness in order to sell agricultural products in the international market and to expand exports. The approach to technical cooperation for the strengthening of export competitiveness can be considered on two fronts: "improvement of agricultural productivity" and "improvement in the quality of agricultural products."

By improving agricultural productivity, inexpensive and stable supplies of agricultural products become possible. (For detailed approach to the improvement of agricultural productivity, refer to "Mid-term Objective 1-2: Expanding Agricultural Production and Improving Productivity.")

In order to improve the quality of agricultural products, technical aid to upgrade technology for preserving and managing the quality of harvested agricultural products, processing agricultural products to add value, establishing systematic certification standards and criteria, and quality control can be considered.

Since concerns about food safety and genetically modified agricultural products have been growing today, technical cooperation for importing countries may also be studied in the areas of food sanitation standards, thorough enforcement of regulations on residual agricultural chemicals as well as plant quarantine.

(4) Improving International Marketing Capabilities

In order to sell agricultural products that have gained export competitiveness in the international market and develop agriculture as an export industry, it is important for the governments of developing countries to improve information services for the private sector that is saddled with various problems, including shortages of human resources, lack of international marketing capabilities and difficulty in developing overseas markets on their own. As a specific approach, it is important first to consider strengthening the functions of public trade organizations. Then, aid can be considered for facilitating government efforts to provide the private sector with information on the

international market and information on trade systems, procedures and commercial practices of importing countries. Aid for improving the system for gathering information on important international market trends and prices, as well as provision of information regarding established overall government trade policies, can also be studied.

In addition, it is important to help private companies in developing countries facing human resources, technology, management know-how, financial and equipment problems to strengthen their export competitiveness, including the development of agricultural products and training in processing technology, within the framework of agricultural development and as part of the attempt for the promotion of small- and medium-sized companies.

JICA's approach:
- Not many JICA aid projects
- Establishing marketing plan on the basis of master plan
- Advice on export promotion policy
- Strengthening technical and administrative capabilities

JICA's Approach

There are not many JICA aid projects in this area, but here are some of them.

As a project for the improvement of export policy planning, we can cite the "Export Promotion Planning Study" in Kenya. In this development study project, JICA drew up a master plan covering all aspects of export promotion, provided policy advice and established an action program to deal with issues that were highlighted by the master plan. In other projects, JICA sent out specialists like agricultural policy advisers to conduct comprehensive research on development strategies and industrial structures of recipient countries, and gave recommendations and advice on agricultural export promotion policies.

Yet another is the "Cerrados Agricultural Development Aid Project" in Brazil, in which JICA used its development financing program[46] (a pilot project) to provide funding.[47]

Included in the aid designed to help strengthen the export competitiveness of agricultural products is cooperation in the improvement of agricultural productivity[48] and the quality of agricultural products. In Sri Lanka, JICA helped build a national plant quarantine institute with grant aid and strengthened the country's plant quarantine system with a technology transfer through the "Sri Lanka Plant Quarantine Station Project" which was undertaken in the form of project-type cooperation.

Also, JICA has accepted overseas trainees for courses in food safety, inspection techniques, export management, trade investment promotion, industrial standard and assessment techniques, and plant quarantine, among others, thereby extending cooperation in capacity building for administrative organizations involved in export promotion in recipient countries.

[46] A project to provide low-interest, long-term financing as well as the necessary research and technical assistance to private Japanese companies. This project has been terminated.
[47] For details on the Cerrados Agricultural Development Aid Project, refer to Box A1-3.
[48] Refer to 1-2: Expanding Agricultural Production and Improving Productivity.

Mid-term Objective 1-4: More Careful Consideration of the Environment

Mid-term Objective 1-4: More Careful Consideration of the Environment

The burden imposed by agriculture and rural activity on the environment has grown immeasurably heavy not only in developing countries but in the entire world because of the progress in profit-oriented agriculture, making environmental problems in agriculture and rural areas ever more pronounced than in the past. Developing countries in particular, because they do not have many export-competitive items other than primary products, often pursue strategic development plans that place priority on the production of cash crops (coffee, cacao, palm oil, etc) that earn foreign currency. As a result of this trend, land that is suitable for agriculture is increasingly turned to the cultivation of cash crops, driving arable and pastoral farming necessary for farmers to earn a living to marginal land areas with only a weak environmental resilience. The result is a destruction of the production base over a short period, which has forced farmers to engage in arable and pastoral farming on economically even more unfavorable land, and the vicious circle of environmental destruction continues endlessly. Against this background, hopes for the development of agriculture in an environment that is in harmony with the ecological system and for sustainable agriculture have grown.

Necessary approach
- Disposal of agricultural waste and its effective use
- Reducing burden on environment from use of fertilizers and chemicals
- Maintaining and developing multi-faceted functions
- Improving environmental education

Environmental pollution and the destruction of amenities and nature (environmental resources) are taking place in agriculture and rural areas. A modern approach to dealing with these problems includes processing agricultural waste and its effective utilization, reducing the environmental burden stemming from the use of fertilizers and agricultural chemicals, maintaining and developing multi-faceted functions and improving environmental education.[49]

(1) Disposal of Agricultural Waste and its Utilization

The disposal of agriculture-related waste and efficient utilization of it are hugely effective in preventing the pollution of the natural environment. Animal excretion, if left not disposed of, is just industrial waste, but it is possible to put it to effective use by turning it into fertilizer or a source of bio-mass energy. As a matter of fact, this is essential for protecting and maintaining the fertility of the soil. Since vinyl and plastic waste from agricultural materials cause serious problems, generating dioxin when incinerated, for example, it is necessary to consider establishing an appropriate disposal promotion system and introducing alternative materials.

[49] Here, we will discuss environmental considerations that are directly related to agricultural production. Regarding environmental considerations in rural development, refer to "Mid-term Objective 3-5: Protecting Rural Environment.

(2) Reducing Burden on Environment from Fertilizers and Agro-chemicals

The soil, which forms the thin surface of the earth, has been produced by the workings of nature and is essential as the base for the growth of plants. But the use of soil that has ignored its capacity[50] to absorb the environmental burden has led to its degradation and desertification in wide areas. In order to help maintain this capacity, appropriate soil management[51] is necessary. It should combine steps to improve the soil's chemical quality through the application of proper fertilizers, its physical quality through the use of organic materials and deep-earth cultivation and its biological quality through an increase in the amount of useful microorganisms and small animals in the soil.

In the agricultural environment where the same crops are grown in wide areas, micro-organisms, pests and weeds tend to spread and damage the crops. Agricultural chemicals have had a dramatic effect in eliminating these harmful organisms. Since an excessive reliance on agricultural chemicals leads to more pronounced environmental problems like residues and chemical condensation on the ground through the food chain, it is necessary to select ways that will reduce the burden on the environment while at the same time holding the costs down to a minimum. These ways include development of disease-resistant varieties, biological control of harmful insects and organisms through the use of natural enemies, physical elimination employing vinyl film and insect screens and seeding elimination like crop rotation. Another is the introduction of the Integrated Pest Management Program (IPM) that will reduce damage from harmful insects to the levels that are economically negligible.

Various approaches are being taken to further rationalizing the VAC system,[52] the traditional compound method of agriculture in Viet Nam. These approaches represent one of the attempts in environmental protection-style agriculture to cut down on the burden on the environment. In this attempt, the raising of ducks and other animals is helping reduce the levels of agricultural chemicals and is contributing to the improvement of not only the ecological system but also living conditions.

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[50] The soil has the physical ability to reduce temperature changes, chemical ability to prevent radical changes in nutrition and pH levels, and biological ability to stem a rapid increase of germs caused by various micro-organisms. Many plants can attain sound growth with a sustainable maintenance of those functions.

[51] A smaller-than-necessary amount of fertilizer will lower soil fertility and make it difficult to sustain agriculture. On the other hand, an excessive amount exceeding the soil's capacity to hold the provided nutrition will lead to the pollution of the environment. It is essential, therefore, to use a proper amount of fertilizer based on appropriate soil quality studies.

[52] VAC is an abbreviation consisting of the first letters of the Vietnamese word "vuon" meaning a fruit farm, "ao" a pond and "chuong," an animal barn. Today, "V" is said to include all use of land, "A" water resources and their development and "C" use of animals.

(3) Maintaining and Developing Multi-functions

The multi-functionality of agriculture means overall functions[53] that agriculture and rural areas possess, other than agricultural production, that cannot be judged only in terms of economic profitability. They include conservation of the natural environment, land (prevention of landslides and floods, etc.) and beautiful scenery in rural areas as well as the preservation of rural cultures. These functions serve not only residents in rural areas but also those in urban centers. We can make meaningful life in rural areas possible by considering these functions as amenities and sufficiently recognizing and utilizing their values.

In order to maintain and enhance this functionality, it is important not only to implement appropriate agricultural land management aimed at protecting the soil, agricultural management that takes bio-diversity into consideration (appropriate use of agricultural chemicals, etc.) and community-hill management (prevention of excessive development and animal grazing, etc.), but also to respect traditional local cultures.

(4) Promoting Environmental Education

Environmental issues have become more pronounced on a global scale today, and their impact on the agricultural environment is being closely studied. Under these circumstances, it is necessary to build systems and organizations for promoting sustainable use, management and maintenance of natural resources and the environment on a country or regional basis. In economics, the environment is a public asset to be shared among the people and it is at the same time a region-based asset closely related to the history and culture of each region. Once destroyed, it is difficult to be restored because of its irreversible nature. Therefore, residents in each region should understand the characteristics of the environment and fulfill their respective responsibilities for its preservation. Because agricultural and rural development has both positive and negative influence over the environment, it is the responsibility of governments, in developing countries as well as in others, to expand and reinforce environmental education and to provide accurate knowledge and information on the environment to farmers who, after all, are the ultimate beneficiaries of

[53] Included in the multi-facetted function directly related to agricultural production are conservation of land and preservation of underground water. Terraced paddies and fields on slopes are serving to prevent soil losses and landslides. And reduction in soil losses from agricultural land and losses stemming from the flow of rain water out of paddies is preventing floods and preserving underground water.
An ecosystem based on unique vegetation that is different from one in primeval forests flourishes near farmland and community hills, providing habitats to wild animals and helping preserve not only plants but also small animals, birds, insects, soil organisms and bacteria, which contributes to the maintenance of biodiversity.
Farmers settling in rural areas serve to maintain the local culture in their communities, while the scenery and environment in rural areas enable people from outside to enjoy rest and seek aesthetic improvements. These are all considered to be part of the multi-facetted function of agriculture in social sustainability. The Organization for Economic Cooperation and Development (OECD) has been discussing the multi-facetted function of agriculture. (The Food and Agriculture Policy Research Center (2001))

agricultural and rural development.

JICA's approach:
• "Environmental considerations" in agricultural development focus on technical cooperation incorporated in individual projects.

JICA's Approach

JICA's "environmental considerations" in agricultural development have been manifested mostly in technical cooperation as embodied into individual projects. Among them is a technical cooperation project, the "Eastern Amazon Sustainable Agricultural Technology Development Program." In this project, carried out as part of an approach to the establishment of a system and an organizational structure for the sustainable use and management of natural resources and the environment, a mixed planting technology for tropical fruit and pepper as main cash crops has been established to support the livelihood of small farmers while enabling them to live harmoniously with their natural environment.

Among the projects for aid in environmental policy planning designed to prevent destruction of the environment is a development study, the "Mali Southern Segou Region Desertification Prevention Project."

Regarding institutional support for developing countries in implementing international environmental protection agreements (biodiversity, desertification prevention and other treaties), the drafting of master plans and creation of networks among those who have participated in JICA's group training courses are effective.

Also, projects to build systems for the disposal and reuse of agricultural waste and to hold down to a minimum the negative impact on the environment through the establishment of standards for the use of agricultural chemicals and chemical fertilizers that satisfy local conditions are becoming increasingly important, as are those aimed at improving the awareness of local residents about environmental problems and promoting development projects that emphasize local characteristics and identities. These are projects JICA should further advance in the future.

Mid-term Objective 1-5: Strengthening Agriculture-Related Higher Education

Mid-term Objective 1-5: Strengthening Agriculture-Related Higher Education

Higher education is defined[54] as "education, training and research guidance provided by government-certified colleges and universities and other educational institutions following the completion of secondary education." In addition to the education in regular senior high schools and universities, it includes short-term technical education and vocational training. Among the functions of higher agricultural educational institutions are "education," "research" and "promulgation." Agriculture-related higher educational

[54] JICA IFIC (2003a)

institutions in developing countries can improve technical levels of their countries as a whole by strengthening technical education and vocational training, promoting basic and applied research, training technicians and researchers, and playing a role in promoting agriculture-related projects to farmers, eventually leading to sustainable agricultural production.

Necessary approach:
- Improving educational activity
- Strengthening research functions
- Improving management
- Strengthening coordination with related organizations, areas and regions
- Strengthening function as the base for agricultural promotion

Higher agricultural education institutions in many developing countries often do not have sufficient facilities or teaching materials and face a variety of problems, including the needs to improve the quality of teachers, curriculums, teaching methods and materials. Because they have not in the past adequately understood the prevailing conditions or needs of farmers, who are agricultural producers, and because they have not maintained sufficient coordination with administrative organizations and research institutes, the results of higher education, research and promulgation have not sufficiently seeped down to every level of agricultural society, or farmers have not accepted the recommended technology. Thus, higher educational institutions have not made enough contributions to date to the improvement of agricultural productivity.

For agriculture-related higher educational institutions to function properly and for the results they produce to spur agricultural development, it is necessary to "improve their educational activity," to "strengthen their research functions," to "upgrade their management," to "improve coordination with related organizations" and to "strengthen their function as the base for promoting the spread of agriculture."

(1) Improving Educational Activity

In order to improve educational activity, it is important to respond to the individual, specific needs that developing countries face, like finding solutions to the inherent agricultural problems, grasping the conditions of farmers and rural areas and grappling with environmental problems. It is also important to improve the quality of education by locating better-qualified instructors and using more suitable curriculums. In order to make educational activity applicable internationally, it will become necessary in the future to improve standard certification systems for higher educational institutions and thus have the quality of higher education evaluated by official organizations to ensure it.[55] It is also important to improve scholarship and other systems designed to keep socially disadvantaged but bright students in rural areas close to higher agricultural education.

(2) Strengthening Research Functions

It is important to develop human resources such as instructors,

[55] In order to improve the quality of many forms of education in developing countries and make education useful in the international community, an accreditation system for higher education under which official organizations evaluate the quality of educational activity is becoming essential, in addition to such improvements in educational input as instructors, students and educational facilities. (JICA IFIC (2003a) p. 21)

technicians and researchers and improve their quality while at the same time to ameliorate the environment in which they work, in order to strengthen the research function of educational institutions. Aid can also be provided for improving research activity of agricultural universities and departments. In addition, it is important to stress the necessity of research activity in agricultural development and foster the environment in which active research is possible.

(3) Improving Management

In order to improve and maintain the overall quality of higher education and research and to make sure that the higher educational system functions smoothly, it is necessary to ameliorate their management system as a whole. First, it is necessary to establish and implement higher agricultural education policy that is closely linked to social and economic conditions, after taking international agreements and goals as well as national development plans and trends in other sectors into consideration. It is also necessary to improve the administration and management of each higher educational institution and make effective use of its facilities and equipment. Generally speaking, higher education in developing countries is often heavily influenced by political intentions and fiscal conditions of their governments. Therefore, it is important to secure academic freedom at higher educational institutions, utilize limited budgetary allocations efficiently and to diversify financial sources, in order to conduct the kind of research that is conducive to agricultural development without political influences over contents and systems.

(4) Strengthening Coordination with Related Organizations, Local Areas and Regions

In order to harmonize the results of basic research at higher educational institutions with those of practical research on increased food production and environmental and other issues, it is important for higher educational institutions to promote coordination with national agricultural research organizations and the private sector.

Higher educational institutions in developing countries can ensure effective transfer of agricultural technology and knowledge as well as efficient human resources development by teaming up with agricultural universities and departments in developed countries and international research organizations such as those under the Consultative Group for International Agricultural Research (CGIAR).[56] It is also important to establish networks among universities in developing countries that are facing common problems and to promote exchanges on a continuous basis.

[56] The Consultative Group for International Agricultural Research is headquartered in the World Bank. It embraces 16 research organizations, including the International Rice Research Institute (IRRI), the International Maize and Wheat Improvement Center (CIMMYT) and the Africa Rice Center (WARDA).

To utilize the results of research for national agricultural development programs, it is also desirable for central institutions of higher agricultural education to deepen coordination with local agricultural high schools, with a view to serving as a leader for higher educational institutions in rural areas.

Since graduates of agricultural universities sometimes cannot find appropriate jobs and therefore cannot use the technology and knowledge they have acquired, it is important to take decisive steps to explore job opportunities for those students and to improve environments for accommodating graduates of national agricultural research organizations and other institutions.

(5) Strengthening Function as the Base for Promoting Agriculture

As governments curb their role for promoting the spread of agriculture, higher agricultural educational institutions will be increasingly required to function as the base for supplementing and strengthening such a role and to undertake the duty of spreading education and improved agricultural technology to farmers.

JICA's approach:
- Strengthening research functions of universities and university departments, further improving educational activities
- Aid combined with grant aid cooperation for constructing school buildings and other facilities
- Strengthening function as the base for agricultural promotion
- Few cases of cooperation for management improvement

JICA's Approach

JICA is cooperating in the improvement of agricultural education activities in developing countries in addition to the strengthening of research functions. To date, it has provided aid mainly for upgrading educational activities at agricultural universities, graduate schools and agricultural departments and for strengthening their research functions. The cooperation involved the dispatch of experts to provide guidance and advice, the acceptance of counterparts and the provision of equipment, mostly in combination with grant aid for facilities and equipment.[57] Aid to agricultural departments and universities involves two types of cooperation. One is aimed at helping new agricultural departments or universities as a whole to establish their educational systems and strengthen their educational/research functions in combination with grant aid provided for the construction of school buildings and other facilities, as in the cases of the graduate school of agriculture at Bangladesh University and the department of veterinary medicine at Zambia University. The other type of cooperation is targeted at specific areas of study at existing universities or graduate schools, such as the expansion of the biotechnology department at Putra University in Malaysia.

Among the projects designed to help universities to promote the spread of agriculture, there is one involving Kasetsart University in Thailand. In this instance, JICA has been sending experts to the National Educational Training Center, established at the university with Japan's grant aid, and providing guidance, advice, technology transfers and equipment. It has also accepted

[57] Until fiscal year 2002, it was called "project-type technical cooperation."

researchers in Japan. Thus, it has helped the training center to strengthen its functions to spread agricultural technology and research results not only to students but also to farmers.

In a new project to support the strengthening of coordination between higher educational institutions and related organizations and regions, a regional development center has been established at Sokoine University of Agriculture in Tanzania to explore the ways to reduce poverty in the region through pilot projects.

There are not many projects JICA has undertaken to aid the management of higher education in developing countries, but it is essential to improve administrative and management systems to efficiently promote educational and research activities and to strengthen management capabilities of people involved in education and thus maintain sustained effects of various projects. In a program to improve Hanoi Agricultural University, which was completed in 2003, JICA provided support for the management of the university, in addition to traditional aid for the strengthening of educational and research functions. In the future, it is important to actively carry out projects that are focused on management improvement, and accumulate knowledge and expertise in this field.

Development Objective 1: Sustainable Agricultural Production

Mid-term Objective 1-1: Capacity Building for Macro-level Agricultural Policy Planning and Implementation			
Sub-Goal of Mid-term Objective	**Examples of Project Activities**	**Case No.**	**JICA's Main Activities**
Capacity Building for Agricultural Policy Planning	◎Formulation of agricultural development projects	1, 2, 6, 8, 9	• Support Survey for Regional Development Sector Program Establishment (Dev. Study), Policy Advisor (Expert)
	○Improvement of agriculture-related legal systems	1, 2	• Policy Advisor (Expert)
	○Promotion of agrarian reform	2	• Policy Advisor (Expert)
Capacity Building for Agricultural Financial Policy Planning	×Formulation and management of agricultural budgets ×Improvement of agriculture-related tax systems		
Capacity Building for Agricultural Statistics Related Policy Planning	○Improvement of agricultural statistics	4, 5, 11	• Project on Agricultural and Fisheries Statistical Technology Improvement (Tech. Pro.)
Government Personnel Training	◎Training government agricultural administrators and engineers, training local government agricultural administrators and engineers	3, 7, 10, 12, 13, 168, 169, 181, 183, 185, 231, 245, 249, 275, etc.	• Most Experts, Technical Cooperation Projects, Development Studies, Training and Volunteers are included in government human resources development

Intermediate Goal 1-2: Expanding Agricultural Production and Improving Productivity			
Sub-Goal of Mid-term Objective	**Examples of Project Activities**	**Case No.**	**JICA's Main Activities**
【1-2-1 Improving, Maintaining and Managing Production Infrastructure】			
Development and Improvement of Farmland	○Removal of gravel and other unsuitable materials	126, 156	• Study for the Integrated Rural Development Project for Yaque Del Sur River Basin (Dev. Study)
	○Improving agricultural fields ×Replotting	126, 156, 180, 181	• Projects for Equipment Upgrading for Improving Farmland (Grant)
Conservation of Farmland	◎Civil engineering for slope leveling	19, 55, 180, 181, 214, 215, 260, 273, 289	• General Agricultural Testing Center (Tech. Pro.)
	◎Implementation of contour farming	19, 55, 181, 214, 215, 260, 273, 289	• General Agricultural Testing Center (Tech. Pro.)
Improvement of Irrigation and Drainage Facilities	◎Agricultural dams and groundwater development, waterway construction	37, 115, 116, 122, 124, 125, 128, 151, 157, 158, 159, 170, 179, 180, 199	• Project for Small-scale Irrigation Development in Mwega District of Morogoro Province (Grant)
	◎Utilization of river water and ponds	37, 93, 116, 126, 127, 151, 160, 161, 170, 179, 180	• Project for Small-scale Irrigation Development in Mwega District of Morogoro Province (Grant)
	◎Maintenance and repair of irrigation and drainage facilities	27, 37, 113, 114, 128, 129, 130, 131, 132, 133, 134, 135, 136, 137, 149, 150, 155, 160, 161, 162, 163, 164, 165, 170, 179, 180, 232, 251, 271,	• Project study on Irrigation Facilities Rehabilitation (Dev. Study)
	◎Removal of sedimentary soil, sand and plants from irrigation waterways	37, 113, 116, 170, 179, 180,	• Project for Promotion of Small-Scale Irrigation Farming (Tech. Pro.)
Developing Water-Users Associations	◎Understanding incentives for farmers	31, 118, 134, 155, 159, 164, 179, 288	• Project for Strengthening Water Use Associations in National Irrigation Districts (Dev. Study)
	◎Farmer training and development	31, 118, 155, 159, 164	• Project for Strengthening Water Use Associations in National Irrigation Districts (Dev. Study)
	○Drafting guidelines	118	• Project for Strengthening Water Use Associations in National Irrigation Districts (Dev. Study)
Improvement of Livestock Production Infrastructure	○Improving livestock barns, grasslands used for foraging and ranches	79, 138, 274	• Project for Improving Feed Crop Production and Usage Technology in Heibei Province (Tech. Pro.)
	○Improving silo and milk storage facilities	243, 244	• Project for Improving Milk Product Processing Facilities in Ulan Bator City (Grant)
	○Turning unused resources into feed	39	☆Project for Turning Unused Resources into Feed (Tech. Pro.)

Sub-Goal of Mid-term Objective	Examples of Project Activities	Case No.	JICA's Main Activities
【1-2-2 Strengthening Research and Technological Development】			
Strengthening Research and Development Organizations	◎Improving experiments and research organization facilities, equipment and personnel	27, 32, 33, 50, 52, 55, 59, 67, 68, 69, 74, 94, 95, 96, 97, 145, 152, 153, 154, 205	• **Seed Production Capacity Building Project (Grant)**
Improvement of Production Technology	◎Crop breed improvement (improving soybean seeds, hay seeds, etc.)	23, 51, 59, 77, 91, 92, 95, 98, 152, 182	• Plant Genetics Center Project (Tech. Pro.)
	◎Improving cultivation techniques (fertility management, pest control, weed control, cultivation systems, etc.)	23, 24, 32, 58, 59, 65, 68, 77, 81, 89, 95, 98, 99, 100, 101, 102, 103, 104, 115, 117, 120, 123, 126, 127, 132, 136, 139, 146, 147, 148, 153, 172, 180, 183, 190, 191, 192, 193, 194, 195, 199, 203, 204, 206, 208, 259, 261, 262, 263, 279, 296	• Project for Strengthening Agricultural Technology Development and Dissemination (Tech. Pro.)
	◎Improving agricultural machinery	33, 36, 59, 85, 87, 90, 180, 196, 275	• Agricultural Mechanization Research Center Project (Tech. Pro.)
	◎Improving irrigation and drainage technology	27, 28, 30, 70, 71, 73, 74, 76, 86, 101, 111, 112, 113, 129, 115, 116, 122, 139, 140, 141, 142, 147, 170, 171, 179, 180, 263, 264, 265, 288,	• Project for Improving Irrigation and Drainage Technology (Tech. Pro.)
	◎Preventing soil erosion and brine damage, studying soil improvement	19, 55, 95, 141, 122, 143, 214, 260, 265, 262, 266, 267, 273, 277, 299	• General Agricultural Testing Center (Tech. Pro.)
Conservation of Plant Genetic Resources	◎Search, collection, preservation, evaluation, data management and distribution of plant genetic resources	47, 84, 91, 92, 178, 197	• Plant Genetic Resources Conservation Research Center Project (Tech. Pro.)
	◎Studying productivity improvement using plant genetic resources	47, 84, 91, 92, 178, 197	• Plant Genetic Resources Conservation Research Center Project (Tech. Pro.)
Improving Post-Harvest Technology	◎Improving grain threshing, drying and milling technology	87, 167, 202, 230, 231,	• Rice Mechanization Project (Tech. Pro.)
	◎Retaining quality and freshness of vegetables, fruits, meats, milk products, etc.	44, 57, 80, 123, 183, 228, 233	• Project for Dairy Industry Development in Heilongjiang Province (Tech. Pro.)
	◎Storage and processing of agricultural products	167, 232, 236, 245, 246, 248	• Post-Harvest Rice Processing Technology II (Training)
	○Research of grading and packaging technology	245, 246	• Post-Harvest Rice Processing Technology II (Training)
	◎Establishing product quality standards and stability, strengthening inspection systems	24, 43, 59, 119, 166, 167, 184, 185, 186, 245, 247,	• Research Project on High Productivity Rice Cultivation Technology (Tech. Pro.)
Developing Livestock Production Technology	◎Animal disease study, diagnosis and quarantine	41, 45, 66, 83, 105, 106, 107, 108, 176, 187, 188, 189, 206	• Project for Livestock Disease Prevention in Thailand and Neighboring Countries (Tech. Pro.)
	◎Animal breeding through artificial insemination	40, 42, 48, 53, 54, 62, 63, 82, 173, 174	• Project for Improving Artificial Insemination Technology for Cows (Tech. Pro.)
	◎Improving animal husbandry management	40, 42, 44, 45, 48, 52, 53, 54, 62, 79, 82, 109, 110, 175, 176, 177, 230, 276, 296	• Water Buffalo and Beef Cattle Improvement Project (Tech. Pro.)
	◎Improving animal breeding technology	40, 44, 53, 54, 64, 110, 174	• Beef Cattle Improvement Project (Tech. Pro.)
	◎Improving animal product processing	57, 80, 175, 218, 243, 244, 246, 247	• Project for Improving Milk Processing Technology in Inner Mongolia (Tech. Pro.) • Project for Livestock Disease Prevention in Thailand and Neighboring Countries (Tech. Pro.)

Sub-Goal of Mid-term Objective	Examples of Project Activities	Case No.	JICA's Main Activities
【1-2-3 Promoting Agricultural Extension】			
Improving Systems for Disseminating Agricultural Technology & Information	○Building dissemination measures and systems in central and local governments	67, 121, 168, 284	• Project Administrators for Agricultural Dissemination (Training)
	◎Cooperation between agricultural dissemination organizations and testing research organizations	15, 17, 60, 67, 68, 78, 89, 222, 224	• Project for Improving Production Technology for Small Vegetable Farms (Tech. Pro.)
	◎Construction and improvement of agricultural dissemination centers	32, 35, 144, 153, 154, 155	• Project for Improving Agricultural Dissemination and Training Centers (Grant)
Improving Methods of Disseminating Agricultural Technology	◎**Understanding the abilities and needs of farmers**	17, 60, 116, 117, 200, 248, 281, 284, 285, 297, 298,	• Study on Technical Capacity Building for Small-Scale Irrigation Development (Dev. Study)
	○**Improving dissemination from farmer to farmer**	17, 26, 29, 297	• Project for Strengthening Agricultural Productivity in Batdambang (Tech. Pro.)
	○**Partnership with NGOs and educational organizations**	21, 26, 222, 267	• Project for Strengthening Agricultural Productivity in Batdambang (Tech. Pro.) ☆Grass Roots Level Cooperation through Partnerships with NGOs and Educational Organizations
	◎**Developing dissemination manual and materials**	29, 30, 32, 34, 35, 46, 61, 62, 75, 77, 81, 100, 154, 168, 267, 281, 283	• Agricultural Training Center Project (Tech. Pro.)
	◎**Providing workshops and other training opportunities for farmers**	29, 32, 38, 40, 51, 68, 78, 90, 100, 154, 281, 283, 285	• Agricultural Training Center Project (Tech. Pro.)
Human Capacity Building for Agricultural Extension Workers	×**Securing appropriate numbers of agricultural extension workers**	17, 29, 36, 38, 78, 89, 90, 168, 263, 299	• Agricultural Training Center Project (Tech. Pro.)
	◎**Improving incentives for agricultural extension workers**		
	◎**Training for agricultural extension workers**	17, 29, 36, 38, 78, 89, 90, 168, 173, 263, 285, 299	• Agricultural Training Center Project (Tech. Pro.)
【1-2-4 Improving Farm Management】			
Managerial Capacity Building	◎Improving individual farmer technology	18, 23, 26, 34, 37, 40, 44, 45, 46, 48, 50, 52, 54, 56, 59, 67, 68, 77, 78, 86, 90, 100, 116, 120, 135, 139, 144, 145, 203, 230, 233, 287	• Project for Strengthening Agricultural Productivity in Battambang (Tech. Pro.)
	○Improving individual farmer business policy ×Reinforcing various subsidy programs and price guarantees	26, 56, 59, 241	• Business Improvement Project for Small-Scale Farmers through Dairy Farming (Tech. Pro.)
Reinforced and Strengthened Agricultural Financing	◎**Reinforcing financing from public agencies**	25, 56, 121, 133, 198	• Project for **Improvement of Small-Scale** Farmers management through Dairy Farming (Tech. Pro.)
	○**Reinforcing financing from informal organizations** ×**Capacity building for farmers as borrowers**	295	• Participatory Rural Development Project through Empowerment of the Poor (Grassroots)
Organizing Farmers	◎Improving farmer income through agriculture cooperatives and other means	25, 52, 72, 169, 198, 201, 228, 240, 286	• Project for Improving Farmer Income through Strengthened Agricultural Cooperatives
	◎Implementing suitable water management through water user association	31, 93, 118, 121, 133, 198	• Project for Improving Irrigation Farming Technology (Tech. Pro.)

Sub-Goal of Mid-term Objective	Examples of Project Activities	Case No.	JICA's Main Activities
【1-2-5 Securing Agricultural Production Equipment/Materials, Improving their Use】			
Agricultural Machinery and Equipment	×Establishing agricultural equipment safety standards		
	○Improving agricultural equipment inspection systems	33	• Project for Agricultural Machinery Inspection and Evaluation (Tech. Pro.)
	◎Training agricultural equipment maintenance engineers	33, 36, 69, 85, 87, 88	• Agricultural Mechanization Training Center (Tech. Pro.)
	×Improving spare parts distribution systems		
Stable Seed Supplies	○Improving seed multiplication systems	23, 24, 49, 84	• Soybean Seed Multiplication and Training Project (Tech. Pro.)
	×Improving seed distribution systems		
Appropriate Use of Agro-chemicals	○**Establishing pesticide use safety standards**	61	• Project for Improving Pesticide Monitoring Systems (Tech. Pro.)
	○**Implementing education for safe use of pesticides**	61	• Project for Improving Pesticide Monitoring Systems (Tech. Pro.)
Stable Supply and Appropriate Use of Fertilizers	×Establishing fertilizer quality standards		
	○Establishing fertilizer use standards		
	×Improving fertilizer distribution systems		
Stable Supply of Livestock Farming Equipment/Materials	×Establishing quality standards		
	×Establishing use standards		
	×Improving distribution systems		

Mid-term Objective 1-3: Strengthening Export Promotion Measures			
Sub-Goal of Mid-term Objective	**Examples of Project Activities**	**Case No.**	**JICA's Main Activities**
Capacity Building for Planning Export Policies	○Support for establishing export promotion plans and agriculture industry promotion measures	207, 213	• Study for Export Promotion Project (Dev. Study)
	◎Training government administrators	209, 210, 211	
Improving Export Systems and Structures	○Improving export-related legal systems	207	• Study for Export Promotion Project (Dev. Study)
	×Improving export-related financial organizations and systems		
Strengthening Export Competitiveness	○**Expanding agricultural production and improving productivity (see Intermediate Goal 1-2)**		
	△**Establishing systematic standards certification system and standardization**		
	○**Improving testing, inspection and quarantine technology**	206, 208	• Plant Quarantine Station Project (Tech. Pro.)
	○**Training engineers and quarantine officers**	206, 208	• Plant Quarantine II (Training)
Improving International Marketing Capabilities	○Capacity building for trade promotion organizations	207	• Study for Export Promotion Project (Dev. Study)
	○Increasing government support for developing private sector	207	• Study for Export Promotion Project (Dev. Study)
	×Holding marketing seminars, trade fairs and product exhibitions		
	○Gathering overseas market information	212, 213	• Study on Marketing Chilled and Frozen Food (Overs. Study)

Mid-term Objecitve 1-4: More Careful Consideration of the Environment			
Sub-Goal of Mid-term Objective	**Examples of Project Activities**	**Case No.**	**JICA's Main Activities**
Disposal of Agricultural Waste and its Utilization	○**Promoting zero emission agriculture projects**	216	• Zero Emissions Agricultural and Rural Environmental Systems
	×**Expanding environmental conservation budget**		
	×**Improving waste disposal facilities**		
	×**Improving farmer awareness**		
Reducing Burden on Environment from Fertilizers and Agro-chemicals	○Establishing Agro-chemicals and fertilizer use standards (see Intermediate Goal 1-2-5 Activity Examples)		
	○Training on proper use (see Intermediate Goal 1-2-5 Activity Examples)		
Maintaining and Developing Multi-functions, Promoting Environmental Education	◎Appropriate agricultural land management	214, 215, 216, 217, 218, 289, 297, 299	• Farmer Participated Marginal Land Environment and Production Management Project
	○Promoting environmental education		• Environmental Education Activities, Including Agriculture (JOCV)

Mid-term Objective 1-5: Strengthening Agriculture-Related Higher Education			
Sub-Goal of Mid-term Objective	**Examples of Project Activities**	**Case No.**	**JICA's Main Activities**
Improving Educational Activity	◎Technical training for educators and improved teaching techniques	219, 220, 222, 223, 224, 225	• Hanoi Agricultural University Enhancement Project (Tech. Pro.)
	◎Developing and improving textbooks and establishing appropriate curriculum	219, 220, 222, 223, 224, 225, 226	• Hanoi Agricultural University Enhancement Project (Tech. Pro.)
	◎Improving facilities and equipment including classroom, laboratory and materials	219, 220, 222, 223, 224, 225, 226	• Hanoi Agricultural University Enhancement Project (Tech. Pro.)
	×Improving scholarship systems		
Strengthening Research Functions	◎See Intermediate Goal 1-2-2 "Strengthening Research"		
	◎Training researchers	219, 220, 221, 222, 223, 224, 225, 226	• Hanoi Agricultural University Enhancement Project (Tech. Pro.)
	◎Holding seminars and workshops on university research results	219, 220, 221, 222, 223, 224, 225, 226	• Hanoi Agricultural University Enhancement Project (Tech. Pro.)
Improving Management	△Improving management procedures of agricultural higher education organizations	219	• Hanoi Agricultural University Enhancement Project (Tech. Pro.)
	×Operational capacity building for clerical staff		
	×Securing and assigning necessary numbers of faculty staff		
	△Establishing supervision, management and maintenance systems for materials, equipment and laboratory	219	• Hanoi Agricultural University Enhancement Project (Tech. Pro.)
Strengthening Coordination with Related Organizations, Local Areas and Regions	**○Linkage with agricultural dissemination systems**	223, 224	• **Thailand Kasetsart University Research Cooperation Project (Pro. Tech.)**
Strengthening Function as the Base for Promoting Agriculture	×Improving partnerships with agricultural universities in advanced countries and student exchange systems		
	△Strengthening partnerships with agricultural research bodies and the private sector	221	• **Universiti Putra Malaysia Faculty of Biotechnology and Biomolecular Sciences Expansion Project (Tech. Pro.)**
	△Strengthening cooperation with local areas	227	• **Sokoine University of Agriculture Center for Sustainable Rural Development (Tech. Pro.)**

【Project Activity Examples】
◎＝Projects in which 5 or more "examples of project activities" are included as project goals or as one activity
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☆＝While there are several practical examples, these examples have the potential to set future precedence.

Experts = In cases where no advisory note is included, this indicates all experts. Tech. Pro. = Technical Cooperation Project (including Pro. Tech = Project-Type Technical Cooperation), Dev. Study = Development Study, Grant = Grant Aid, Training = Group Training, JOCV = Japan Overseas Cooperation Volunteers, Com. Emp. = Community Empowerment Program, Overs. Study = Overseas Basic Study, Grassroots = Technical Cooperation at the Grass-roots Level

Development Objective 2: Stable Food Supply

Development Objective 2: Stable Food Supply

It is one of the important goals in agricultural and rural development to provide sufficient food to every citizen of a country. Rural areas, where most residents are engaged in agriculture, are a source for the supply of food to the country as a whole, especially to urban areas with their heavy population concentrations. On the other hand, since not every village can produce every kind of agricultural product, its residents are also considered consumers of agricultural goods distributed throughout their country. Rural areas, because they are generally considered to lie at the bottom of the distribution system, are also where stable and sufficient food supplies are difficult.

In securing stable food supplies, therefore, the focus is on the "flow of goods (agricultural and livestock products)." Stable food supplies become possible only when a sufficient amount of food is secured on the macro-level and a fair distribution of food is in place on the micro-level.

In attempting to secure macro-level food supplies, it is necessary for a government first to understand the conditions under which its citizens find themselves as well as the country's agricultural productivity, and then map out a strategy on how it proposes to secure food for its citizens (Mid-term Objective 2-1: Planning Food Demand/Supply Policy). In case a country cannot secure the necessary amount of food in the domestic market, it has to supplement the shortage with imports from other countries and improve its import system (Mid-term Objective 2-3: Improving Import Systems). Meanwhile, it is essential to set up an efficient domestic distribution system in order to ensure a fair distribution of food on the macro-level (Mid-term Objective 2-2: Improving Food Distribution Functions).

Mid-term Objective 2: Formulating Food Supply/Demand Policy

Necessary approach:
- Understanding domestic food supply/demand
- Formulating food supply/demand policy
- Selecting staple food
- Improving food production, distribution-related statistics
- Building food supply/demand models
- Improving distribution and market-related laws, systems

Mid-term Objective 2-1: Formulating Food Supply/Demand Policy

A food demand/supply policy forms a fundamental strategy for any country to secure stable supplies of food on a national level. It is at the same time essential in determining the direction in agricultural development. However, many developing countries have failed to sufficiently grasp domestic supply-demand conditions because of lack of statistics and information and to prepare an appropriate policy. For this reason, there is often an oversupply of food in some areas and a supply shortage in others, and developing countries have to resort to importing food, a step that could excessively pressure the domestic agricultural industry.

In setting up a food supply-demand policy, it is necessary, in order to secure adequate nutritional levels for citizens, to consider the size of cultivated land areas, production volume and other factors, keeping a grip on the present

status of domestic agricultural productivity and future potential and considering them in relation to the nutritional requirements of the people. Studies of natural conditions and agricultural infrastructure like irrigation systems should be made in advance. It is also important to work out supply-demand projections on the basis of estimates for future population growth and the volume of agricultural production and then formulate a food supply-demand policy while considering which areas of agriculture (crops) should be the focus of that policy. In addition, it is important to determine which crop should be the staple food of the people[58] on the basis of their nutritional conditions and supply-demand projections and then to decide the basic policy – whether to produce the food domestically or bring it from other countries – and clarify a strategy for the stabilization of food supply.

Among the cooperation projects involving the collection and analysis of information and data necessary for the formulation of policy are those to provide support for improving information-gathering systems like a national census and for human resources development. It is also important to build a system for gathering statistics on agricultural production and distribution in each region and improve the system for collecting the information (which crop is made in which region, and how much) necessary for policy formulation. For this purpose, improved systems for passing the information accurately and swiftly from various regions to the central government should be established. Aid for building supply-demand models is another form of support for developing countries in making food supply-demand projections.

In some cases, even if the government of a developing country comes up with a food supply-demand policy, it cannot set it in motion because of lack of the necessary plans and systems. It could end up just watching the formulated policy wither on the vine. To help cope with such a situation, support for establishing a system to implement various components of the policy, such as improving civil and commercial laws and distribution/market-related regulations and systems, executing agricultural price policy and upgrading food stockpile plans, can be considered. The establishment of this system also includes the training of administrative officers and other personnel who are needed in carrying out the policy.

JICA's approach:
- Dispatch of policy advisers
- Formulating master plans for agricultural development
- Improving agricultural statistics, statistical technology

JICA's Approach

In many cases, JICA dispatches individual experts as policy advisers to provide support for the formulation of food supply-demand policy. In others, it

[58] Ordinarily, the word "staple food" is used to refer to the main food consumed by people in a particular country. In this report, however, the word "food" is used throughout to make discussions easy to understand. In Japan, Article 3 of the Law for Stabilization of Supply/Demand and Price of Staple Food (Dec. 14, 1994, Law No. 113) stipulates that the staple foods are rice, wheat, barley and naked barley or other foods as stipulated by law (including those that are processed or prepared), thus clearly defining what staple foods are in Japan.

makes food supply-demand projections on behalf of a developing country while it works out a national master plan for agricultural development. The country then uses the projections as one of the bases for setting up the master plan.

JICA carries out projects aimed at improving agricultural statistics and research skills as part of its support for the gathering of information necessary for developing supply-demand policy. Regarding plans to gauge nutritional levels, it conducts studies designed to raise these levels and training of community workers in the fields of healthcare and sanitation. However, it can hardly be said that the results have been usefully employed in setting up food supply-demand policy, making it necessary in the future to link these projects even more closely to the fields of healthcare and sanitation.

When it comes to aid for the improvement of plans and systems needed for formulating food supply-demand policy, JICA has helped work out master plans for setting up rice reserves (an example: a study on the East Asia Food Security and Rice Reserves Plan in Thailand), but has not provided support in another major area of aid – improvement of distribution- and market-related laws and systems. In the future, it is desirable to extend support for improving laws and regulations and policy tools[59] designed to prevent sudden and excessive food price fluctuations.

Mid-term Objective 2-2: Improving Food Distribution Functions

Mid-term Objective 2-2: Improving Food Distribution Functions

Necessary approach:
- Improving food distribution functions
- Improving distribution market facilities and equipment, building maintenance and management systems
- Improving transportation infrastructure, stockpiling systems
- Improving market information systems

In regions facing severe natural conditions and in others where there are distinct dry and rainy seasons, the volume of food supply varies greatly from season to season. At the time of an abundant harvest, the market is flooded with agricultural products. At other times, an entire country could suffer from food shortages. Even when food supply is sufficient on the macro-level, it is not uncommon for regions outside urban areas and other places where agricultural products are made to face difficulty in securing enough food.

In order to attain a fair and equitable distribution of food, therefore, it becomes important to improve food distribution functions. For this purpose, it is necessary to upgrade the systems and facilities to transport agricultural products smoothly from food-producing regions to consumers, to develop roads linking markets in various parts of the country. It is also necessary to transport agricultural products from collection points[60] in rural areas to regional wholesale

[59] Japan secured policy tools for preventing drastic food price fluctuations with the enactment of the "Law Concerning Emergency Measures against Cornering and Speculative Stocking of Materials Related to Daily Life" (July 6, 1973, Law No. 48) and the "Emergency Law for Stabilization of National Life (Dec. 22, 1973, Law No. 121).

[60] Here, the focus is on the improvement of collection points as infrastructure. In order to secure agricultural products and livestock reliably, however, it is also necessary to improve both collection and shipment systems. The improvement of collection and shipment systems necessarily center on better farmers' collection and shipment organizations, but for this, refer to "1-2-4 Improving Farm Management" in Development Strategy Goal 1: "Sustainable Agricultural Production."

markets and also from wholesale markets in major cities to regional retail markets, all in one well-functioning system. From this perspective, advice on the establishment of a nation-wide distribution system and aid for the construction of facilities and equipment should be effective.

At the same time, it is necessary to strengthen the capabilities of people for appropriately and continuously maintaining and managing the facilities and equipment thus established. Here, support for the improvement of a system necessary for the maintenance and management of facilities and equipment as well as the training of personnel in charge can be considered. In addition, it is necessary to strengthen the food distribution system, including transportation infrastructure, that will efficiently link the markets in various parts of a country and to hold down cargo damage during the process of transportation to a minimum.

It is also necessary to beef up the stockpiling system in order to provide stable food supplies to areas with a seasonal supply-demand imbalance and to those where natural conditions vary drastically from year to year or where the volume of agricultural product supply dwindles rapidly in years of drought or excessive rain. There are different approaches to building a stockpiling system. In one of them, the government plays a leading role in improving the system for each region. In another, it determines which agricultural product is where, and how much, and promotes distribution as necessary while leaving it up to the private sector to keep them in stock. The former approach makes it possible to distribute food rapidly and efficiently to areas suffering from food shortages, or whenever such a step is necessary, but it requires enormous costs to maintain and improve warehouses and to purchase food. There is no guarantee that the latter approach, while enabling the government to hold down spending, works satisfactorily since the government involvement in the distribution of food is bound to be indirect and there is always the possibility of private businesses making speculative moves. If the later approach is adopted, it becomes necessary to improve regulations and systems to head off the hoarding of food or refusal to sell at a time of emergency, create a better system for gathering market-related and other information and to obtain the necessary information accurately and on a timely basis.

JICA's Approach

To support the establishment of distribution systems, JICA has assisted in the drafting of master plans in the past. In such projects, it has investigated the status of domestic distribution systems like market facilities and, on the basis of its findings, has provided advice on how to improve infrastructure as well as distribution and information systems. It has also been helping improve market and distribution infrastructures involving wholesale and retail markets. However, many of these projects have focused on individual farmers or on specific, limited

crops or areas so that agricultural products can be sold at high prices. This is an extremely important approach, but it is necessary in the future to also prepare macro-level plans for stabilizing domestic supply and demand of food and for correcting a supply-demand imbalance. In order to manage markets effectively, the training of personnel is essential. It is necessary to strengthen Japan's aid in this field in the future. In improving physical infrastructure, it is important to build appropriate levels of facilities on the basis of realistic plans while at the same time taking future development possibilities into account.

JICA has helped establish warehouses for stockpiling food reserves as part of rural or regional development projects. Most of them have been undertaken to secure food for specific regions and have not been based on national food reserve plans.

Mid-term Objective 2-3: Improving Import Systems

Mid-term Objective 2-3: Improving Import Systems

In order to secure stable food supplies, it is necessary to improve the import structure. When domestic agricultural production declines as a result of natural disasters like droughts and when it becomes difficult to secure an enough amount of food domestically, the food held in reserve could be released to the market to adjust the supply balance. In many developing countries, however, it is rare to have enough a stockpile of agricultural products. As a means of maintaining the necessary volume of food supply, therefore, they depend on imports.

Necessary approach:
- Improving import-related policies and systems
- Improving quarantine and pest-control systems
- Improving import-related infrastructure (ports, other facilities)

At present, however, developing countries, especially those in Africa, do not have clear import policies based on domestic agricultural development. They have been importing massive amounts of cheap food from agriculturally-advanced countries in ways that are harmful to the development of their domestic agriculture. Also, food imports, generally speaking, lead to the drain of precious foreign currency that developing countries cannot afford to lose.[61]

Therefore, it is necessary for them to improve import-related policies and systems which will make it possible to import food in a way that is in harmony with their domestic agricultural development. Support for the improvement of import-related policies and systems could take the form of advice on how to improve economic advantages and food security or the training of personnel who will set policies, establish systems and implement them. In improving policies and systems, it is necessary to thoroughly assess the advantages and disadvantages of importing food. One of the advantages is that, in some cases, it

[61] For developing countries, imports aimed at achieving stable food supplies also entail some disadvantages, impeding the promotion of the domestic industry and leading to the use of precious foreign currency reserves. Once those countries start importing agricultural products, it will become difficult to reduce or halt it because it is easy to install import systems and because imports are bound to create conflicting interests. Developing countries should be fully aware that imports could easily weaken their domestic industry.

would be less expensive to depend on imports to supply food to consumers. Also, it is possible to stabilize food prices by striking a balance between imports and domestic production.[62] On the other hand, developing countries could run the risk of being unable to import enough food when necessary since the volume of imports depends on shifting conditions in exporting countries. This is true especially when a country depends on imports for most of its staple food. Another disadvantage is that an inflow of cheap food could impede the growth of domestic agriculture, especially when it is not competitive.

Also, in establishing specific implementation systems, it is necessary to improve quarantine and disease control measures for imported agricultural products and livestock. There are cases in which pests are brought in along with imported agricultural goods and livestock because of inadequate quarantine and pest-control systems, doing serious damage to domestic agriculture. Imports could also undermine the health of people if they contain agricultural chemical residues or harmful substances. Agricultural products and livestock from other countries could contain pests, communicable animal disease or natural poison that do not exist in the importing countries and could threaten the health of people, or inspection and other standards could be different in exporting and importing countries. Because of this, it is necessary for developing countries to test imported products for harmful or poisonous substances, additives and agricultural chemical residues on the basis of their own standards or those established by international organizations.[63] Projects involving quarantine and pest-control systems could provide support for the improvement of test and inspection facilities and equipment. Quarantine and pest control are conducted mostly by examining import papers and by testing imported agricultural products and livestock. In conducting the examinations, simple and efficient procedures are necessary not only to ensure safety but also to protect the quality of imported agricultural products. Consequently, it is important to give advice on the improvement of quarantine and pest-control systems that include these procedures.

In upgrading import systems, it is necessary to improve related infrastructures. For instance, it is important to improve port facilities and rail and road systems when developing countries import large volumes of agricultural products in order to secure stable food supplies. Because these facilities are costly not only to build but to maintain and manage, it is necessary to carefully examine their necessity and sustainability.

JICA's approach:
- Improving test and inspection facilities and equipment
- Training inspectors
- Improving import-related infrastructure

JICA's Approach

To date, JICA has extended cooperation in the establishment of import systems within the framework of "trade promotion." It has helped improve

[62] FAO (1997a) pp.11-14
[63] Kitaide, Toshiaki (1994) pp. 10-18

testing and inspection facilities and equipment and trained inspectors. But since cooperation has been implemented to date mostly with "export promotion" as its main theme, it more often than not has involved transfers of technology necessary for exports, including inspection standards. In the future, it is necessary to shift the focus to "imports," improving import policies and facilities and training personnel. Especially since inadequate testing and inspection systems for food imports have a strong possibility of leading to serious damage in domestic agriculture and the health of people, it is necessary to tackle this problem aggressively.

Meanwhile, it is necessary to improve infrastructures like port facilities, roads and railways in order to import the necessary volume of food, and JICA has provided support for working out infrastructure improvement plans and for building these facilities with grant aid. However, since it requires great expenses to maintain and manage these facilities, as previously explained, it is desirable in the future also to be sufficiently mindful of maintenance and management needs in formulating plans and implementing them.

Mid-term Objective 2-4: Proper Use of Food Aid

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Since domestic agriculture in developing countries, especially those in Africa, is often unstable and since those countries do not have sufficient fiscal resources for food purchases, food aid is an indispensable part of support in enabling them to secure enough food supplies. In 2002, food aid totaling 9,600,000 tons was provided worldwide, with about 56% of which going to sub-Saharan African countries.[64] Food aid is provided sometimes as an emergency measure to those countries that are unable to secure the necessary amount of food through domestic production or imports. At other times, it is given to support the poor who are suffering from chronic food shortages.

Food aid is an extremely effective means of providing support for developing countries in obtaining the necessary amount of food. In extending this type of aid, it is necessary to keep the following points in mind:

First, it is necessary to provide an appropriate amount of food at an appropriate time after thoroughly examining the need, or lack thereof, of such aid, its timing and impact on the domestic market and domestic industry. An excessive amount of food aid could send domestic prices tumbling and hurt the agricultural industry of the recipient country. In addition, continuous and extended food aid could end up impairing the development of domestic agriculture.

Second, it is necessary to distribute the provided food appropriately. Especially in cases of food aid for the poor, the food may not reach the people

[64] World Food Program (2003)

who are really in need of it simply by releasing it to the market. In order to provide food aid effectively, therefore, it is necessary for recipient countries to establish systems for distributing the food and monitoring its distribution and for donor countries to support the establishment of such systems. For instance, the World Food Programme (WFP) has established three different categories of aid[65] – ① "Food for Life" (food to support life: emergency aid), ② "Food for Growth" (food to promote growth: economic-social development aid) and ③ "Food for Work" (food to encourage self-reliance: economic-social development aid) – and is using its own distribution and monitoring systems. On the other hand, some donor countries are entrusting recipient countries with distribution and monitoring responsibilities, delivering their aid food in ports. It is necessary for recipient countries to create distribution routes and the means of distribution to allocate their aid food depending on its purpose and target and train the personnel for controlling them. It is also important to improve monitoring systems to make sure that the aid food is utilized and consumed in accordance with its specified purpose.

In "Food for Work," food is provided in return for planting trees and constructing irrigation channels, but there have been cases in which participating farmers forget the importance of planting trees or building irrigation systems, trying only to obtain food and casting doubts on the sustainability of these projects. It is essential, therefore, to provide technical assistance for holding awareness-raising and other similar training courses.

JICA's approach:
• Food aid (KR)

JICA's Approach

Japan has been providing food aid (KR) since 1968 on the basis of the food aid article[66] of the International Grains Agreement signed in 1967 as part of the Kennedy Round (KR) trade negotiations of the General Agreement on Tariffs and Trade (GATT).

The aid has been granted in the form of funds for purchases of wheat, rice and other grain in response to requests from developing countries that are facing food shortages and on the basis of an overall consideration of the seriousness of food shortage, the foreign currency situation and Japan's relations with recipient countries. The focus of Japan's food aid (KR) is Africa, which receives more than 50% of the country's budget for such aid.[67]

Food aid recipient countries are to put aside counterpart funds in local

[65] ① is emergency aid designed to save the lives of people who face the danger of death because of a food crisis stemming from man-made disasters like wars and other conflicts and also as a result of such natural disasters as droughts, floods and harmful insects. ② refers to aid activity mostly to support the weak (infants, children, pregnant women and old people). ③ is relief activity to provide both work (opportunities) and food for people who are suffering from poverty and hunger. WFP website (http:/www.wfp.org) Dec. 19, 2003

[66] Japan is required to provide 300,000 tons a year (in terms of wheat)

[67] Of Japan's total food aid in 2001 of 11.692 billion yen (including aid through international organizations), Africa received 7.972 billion yen (68% of the total budget). (Ministry of Foreign Affairs (2003))

currency that correspond to the amount of food that has been procured, and these funds are used for projects that contribute to economic and social development, including agricultural development, in these countries. JICA is in charge of promoting and implementing Japan's food aid (KR).

Development Objective 2: Stable Food Supply

Mid-term Objective 2-1: Formulating Food Supply/Demand Policy

Sub-Goal of Mid-term Objective	Examples of Project Activities	Case No.	JICA's Main Activities
Understanding National Nutritional Status	**△Conducting national nutrition surveys** **△Capacity building for nutritional status analysis** **△Allocating and cultivating community workers**		
Improving Food Production and Marketing Statistics	○See Intermediate Goal 1-1-1 "Improving Agricultural Statistics"	4, 5, 15, 16	• Project for Agricultural and Fisheries Statistical Technology Improvement (Tech. Pro.) ☆Support for Agricultural and Fisheries Information Services
Selecting Main Staple Foods	**×Constructing food supply and demand models** **×Statistical analysis capacity building**		
Improving Distribution and Market Related Laws and Regulations	**×Assisting in development of legal systems**		
Implementing Agricultural Product Pricing Policies	○Constructing agricultural product price stability systems	1	• Experts (Agricultural Policy Advisors)
Improving Food Stockpiling Schemes	○Establishing food stockpiling master plans	14	• Study for Project for East Asia Food Security and Rice Stockpiling (Dev. Study)

Mid-term Objective 2-2: Improving Food Distribution Functions

Sub-Goal of Mid-term Objective	Examples of Project Activities	Case No.	JICA's Main Activities
Improving Distribution Market Facilities and Infrastructure	◎Improving highways and railways	235, 249	• Sindhuli Road Construction Project (Grant)
	○Improving feeder roads	249, 258	• Study for Project to Improve Agricultural Product Distribution in Santa Cruz (Dev. Study)
	○Improving cargo consolidation and shipment facilities, retail markets and wholesale markets	229, 231, 232, 233, 234	• Development Project for Agrarian Reform Districts in Marginal Areas (Grant Aid)
Management and Use of Distribution Facilities and Equipment	○Capacity building for distribution facilities management	228, 230, 231, 234	• Study on Rice Distribution Systems and Harvest Processing Improvement Project (Dev. Study)
	○Constructing maintenance and management systems	228, 230, 231, 234	• Study on Rice Distribution Systems and Harvest Processing Improvement Project (Dev. Study)
Improving Market Distribution Information Systems	×Building food inventory information gathering systems		• Study on Rice Distribution Systems and Harvest Processing Improvement Project (Dev. Study)
	○Building food pricing information systems	228, 230, 231	☆Support for Agricultural and Fisheries Information Services
Improving Transport Systems	×Establishing public transport systems improvement project ×Cultivating private sector transporters		
Improving Stockpile Systems	○Improving stockpile and storage warehouses	236	• Grain Storage Facility Construction Project (Grant)

Mid-term Objective 2-3: Improving Import Systems			
Sub-Goal of Mid-term Objective	**Examples of Project Activities**	**Case No.**	**JICA's Main Activities**
Improving Quarantine and Infectious Disease and Insect-pects Prevention Systems	○Improving testing and inspection facilities	41	• Project for Livestock Disease Prevention in Thailand and Neighboring Countries (Tech. Pro.)
	○Cultivating inspection personnel	41, 206	• Plant Quarantine Station Project (Tech. Pro.)
Improving Infrastructure	○Improving coastal facilities, roads and railway networks △Building maintenance and management systems	237, 238	• Apia Port Development Project, Improvement Project (Grant)

Mid-term Objective 2-4: Proper Use of Food Aid			
Sub-Goal of Mid-term Objective	**Examples of Project Activities**	**Case No.**	**JICA's Main Activities**
Building Food Aid Distribution Systems	×Establishing method of natural disaster emergency aid	239	• Food Aid (KR) Promotion
	×Establishing method of food aid to help the poorest segments of society ×Establishing distribution routes and procedures	239	• Food Aid (KR) Promotion
Constructing Monitoring Systems	×**Establishing monitoring techniques**		

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Development Objective 3: Promoting Rural Development

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Ever since the Millennium Development Goals were adopted in 2000 as the highest-priority international cooperation guideline in international development, poverty reduction in developing countries has sprung into the spotlight as it never did in the past. The importance of the development of rural areas has started drawing attention once again because the life of residents in rural areas has been extremely unstable as a result of low policy prices of agricultural products, deteriorating living and production environments including increasing desertification, and dependence on urban areas as illustrated by a huge influx there of rural residents seeking work.

Today, meanwhile, international organizations as well as JICA and other aid organizations have been experimenting with development projects based on the potential capacity theory that more comprehensively defines poverty. In a larger sense, the results of these projects are measured by whether or not democratization and freer economic development have taken place in recipient

countries and whether or not civil rights have improved as a result of regional social development. Attracting special attention is "the rural community" as a place where poor residents can gain an opportunity to develop and acquire potential human capacities in five different areas.[68]

After World War II, many countries, throwing away the yoke of colonialism, have gained independence and have been building themselves through the centralized state system. Under the international political environment called the Cold War, however, they placed top priority on national security, forging ahead with giant economic development projects linked to the development and improvement of urban areas and educational, healthcare and welfare systems that were aimed mostly for urban residents. In contrast, the development of rural communities and welfare programs for rural residents has trailed far behind, leaving rural communities branded as underdeveloped areas. It was only after 1992 when the Cold War ended, and especially after the Social Development Summit of 1995, that the adjustment of development aid policies started in earnest based on the concept of the Basic Human Needs (BHNs), the introduction of social development indicators and human development indicators and the principles of democratization and governance, all of which had been presented in the 1980s.

It is not too much to say that today's tired agricultural communities and large numbers of the rural poor have been produced as a result of this process.

It is necessary for us to keep in mind the "promotion of vibrant rural areas" with their potential for future growth, fully aware of the positions and conditions in which rural communities find themselves and not confining our aid efforts to the alleviation of poverty.

It is said that 70% of some 1.3 billon people living in poverty today are women,[69] as the expression, "Feminization of Poverty," shows. In rural development, it has become necessary to be careful so that a particular development will not place the people of a particular gender at a disadvantage.[70]

Mid-term Objective 3-1: Implementing Policies Related to Promotion of Rural Areas

Mid-term Objective 3-1: Implementing Policies Related to Promotion of Rural Areas

Since the mid-1990s, many countries have been revamping their government systems. More specifically, they have been relocating the center of government and administrative functions to other regions in an increasing decentralization of authority and implementing changes in various systems

[68] Amartya Sen has proposed the development of human potential from the perspectives of economic, social, political, human and protective capacities. (Sen (1985))

[69] UNDP (1995)

[70] It is necessary to remember that a phenomenon could have a different impact on people of the same gender since they are engaged in different activities or live under different social norms.

following the liberalization of the economy.

The mid-term objective under consideration here is more directly related to the former, the decentralization of authority, but this takes a wide variety of forms depending on regions, their historical backgrounds and their geopolitical positions. There are, however, some characteristics that are common to all of them: 1) the transfer of administrative functions from the central government to local governments, or establishment of local governments or expansion of their functions; 2) a shift from the top-down administrative system to the introduction of the participatory concept; and 3) closer local government relations with their regions.

Needless to say, the promotion of vibrant rural areas, as described above, is closely connected to the development of regional administrative functions. It is a basic element that will decide the future of rural development. However, preparations for creating systems and positioning personnel that are adequate enough to enable local governments to handle various development projects have not yet been made, and these changes are still in progress. As a result, central government organizations are still expected to have direct influence over the development of local and regional communities for some time to come. It is important to remember, however, that the implementation of development projects is predicated upon the development of regional governments and their relations with the local communities. More than ever before, it will become important to adjust conflicting interests between central and local governments, local governments and their communities and among various stakeholders in local communities.

JICA's Approach

To date, JICA has specialized mainly in projects aimed at providing individual technical cooperation in various fields, including agriculture promotion, healthcare and basic education. In addition to improving the quality of these administrative services, it is desirable in the future to give support for enhancing a variety of functions, such as planning and developing new administrative service systems within a fresh framework based on the progress in the decentralization of authority. It is also necessary to upgrade the capabilities for formulating and implementing development plans and at the same time to tackle cross-sector issues including those concerning gender and governance.

In centralized power structures, government organizations have taken the initiative in promoting the results and models obtained through the implementation of various cooperation projects. Under decentralized systems, however, it becomes necessary, since local administrative authorities exercise judgment, not only to disseminate and supply project information that is unrestricted by the scope of projects itself but also to effect promotion programs

designed for wider areas.

Mid-term Objective 3-2: Improving Off-farm Incomes

Mid-term Objective 3-2: Improving Off-farm Incomes

It is said that three-fourths of the poor in the entire world live in rural areas. This shows, indirectly, that farm management that supports rural residents in developing countries is on a small scale and extremely fragile. It also indicates that the acquisition of off-farm income plays an extremely important role in their survival strategy.

In Bangladesh, as a matter of fact, the population of seasonal workers leaving rural areas in search of job opportunities has been rapidly increasing since the 1980s, and it has become common for some members of a family to work in a city while the rest of the family live in a rural area. Also, it is not unusual these days for educated rural residents to leave the country to work overseas. This trend is not confined just to some countries like Bangladesh, but has spread to most developing countries.

One reason for this is that it has become increasingly difficult for families in rural areas to support themselves owing to an increase in the rural population of developing countries. Another is their need for cash income that has grown sharply because of the spread of the commodity economy in rural communities. In addition, education, healthcare, medical and other expenses of farming families have grown as those services have spread in rural areas. In villages in Sulawesi Island in Indonesia, for instance, education-related expenses in an average family have grown too large to be ignored.

Therefore, improvements in off-farm income are essential for the survival strategy of rural residents.

JICA's Approach

JICA has extended cooperation, albeit indirectly, by providing places and equipment to farmers who are making and selling processed agricultural products and handicrafts. These activities are tools to encourage farmers to participate in rural development and social forestry projects and to organize themselves.

There are four characteristics in off-farm income in rural areas: 1) a wide variety of jobs, 2) small business scale (family management), 3) dependence on regional resources and 4) dependence on close regional economic markets. In providing aid, it is desirable to plan new systems aimed at meeting these varying needs. To help improve off-farm income, it is necessary to keep in mind that it is extremely effective to maintain coordination with NGOs, which usually have years of experience in the regions, and to make sure, while avoiding placing an excessive burden on a certain group of people, that the poor will receive the benefits of aid.

Mid-term Objective 3-3: Promoting Agricultural Processing Industry

Mid-term Objective 3-3: Promoting Agricultural Processing Industry

The strongest interest of rural-area residents is in the improvement and stability of their livelihood, and the development of the agricultural processing industry provides a vital opportunity that will open the way for the promotion of vibrant rural areas.

The first significance that the agricultural processing industry possesses is the stabilization of farm family management, or agricultural management as a whole. The introduction of the processing industry in farm family management has an extremely positive meaning; it stabilizes farm family incomes and helps the families to secure food on a long-term basis. Even when agricultural production is poor, it becomes possible for farmers to obtain a certain level of income by processing purchased raw materials. In other words, the promotion of the agricultural processing industry represents a survival strategy for farmers.

Second, the introduction of various processed agricultural products is important in filling the income gap during the busy farming season and the slack off-season and in evening out and stabilizing income levels throughout the year. If a farming family starts an agricultural processing business, employing not only its members but other people as well, it will not only bring benefits to the entrepreneurial family but open up the possibility of creating new or additional job opportunities in its rural community.

Third, added values will be placed on agricultural products. By processing agricultural products, it becomes possible for farmers to sell them at prices higher than for the original products and they can turn their labor into profits.

In the agricultural processing industry, access to raw materials and acquisition of the necessary skills are relatively easy. There are many options in the scale of business, from large enterprises to small ones, and it is also easy to secure the market since the products are usually close to the lives of the people in the community.

JICA's Approach

Cooperation in this field has been extended to verification studies, which are part of development studies, in addition to the traditional attempts by the Japan Overseas Cooperation Volunteers to provide guidance in the promotion of technology in agricultural product processing.

It requires a wide-scale package, including the policy-supported provision of market information and financing opportunities and aid for the development of appropriate technology and business management, to respond to the evey-growing development needs in this field.

If the scale of business is small, it is possible to deal with it as part of

social policy. In this case, training in the necessary skills and supply of equipment within certain limits can be considered.

Large-scale processing businesses will receive marketed-based aid as part of the private profit sector. Aid will mainly take the form of providing information that the owners of these businesses can consider and choose, such as market and financial information as well as information on the promotion of institutional banking and technology.

In such community-based businesses, there are not a few cases in which JICA proves to be more effective working together with NGOs than when it operates alone.

Mid-term Objective 3-4: Improving Rural Infrastructure

Mid-term Objective 3-4: Improving Rural Infrastructure

The main economic activity in rural areas is agriculture, but for residents in these areas, life becomes richer only when not only agriculture but the infrastructure that is directly linked to their livelihood improves. However, many rural areas are unable to obtain goods and information necessary for living because of inadequate infrastructure like roads and public transportation, water, electricity, telephone and postal services. It is therefore difficult to say that they are living an abundant life. Further, because roads are not fully developed, residents have no choice but to sell the products they have harvested at disadvantageous prices, and this sometimes impedes their income growth. In addition, because public facilities like healthcare centers, community halls and waste disposal systems are inadequate compared with those in urban areas, living in rural areas is often not attractive to residents.

Necessary approach:
- Improving roads
- Improving electricity services, wells
- Improving telephone and postal services
- Improving healthcare centers
- Improving schools and assembly halls

Therefore, the improvement of infrastructure in rural areas will help develop their social capabilities. The use of healthcare and medical equipment and storage of medicines will become possible by bringing electricity to rural communities. Better transportation and information infrastructure will make it easier for rural residents to obtain information and knowledge they need, leading to improvements in the capabilities of their society.

Also, construction work to build infrastructure in rural areas will create employment opportunities, if only for a limited period, to residents who are not blessed with chances to work other than in agriculture and will bring economic effects to them in the form of more cash income.

Thus, the improvement of infrastructure like roads and water and electricity services plays an important role in improving productivity and living conditions in rural areas. But many developing countries are putting priority on infrastructure improvements in urban areas, putting off those in rural areas for the future. Because of this, it is necessary for developing countries to try to direct more of their budgetary allocations to infrastructure improvements in rural areas. Even when infrastructure in rural areas has been improved, government

maintenance and management is often inadequate. It is important, therefore, to establish sustainable facilities, taking the scope of projects, acquisition of materials and technology levels into consideration, so that area residents can participate in those projects from the construction stages and can maintain and manage the facilities on their own after they are completed.

JICA's approach:
- Support within integrated rural development projects
- Support for construction of roads and wells

JICA's Approach

In many cases, JICA has been supporting the construction of farm roads, water supply systems, post-harvest processing facilities and multi-purpose communities as individual components of comprehensive rural development projects. Among others are electrification of rural areas and well-diggings. It has also been assisting, or providing the necessary materials, in the improvement of regional and farm roads and construction of small-scale power stations and wells.

Mid-term Objective 3-5: Protecting Rural Environment

Mid-term Objective 3-5: Protecting Rural Environment

Playing the central role in attempts to promote vibrant rural areas are efforts to encourage residents, especially young people, to remain in villages not only by helping to stabilize their lives with a stable source of income but also by improving rural environments, in other words, by creating the kind of environmental conditions and amenities that will make them feel rich and worth living, and by protecting the natural environment that surrounds them.[71]

Rural areas in developing countries often show poor living conditions and deteriorating natural environments that surround them. It takes a great deal of effort for residents in these areas just to get drinking water, and roads are often cut off during the rainy season. There are also excessive lumbering for firewood and charcoal, and the forests are receding around rural areas because of lack of planning in grazing as well as increasing desertification. Residents are aware of these problems, but they are unable to find specific solutions to them, or they cannot come up with concrete measures because of lack of access to funds and machinery.

In developing countries that have reached a certain stage of development, the role of scenery in rural areas and that of natural environment as a place of rest for urban residents cannot be ignored. In the future will be new coordination between urban areas with their artificial use of land space and rural areas with their natural or semi-natural surroundings. This new form of coordination will take advantage of the special characteristics of both urban and rural areas. If favorable rural-urban interactions[72] are set in place, the protection and development of environmental resources suitable for places of rest will

[71] Regarding the production environment, refer to "Development Strategy Goal 1: Sustainable Agricultural Production."
[72] Rural-urban interaction

encourage tourism and lead to stepped-up economic activity in rural areas.

In considering the protection of the environment in rural areas, it is important to remember the need to take different approaches into account depending on prevailing local conditions. In other words, approaches to environmental protection measures should naturally be different for areas that are surrounded by urban economic zones, situated next to major cities or in the suburbs, and for rural areas, the breadbaskets spreading on the plains, or those in the mountains in far-flung regions.[73]

Also, it is sometimes necessary to implement measurers that could prove burdensome to local residents, like grazing restrictions and lumbering regulations in rural areas in Africa. In such cases, it is often effective to combine these measures with other undertakings that are easy for local residents to handle and produce clear-cut visible results, like the introduction of improved ovens, or those that will bring short-term economic benefits to them, small retailing and food processing among them.[74]

Aid targets in rural environment projects are many and varied, dealing with living or natural conditions, and it is necessary to clarify the goals so the results will not be diluted.

JICA's Approach

In the field of environmental protection in rural areas, JICA has provided project-type technical cooperation in Phase II of a rural development project in Vientiane Province in Laos. It has also carried out development studies for a plan to improve the blighted rural environment in Swaziland as well as the southern Segou Region desertification prevention plan in Mali.

In these projects, JICA, along with agricultural development programs that included environmental protection like the prevention of soil erosion, carried out plans to help secure drinking water through the improvement of wells and water supply systems. It also helped improve agricultural infrastructure like roads, plant trees in and around villages, identify livestock grazing areas and traveling routes, create lumbering regulations for firewood and charcoal and

[73] The disintegration of rural areas outside the suburbs of major cities like Jakarta and Kuala Lumpur as a result of the conversion of farmland (factories, urbanization, transportation, etc.) has been posing a problem in recent years. In these places, an effective approach would be to stress the importance of external economic effects arising from the presence of natural resources like mountains, rivers and forests. At the same time, those places should draw up plans in concert with urban areas for the protection of farmland and, within this framework, maintain a balance between their environmental protection functions, which are a characteristic of the rural areas, on one hand and urbanization and industrialization on the other. Regarding rural areas in the mountains, their sustainability should be kept in mind, and the pursuit of overall values in rural areas, or in other words, the harmonious pursuit of ecological and environmental values and of economic and life values may become a future issue. It will undoubtedly become an inescapable challenge to try to take advantage of the abundant nature, history and landscape that are unique to rural areas and create living environments that are restful, comfortable and peaceful. A study designed to grasp the present conditions of the ecosystem and the implementation of projects to achieve its sustainability would be one of the effective approaches.

[74] For an example, refer to the results of a follow-up study to the Mali Southern Segou Region Desertification Prevention Project. (JICA (2004b) p.16)

introduce ovens that generate less smoke and consume less firewood.

Mid-term Objective 3-6: Promoting Livelihood Improvement

Mid-term Objective 3-6: Promoting Livelihood Improvement

The comprehensive theme in attempts to promote vibrant rural areas is modernization. Until now, the focus in these attempts has been on "modernization from outside," in which modernization of rural areas has been undertaken within the context of relations between the central government and urban areas. However, it can hardly be said that enough attention and consideration have been given to the practical needs of rural residents and farmers, who are on the receiving end of the "modernization from outside," or to their capacities to embrace it. Projects to raise living conditions in rural areas address to these needs and capacities of rural residents.

These projects involve various targets, ranging from individual residents and farmers to groups that belong to rural communities. In either case, efforts to encourage and nourish positive attitudes and desires toward improvement and reform of living conditions play the central role. JICA has been incorporating these efforts into projects called "Social Preparation" and implementing them in various countries. The promotion of efforts to improve living conditions is meaningful in preparing tradition-bound rural areas for modernization of their awareness toward rural development. This is an extremely important task not only in terms of the results in the improvement of nutritional levels, healthcare, sanitation and other living conditions but also in terms of the influence it possesses in determining the capacity and participation of rural residents in the processes of yet bigger progress and development to come.

The needs for the improvement of living conditions in rural areas are unique in that, though they generally exist in the livelihood of residents and the entire environment that surrounds them, they are heavily influenced in reality by the awareness on the part of residents and farmers toward development as well as by the attitudes and views of those involved in promotion efforts toward humanity and society. Thus, they have a strong element of "movement," as exemplified by the "livelihood improvement movements" that took place in various parts of Japan after World War II.

It is desirable to promote "livelihood improvement" projects as basic and important development programs in creating vibrant rural areas.

JICA's Approach

JICA's activities in this field include "Philippine Rural Life Improvement Study and Reinforcement Plan," a technical cooperation project; a "Plan for Enhancing the Status of Women in Rural Areas in Malaysia," a development study; and a group training course in "Capacity Building for Women in Rural Areas." There are others that are components of various projects. As part of a

development research project, JICA has conducted a "study on the cooperation in improving life in rural areas," sorting out the projects Japan has promoted since World War II and launching JICA projects on the basis of its results.

There are also many cases in which cooperation has been extended in projects that are different from those in the past. They include rural area promotion guidance provided by Japan's Overseas Cooperation Volunteers to local promotion staffs and projects undertaken jointly with NGOs which are familiar with local conditions and have accumulated rich experiences.

Mid-term Objective 3-7: Promoting Rural Community Activities

Mid-term Objective 3-7: Promoting Rural Community Activities

Rural areas have been preserving farm land (and water) and forests as the joint assets of their owners (families) and communities. This practice has been made through village-level mutually beneficial, non-market joint work.

As economic motivation has proved to be a strong driving force in human activity in rural communities in recent years, individual actions have increasingly taken precedence over joint work. Joint enterprises, which have been protected from old times, are now on the decline and they have started gradually disintegrating. The market economy has started engulfing and buffeting small villages scattered in many African and Latin American countries.

Under the market economy like this, it is not easy for small self-supporting farmers to build wealth, and they haven't found even a clue to extricating themselves out of poverty that has held them in its tight grip for years.

One of the effective means to end this situation is the establishment and promotion of the community. In places where communities already exist, the revitalization of them could lead the way out of poverty.

In revitalizing communities, it is necessary to give due credit to the role played by settlements (equivalent to the "ko-aza" village division in Japan) that have traditionally been formed in, and adapted to, a particular agricultural environment. These traditional land-based settlements in Asia, especially, have established the practice of and norms for jointly protecting and managing land and water resources on their agricultural land. They have been maintaining order in the use of land resources and preserving farmers' mutual assistance systems. The presence of farmers with common traits is a prerequisite for the establishment of these traditional land-based settlements. The bond among the people who are intimately acquainted with each other is strong, and they build up the spirit of mutual assistance by participating not only in joint enterprises but also in time-honored rituals like marriages and funerals.

In other words, community activities have served not only to improve

economic capabilities of rural residents in the market economy but also to foster spiritual richness and the feeling of happiness, which are the ultimate human goals, among them even in the midst of widespread poverty. It is of great significance to pass to developing countries the experience of modern Japan that showed that people can find happiness in life in an autonomous and mature community even while mired in economic poverty.

The functions of a rural community can be broadly classified into those related to the market and those that seek non-market values, though clear distinctions are difficult. The same group could act in a variety of ways in response to different situations.[75]

As a realistic approach, community activities designed to pursue certain non-market values can be considered. One example is the establishment and development of various groups to promote the spirit of mutual assistance among rural residents. A group set up to entertain the residents could be one of them. The activities of youth organizations, women's groups and others in rural life as well as outside assistance that fosters traditional local performing art and culture will also breathe a new life into rural areas.

In rural communities, efforts to improve decision-making and management capabilities of the residents in life and production activity as well as empowerment through their participation in development processes and politics can also be an engine for development. These capabilities are accumulated not only in individuals but also in regional communities and preserved.

There are many cases in which women and other socially disadvantaged people are excluded from decision-making mechanisms of rural communities. When we could be of assistance from outside, we should not forget to do our utmost to help them.

When differences exist in the development of communities in various regions, it will be useful to transfer our experiences in Asia as South-South Cooperation to other regions.

JICA's Approach

As described above, projects to strengthen communities are undertaken through the activities of a variety of communities themselves. One example is the Mantasoa/Tsiazompaniry Area River Basin Management Plan in Madagascar. This project, implemented as a development study, continued for three years beginning in April, 1998, and involved various pilot projects. The management of the area, with its forests gone, was aimed mainly at improving the productivity of the land through its appropriate use, but JICA sought

[75] Refer to "1-2-4: Improving Farm Management" regarding farmers' organizations established specifically for production purposes.

sustainable participation of residents to strengthen their community. Monitoring their afforestation and fish-breeding activities, part of the pilot projects, JICA has seen their joint work getting on track.

Starting in July, 2002, a participatory-style project for the development of an isolated rural area got under way in Zambia. In this project, JICA has been providing training for local agricultural promotion staffs on participatory methods and sustainable agricultural plans, helping them carry out awareness-raising activities in target areas and developing participatory-type sustainable agricultural development methods. The aim of this project is to establish a model approach to sustainable agricultural development through the strengthening of capacities of promotion staffs and isolated rural residents.

Among development studies is a "Coruh River Participatory-type Restoration and Management Plan" in Turkey which got under way in 2003. This study is aimed at land utilization in the Coruh River area, prevention of soil erosion, and poverty reduction among residents of forest-covered villages as well as the improvement of their living conditions. Based on the results of an inventory survey, a small priority model area has been selected and a project plan formulated. A "Participatory-style River Basin Restoration Management Plan" (a master plan) is now taking shape.

JICA's Hokkaido International Centre offers a training course titled "Agricultural and Rural Development through Farmers' Participation II." The course, targeted at overseas local government personnel, has been inaugurated to train experts who will be in charge of rural development. The idea is to help participants acquire knowledge and techniques necessary for the integrated improvement of rural areas, including the development of distribution systems and strengthening of farmers' organizations. They will also learn Japanese methods of building rural areas and human resources. The course includes lectures on such subjects as farmers' organizations, agricultural cooperatives, agricultural infrastructure improvements, farmland conservation, land reform, water management, distribution of farm products, agricultural financing and better living as well as visits to related organizations, factories and groups.

Mid-term Objective 3-8: Improving Health Standards among Residents

Mid-term Objective 3-8: Improving Health Standards among Residents

In rural areas of many developing countries, residents often cannot receive sufficient medical treatment at hospitals because of economic and geographical reasons, and they have to care for themselves at home. When rural residents become sick, they will not only lose their own employment opportunities but will also force other members of their families to lose their jobs in order to attend to them, making it difficult to improve their lives.

Because of this reason, it has become an urgent task to expand medical

Necessary approach:
- Expanding public medical services
- Primary healthcare approach
- Anti-HIV/AIDS measures

services they can afford at reasonable prices and to step up healthcare activities through the primary healthcare approach. The spread of HIV/AIDS has become a serious problem especially in rural areas.

"Approaches for Systematic Planning of Development Projects: Poverty Reduction"[76] provides details on the cooperative approach to the improvement of health standards in rural areas.

JICA's Approach:
- Refer to "Poverty Reduction," "Primary Healthcare," "HIV/AIDS" in "Approaches for Systematic Planning of Development Projects"

JICA's Approach

One of JICA's projects for the improvement of health standards in agricultural and rural development is a development study in Guatemala, the "Central Plains Area Poverty Alleviation Rural Development Verification Study." In this project, JICA conducted a verification study on healthcare services in the region as part of the establishment of a comprehensive master plan designed to reduce poverty in the central plains region.

On JICA's cooperative approach to specific issues for the improvement of healthcare standards, refer to "Intermediate Goal 3-2 (Improvement of Health Conditions among the Rural Poor)" in "Approaches for Systematic Planning of Development Projects: Poverty Reduction"[77] "Primary Healthcare" "Approaches for Systematic Planning of Development Projects" and "Approaches for Systematic Planning of Development Projects: HIV/AIDS."[78]

Mid-term Objective 3-9: Improving Educational Standards among Residents

Mid-term Objective 3-9: Improving Educational Standards among Residents

If rural residents can read, write and do arithmetic, they can understand agricultural guidance books and manuals and keep various records in agriculture. As a result, they can get access to information useful for the improvement of agricultural productivity. This is an important factor that will help farmers establish themselves as self-sustained managers.

Necessary Approach:
- Expanding elementary education services
- Expanding informal education

In developing countries, generally speaking, rural areas lack elementary educational services more than urban areas, and there is great room for improvement in quality. In rural areas, it is not sufficient to implement uniform educational policies and systems in order to expand elementary education opportunities. In those areas where physical access is difficult, a flexible approach is necessary, such as the use of existing community facilities (temples, churches and assembly halls) and incentives for children who are too busy helping with household chores to go to school.

Lack of educational services for young people and adults in rural areas poses another serious problem, making it necessary to provide informal

[76] JICA Institute for International Cooperation (2003c)
[77] *ibid.*
[78] JICA Institute for International Cooperation (2002b)

educational services not only like literacy education but those that combine programs to train people in vocational skills and help them improve their life, centering on healthcare and sanitation, nutrition and the environment.

Details on JICA's approach to cooperation in the improvement of educational standards in rural areas are provided in "Approaches for Systematic Planning of Development Projects: Rural Development."[79]

JICA's Approach:
• Refer to "Poverty Reduction," "Basic Education" in "Approaches for Systematic Planning of Development Projects"

JICA's Approach

Among the JICA projects for the improvement of educational standards in the field of agricultural and rural development are those aimed at promoting literacy education. These are carried out as part of programs for the improvement of resident participation and their management capacities necessary for implementing various projects (the development study "Southern Segou Region Desertification Prevention Plan in Mali, others.)

For JICA's approach to individual problems on the improvement of educational standards, refer to "Intermediate Goal 3-1 (Improving Educational Standards for the Poor)" in "Approaches for Systematic Planning of Development Projects: Poverty Reduction"[80] and "Approaches for Systematic Planning of Development Projects: Basic Education."[81]

Development Objective 3: Promoting Rural Development

Mid-term Objectcive 3-1: Implementing Policies Related to Promotion of Rural Areas

Sub-Goal of Mid-term Objective	Examples of Project Activities	Case No.	JICA's Main Activities
Capacity Building for Coordination and Implementation on a National Level	◎Developing government administrator personnel	1, 2, 7, 10, 169, 249	• Experts
	○Promoting understanding of participatory development	1, 2, 17	• Experts
	◎Establishing participatory rural development projects	1, 2, 19, 284, 298	• Study for Limpopo Province, Sukukune County, Sukunord Region Integrated Rural Development Project (Dev. Study)
Capacity Building for Coordination and Implementation on Regional and Local Levels	◎Cultivating Local government administrative personnel	1, 2, 7, 10, 17, 19, 21, 22, 169, 215, 241, 249, 282, 283, 284, 285, 293, 294, 298	• Participatory Rural Development Project for Isolated Areas (Tech. Pro.)
	◎Verifying participatory rural development	18, 19, 215, 241, 266, 267, 268, 284, 297, 298	• Verification Study on Small-Scale Horticulture Development Plan for Poor Farmers in Coast Province (Dev. Study)

Mid-term Objective 3-2: Improving Off-farm Incomes

Sub-Goal of Mid-term Objective	Examples of Project Activities	Case No.	JICA's Main Activities
Assisting in Establishment of Rural Community Commerce and Industry	○promoting industry-specific cooperatives	22, 232, 240, 242, 280	• Village Cooperative Activation Promotion Project (Dev. Study)
	×Improving sales facilities		
Providing Job Training Opportunities	**○Providing job training opportunities**	241, 242, 248, 280	• **Project for Improving Status of Women in Rural Areas of Sabah State (Dev. Study)** ☆**Grass Roots Level Support**

[79] JICA IFIC (2002c)
[80] JICA IFIC (2003c)
[81] JICA IFIC (2002d)

Sub-Goal of Mid-term Objective	Examples of Project Activities	Case No.	JICA's Main Activities
Organizing and Providing Rural Employment Information	×Establishing information collection and provision systems		
Introducing and Propagating Specialty Product Manufacturing Activities	○Improving specialty products manufacturing technology	199, 294	• Project to Assist Implementing Integrated Regional Development in Palu, Southern Sulawesi State (JOCV)
	○Adoption of "One Village One Product" Campaign △Implementing product shows (contests)	293, 294	• Promotion of “One Village One Product” Campaign in Mongolia (Grassroots)
Developing and Providing Information on Rural Financing	○(See Intermediate Goal 1-2-4 Activity Examples)	22, 25, 295	• Project for Improving Farmer Income through Strengthening Agricultural Cooperatives (Tech. Pro.)

Mid-term Objective 3-3: Promoting Agricultural Processing Industry

Sub-Goal of Mid-term Objective	Examples of Project Activities	Case No.	JICA's Main Activities
Improving Processing Facilities	○Developing and improving processing facilities	243, 244	• Project for Improving Milk Product Processing Facilities in Ulan Bator City (Grant)
Developing Private Processing Companies	◎Assisting in development of processing technology △Cultivating engineers	57, 80, 245, 246, 248 246	• Sabah Agricultural Training Center (Dev. Welfare) • Agriculture and Livestock Use and Preservation Technology (Training)
Improving Manufactured Foods Safety Standards	○Improving food safety regulations and standards ×Propagating food safety standards	166, 247	• Food Security (Training)
Capacity Building for Marketing Related to Agricultural Products	×Developing market information provision systems ×Assisting in the introduction of IT to trade boards and helping build networks		

Mid-term Objective 3-4: Improving Rural Infrastructure

Sub-Goal of Mid-term Objective	Examples of Project Activities	Case No.	JICA's Main Activities
Improving Rural Roads	◎**Designing and constructing rural roads**	19, 151, 157, 235, 249, 251, 253, 254, 258	• Study for Project for Development of Regional Agriculture and Agricultural Roads (Dev. Study)
	◎**Maintaining and managing rural roads**	19, 249, 253, 254	• Project on Improving Equipment/Materials for Roads in Rural Settlements (Grant)
Rural Electrification and Improving Water Supply Plants	○Facilitating grid-electricity system	250, 251, 252, 255	• Nam Dam District, Nge An Province, Rural Living Environment Improvement Project (Grant)
	◎Drilling clean water wells and construction of facilities for cleaning surface water	204, 258, 252, 256, 257	• Development Project on Peripheral Farmland Improvement (Grant)
Improving Telephone and Other Communications Infrastructure	×Improving telephone, postal and wireless systems		
Implementing Community Public Utilities Works	○Improving health care centers and rural medical institutions (see "Poverty Reduction" Intermediate Goal 3-2)		
	◎Establishing schools and assembly halls (see "Poverty Reduction" Intermediate Goal 3-1)	258	• Development Project for Agrarian Reform Districts in Marginal Areas (Grant)
	×Improving domestic waste disposal facilities		

Mid-term Objective 3-5: Protecting Rural Environment

Sub-Goal of Mid-term Objective	Examples of Project Activities	Case No.	JICA's Main Activities
Promoting Environmental Conservation of Community Hills, Rivers and Shores	○Understanding the state of farmland and natural ecologies (survey) and the pursuit of sustainability (terraced paddy fields, conservation policies, etc.)	267, 299	• Study for Promotion of Measures to Combat Desertification (Dev. Study)
		19, 214, 215, 218, 259, 260, 261, 262, 263, 264, 265, 266, 268, 269, 270, 278, 279, 281, 282, 285	• Study for Project to Improve the Environment of Degraded Rural Land (Dev. Study)
	◎Integrating environmental conservation into rural promotion policy	178, 267, 271, 272, 273, 274, 275, 276, 277, 299	• Examination Study on Systems to Promote Measures for the Prevention of Desertification (Dev. Study)
	×Rural environment research and researcher cultivation projects at higher education facilities		
	×Increasing amenities and entertainment opportunities (ranch improvement, nature trails installation, river improvement, etc.)		
	○Rural tourism development projects	280	• Local Community Empowerment Project Utilizing Nature and Natural Resources (Com. Emp.)

Mid-term Objective 3-6: Promoting Livelihood Improvement

Sub-Goal of Mid-term Objective	Examples of Project Activities	Case No.	JICA's Main Activities
Enhancing Dissemination Systems for Livelihood Improvement	◎Improving awareness of agricultural extension workers	19, 22, 282, 283, 284, 298	• Vientiane Province Agricultural and Rural Development Project (Tech. Pro.)
	○Training agricultural extension workers	117, 283	• Project for Enhancing Training for Improving Rural Life (Tech. Pro.)
Enhancing Dissemination Methods for Livelihood Improvement	○Developing and improving manuals, textbooks, etc.	283	• Project for Enhancing Training for Improving Rural Life (Tech. Pro.)
	○Various participatory projects (strengthening the community)	283	• Project for Enhancing Training for Improving Rural Life (Tech. Pro.)

Mid-term Obejctive 3-7: Promoting Rural Community Activities

Sub-Goal of Mid-term Objective	Examples of Project Activities	Case No.	JICA's Main Activities
Promoting Village Activities	◎Various organizational strengthening projects (agricultural cooperatives, water-users associations, producers associations, etc.)	17, 21, 22, 201, 281, 282, 283, 285, 286, 287, 288, 289, 290, 291, 292, 293, 295, 296	• Southeast Sulawesi Integrated Agricultural and Rural Development Project (Tech. Pro.)
Cultural Traditions	×Study and activation projects for rural area traditional arts and culture		
Promoting Various Project Proposals	○Activation projects for youth and housewives associations	295	• **Resident Participatory Rural Development Project through Empowerment of the Poor (Grassroots)**
	○"One Village One Product" Campaign	293, 294	• **Promotion of "One Village One Product" Campaign in Mongolia (Grassroots)**
	○Small-scale financing and savings promotion campaigns	295	• **Resident Participatory Rural Development Project through Empowerment of the Poor (Grassroots)**

Mid-term Objective 3-8: Improving Health Standards among Residents			
Sub-Goal of Mid-term Objective	**Examples of Project Activities**	**Case No.**	**JICA's Main Activities**
Improving Health and Medical Services	○See "Poverty Reduction" Intermediate Goal 3-2	204, 217, 295, 297, 298	• Study (and Verification Study) on Sustainable Rural Development for Reducing Poverty in Central Highland Regions
Disseminating Health Knowledge	○See "Poverty Reduction" Intermediate Goal 3-2	295, 297	• Study for Integrated Rural Development Project in Baringo Semi Arid Areas
HIV/AIDS Prevention and Control	**See "HIV/AIDS Countermeasures" Effective Approaches**		

Mid-term Objective 3-9: Improving Educational Standards among Residents			
Sub-Goal of Mid-term Objective	**Examples of Project Activities**	**Case No.**	**JICA's Main Activities**
Enhancing Basic Education	○**See "Basic Education" Effective Approaches**	295, 299	• Study for Southern Segou Region Desertification Prevention Project
Expanding Educational Services	**See "Poverty Reduction" Intermediate Goal 3-1**		
Promoting Understanding About Education	**See "Poverty Reduction" Intermediate Goal 3-1**		

【Project Activity Examples】
◎＝Projects in which 5 or more "examples of project activities" are included as project goals or as one activity
○＝Projects in which there are "examples of project activities" included as a project goal or as one activity
△＝Projects in which "examples of project activities" are not included as a project goal or as one activity, but are included as a single element of that project
×＝Cases in which very few results have been achieved or there has only been dispatch of short-term experts and planning and research officers
【JICA's Principal Undertakings】
☆＝While there are several practical examples, these examples have the potential to set future precedence.

Experts = In cases where no advisory note is included, this indicates all experts. Tech. Pro. = Technical Cooperation Project (including Pro. Tech = Project-Type Technical Cooperation), Dev. Study = Development Study, Grant = Grant Aid, Training = Group Training, JOCV = Japan Overseas Cooperation Volunteers, Com. Emp. = Community Empowerment Program, Overs. Study = Overseas Basic Study, Grassroots = Technical Cooperation at the Grass-roots Level

Chapter 3 JICA's Cooperation Policy

3-1 Approaches on Which JICA Should Put Priority and Points to Consider

3-1-1 Basic Concept

In this report, we examine issues in the areas shown in Chart 3-1.[82] "The multi-level functional structure of agricultural development (food security)" illustrates approaches[83] related to agricultural development and food supply from national (macro) policies and projects down to those on the local administration and rural community (micro) level. "The extent of issues to be addressed in rural societies" exhibits major issues pertaining to the activities of residents in rural societies.[84]

Food security aid and rural development aid are both means to same end.

As explained in Chapter 2, our fundamental perception of key issues to be addressed in agricultural and rural development is two-fold: 1) assistance towards stable food production and supply (food security) and 2) responses to the poverty issue (rural development). However, the problems resulting from these issues are very much intertwined. In particular, the desolation of rural societies, where food is produced, leads not only to the entrenchment of a situation of food insufficiency, but also serves as a factor in producing unstable socio-economic structures on a national level. The worsening of political situations also underlies the civil wars and conflicts.

In order to achieve effective cooperation, we must understand that assistance to ensure food security and assistance to ensure rural development are like a "pair of wheels," and that it is necessary to strike a balance between these two aspects in carrying out development projects.

It should be noted that there are two distinct conceptions of rural development: one that considers agricultural production to be the central

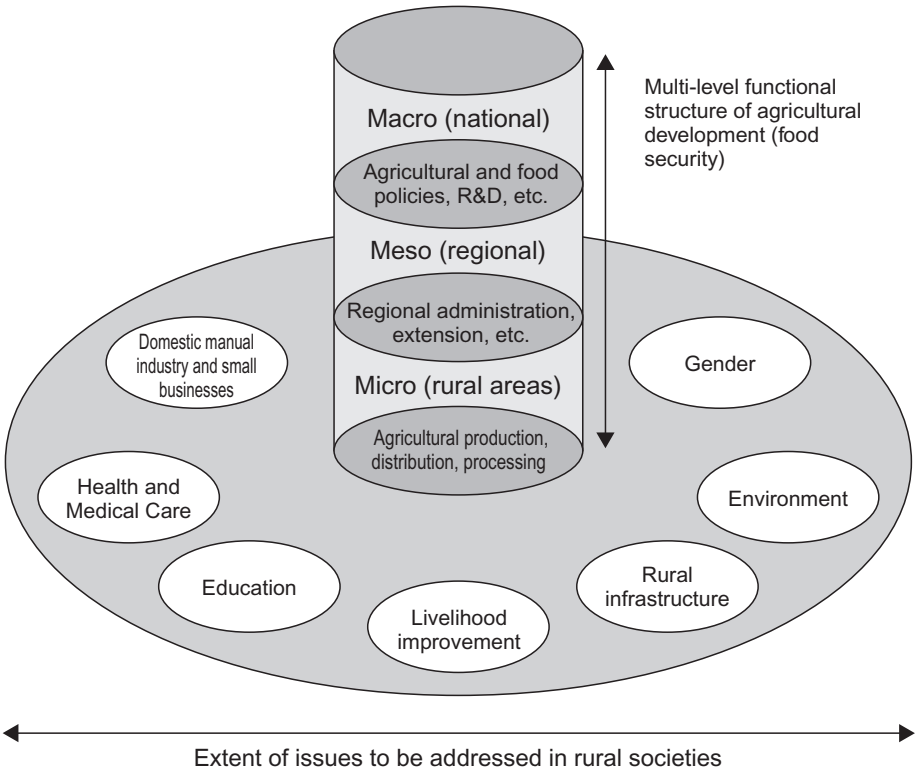
[82] Chart 3-1 is centered around agriculture. However, as the positional relationship between the various components of rural development is relative, another chart could be drawn with health or education at its center for example. Furthermore, the exact relative positions of the various components when any one item is placed in the center will also differ, depending on the region.

[83] Government policy for food security includes areas other than food production, such as food reserves and trade. The question of what level of domestic production capacity to maintain requires a high level of political decision-making. Individual projects such as development and spread of technologies may be undertaken by the central government in some cases and by local authorities in others depending on the country, but, in either case, such projects can be placed in the "multi-level structure" chart as a method of achieving the national policy for stable food supply. Note that this "multi-level structure" model from national policy to local activities in rural areas can be applied to the fields of health and education.

[84] The "extent of issues to be addressed in rural societies" section of Chart 3-1 only takes up part of health and education issues that are highly relevant to agriculture and social conditions in rural areas. Issues involving health and education in general are dealt with in detail in separate, issue-specific guidelines.

component of development and other aspects to be peripheral to it, and another that considers agricultural production to be one component among many in attaining rural development. Neither of these approaches is inherently superior to the other. It is important to choose an appropriate approach depending on the circumstances of the region or area in question, the nature of the activities which are being supported, and the degree of expertise that institutions in the recipient country have. In each case, it is essential to ensure linkage and coordination with approaches being used to deal with other issues and with the assistance being provided on the macro-level. It is also important to give full consideration to relationships with urban areas (large cities and regional cities) which form the center of the regional economy and the market for agricultural produce.

Chart 3-1 Multi-level Functional Structure of Agricultural Development and Extent of Issues to be Addressed in Rural Societies



Source: Author

3-1-2 Priority Issues

Priority issues to be considered in agricultural and rural development differ depending on the recipient country's stage of economic development and natural environment. Therefore, it is important to provide cooperation after identifying priority issues and appropriate approaches in each country or region.

(1) Common Issues

This section refers to priority issues which are common to all regions.

Promote wide-area cooperation

1) Promoting Wide-area Cooperation

As mentioned above, cooperation must be based on an appreciation of each country's circumstances. However, in neighboring countries where conditions are similar, there are many commonalities in terms of agricultural issues to be addressed and applicable technologies, and it may be effective to carry out cooperation over a wide area consisting of several countries.

In particular, where the results of concentrated activities carried out over a certain period of time in a particular country can be applied, with the cooperation of local parties, to neighboring countries, this can also be an example of effective South-South cooperation among developing countries.

Make use of Japan's experience

2) Making Use of Japan's Experience

Japan has its own unique history of agricultural and rural development, many aspects of which can be applied to the development of developing countries. Examples include organizations for the management of water resources, livelihood improvement movements, and the "one village, one product" campaign. (Refer to the Box 3-1).

When providing assistance to developing countries, it is useful to pass on Japan's domestic experience, in addition to making use of its experience in the field of international cooperation. In such cases, it is important to apply Japan's domestic experience appropriately after giving full consideration to the social conditions of the recipient country.

Strengthening environmental concerns

3) Strengthening Environmental Concerns[85]

Agriculture places strains on the environment through the use of agricultural chemicals and fertilizers and through the danger of soil erosion, but it also provides benefits to the environment through the maintenance of biological diversity and the landscape.[86]

When carrying out agricultural development, it is essential to conduct preliminary assessments in accordance with the "Guidelines for Confirmation of Environmental and Social Considerations."[87] It is also necessary to make efforts to reduce the burden on the environment and consider enhancing environmental benefits (so-called multi-functionality of agriculture).

When implementing measures that will place a burden on the local people, such as placing restrictions on grazing areas to prevent desertification, it is effective to combine such an approach with projects that bring short-term benefits.[88]

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[85] For details of environmental considerations, refer to Mid-term Objective 1-4
[86] OECD (2000) p.17
[87] JICA (2004a)
[88] JICA (2004b) p.16

Reconstruction aid

4) Post-conflict Reconstruction and Disaster Relief

When providing reconstruction assistance following conflicts or natural disasters, it is important to address problems related to agriculture from the standpoint of economic recovery and securing food supply.

In cases where food supply is insufficient because the economy has been ravaged and the distribution system disrupted, it is necessary to provide foodstuffs in emergency aid.

In cases where irrigation facilities and other infrastructure for agricultural production have been destroyed, they must be restored urgently, based on the results of an assessment of the situation, to reinstate agricultural production.[89] The restoration of supplying systems for fertilizers, agricultural chemicals, seeds and other production materials is also important. Depending on the situation, the distribution of these materials should also be considered.

After implementing emergency measures, it is important to help administrative and research organizations rebuild their facilities and to support the strengthening of their management structures, with a view to encouraging the process of transfer from reconstruction to ordinary development.[90]

Box 3-1 Japan's Experience of Development

Water resource management organizations (land improvement districts)

In Japan, the management of water resources for the purpose of agriculture has traditionally been practiced by farmers. Even today, water channels and other irrigation facilities are managed by organizations of those who benefit from the facilities (land improvement districts). Their activities include the collection of fees for water use and for facility management.

Livelihood improvement movements

After World War II, along with "agricultural extension workers" who gave guidance on the improvement of agricultural production techniques, "livelihood improvement promotion workers" were placed in rural areas in Japan. The "livelihood improvement promotion workers," communicating with women in rural communities, led nationwide movements to improve the nutrition of rural families and their living environment. Such movements for the improvement of living conditions represent a pioneering example of participatory rural development, and contain elements which can contribute to "poverty reduction" and "social development." [91]

"One village one product" campaign

The "one village one product" campaign is one method of revitalizing a region. The idea is to discover or create something which can become the pride and face of a region, and develop it into a product that is recognized both domestically and internationally. This approach was proposed in 1979 by Morihiko Hiramatsu, the then governor of Oita Prefecture.[92] In recent years, it has been attracting attention not just in Japan, but also in the rest of Asia.

[89] In Afghanistan, the emergency reconstruction of irrigation facilities near Kandahar was carried out from October 2003 to April 2004, as a part of an emergency assistance survey (development study).

[90] A secondary role of reconstruction assistance is to provide employment opportunities to those affected by disasters.

[91] Sato, Hiroshi (2001).

[92] Oita Prefecture Website (http://www.pref.oita.jp)

(2) Regional Priority Issues[93]

1) Asian Regions

Asia is the principal destination for Japanese assistance, as is mentioned specifically in Japan's ODA Charter. Asia can be subdivided into four regions with different characteristics as outlined below.

Advanced ASEAN Countries
Eliminate urban-rural gaps and promote South-South cooperation

i) Advanced Developing Countries in the ASEAN Region

Although the region has succeeded in achieving a certain level of economic growth, there are still a number of countries with large economic discrepancies between urban and rural areas. It is necessary to provide support for agricultural and rural development from the perspective of eliminating this imbalance. Priority should be given to assistance aimed at helping central and regional government organizations expand their functions and train their personnel, with a view to contributing to the self-sustained development process of the recipient country. In the case of countries which have the potential to play a control role in regional or South-South cooperation, cooperation should make use of personnel in those countries.

Indochina Countries
Secure food supply and raise incomes

ii) Countries of Indochina

Levels of income in these countries remain low, and in addition to the procurement of food, a large proportion of the economy and employment relies on the primary sector. Therefore, in order to reduce poverty and to secure and improve standards of living, assistance must focus on ① integrated agricultural development, including the establishment of agricultural infrastructure, dissemination of farm management techniques, organization of farmers, processing of agricultural products, and improvement of distribution systems, and ② rural development which includes activities to create non-agricultural sources of income and improve infrastructure for daily life.

iii) East Asia

In China, the successful development of rural areas is of paramount importance for the stability of society. China is able to carry out the development of individual agricultural technologies without outside assistance. However, there is room to consider providing cooperation in China's efforts to build systems for sustainable agricultural development and technology dissemination which take the environment into consideration. In Mongolia, where crop and livestock farming account for one third of the gross domestic product, the development of a market economy has been accompanied by the collapse of the state funded support system for agriculture. Comprehensive cooperation is necessary in the fields of agricultural technology, institution-building and human resources development.

[93] JICA (2002) pp. 31-33

South West Asia
Raise agricultural productivity to support the largest poor population in the world

iv) Southwest Asia

This region has the largest population of poor people in the world. Therefore, assistance focuses on improving food productivity through establishing basic agricultural infrastructure, and the development and dissemination of agricultural technology, from the standpoint of establishing food security and combating poverty.

Central Asia
Improve agricultural product distribution and organize farmers

v) Central Asia / Caucasus

Emphasis is placed on improving and organizing distribution systems for agricultural products to contribute to the development of a market economy.

2) Central and South America

Central and South America
Support poor areas and subsistence farmers, make use of communities of Japanese ancestry

As well as being home to a precious natural environment, including the Amazon rain forest, the region also has a high potential for food production. Therefore cooperation projects must be considered from the twin points of view of environmental conservation and stable world food supply.

Meanwhile, because there are many countries in the region with wide income discrepancies among their domestic population, we place emphasis on assistance for poor areas and subsistence farmers.

As many people of Japanese descent have played a valuable role in the development of the region, we will consider the possibility of making use of those people when providing technical assistance.

3) Middle and Near East

Middle and Near East
Manage and use water resources appropriately

Although areas where the natural conditions are conducive to agriculture are limited, agricultural development is considered a priority development issue in various countries of the region, from the point of view of securing food. Cooperation should focus on the appropriate management and use of water resources to realize sustainable agriculture in semi-arid areas.

We will continue to provide assistance for the reconstruction of Afghanistan, work for which began as an emergency project.

4) Africa

In terms of economies and employment, the region depends heavily on agriculture, forestry and fisheries. In almost all countries, agricultural development is considered a priority area of development from the point of view of both poverty reduction and food security.[94]

To support these countries, we will take a comprehensive approach encompassing both agricultural development aiming to increase agricultural production and rural development focusing on the improvement of livelihood of

[94] The chairman's report of the TICAD III conference states "Agriculture is the economic foundation of many African States. Agricultural and rural development hold the key to Africa's economic growth."

Africa
Improve agricultural productivity and farmers' standards of living, promote rice farming, rain-fed agriculture, water management, farm management systems in harmony with the environment

farmers. As for agricultural development, cooperation will focus particularly on the promotion of rice farming in West Africa, the improvement of rain-fed farming in semi-arid areas and appropriate water resources management.

Combating desertification, forest conservation and soil conservation are among the urgent issues facing the region. Our cooperation in this respect will consider the establishment of sustainable farm management systems through the use of technologies in harmony with the environment, including the best possible combination of organic and non-organic fertilizers. From this point of view, it is also important to collect, examine and organize into a database information on traditional agricultural techniques and on the use of resources.

Regarding coordination between donors, progress has been made in recent years in the process of formulating sector development programs by recipient countries in conjunction with major donor organizations and donor countries. As well as participating actively in this planning process, we will also promote cooperation with the FAO and other international organizations which have a wealth of knowledge and experience in the African Region.

Coordinate food security aid with rural development aid

3-1-3 Points to Consider in Extending Cooperation

(1) Coordinating Aid for Food Security with Aid for Rural Development

As explained in the basic concept, in order to make cooperation effective, it is necessary to implement projects while coordinating food security aid with rural development aid. For example, even if the actual goal of a project is "agricultural development to improve food production," it is necessary to consider it in a "human security" perspective or pay attention to the project framework that shows an awareness of rural society. Conversely, even if the project aims to provide for "rural development to meet Basic Human Needs," it must still be considered from the perspective of macro-level food security. Furthermore, we must remember that agriculture is part of the global economy, and it is important that we promote measures to strengthen farmers' organizations and improve their living conditions by providing them with mechanisms of self-sustained agriculture, in which the producers are aware of the market.

Agricultural and rural development projects should take into account the stage of development and regional differences in the developing country in question. It is important to implement such projects through a systematized and balanced approach so that they are able to respond to dynamically changing external environments.

(2) Providing Support According to the Stage of Development

An examination of support for agricultural and rural development on the basis of individual programs and projects shows that the objectives range from

Provide aid appropriate to the level of development

the elimination of poverty and hunger on an individual level to economic development and food security on a national level. The aims and methods of individual cooperation projects may vary significantly depending on the economic situation of the recipient country or region (in terms of development and poverty levels), the degree of agricultural development, the food security situation, the required role of agriculture in the light of the prior factors, and the actual target of cooperation. Careful assessment needs to be made in this respect. Mistakes could lead to contradictory conclusion i.e. while emphasizing the role of agriculture in supporting the regional economy (poverty eradication), concluding "but there is no need to support agriculture because it is a private sector."

For example, in countries where the degree of national or regional economic development is low and there are only limited commercial transactions (small businesses) and household manual industries (such as production of handicrafts) apart from agriculture, poverty levels tend to be high with food supply often being insufficient or unstable.[95] In such a situation, the top priority must be to secure food supplies (to eliminate or avoid hunger) and to improve the livelihood of residents (poverty reduction). In other words, it is important to increase and stabilize agricultural production from the perspective of microeconomics or "human security" while at the same time carrying out integrated rural development that includes the promotion of off-farm economic activities, improvements in basic infrastructure such as the securing of drinking water, health and sanitation measures, and primary education and adult literacy education.[96]

On the other hand, in countries where the agricultural sector, in whole or in part, has developed sufficiently, it is important to make efficient use of capital and technology in the private sector. In such a case, cooperation in the form of ODA for agricultural development should place emphasis on areas in which it is difficult for the private sector to invest, such as enhancing food safety, improving livestock breeding, raising research and development capacities and disseminating technology among the poor.

Considering agricultural activities as a means of livelihood

(3) Considering Agricultural Activities as a Means of Livelihood

In many cases, agriculture is the central economic activity in rural areas. It may be even the only possible way those in poverty have of earning a

[95] A typical example of this is semi-arid areas in sub-Saharan Africa.

[96] Off-farm economic activities may include agricultural processing, for example, pressing oil, making honey, producing soap, and marketing of farm products including processed products within the region. In such preliminary stages of economic development, the use of ODA to directly assist individual residents with farming and other economic activities for the purpose of improving local livelihoods can be considered, after taking into account the economic capacity of the rural population. For example, it is possible to provide part of the necessary capital or concrete items by cost-sharing, a way that does not create an increased dependence on aid; such assistance could include support for the introduction of resilient seeds and good quality livestock and the purchase of farming materials such as seedling and fertilizers, as well as the extension of loans to small businesses.

livelihood. In trying to reduce poverty, it is widely understood that education as well as health and medical care are important priorities. However, it is obvious that a positive correlation exists between economic capacity and the availability of access to and acceptance of these services. In other words, if the incomes of those making their living from agriculture rise, we can effectively expect that they will think of their future, voluntarily sending their children to school and receiving appropriate health and medical services.[97]

On the other hand, many subsistence or landless farmers rely on agriculture as their sole means of livelihood, lacking the basic tools necessary for agriculture.

In rural development, therefore, it is important to consider agriculture not only from the perspective of producing and supplying food but understand that it is a means of livelihood, and to extend cooperation in a way that contributes to the development of rural families and communities through the improvement of their economic capacity. In particular, in areas which are home to many poor people, it is often advisable to consider the relevance of agricultural development as one component of rural development.

Positive circle of farm management, social capital and project targets

(4) Positive Cycle of Farm Management, Social Capital and Project Targets

Improvement in Agriculture, such as introduction of new crops and varieties which meet the needs of the market, improvements in the production infrastructure including irrigation facilities and farmland, levels up of agricultural productivity, creates a surplus of some produce and labor.[98] The sales of surplus produce may increase profits and allow for an increase in capital. Such capital and surplus labor can then be used for investment in agriculture-related areas and non-agricultural areas to create new businesses and employment.[99] In addition, the increase in cash income permits improvements in infant nutrition, primary school attendance, and the treatment of the sick. These results combine to build up the economic and human capacities of rural residents, often forming a positive cycle that leads to the establishment of agriculture which takes advantage of more advanced techniques and resources. This cycle is illustrated in Chart 3-2.

It is generally difficult to imagine that such a positive cycle can spread through the various strata of a community in a short period of time. In fact, some

[97] Araki (2003) pp.6-7, introduces observations made in Indonesia

[98] In a situation where it may be difficult to expand the scale of farming, higher agricultural productivity creates surplus labor; this is the case in South Asia where population pressure is high, in Africa which suffers from the serious impact on the environment from expanding farmland, and in China where both population pressure and environmental impacts are serious. For information on the appearance of surplus labor, environmental impacts, and the formation of small and medium sized businesses (Xiangzhen Companies) in China, refer to Watanabe, Toshio (2001) pp. 121-126.

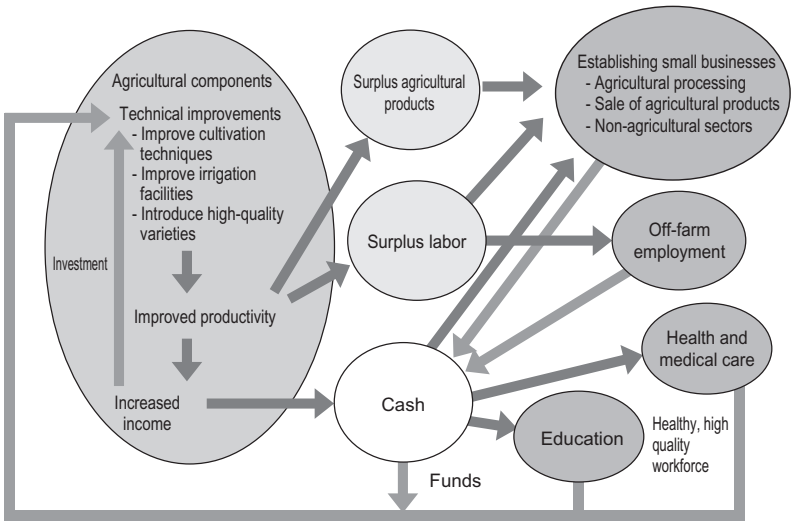
[99] Examples of investment, entrepreneurial activity and job opportunities include active processing and sale of agricultural products, setting up of domestic industry for producing handicrafts and artifacts, and employment of residents in commerce and other existing non-agricultural sectors inside and outside their settlement.

people criticize it for temporarily exacerbating differences in income.

Other people believe, however, that from a mid- to long-term perspective, such a positive cycle, though limited in scope, can work as a means of offering various opportunities for members of the society's other strata. As a result, approaches which take social capital[100] into consideration are being used more widely than before. They target the entire regional community and society by mobilizing positive elements that exist in rural social relationships, making it possible to respond to a variety of needs.[101]

Such approaches provide the members of the regional society and community with various opportunities for mutual learning. It is this mechanism that guarantees the dynamism of projects, a point which must be borne in mind when setting targets in rural development.

Chart 3-2 Agricultural Components of Rural Development (Positive Cycle)



Source: Author

Japan's agricultural trade policies and assistance

(5) Japan's Agricultural Produce Trade Policies and Assistance[102]

Japan's market for agricultural produce has, with the exception of a small number of products including rice, undergone significant liberalization, through the Japan-US trade negotiations on agricultural produce in the 1980s and also through the Uruguay Round of GATT Talks which took place in the 1980s and on into the 1990s. However, Japanese agriculture lacks price competitiveness in the international market, thus domestic production centers are under constant

[100] Social capital refers to societal mechanisms which work as an impetus for the promotion of collaborative activities on the community level and which provide a basis on which people can earn a livelihood. The concept includes feelings of belonging to a network or a group, trust relationships, and other factors which encourage people to participate in society (DFID (1998)). For details, refer to JICA (2002).

[101] A negative side of social capital is recognized by which traditional interpersonal relationships may in some cases prevent the adoption of new methods. As poverty grows deeper, social norms generally tend to unravel. When considering social capital, it is important to bear these points in mind.

[102] For details regarding the significance of agricultural development in recipient countries which are opening their markets, refer to Chapter1, 1-1-1.

threat from growing imports of cheaper produce.

Under these circumstances, the government recognizes a need to ensure that Japan's international cooperation efforts do not result in the increased export of farm, forestry and fisheries products by recipient countries to the detriment of domestic producers in this country ("boomerang effect").[103] As long as ODA is funded by the Japanese taxpayer, it must be carried out on the basis of the people's understanding, and when planning and executing international cooperation in the agricultural sector, it is important to consider its impact on domestic industry.

However, it is important to note that this does not mean that no cooperation projects will be carried out in the agricultural sector. In countries where the supply of staple food is not sufficient, increasing the capacity for producing a given crop contributes to the future stability of the global food supply, which in turn can be thought of as contributing to Japan's own food security.[104]

In other words, when formulating and carrying out cooperation projects in the agricultural sector, it is important to identify appropriate areas of need from the point of view of the recipient country, while considering their impact on our domestic industry. For example, Japan may offer assistance to improve the recipient country's general administrative services, which do not have a direct effect on Japan's own agriculture in stead of cooperation in those area that may cause difficulties (depending on the type of product and technology).[105]

It should be noted that Japan does not use subsidies to export its surplus agricultural produce to developing countries, but deals with the surplus through domestic production adjustments (cutting back on the acreage under cultivation). This is in contrast to European and North American Countries[106] which regard developing countries as a market for their surplus. Such countries fear both the threat to their exports (including products released as food aid) and the price reductions in international markets which would result from increased

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[103] This way of thinking is also expressed in Japan's Official Development Assistance Charter (August 2003). The latter part of (4): Using Japan's experience and knowledge in 2: Basic policies, states "In addition, when carrying out ODA, we must consider the relevance of such aid to Japan's economy and society, bring it in line with Japan's important policies, and ensure the consistency of our whole policy approach."

[104] The Basic Law on Food, Agriculture and Rural Areas, (July 26th, 1999, Law no. 106), article 2, clause 2, states "Regarding the stable supply of food for citizens…, the expansion of domestic agricultural production must form the basis, and this should be combined as appropriate with imports and reserves." In addition, article 20 in sections 2" Policy on securing stable food supply" stipulates that the State shall endeavor to promote international cooperation, including technical and financial cooperation for the development of agriculture and rural areas in developing countries as well as food aid, in order to contribute to the long-term stability of the world's food supply and demand.

[105] Areas where cooperation is possible include poverty reduction in rural areas and promotion of environmental measures including the prevention of desertification. Areas where cooperation may be possible depending on the circumstances include improvement of water management technologies and development of systems for agricultural extension. Comparatively new areas of cooperation include improving capabilities needed to comply with WTO accords, diagnosis of BSE (bovine spongiform encephalopathy: so called mad cow disease) and improvement of technology related to HACCP (Hazard Analysis Critical Control Point) and other food safety procedures.

[106] 54% of all US agricultural exports are to developing countries (2002). (Source: USDA website http://www.fas.usda.gov/scriptsw/bico/bico_frm.asp)

agricultural production in developing countries. However, increased agricultural production in developing countries will have no direct effect on Japanese agriculture, as along as such countries do not become motivated to export to Japan. It follows therefore that, although Japan should pay attention to the boomerang effect, there remain sufficient possibilities for Japan to provide assistance in the agricultural development of developing countries.

3-2 Issues for Future Consideration

Promoting aid coordination

(1) Promoting Aid Coordination

As stated in 1-1-3 "Recent Conditions Surrounding Agriculture and Rural Areas," the situation in developing countries, and sub-Saharan African countries in particular, clearly and strongly indicates the need to take a comprehensive approach to the issues they face, rather than undertaking projects on an individual basis.

In the face of globalization, developing countries are required to make a conceptual change in direction, almost a paradigm shift, from conventional management-driven methods to participatory and coordinated methods, in their attempts to liberalize the economies and introduce the market-oriented economic systems. In other words, developing countries must now tackle the challenge of updating their administrative systems and development policies with focus on the introduction of democratic institutions on the national and regional levels. A common challenge in this regard is the need for developing countries to build their capacity to manage these changes. Therefore, it is important that content of cooperation projects by development assistance organizations also gives support to these institutional and policy reforms.

One very important factor, in providing assistance to developing countries which are in a stage of transition as described above, may be to give support for the development process while ensuring systematic consistency in governance. Against this background, development assistance that is indicative of a more comprehensive and systematic framework encompassing aid coordination, ownership and support for improving governance is becoming more common.

It is also desirable that cooperation takes into account the "policy environment to address globalization." In this respect, it is extremely important to ensure coordination among aid organizations that complements and influences the immaturity of institutional and policy environments in developing countries.[107]

It is generally the case that regions and fields which are currently the target of assistance are already receiving cooperation from a large number of donors including international organizations and NGOs. Under these

[107] It is necessary to remember that ① aid coordination itself is not the aim, and that, ② it is more important for developing countries to increase their capacity to manage and adjust aid.

circumstances, to engage more effectively in the development of rural areas, coordination must not be limited to related regional administrative bodies; needless to say, it is essential that coordination efforts also include private organizations and other donors. It is also important to serve as a coordinator and be proactive in disseminating information, while confirming the status of the project within the recipient country. Regarding new projects, project details should be made available to other donors and related organizations at the preliminary evaluation stages. It is also strongly advisable to make efforts to ensure that there are opportunities for information exchange, led by government officials.

Currently, "Local ODA Task Forces" are being established in various countries by the Japanese Embassies and aid related organizations. From the point of view of aid coordination, it is important to systematize and ensure the consistency and coherence of Japan's cooperation projects, and disperse information about such projects. In particular, in countries in the early stages of reconstruction after civil war or other conflicts, aid coordination is regarded as essential. Coordination does not mean simply holding a meeting of donors to decide on relative contributions of emergency funding. It is important to determine long-term programs including human resources development plans. At the planning stage, it is vital to respect the identity of the recipient country and to consider strategic rural development programs which take into account the distinctive characteristics and independence of the region.

Cooperation from mid-to-long term perspective and reconsideration of "integrated rural development"

(2) Cooperation from Mid- and Long-term Perspectives and Reconsideration of "Integrated Rural Development"

When planning aid projects, setting the duration of the project is an extremely important factor. Generally speaking, in agricultural development, considerations include the production cycle of the target products and the recovery period for investment. Project evaluation is also possible by measuring the quantitative economic benefits. In rural development, on the other hand, broader factors such as dynamic trends in population, which affect the future make-up of rural society, should be taken into consideration as well. In the case of rural societies in LLDCs, it is extremely difficult to expect results from sector-specific approaches and short-term projects; these societies lack economic and social factors which could help shape a realistic future vision because links with modern urban areas are weak and traditional practices are prominent, and as a result, the modernization of the whole rural society is necessary.

"Integrated Rural Development" is an approach which was first proposed in the 1970s, the basic philosophy of which is to implement sector projects needed for the development of rural areas in an integrated manner. However, against the background of economic recession and stagnation caused by the oil

crisis at that time, the approach found itself placed in an institutional and policy impasse; affected by the strained international relations under the Cold War, it was extremely difficult for developing countries to coordinate the execution of individual sector projects as well as overall development projects either on the central or local level. As a result, the "integrated rural development" approach receded into the background in the 1980s, and was replaced by the "sector development" approach, in which coordination between different projects was more easily achieved.

In the 20 or so years since then, the environment surrounding the development of developing countries has changed considerably. Political and administrative reforms, including structural adjustments and democratization, have progressed and decentralization polices have been introduced, paving the way for participatory development to become the principal development format. Furthermore, various countries in sub-Saharan Africa have reached the stage where, in addition to PRSPs (poverty reduction strategy papers), "integrated agricultural development strategies" are in place. This is the time for us to examine again whether it is feasible to implement the basic principles of "integrated rural development" focusing on mid- and long-term perspectives and multi-sector programs.

Gender mainstreaming

(3) Gender Mainstreaming

The results of research and surveys to date have presented many examples showing that women, who play an important role in earning a livelihood in agriculture and rural societies in developing countries, are often excluded from agricultural development projects and from statistics on rural society. At the same time, the contribution of women, in particular in agriculture, rural society and the home, has been reevaluated in the course of various development projects, and efforts have been made to incorporate their roles into subsequent development projects. In addition, it has been increasingly understood that women are entitled to the political, economic and social right to be more independent, to contribute significantly to social development and to receive the benefits in return. Today, "gender mainstreaming" – viewing all aspects of development, ranging from planning, execution and monitoring to evaluation, from the perspective of gender and taking responsive and implementation measures accordingly – has become an important issue to be addressed in any development program.

Needless to say, tackling agricultural and rural development involves two important challenges: the self-sustained development of farmers and other rural residents and change in rural society. At the same time, efforts towards "gender mainstreaming," as mentioned above, represent another important challenge.

However, the concept of "gender mainstreaming" is based on "modern European principles." It is an undeniable fact that there is often a wide gap

between this concept and the local cultural context in developing countries and regions. Indeed, how to deal with the concept in that cultural context and in changing society poses an important problem from a practical point of view.[108]

The issue of "gender mainstreaming" cuts across many areas and sectors, and if the concept is to be promoted, it is important to improve the relevant systems and social environments. At the same time, through individual projects, more opportunities should be provided to women who are living in poverty or are socially disadvantaged, with a view to helping them make use of their potential capacities. In addition, it is important to try to transform various systems, customs and structures that give rise to gender disparity, based on a long-term outlook.

[108] These considerations are based on the perception advanced by Amartya Sen that while the majority of human "potentials" rest on social capital, which is built on cultural and social norms, people's cultural and social norms including gender can develop through changes in behavior which are brought about by pursuing real development needs.

Appendix 1 Examples of Major Cooperation Projects

Agricultural development and rural development call for diverse and comprehensive approaches. Therefore, it is often difficult to specify the area of cooperation and each of the projects give examples of cooperation that cover all agricultural and rural development.

Therefore, as references, we have selected JICA's main cooperation projects, classified them into four broad categories, and listed them at the end of this Appendix. The categories are 1: Capacity building for policy planning and implementation; 2: Sustainable agricultural production; 3: Stable food supply; and 4) Promoting rural development. These four categories are subdivided and reviewed in line with the Mid-term Objective indicated in the Structural Framework of Agricultural and Rural Development Issues which is attached to our main report.

Elsewhere, at the end of this Appendix are boxed texts that describe the Cerrado Agricultural Development Cooperation Project in Brazil and Agricultural Umbrella Cooperation in Indonesia, two of the examples of large-scale projects in which JICA has been involved.

1. Capacity Building for Policy Planning and Implementation
    (1) Mid-term Objective 1-1: Capacity Building for Macro-level Agricultural Policy Planning and Implementation[1]
    (2) Mid-term Objective 2-1: Formulating Food Supply/Demand Policy
    (3) Mid-term Objective 3-1: Implementing Policies Related to the Promotion of Rural Areas
2. Sustainable Agricultural Production
  2-1 Expanding Agricultural Production and Improving Productivity
    (1) Mid-term Objective 1-2: Expanding Agricultural Production and Improving Productivity
  2-2 Other Cooperation Related to Agricultural Production
    (1) Mid-term Objective 1-3: Strengthening Export Promotion Measures
    (2) Mid-term Objective 1-4: More Careful Consideration of the Environment
    (3) Mid-term Objective 1-5: Strengthening Agriculture-Related Higher

[1] Because experts (other than policy advisors) and volunteers (Japan Overseas Cooperation Volunteers, Senior Overseas Volunteers) provide technical cooperation on assignment to a government organization in the recipient country, their activities are classified under the sub-goal of training administrative personnel, which falls under Mid-term Objective 1-1: Capacity Building for Macro-level Agricultural Policy Planning and Implementation.

Education

3. Stable Food Supply
   (1) Mid-term Objective 2-2: Improving Food Distribution Functions
   (2) Mid-term Objective 2-3: Improving Import Systems
4. Promoting Vibrant Rural Areas
   (1) Mid-term Objective 3-2: Improving Off-farm Incomes
   (2) Mid-term Objective 3-3: Promoting Agricultural Processing Industry
   (3) Mid-term Objective 3-4: Improving Rural Infrastructure
   (4) Mid-term Objective 3-5: Protecting Rural Environment
   (5) Mid-term Objective 3-6: Promoting Livelihood Improvement
   (6) Mid-term Objective 3-7: Promoting Rural Community Activities
   (7) Mid-term Objective 3-8: Improving Health Standards among Residents
   (8) Mid-term Objective 3-9: Improving Educational Standards among Residents

1. Capacity Building for Policy Planning and Implementation

Capacity building for macro-level agricultural policy planning and implementation

(1) Capacity Building for Macro-level Agricultural Policy Planning and Implementation (Examples 1-13)

①Direct support for policy-making
②Formulation of development projects
③Personnel training through technical cooperation
④Compilation of agriculture-related statistics

JICA carries out macro-level cooperation through the provision of technical cooperation. Generally speaking, such cooperation can be grouped into the following four categories:

① Direct support for policy-making at key government institutions in recipient countries; ② Formulating development plans on the domestic regional or national level; ③ Technical cooperation in the training of personnel who will be in charge of formulating development projects on the national or regional level; and ④ Technical cooperation in the compilation and use of agriculture-related statistics which are necessary for policy formulation.

① Direct support for policy-making at key government institutions in recipient countries is provided through JICA's dispatch of experts to recipient countries as policy advisors. In recent years JICA has dispatched experts to Indonesia, Thailand, East Timor, the Philippines, Afghanistan, Cambodia, Laos, Bangladesh, Mongolia, Myanmar, and Pakistan. Policy advisors do not only give policy advice within the government department to which they are attached, but also play a facilitating role in liaisons with other departments. Thus, they play an important role not just from a Japanese perspective, but from the domestic point of view of recipient countries.

② Cooperation in the formulation of development projects on the domestic regional or national level includes policy advisors giving support for formulating development plans, as described above, and development studies,

which in effect carry out the actual formulation of those plans. Development studies can be divided into those which formulate the actual plans for executing development projects in agricultural and rural areas, and those higher-order studies which determine the direction of cooperation to be provided by Japan in the field of agriculture. The integrated agricultural development project in Laos represents an example of the former, whereas the agriculture/fisheries sector development project study in Indonesia and the rural development sector program formulation support study in Tanzania are examples of the latter.

③ Technical cooperation in the training of personnel for the formulation of development plans on the national or regional level takes place when technology is transferred to counterpart organizations in recipient countries during the course of development studies or technical cooperation projects, or in the form of JICA accepting overseas personnel for training courses.

④ Technical cooperation regarding the compilation and use of agriculture-related statistics which are necessary for policy formulation involves technical cooperation projects focusing on statistics and data centers in recipient countries.

Formulating food supply/demand policy

(2) Formulating Food Supply/Demand Policy (Examples 14-16)

Examples of JICA cooperation related to the formulation of food supply/demand policy mainly concern food reserves, agricultural information systems, distribution and markets. Technical cooperation in these areas consists of support from policy advisors, development studies and the acceptance of training course participants.

Implementing policies related to promotion of rural areas

(3) Implementing Policies Related to Promotion of Rural Areas (Examples 17-22)

Among examples of JICA cooperation are the formulation of participatory development programs for rural settlements and the implementation of related verification studies. These projects center on the training of administrative personnel on regional and national levels.

- Training of administrative personnel on a regional and national level
- Formulation and feasibility studies of participatory development programs for rural settlements

Training of administrative personnel on regional and national levels takes place in two ways; the transfer of technical knowledge to the counterpart organization in the recipient country during the course of carrying out study or technical cooperation projects, and also through the acceptance of overseas trainees in Japan.

As an example of the latter method, JICA offers training courses like “Participatory Rural Settlement Development in Partnership with NGOs” and “Agricultural and Rural Development through the Participation of Farmers II.” The first of these two courses allows not only government officials from recipient countries but also local NGO staff in those countries to participate. This approach aims for partnership with grassroots assistance on a local basis.

Formulation and verification of participatory development programs for rural settlements takes place in the form of study projects (development studies) and technical cooperation projects.

In the case of study projects, a master plan is first formulated, followed by a verification study and/or a pilot project, the results of which are fed back into the master plan. Through the process cycle of formulation of a master plan and execution of a verification study and/or a pilot project, the participation of residents and the transfer of technical know-how to the staff of government organizations in the recipient country occur, meaning that a master plan which takes into consideration regional social, economic and environmental factors can be formulated. The key to formulating an effective master plan is the sustainability and development potential of the projects examined in the verification study and pilot project, from the perspectives of residents who will benefit from it and officials of the related government organizations. Success also depends on the degree of favorable ripple effects to other regions.

In the case of study projects which aim to formulate a master plan, verification studies are designed to provide additional input. In the case of technical cooperation projects, verification occupies a key role.

2. Sustainable Agricultural Production

2-1 Expanding Agricultural Production and Improving Productivity

Expanding agricultural production and improving productivity

(1) Expanding Agricultural Production and Improving Productivity (Examples 23-205)

The expansion of agricultural production and improvement of productivity has always been the main focus of JICA's cooperation in agricultural and rural development. Examples of JICA's cooperation can be reviewed in terms of the following five areas: ① Improvement, maintenance and management of production infrastructure; ② Enhancement of studies and research; ③ Promotion of the agricultural extension; ④ Improvement of farm management, ⑤ Improvement in the procurement and use of agricultural production equipment/materials.

①Improvement, maintenance and management of production infrastructure
②Enhancing research and technical development
③Promotion of the agricultural extension
④Improvement of farm management
⑤Improving the procurement and use of agricultural production equipment/materials

① Improvement, maintenance and management of production infrastructure represents an area in which it is comparatively easy to provide cooperation in a sequence involving development studies, grant aid, the dispatch of experts and other schemes. Technical cooperation, development studies, grant aid, and the acceptance of trainees form the mainstay of JICA's cooperation in this area.

Technical cooperation projects are implemented basically in collaboration with research and technical organizations. The projects include those aimed at

upgrading and restoring farmland and irrigation/drainage facilities, water management, facility maintenance and management, and technical development related to the conservation of agricultural land. While these activities are in progress, model districts are established. Human resources development and dissemination of techniques and skills are then carried out through personnel training and other programs in these model districts.

Development studies can be divided according to whether they target 'hard' elements (facilities and equipment) or 'soft' elements (know-how and skills). The improvement of facilities and equipment involves large-scale agricultural infrastructure projects, such as the construction of new irrigation facilities and the repair of existing facilities, and also the formulation of development projects for sustainable infrastructure management. JICA has a great deal of experience in these areas. An example of projects concerning know-how and skills are those aimed at developing and strengthening rural water-users associations. In recent years, the number of cases in which development plans are formulated after the execution of verification studies involving model/pilot projects has been on the increase, resulting in the emergence of a type of development study which combine 'hard' and 'soft' elements; i.e. development studies which connect the improvement of small-scale irrigation facilities with the training of personnel in the counterpart organization.

Grant aid cooperation involves projects including the construction and repair of irrigation/drainage facilities. To improve the effectiveness of the assistance, technical cooperation may be added at about the same time as construction work begins so that an approach combining grant aid and technical cooperation can be taken.

An example of such linkage between different types of schemes is shown in Tanzania. A project study (development study; July 1996 - November 1997) was conducted on the development of irrigation agriculture in the Wami River Middle-reach Basin. The study chose the development of small-scale irrigation facilities in the Mwega District of Morogoro Province as a priority project (grant aid, January 2000 – March 2002). With this aid, irrigation facilities were built, and experts were dispatched to facilitate participatory construction work, help strengthen farmer's unions, and provide training in water and irrigation facilities management.

② Cooperation for enhancing research and technical development, due to the nature of the field, centers on technical cooperation projects, including those making use of testing/research facilities built with grant aid and equipment/materials procured likewise.

These cooperation projects are implemented basically in collaboration with research and technical organizations, as is the case with 1) improvement, maintenance and management of production infrastructure. They include

projects for enhancing research and technical development related to various technologies (agricultural production, post-harvest technology, livestock raising, and processing of livestock products) and for conserving plant genetic resources.

The degree of complexity of technologies to be developed through study and research is an influential factor in determining whether they should be disseminated only among engineers or more widely among ordinary farmers as well. Therefore, it is important to define the expected results when providing this kind of cooperation.

Box A1-1 Kilimanjaro Agricultural Training Center Project in Tanzania (1993-2006)

Currently, Phase II (October 2001 - September 2006) of the project is under way. Up until now, the following projects have been carried out: Kilimanjaro Province Integrated Development Project Study (development study, 1974-1978), Kilimanjaro Agricultural Development Center Project (technical cooperation project, 1978-1986), Construction of the Kilimanjaro Agricultural Development Center (grant aid cooperation, construction started, 1981), Lower Moshi Agricultural Development Project (loan assistance, completed 1987), Kilimanjaro Agricultural Development Project (technical cooperation project, 1986-1993), Kilimanjaro Agricultural Training Center Project Phase I (technical cooperation project, 1994-2001).

The history of technical cooperation projects in the area is as follows:

(1) Kilimanjaro Agricultural Development Center Project: KADC (1978-1986)

Aim: Improvement of agricultural infrastructure and establishment of agricultural technology.

Activities: Development of irrigation systems, promotion of farming standards, cultivation for verification, production of recommended seed varieties, dissemination and training regarding these results among farmers.

(2) Kilimanjaro Agricultural Development Project: KADP (1986-1993)

Aim: Establishment and dissemination of irrigation agriculture technology.

Activities: Dissemination of technologies developed at the KADC through the Lower Moshi Region, advice on water resources development projects in regions other than Lower Moshi throughout Kilimanjaro Province.

(3) Kilimanjaro Agricultural Training Center Phase I: KATC (1993-2001)

Aim: Dissemination of irrigation agriculture technologies established in Kilimanjaro Province throughout all of Tanzania.

Activities: Improving the technical level of instructors and teaching personnel based on technical knowledge of irrigation and rice-farming accumulated through KADC and KADP, in addition to technical advice on the improvement of training methods and materials.

Training of personnel involved in the improvement and dissemination of agriculture, in water management and in the operation of agricultural machinery, as well as of core farmers.

(4) Kilimanjaro Agricultural Training Center Phase II: KATC (2001-2006)

Aim: Improvement of productivity at model sites through expansion of training appropriate to regional needs

Improvement of technical knowledge of irrigated rice-farming among agricultural engineers from neighboring countries through a wide-area technical cooperation program.

Activities: Training in and dissemination of practical technology among field staff including agricultural extension workers at model sites and among core farmers.

③ In the case of projects for promoting the agricultural extension, if past examples are considered on an individual basis, there are some instances of development projects being decided upon the basis of development studies. However, most projects concerned with the improvement of agriculture promotion systems and methods as well as their implementation are carried out as technical cooperation projects with the direct aim of promoting human resources development and technology transfer.

A representative example of linkage of schemes in this field is the Kilimanjaro Agricultural Training Center Project, a technical cooperation project carried out in Tanzania.

④ Improvement of farm management involves direct training and guidance of agricultural extension workers and farmers, and as such, JICA provides most of its cooperation in this field in the form of technical cooperation projects. In order to improve farm management, it is also necessary to improve agricultural financing and organize farmers, and therefore JICA organizes relevant training courses and accepts participants from overseas. Some development studies that include verification studies may also aim to improve technical skills of individual farmers.

A representative example of linkage between different types of schemes in this field is the series of cooperation projects implemented in Indonesia. In this instance, a project for developing and improving high-quality seed potato breeding systems (technical cooperation project, October 1998 - September 2003) has been carried out with the aim of enhancing cultivation management techniques on farms. The project was preceded by the dispatch of individual experts (1985-1992), a project to promote the production of crops for staple food (development study, 1987), a seed potato breeding/distribution project (grant aid, 1992), and a seed potato breeding training project (technical cooperation project, October 1992 - September 1997).

⑤ Projects aimed at improving the procurement and use of agricultural production equipment/materials include technical cooperation projects and training courses for overseas participants. These involve increased mechanization of agriculture, stable supply of seeds and appropriate use of pesticides. A representative example of linkage between schemes in this field is shown in Indonesia; the appropriate agricultural machinery technology development center project (technical cooperation project, April 1997 - March 1999) in connection with the grant aid given for the construction of the center and provision of equipment (fiscal year 1986).

2-2 Other Cooperation Related to Agricultural Production

(1) Strengthening Export Promotion Measures (Examples 206-213)

Strengthening export promotion measures

Projects for strengthening export promotion measures involve training of personnel related to plant quarantine through technical cooperation,

improvement of export promotion structures through development studies, marketing surveys through overseas development studies, and the acceptance of trainees for courses on plant quarantine, trade and marketing. A representative example of linkage between schemes in this field is the plant quarantine station project (technical cooperation project, July 1994 - June 1999) in Sri Lanka, in connection with the grant aid provided for the construction of and supply of equipment for the quarantine station (fiscal year 1986).

More careful consideration on the environment

(2) More Careful Consideration on the Environment (Examples 214-218)

Projects for more careful consideration on the environment include technical cooperation projects, research cooperation, and the acceptance of trainees for courses and seminars such as "Zero Emission Agricultural and Rural Environment Systems" and "Prevention of Health Hazards Due to Farm Work."

An example of linkage between schemes in this field is the Participatory Rural Environment Conservation Project (technical cooperation project, March 2003 - February 2005) in Chile in connection with the FAO Latin America/Caribbean Regional Office Field Project (a Japanese trust fund, 1992-1999). The field project produced manuals on soil erosion surveys and existing technologies in the target area, and the above environment conservation project is being implemented on the basis of the cooperation from the FAO.

Strengthening agriculture-related higher education

(3) Strengthening Agriculture-related Higher Education (Examples 219-227)

Projects for strengthening agriculture-related higher education include technical cooperation projects and grant aid, centered on the improvement of educational activities and the strengthening of research functions.

An example of linkage between schemes in this field is the Jomo Kenyatta University (bachelor's degree course) of Agricultural and Technology Project (technical cooperation project, 1990-2000), in connection the Jomo Kenyatta University of Agricultural and Technology Construction Project (grant aid, 1978-1981) and the Jomo Kenyatta University of Agricultural and Technology Project (technical cooperation project, 1980-1990). This series of projects, aimed at producing graduates with the knowledge and skills necessary for agriculture and industry, ended in 2000. The university is now regarded as the "key base for African human resources development" and has been chosen as a target for wide-area technical cooperation. With focus on the university, a new technical cooperation project, named the "African Human Resources Development Base Program," is under way to develop human resources who can contribute to the reduction of poverty in African Countries.

3. Stable Food Supply

Improving food distribution functions

(1) Improving Food Distribution Functions (Examples 228 - 236)

Projects for improving food distribution functions are generally carried out through development studies and grant aid, centering on the improvement of physical distribution infrastructure.

An example of linkage between schemes in this field is shown in the Philippines; the study on plans to help poor farmers in marginal areas in the Philippines (development study, 1997) and the program for agrarian reform in communities in marginal areas (grant aid, fiscal year 2001).

Another example is in Paraguay; the Fruit and Vegetables Distribution Improvement Project (technical cooperation project, March 1991 - March 1998), in connection with the construction of Ascension Central Food Wholesale Market buildings (World Bank funding, 1979), and the Central Food Wholesale Market Improvement Project (technical cooperation project, December 1981 - December 1988). The market was constructed with World Bank funding and renovated through the improvement project. However the introduction of quality regulations among producers did not produce sufficient results. Therefore the fruit and vegetables distribution improvement project was carried out to organize distribution systems based on product quality standards.

Improving import systems

(2) Improving Import Systems (Examples 237-238)

Cooperation in the improvement of import systems involves technical cooperation projects, development studies, grant aid, and the acceptance of trainees. Technical cooperation projects are implemented to improve quarantine and disease prevention procedures. Development studies and grant aid are used for the development of infrastructure.

4. Promoting Rural Development

Improving off-farm incomes

(1) Improving Off-farm Incomes (Examples 240-242)

Projects to achieve an increase in off-farm income are carried out through a wide variety of schemes, including development studies, the acceptance of trainees, volunteers (dispatch in groups of junior volunteers), development welfare support, and grassroots technical cooperation projects. A characteristic of these schemes is a lack of linkage between them. Many projects in this field are carried out at grassroots levels, and therefore it is necessary for them to be implemented under an organized program to ensure linkage for well-planned cooperation.

Promoting agricultural processing industry

(2) Promoting Agricultural Processing Industry (Example 243-248)

Projects to promote industry for processed agricultural goods are carried

Box A1-2 Livestock Disease Containment Project in Thailand and Surrounding Countries (2001 - 2006)

As the political and economic situations in Thailand and surrounding countries, including Cambodia, Laos, Myanmar and Viet Nam improved, the transporting of livestock across the borders is on the rise. This has led to contamination of pathogens of animal disease in neighboring countries. The deterioration of hygiene status has an adverse effect on livestock production and on trading of animals and livestock products. The appearance of a disease can cause the livestock industry to suffer great losses. There is an urgent need to establish a regional strategy for improving the current status of disease control and preventing diseases.

This project represents one of JICA's wide-area technical cooperation promotion programs. In this project, Thailand plays a major role in the development of human resources among the surrounding countries. Japan supports the project as an example of South-South cooperation.

The goal of the project is to promote the improvement of livestock hygiene in Thailand and the surrounding countries. The details of the project are as follows:

① Enhancement of regional cooperation systems and human resources to ensure the effective prevention of livestock disease; ② Development of relevant human resources; ③ Improvement of disease surveillance techniques; ④ Improvement of vaccine production and quality control techniques; ⑤ Improvement of livestock quarantine techniques.

Schemes linked to this project are listed below.

(1) Thailand

Livestock Hygiene Improvement Project (technical cooperation project, 1977-1986)
Livestock Hygiene/Production Research Institute Project (technical cooperation project, 1986 - 1993)
Livestock Hygiene Research Center Project (technical cooperation project, 1993-1998)
Third-Country Training Program: "Diagnosis and Prevention Techniques for Important Infectious Livestock Diseases 1997-2001"

(2) Myanmar

Livestock Hygiene Center Equipment Improvement Project (grant aid)

(3) Viet Nam

National Institute of Veterinary Research Enhancement Project (technical cooperation project, 2000-2005)

(4) Malaysia

ASEAN Poultry Disease Research and Training Project (technical cooperation project 1986-1998)
Third-Country Training Program: "The ASEAN Poultry Disease Research and Training Centre 1996-2000"

Other donors are as follows:

(1) European Union: EU

Livestock Hygiene Promotion Project (Laos)
Veterinary Service Enhancement Project (Viet Nam)

(2) Australia Center for International Agricultural Research: ACIAR

Disease Diagnosis and Monitoring Plan (Laos)
Fascioliasis (Liver Fluke Disease) Countermeasures (Cambodia)

(3) International Atomic Energy Agency

Foot and Mouth Disease Research Program (Laos)

(4) Southeast Asia Foot and Mouth Disease Control Campaign: OIE

Foot and Mouth Disease Containment Program (all targeted countries)
An example of linkage between schemes is the Livestock Disease Containment Project in Thailand and Neighboring Countries (technical cooperation project, December 2001-December 2006)

out through technical cooperation projects, grant aid, the acceptance of trainees and through development welfare support. Characteristics of projects in this area are a focus on the processing of livestock products in the case of technical cooperation projects and grant aid, and the provision of versatile training courses in the case of the acceptance of trainees.

Improving rural infrastructure

(3) Improving Rural Infrastructure (Examples 249-258)

Projects for the improvement of rural infrastructure are carried out through development studies and grant aid. Many projects concentrate on a single aim such as upgrading of agricultural roads, rural electrification or supplying water to rural villages. However some projects may have a wide range of aims, with road upgrading, rural electrification, and the construction of water supply facilities and meeting halls, all being carried out together. Examples include the program for agrarian reform in communities in marginal areas in the Philippines (grant aid, fiscal year 2001) and the project for improvement of rural living conditions in Nam Dan District in Nghe An Province, Viet Nam (grant aid, fiscal year 2003).

An example of linkage between schemes in this field is the study on plans to help poor farmers in marginal areas in the Philippines (development study, 1997) and the program for agrarian reform in communities in marginal areas (grant aid, fiscal year 2001), as referred to under 3.(1) Mid-term Objective 2-2.

Protecting the rural environment

(4) Protecting the Rural Environment (Examples 258-281)

Projects to protect the agricultural environment are carried out through technical cooperation projects, development studies, and development welfare support. The rural environment has relevance not only to agriculture but is also closely linked with forestry, water resources and waste disposal. Therefore, it is necessary to refer to examples of cooperation in each of these fields. There are also projects which aim not simply to protect the rural environment, but also attempt to use the environment to increase incomes. An example of this, though small in scale, is the regional community empowerment project in Indonesia which made use of nature and natural resources (development welfare support, December 2001 - November 2004).

An example of linkage between schemes is the grant aid given for the procurement of equipment for the development of technology, in connection with the sustainable agricultural technology research and development project (February 2002 - February 2007) carried out in China.

Promoting livelihood improvement

(5) Promoting Livelihood Improvement (Examples 282-284)

Projects to promote livelihood improvement take the form of technical cooperation projects, development studies, and the acceptance of trainees. Development studies involve both verification studies and pilot projects.

An example of linkage between schemes in this field is the Agricultural and Rural Development Project in Vientiane Province, Laos (VARDP) (technical cooperation project, November 1995 - October 2002), in connection with the construction of a rural development center (grassroots grant aid, 1997), and the Laos Forest Conservation and Afforestation Project (FORCAP) (technical cooperation project, July 1996-July 2003). VARDP and FORCAP were carried out almost simultaneously, showing lateral linkage between the two schemes.

Promoting rural community activities

(6) Promoting Rural Community Activities (Examples 285-296)

Projects to promote rural community activities take the form of technical cooperation projects, development studies, acceptance of trainees, development welfare support, overseas development studies, and grassroots technical cooperation projects.

An example of linkage between schemes is the agricultural cooperative development/regional development project in the Philippines which aimed to organize women and youths and to give guidance on ways to ensure the continuation of their activities (technical cooperation project April 2000 - March 2005) and the strengthening of the agricultural cooperatives development project (development study, 1993).

Improving health standards among residents

(7) Improving Health Standards among Residents (Examples 297-298)

Examples of projects aimed at raising health standards include the Baringo Province Semi-arid Area Rural Development Study (development study, July 1999 - February 2002) carried out in Kenya, and the development study for sustainable rural development for reduction of poverty in Central Highland Region (development study, February 2000 - February 2003) carried out in Guatemala. These projects included verification studies for rural development. The former project involved health and sanitation promotion activities, while the later was concerned with improving the quality of drinking water and the supply of basic medicines.

Refer to the documents below for information concerning JICA's approach to cooperation on individual issues connected with the improvement of health standards.

1) "Poverty Reduction," JICA (2003) "Approaches for Systematic Planning of Development Projects - Mid-term Objective 3-2, Improving Health Conditions among the Poor."

2) "HIV/AIDS," JICA (2002) "Approaches for Systematic Planning of Development Projects": "Primary Health Care" JICA (2002) "Approaches for Systematic Planning of Development Projects"

Improving education standards among residents

(8) Improving Educational Standards among Residents (Example 299)

Among examples of projects to improve education standards of residents

is one that was carried out as part of the Southern Segou Region Desertification Prevention Project in Mali (development study March 2000 - June 2003). The aim of the project was to increase the ability of residents to manage their businesses. For this goal to be achieved, it was necessary to increase the literacy rate.

Refer to the documents below for information concerning JICA's approach to cooperation on individual issues connected with the improvement of education standards.

1) "Poverty Reduction," JICA (2003) "Approaches for Systematic Planning of Development Projects - Mid-term Objective 3-1, Improving Education Standards among the Poor."

2) "Basic Education," JICA (2002) "Approaches for Systematic Planning of Development Projects."

Box A1-3 Brazil - Cerrado Agricultural Development Cooperation Project (1977-2000)

This cooperation project was a large-scale resource development project, in the agricultural field, carried out by both Japan and Brazil as a national project. It involved financial and research cooperation carried out through the PRODECER program, which aimed mainly to increase food production, promote regional development and expand the supply of food to world markets, in addition to establishing closer economic relations between the two countries. Financial and research cooperation was extended to the Cerrado Irrigation Project as well. Technical cooperation related to agricultural technologies to ensure sustainable development was also provided, including development studies in Tocantins Province. This project has made a significant contribution, not only to regional development and the Brazilian economy, but to the stable supply and international prices of soy beans and thus to Japan's food security. The main features of the project are: it was a joint venture involving the governments and private sectors of both countries; it used an approach that focused on the establishment of development bases through a cooperative-led method of settlement, aimed at turning new landless settlers into medium-sized farm owners that were competitive internationally; a company (CAMPO) was established to exclusively oversee the project; and it took careful consideration of environmental factors in the establishment of settlements.

Box A1-4 Indonesia - Agricultural Umbrella Cooperation (1981-2000)

Japan's agricultural corporation with Indonesia has taken the form of integrated cooperation in the agricultural sector using "an umbrella approach" from 1981 to 2000. The umbrella approach, through the three major aims of improving agricultural productivity, efficiency and sustainability, improving the quantity and quality of agricultural production, and increasing the added value of agricultural products, sought to increase the living standards of farmers, its highest goal being to make a significant contribution to the reduction of poverty in rural areas. This made it necessary to achieve organized linkage and coordination between technical cooperation, development studies, research cooperation, training, grant aid, technical cooperation through the dispatch of experts and funding cooperation. The first phase of such umbrella agricultural cooperation (1981-1985) aimed for self-sufficiency and stability in rice production. The second phase (1986-1990) aimed to increase the production of staple food crops, while the third phase (1995-2000) aimed to improve the quality and diversity of agricultural produce and increase the added value of those products.

1. Capacity Building for Policy Planning and Implementation

No	Country	Project Name	Period	Type of Schemes	Mid-term Objective	Characteristics
1. Capacity Building for Policy Planning and Implementation						
【Mid-term Objective 1-1: Capacity Building for Macro-level Agricultural Policy Planning and Implementation】						
1	Indonesia	Agricultural Policy Advisors	2001.7-2004.6	Experts	1-1 2-1 3-1	Aimed at coordinating between the Agricultural Ministry and other government agencies/international organizations and giving necessary policy advice to continue provision of effective aid following on from the 3rd Agricultural Umbrella Cooperation Project carried out with Japanese aid, which ended in October 2000.
2	Thailand	Sustainable Management of Agricultural Water Resources (Policy Advisors)	2003.8-2005.8	Experts	1-1 3-1	Aimed at giving policy and technical advice to departments (RID: Royal Irrigation Department; LOD: Land Development Department; ALRO: Agricultural Land Reform Organization) within the Agricultural Cooperative Union Ministry, (which is responsible for the management of agricultural water resources), while helping them to deal with the regional devolution of authority.
3	More than one country	Dispatch of Experts	Fiscal year 2001-2003	Experts	1-1	Dispatch of around 1,100 experts between fiscal year 2001 and 2003 to give assistance in agricultural/rural development. Of the experts, those related to agricultural development include about 160 in agricultural engineering; about 130 in livestock production; around 130 in cultivation techniques; and about 110 veterinarians. These figures include experts participating in technical cooperation projects and policy advisors.
4	Paraguay	Agriculture and Livestock Statistics Enhancement Project (A/C)	1990.3-2002.3	Tech. Pro.	1-1	Aimed at ensuring the success of the 2001 agricultural and livestock census by developing simple and reliable statistical techniques and improving implementation structures. The project included implementation of and instruction for an effective sample census; planning and design to improve systems for compiling and estimating statistics; formulation of plans, improvement of methods, and upgrading of systems for early announcement of census results (summary results).
5	Indonesia	Agriculture/Fisheries Statistics Compilation Technology Improvement Program	1994.10-2001.9	Tech. Pro.	1-1 2-1	Aimed at improving statistical management and operations at the Agricultural Data Center. Improvement of statistical methods and communication, human resources development and transfer of technology were carried out through statistical surveys of harvested areas, per-unit yield surveys, tabulation activities and training.
6	Indonesia	Agriculture/Fisheries Sector Program Development Plan Study	2002.4-2005.3	Dev. Study	1-1	Aimed at ensuring more effective and efficient Japanese cooperation in the field of agriculture and fisheries by implementing the "Direction of Japanese Cooperation in the Field of Agriculture and Fisheries" which was established on the basis of results of an earlier agriculture/fisheries sector project formation study. The on-going development plan study involves additional sector analysis related to the cooperation program, formulation of concrete action plans and monitoring of their implementation.
7	Thailand	Study on Human Resources Development Plan for Rural Rejuvenation	2002.2-2003.3	Dev. Study	1-1 3-1	Aimed at building rural human resources development systems in Thailand. Based on analysis of rural problems and comparison with Japanese standards, examples of human resources development were evaluated and the qualities of personnel in need were identified. Formulation of master plans on each administrative level followed by proposals on the national socio-economic development program.

No	Country	Project Name	Period	Type of Schemes	Mid-term Objective	Characteristics
8	Tanzania	Regional Development Sector Program Formulation Support Study	2001.3-2005.3	Dev. Study	1-1	Support for the process of formulating regional development and agricultural development strategies; support for formulating development plans in the agricultural sector and for their implementation and supervision. Possibilities for future Japanese cooperation in agricultural sector development plans are examined.
9	Laos	Integrated Agricultural Development Plan	2000.11-2001.10	Dev. Study	1-1	Aimed at formulating a development project implementation program involving all areas of agriculture and at clarifying priority plans for effective Japanese cooperation in the field of agriculture. Project implementation policy up to 2020 and implementation plans for central and local government projects up to 2010 were formulated. Priority implementation plans for possible Japanese support up to 2010 were selected.
10	More than one country	Regional Development Program Management II	Fiscal year 2003-2007	Training	1-1 3-1	Aimed at deepening an understanding, among administrative officials, of locally-rooted integrated development plans. Lectures and study tours concerning integrated development structures for Hokkaido, development plans, roads, ports and agricultural infrastructure facilities.
11	More than one country	Agricultural Statistics Instructors	Fiscal year 2002-2006	Training	1-1	Aimed at contributing to the improvement and enhancement of agricultural statistics in developing countries by strengthening agricultural statistics organizations. Training of personnel capable of forming nucleus of above statistics organizations focused on capabilities required to plan and design statistical surveys and leadership needed to implement surveys.
12	More than one country	Regular JOCVs (including those in forestry and fisheries)	As of end August, 2003	Volunteers	1-1	Dispatch of cumulative total of around 5,300 volunteers in the field of agriculture. Around 400 such JOCVs are currently on dispatch: 153 as ''village development extension'' volunteers; 70 in vegetable cultivation; 35 in livestock raising; 12 in rice farming; 11 veterinarians; and others. Numbers by region: 136 in Central and Latin America; 129 in Africa; 92 in Asia; and others.
13	More than one country	Senior Overseas Volunteers (including those in forestry and fisheries)	As of end August, 2003	Volunteers	1-1	Dispatch of cumulative total of around 190 senior volunteers in the field of agriculture. Of them 85 are currently on dispatch including: 33 in general agriculture; 7 in livestock raising; and 7 in agricultural machinery. Numbers by region: 34 in Asia; 34 in Central and South America; 12 in Oceania; and others.
【Mid-term Objective 2-1: Formulating Food Supply/Demand Policy】						
14	Thailand	Study on East Asia Food Security and Rice Stockpiling Plan	2002.5-2002.10	Dev. Study	2-1	Aimed at improving condition of domestic rice stockpiles in ASEAN+3 countries. Rice stockpiling plans for each member country and for the entire ASEAN+3 region were formulated to be presented for discussion at the Meeting of ASEAN+3 Ministers of Agriculture, Forestry and Fisheries (AMAF+**3**) scheduled for October 2004.
15	More than one country	Management of Natural Resources and Agricultural Products by Geographic Information System (GIS)	Fiscal year 2000-2004	Training	1-2 2-1	Aimed at improving each country's technical ability to implement GIS management by equipping related researchers, administrative officers and agricultural extension instructors with the fundamentals of GIS technology. Lectures and practical training concerning fundamental GIS theory, use of GIS technology for management of natural resources and agricultural products, and the building of GIS management systems.
16	More than one country	Agricultural Information Systems	Fiscal year 2001-2005	Training	2-1	Aimed at providing opportunities to master agricultural production information and data processing skills, study examples of network use and its usability, and to learn programming methods for data processing. Lectures on the general concept and handling of agricultural information, software necessary for framing individual issues, and relevant instruction and practice.

No	Country	Project Name	Period	Type of Schemes	Mid-term Objective	Characteristics
【Mid-term Objective 3-1: Implementing Policies Related to Promotion of Rural Areas】						
17	Zambia	Participatory Village Development Plan for Isolated Areas (PaViDIA).	2002.6-2007.5	Tech. Pro.	1-2 3-1 3-7	Aimed at establishing a model approach to sustainable development of rural settlements through capacity building by agricultural extension workers and farmers in the targeted isolated areas. Training for agricultural extension workers on methods of participatory development and ways to ensure sustainable agriculture; implementation of awareness-raising programs led by agricultural extension workers; and establishment of methods for participatory, sustainable development in rural settlements.
18	Tanzania	Verification Study on Small-Scale Horticulture Development Plan for Poor Farmers in Coast Province	1999.10-2004.3 (scheduled)	Dev. Study	1-2 3-1	Projects proposed by ‘‘Small-Scale Horticulture Development Plan for Poor Farmers’’ were implemented in 10 villages in the province where traditional cash crops can no longer provide a stable income. Effectiveness of each project was evaluated and the results fed back into the development plan. Efforts to ensure technology transfer to and capacity building of related parties were made in the course of the verification study.
19	South Africa	Study on Oliphant River Basin Integrated Rural Development Plan in Northern Province	2002.9-2006.11	Dev. Study	1-2 3-1 3-4 3-6	Aimed at promoting small-scale agriculture, creating related employment opportunities and improving residents' living environment in order to invigorate rural areas. A sustainable rural development plan will be formulated, including introduction of an agricultural model for soil conservation, improvement of rural social infrastructure, and implementation of livelihood improvement projects. Upon completion of an outline of the plan, pilot projects will be implemented focusing on those with significant exhibition and ripple effects, and the results reflected in the final development plan.
20	Mauritania	Oasis Area Development Project Study	2001.4-2004.1 (scheduled)	Dev. Study	3-1	Aimed at formulating a regional development plan whose main goal is to achieve a stable livelihood for residents and sustainable use of land focusing on oasis areas in the Adrar and Tagant Regions. A regional development plan has been formulated that takes appropriate use of regional resources into consideration. Verification studies and project assessment were carried out in selected key areas to evaluate the appropriateness of the projects.
21	More than one country	Participatory Rural Settlement Development in Partnership with NGOs	Fiscal year 2003-2007	Training	1-2 3-1 3-7	Aimed at equipping NGO and government staff with project management skills including project monitoring and conflict resolution. Simulation training for participatory problem-solving methods based on examples provided by trainees; exchange of opinions on the situations and issues each country faces; introduction and exchange of opinions on the activities of NGOs in Japan; and study trips to observe actual projects in progress.
22	More than one country	Agricultural and Rural Development through Participation of Local Farmers II	Fiscal year 2001-2005	Training	3-1 3-2 3-6 3-7	Aimed at training local government employees responsible for rural development by providing technical knowledge of integrated rural development through measures such as upgrade of distribution systems and enhancement of agricultural cooperatives, and at providing knowledge of Japanese methods of “village building” and human resources development. Lectures on farmers' organizations, agricultural cooperatives, developing agricultural infrastructure, conservation of farmland, land improvement districts, water management, distribution of agricultural produce, agricultural financing, and livelihood improvement projects; and study tours of related organizations, factories and groups.

No	Country	Project Name	Period	Type of Schemes	Mid-term Objective	Characteristics
2. Sustainable Agricultural Production						
2-1 Expanding Agricultural Production and Improving Productivity						
【Mid-term Objective 1-2: Expanding Agricultural Production and Improving Productivity】						
23	Indonesia	High-Quality Seed Potato Breeding System Development Project	1998.10-2003.9	Tech. Pro.	1-2	Designed to improve the seed potato breeding systems, which remained undeveloped in comparison with increases in production, on a nationwide scale, using West Java as a model region. Cooperation involved upgrading of breeding and pest elimination technologies as well as cultivation management skills of farmers; improvement of seed distribution systems; and dispatch of West Java Government personnel to enhance training and instruction structures in other provinces.
24	Indonesia	Soybean Seed Breeding and Training Project	1996.7-2003.6	Tech. Pro.	1-2	Aimed at increasing soy bean production in East Java, where production was failing to keep pace with demand. Improvement of technologies for seed production/management and for seed inspection, as well as enhancing training systems regarding bean production.
25	Philippines	Farmers' Income Improvement Project through Strengthening of Agricultural Cooperatives	2000.7-2005.6 (scheduled)	Tech. Pro.	1-2	Aimed at increasing agricultural incomes and creating new employment opportunities through enhancement of product sales, group purchasing and credit operations, based on farm management guidance and using Japanese agricultural cooperative projects as a model. Pilot agricultural cooperatives were designated, and measures implemented to expand existing business activities and develop new ones, alongside the formulation and implementation of training programs connected with the activities of agricultural cooperatives.
27	Cambodia	Irrigation Technology Center Project	2001.1-2006.1	Tech. Pro.	1-2	Aimed at improving the ability of staff in the Ministry of Water Resources and Meteorology to implement rehabilitation of small- and mid-sized irrigation systems. Establishment of a training system that ensures transfer of techniques related to surveying, planning, design, implementation management and water management; raising of technical ability levels; practical technical guidance on surveying, design, implementation and implementation management through on-the-job-training in repair of branch water channels.
26	Cambodia	Battambang Agricultural Productivity Enhancement Project (BAPEP)	2003.4-2006.3	Tech. Pro.	1-2	Aimed at increasing productivity of individual farms and ensuring a stable livelihood in the target region through improvement of rice farming techniques, improvement of farming systems for crops on cooperative farms, and promotion of group activities by farmers. A two-stage project: formation of detailed activity plans in the first stage; and the second stage involves dissemination of technical knowledge among farmers through the Farmers Field School and establishment of the Battambang Agricultural and Rural Network encompassing regional farmers, government officials, NGOs and other parties.
28	Myanmar	Irrigation Technology Center Project Phase II	1999.4-2004.3	Tech. Pro.	1-2	Aimed at implementing systematic water distribution at trunk facilities and effective use of water at terminal facilities with the application of basic irrigation techniques transferred in Phase I. Also, aimed at improvement of irrigation techniques with emphasis on water management by making use of accumulated information on irrigation projects. The project involves water management at trunk and terminal facilities, system development, irrigation information management, and training. Preparation of technical manuals on water management guidance is planned.

No	Country	Project Name	Period	Type of Schemes	Mid-term Objective	Characteristics
29	China	Agricultural Technology Dissemination System Enhancement Project	1999.3-2004.2	Tech. Pro.	1-2	Aimed at improving the ability of agricultural technique dissemination workers and farmer technicians in Sichuan Province to provide guidance to farmers, and at building an effective system for dissemination of farming techniques. Preparation of technical information plans; enhancement of methods and processes for dissemination of agricultural techniques; practice and training for agricultural extension workers; and improvement of methods for processing agricultural information.
30	China	Large-scale Irrigation Area Water Saving Irrigation Model Project	2001.6-2006.5	Tech. Pro.	1-2	Aimed at establishing water conservation and irrigation techniques which can be disseminated across all of China to promote rational, planned water conservation and irrigation projects. Preparation of irrigation improvement manuals; formulation of plans for improved irrigation and water conservation in priority model districts; consideration of methods of facility management; implementation and evaluation of model projects; and implementation of agricultural extension activities.
31	Dominican Republic	Irrigated Agriculture Technology Improvement Project	2001.3-2006.2	Tech. Pro.	1-2	Aimed at improving engineers' technical ability to manage water and maintain irrigation facilities and enhancing the operation of communal farmers' organizations for water use. Improvement of water management methods in model irrigation districts; preparation of appropriate training materials and programs; improvement in the management of water-use organizations and facilities; investigation of productive wet-rice farming methods; and training and development of instructors.
32	El Salvador	Agricultural Technology Development and Dissemination Enhancement Project	1999.2-2004.1	Tech. Pro.	1-2	Aimed at enhancing capabilities of the National Agriculture Livestock and Forestry Center's (CENTA) to develop and disseminate sustainable farming technology systems targeting small farmers. Surveys of farm management on model sites; improvements to methods of agricultural dissemination (including evaluation activities); and improvements to CENTA's training structure (including evaluation activities).
33	Mexico	Agricultural Machinery Inspection and Evaluation Project	1999.3-2004.2	Tech. Pro.	1-2	Aimed at developing standards and methods for conducting evaluation tests of agricultural machinery which plays an important role in raising agricultural productivity, and at improving techniques and knowledge of implementation of such evaluation tests. Surveys of production, distribution and usage of agricultural machinery; selection of the machines and models to be tested; instruction on methods of evaluation and establishment of evaluation standards; personnel development of engineers to carry out tests; and enhancement of evaluation testing systems.
34	Brazil	Small-scale Farmers Agricultural Technology Dissemination System Enhancement Project in Tocantins Province	2003.4-2006.3	Tech. Pro.	1-2	Designed to enhance systems for disseminating agricultural techniques among small farmers in the target region. Aimed at improving technical knowledge and farming instruction techniques of agricultural extension workers; improving agricultural cooperatives' capability to effectively manage and plan their activities; and improving the dissemination service provided by pilot project offices. Planning and implementation of training programs; demonstrations at exhibition farms; and implementation of pilot projects.

No	Country	Project Name	Period	Type of Schemes	Mid-term Objective	Characteristics
35	Iran	Haraz Agricultural Engineers Training Center Project	1999.7-2004.6	Tech. Pro.	1-2	Aimed at helping the Haraz Agricultural Engineers Training Center improve and fulfill its functions as a technical personnel development organ, to train engineers responsible for farm development and rice production after the completion of farm development. Review of topics for training and development of a new curriculum; provision of texts and educational materials; training of teachers; and keeping model farms in good condition and implementation of practical training including demonstrations at such farms.
36	Morocco	Agricultural Mechanization Training Center Project	2000.9-2005.8	Tech. Pro.	1-2	Aimed at training a sufficient number of agricultural extension staff with specialized technical knowledge of agricultural machinery. Establishment of a comprehensive training program on agricultural machinery at Hassan II Agricultural and Veterinary University, focusing on the use, maintenance, testing and evaluation, and improvement of agricultural machinery. Formulation of training plans, preparation of educational materials, training of extension staff and instructors, evaluation and monitoring of training courses, and provision of feedback.
37	Ghana	Small-scale Irrigation Farming Promotion Project (F/U)	2001.10-2004.1 (scheduled)	Tech. Pro.	1-2	Aimed at establishing sustainable farming structures for small farmers and enhancing technical support systems for them, in order to restore the utility of existing irrigation areas and promote maintenance of facilities by farmers themselves. Formulation of guidelines and strategies for the establishment of model farming system and the improvement of farm management systems in irrigation project areas.
38	Tanzania	Kilimanjaro Agricultural Training Center Phase II Project	2001.10-2006.9	Tech. Pro.	1-2	Aimed at increasing the productivity of rice-farming in Tanzania and surrounding countries. Implementation of training-in-the-field at model sites for selected core farmers, mid-sized farmers, and agricultural extension staff. Training in irrigated rice farming techniques implemented concurrently in neighboring countries.
39	Malaysia	Turning Unused Resources into Fertilizer Project (F/U)	1997.3-2004.3	Tech. Pro.	1-2	Aimed at developing practical technologies and experimental plants to produce and distribute coarse feed made from oil palm byproducts (stems, leaves), in order to promote the livestock industry. Development of production methods and practical technologies for coarse feed; development of production plants; improvement of feed quality; development of feed management technology; and implementation of economic evaluation.
40	Philippines	Water Buffalo and Beef Cattle Improvement Project	2000.10-2005.10	Tech. Pro.	1-2	Aimed at raising levels of technology in the pilot areas for improving quality of water buffalo and cattle for consumption. Survey and establishment of technical methods used to select breeding varieties; survey of livestock management and establishment of systematic technologies; survey of health management and artificial insemination techniques and transfer of relevant technical knowledge; and implementation of training for farmers.
41	Thailand	Livestock Disease Containment Project in Thailand and Neighboring Countries	2001.12-2006.12	Tech. Pro.	1-2 2-3	Aimed at enhancing regional cooperation structures and personnel to improve livestock disease prevention techniques and raise livestock health, and at improving techniques for diagnosis of livestock disease, provision of vaccines and animal quarantine. Development of human and organizational resources for regional cooperation; personnel training and provision of equipment; building of a system to collect information about disease; development of methods of analysis and evaluation; development and enhancement of techniques for quality control of vaccine production; and other measures.

No	Country	Project Name	Period	Type of Schemes	Mid-term Objective	Characteristics
42	Viet Nam	Project for Improvement of Cattle Artificial Insemination Technology	2000.10-2005.10	Tech. Pro.	1-2	Aimed at raising milk and beef productivity through the improvement of artificial insemination technology. Transfer of appropriate artificial insemination technology; transfer of appropriate quality preservation technology in networks for distribution of frozen semen; improvement of technology for the production of frozen semen using the straw method; and transfer of management technology relating to rearing of stud bulls.
43	Viet Nam	Food Industry Research Institute Enhancement Project	2002.9-2007.9	Tech. Pro.	1-2	Aimed at improving food processing technology among small and mid-sized firms by enhancing the Food Industry Research Institute's (FIRI) technological capability and function as an information provider. Survey and analysis of food products made from major crops; transfer of microbe and enzyme technology; transfer of technology related to constituent quality analysis; and provision of quality control instruction to firms.
44	China	Dairy Industry Development Project in Heilongjiang Province	2001.7-2006.6	Tech. Pro.	1-2	Aimed at establishing a dairy farming model appropriate to Heilongjiang Province. Improvement of animal feed production technology and dissemination of the technology through actual demonstrations; dissemination of animal feed management technology through actual demonstrations; and establishment and dissemination of milk quality control technology and technology for the production of milk-based products.
45	Bangladesh	Poultry Management Technology Improvement Project	1997.11-2005.6	Tech. Pro.	1-2	Aimed at improving productivity in poultry farms, particularly small-scale farms. Improvement of poultry rearing techniques; transfer of technology for developing appropriate varieties; survey of principal poultry diseases; development of poultry disease prevention technology; and instruction for leading agricultural extension staff on appropriate newly-developed technologies.
46	India	Silk Cultivation Extension Enhancement Project	2002.8-2007.8	Tech. Pro.	1-2	Aimed at raising the quantity and quality of bivoltine silk and improving the incomes of bivoltine sericulturists and silk producers by setting up dissemination systems for promotion of bivoltine sericulture. Establishment of an action plan for the dissemination of bivoltine sericulture; establishment of partnership and coordination measures between the Central Silk Board and Regional Silk Boards in the three target states; establishment of a production system for superior silkworm varieties; enhancement of training; and establishment of dissemination methods.
47	Pakistan	Plant Genetic Resources Institute Project (PGRI), (A/C)	2001.8-2003.8	Tech. Pro.	1-2	Aimed at enhancing activities of the Pant Genetic Resources Institute (PGRI) to contribute to the improvement of crop varieties. Building of a system for collection and preservation of genetic resources; formulation of propagation plans for genetic resources; improvement of data management systems; creation of a genetic resources catalog and manuals; exchange of information between researchers and breeders; and repair and replacement of equipment.
48	Panama	Cattle Productivity Improvement Project	1998.4-2003.4	Tech. Pro.	1-2	Aimed at improving techniques for livestock rearing and at raising cattle productivity through the establishment of breeding techniques for cattle (for milk and meat) suitable for small-scale livestock farmers. Improvement and dissemination of technology for producing animal feed; improvement and dissemination of feeding management techniques; improvement and dissemination of breeding technology; and training of engineers.

No	Country	Project Name	Period	Type of Schemes	Mid-term Objective	Characteristics
49	Argentina	Horticulture Development Project	1999.5-2004.4	Tech. Pro.	1-2	Aimed at developing use of genetic resources for ornamental plants and improving cultivation techniques through personnel development. Development of wild plants and flowers as material resources; transfer of preservation technology; development of effective breeding technologies and theories including crossing, seed physiology and growth; and development of practical ornamental plant breeding technologies and seed/seedling propagation technologies.
50	Argentina	Horticulture Technology Center	1977.4-2004.12	Tech. Pro.	1-2	Aimed at establishing technology systems for the cultivation of ornamental plants and vegetables appropriate to the country and at enhancing personnel training and technical services. Improvement of technology for cultivation of ornamental plants; development of human resources for promotion of ornamental plant industry; and dissemination activities and technical instruction for farmers.
51	Bolivia	Project for Distribution of High-quality Rice Seeds to Small Farmers	2000.8-2005.7	Tech. Pro.	1-2	Aimed at establishing dissemination systems for superior varieties of seed for small rice farmers in pilot areas. Collection and evaluation of rice genetic resources; introduction of high-yield varieties resistant to drought and disease; development of technology for the production of stock seed; improvement of rice seed production technology for upland rice fields; improvement of technology for adjustment in the production of superior rice seed production; demonstrations and exhibitions of recommended seed varieties; and training for farmers.
52	Bolivia	Integrated Agricultural Laboratory	1961.4-2010.3	Tech. Pro.	1-2	Designed to stabilize farming in areas populated by migrants of Japanese ancestry, with the aim of enhancing the capability of agricultural cooperatives for people of Japanese ancestry to provide farming instruction and enhancing dissemination systems for other farmers in the region. Development and exhibition of modified technologies for managing the rearing of livestock; production of improved cattle; loans of improved varieties of breeding cattle; development and exhibition of multipurpose stock-holding management; development and exhibition of technologies for soil improvement; soil evaluation; creation of guidelines for the prevention of major diseases; demonstration and exhibition of techniques for controlling weeds; dissemination of development technology; and provision of instruction in various techniques.
53	Bolivia	Improving Cattle for Beef Project	1996.7-2003.7	Tech. Pro.	1-2	Aimed at increasing the productivity of cattle for meat through improving techniques for breeding cattle varieties, livestock reproduction, and production of cattle feed. Improvement and modification of cattle varieties for consumption; and transfer of technologies related to transplant of fertilized eggs and management of sanitation for breeding, feeding management, and management of crops and animal feed.
54	Chile	Small-scale Dairy Farm Productivity Improvement Project	1999.10-2004.10	Tech. Pro.	1-2	Aimed at improving technology for appropriate livestock breeding and managing livestock feed at the level of the individual farmer. Education for farmers on artificial insemination and the development and re-education of engineers; education for farmers on technology related to feeding management; building of systems for recording and monitoring breeding; building of systems for testing milk quality; understanding of breeding systems on farms and the genetic capabilities of cattle varieties; and building of systems for developing studs.

No	Country	Project Name	Period	Type of Schemes	Mid-term Objective	Characteristics
55	Paraguay	Integrated Agricultural Laboratory	1957.9-2010.3	Tech. Pro.	1-2	Aimed at developing sustainable, practical agricultural technology in eastern Paraguay. Establishment of sustainable field crop technology; establishment of an alternating system of crop cultivation and livestock in terrarosa soil regions; development of technology for production of high-quality vegetables; improvement of techniques for soil conservation; and personnel development and support for dissemination activities.
56	Paraguay	Project to Improve Management of Small/Medium Scale Farms through Dairy Farming	2002.11-2004.11	Tech. Pro.	1-2	Aimed at identifying systems necessary to aid improvement of small- and medium-scale farm management through dairy farming, and improving the capability of related organizations to fulfill their roles and functions. Clarification of targets for milk production and farm management; examination of systems for supporting moves to organize farmers; dissemination systems; establishment of strategies for improving the handing of and distribution system for raw milk, and for improving systems for providing loans to small- and medium-sized farmers.
57	Bulgaria	Fermented Dairy Product Development Project	1997.7-2004.12	Tech. Pro.	1-2 3-3	Aimed at improving techniques for development of milk products and milk quality control to pave the way for the development of internationally competitive high-quality milk products. Survey of current methods of milk quality control and inspection; implementation of research to improve those methods; collection of lactic acid bacteria, evaluation of characteristics and entry into database; development of starter production technology; and improvement of technology for the development of milk products.
58	Nepal	Sericulture Promotion Project	1999.12-2002.11	Tech. Pro.	1-2	Aimed at improving the Nepalese Government's silkworm breeding, mulberry plantation management, and silkworm rearing technology and management capabilities, and at improving mulberry plantation management and silkworm rearing technology on model farms. Instruction regarding technologies and management capabilities related to silkworm breeding including the breeding of appropriate varieties and preservation of strains; instruction on and improvement of technologies and systems related to the development and dissemination of sericulture techniques; and promotion of sericulture through publicity activities.
59	Philippines	High-productivity Rice Farming Technology Research Project	1997.8-2002.7	Tech. Pro.	1-2	Aimed at stabilizing farm finances and ensuring stable supply of high-quality rice through high-yield rice farming techniques appropriate to the region, and at promoting research into and development of high-yield rice farming techniques for small farmers. Improvement of rice varieties; development of agricultural machinery; improvement of cultivation techniques; improvement of technology to evaluate rice quality; development of models for mechanized farming; and development of a farming technology information system focusing on rice.
60	Indonesia	Agricultural Extension/Training System Improvement Project	1999.9-2002.3	Tech. Pro.	1-2	Aimed at enhancing structures for planning, operating, monitoring and evaluating agricultural dissemination and training programs. Grasping farmers' underlying needs; survey of training and dissemination programs; development of closer cooperation between related organizations; and planning, implementation and evaluation of model training programs based on the results of the measures mentioned above.

No	Country	Project Name	Period	Type of Schemes	Mid-term Objective	Characteristics
61	Philippines	Pesticide Monitoring System Development	1997.3-2000.3	Tech. Pro.	1-2	Aimed at upgrading the domestic residue monitoring system for pesticides through enhancement of Pesticide Analytical Laboratory (PAL) activities and the improvement and enhancement of the administrative control of pesticides by the Fertilizer and Pesticide Agency (FPA). Improvement of methods for the analysis of residual pesticides and chemical preparations; improvement of methods for testing residue levels in crops; improvement of residue monitoring system; provision of information for establishing maximum pesticide reside levels and maximum levels for safe usage; and improvement of dissemination activities regarding pesticide usage.
62	Indonesia	Dairy Farming Technology Improvement Project	1997.3-2002.3	Tech. Pro.	1-2	Aimed at increasing agricultural incomes by improving dairy farming techniques among farmers through the establishment of an integrated instruction system for appropriate dairy farming techniques. Feeding management of cows for milk; sanitation management in cattle breeding; survey and analysis of the current state of coarse feed production; transfer of related techniques to agricultural extension workers at dairy farming centers and selected farmers.
63	Indonesia	Livestock Artificial Insemination Center Enhancement Project (A/C)	1986.4-2002.7	Tech. Pro.	1-2	Aimed at contributing to the promotion of dairy farming throughout the country by strengthening the Livestock Artificial Fertilization Center through improvement of techniques related to artificial fertilization. Instruction and education on technology for frozen semen production and artificial insemination
64	China	Tianjing Dairy Farming Development Project (A/C)	2000.5-2002.3	Tech. Pro.	1-2	Aimed at raising productivity of cows for milk by strengthening and supplementing the results of the Tianjin Dairy Farming Development Project in order to respond to the increase in demand for milk and milk products. Improvement of systems for examining milk producing capability; improvement of technology for analyzing blood type; technical instruction for dairy producers and staff at the cattle breeding improvement center in order to prevent non-contagious conditions which affect breeding.
65	India	Practical Bivoltine Sericulture Technology Development Project	1997.4-2002.3	Tech. Pro.	1-2	Aimed at improving technologies developed under the bivoltine sericulture development plan and modifying these technologies for practical use, and at training of personnel concerning these technologies. Research into practical applications of sericulture and silk making; display and dissemination of techniques to model farms; and training agricultural extension workers to expand the scope of their activities.
66	Argentina	Faculty of Veterinary Sciences, National University of La Plata Research Project	2001.4-2003.3	Tech. Pro.	1-2	Aimed at strengthening the role of the faculty of veterinary sciences, National University of La Plata, through the practical application of clinical diagnosis technologies for livestock disease. Improvement of clinical diagnosis technology (blood testing methods, biochemical testing methods); and research into the practical application of diagnostic technology for the prevention and treatment of parasite and insect-borne infectious diseases, and bacterial and viral infectious diseases.
67	Brazil	Small-scale Horticulture Research Project in Southern Brazil.	1996.12-2001.11	Tech. Pro.	1-2	Aimed at strengthening research and dissemination activities at the Santa Katerina Agriculture Research/Dissemination Corporation connected with cultivation techniques for apples and Japanese pears. Selection and evaluation of varieties and stocks; improvement of cultivation techniques appropriate to the region's soil, climate and social conditions; development of techniques for preserving plants; enhancement of research into fertilizer application techniques and physiological damage; and dissemination of developed technologies to farmers.

No	Country	Project Name	Period	Type of Schemes	Mid-term Objective	Characteristics
68	Paraguay	Project for Improvement of Vegetable Production Techniques for Small-scale Farmers	1997.4-2002.3	Tech. Pro.	1-2	Aimed at developing appropriate vegetable cultivation techniques at the National Agricultural Research Institute and disseminating those techniques to pioneering small farmers. Vegetable breeding and selection; improvement of vegetable cultivation techniques; plant preservation; and dissemination of techniques.
69	Indonesia	Appropriate Agricultural Machinery Technology Development Center Project (A/C)	1997.4-1999.3	Tech. Pro.	1-2	Aimed at contributing to the development of agriculture in Thailand by developing appropriate agricultural machinery through the activities of the Appropriate Agricultural Machinery Technology Development Center. Instruction and advice to enhance tools necessary for the development and evaluation of agricultural machinery at the development center.
70	Indonesia	Irrigation and Drainage Technology Improvement Project	1994.6-2001.6	Tech. Pro.	1-2	Aimed at improving techniques related to the design of irrigation projects generally, maintenance management, and databases regarding overall information, based on the results of the Irrigation and Drainage Technology Center Project. Provision of instruction and training. On-site technical support during F/U.
71	Thailand	Agricultural Development Research Project in Northeastern Thailand (A/C)	1999.4-2000.3	Tech. Pro.	1-2	Aimed at supporting the continued development of the Northeastern Thailand Agricultural Development Research Project Phase I & II, and enhancing the new training division through organizational reform. Improvement of irrigation techniques at the farm level; enhancement of interdisciplinary scientific research techniques; and instruction to improve capabilities to establish research plans and implement research.
72	Thailand	Agricultural Cooperatives Promotion Project (A/C)	1997.11-1999.10	Tech. Pro.	1-2	Aimed at providing further technical advice on the promotion of agricultural cooperatives, based on the success of the Agricultural Cooperatives Promotion Project in improving the management of agricultural cooperatives. Various types of training and instruction.
73	Myanmar	Irrigation Technology Center Project (F/U)	1988.4-1999.3	Tech. Pro.	1-2	Aimed at raising technical expertise among irrigation engineers by enhancing the role of the Irrigation Technology Center through various cooperation programs, following on from the grant aid provided to the center. Collection and analysis of irrigation technology data; establishment of irrigation facility design standards and standard designs fitting the circumstances; and hydraulic model experiments and simulations and analysis to examine hydraulic characteristics.
74	China	Irrigation and Drainage Engineering Development/Training Center Project(F/U)	1993.6-2000.6	Tech. Pro.	1-2	Aimed at improving water use efficiency and irrigation/drainage techniques through the introduction and application of Japanese technology, and developing engineers, at the Irrigation and Drainage Technology Research and Training Center. Development of irrigation/drainage techniques and planning/design techniques. F/U included development of water management techniques, system development and training.
75	Sri Lanka	Agricultural Extension Improvement Project in Gampaha	1994.7-1999.6	Tech. Pro.	1-2	Aimed at raising agricultural productivity and farm household incomes through diversification of agricultural production as part of the integrated agricultural development project. Improvement of production systems in coconut plantations; improvement of dissemination methods; development of educational materials; and personnel training.

No	Country	Project Name	Period	Type of Schemes	Mid-term Objective	Characteristics
76	Honduras	Irrigation and Drainage Technology Development Project	1994.10-1999.9	Tech. Pro.	1-2	Aimed at training engineers who can plan and create design standards fitting the circumstances pertaining to irrigation projects. Instruction and advice on hydro-meteorological data processing and on design, construction and management of irrigation and drainage facilities; creation of technical standards based on regional parameters; creation of manuals for irrigated cultivation techniques; trial application of provisional standards in target areas; and training of irrigation engineers.
77	Mexico	Morelos Province Vegetable Production Technology Improvement Project	1996.3-2001.2	Tech. Pro.	1-2	Aimed at improving practical vegetable cultivation techniques at the Zacatepec Laboratory, improving vegetable cultivation techniques and knowledge among counterpart organizations, and demonstrating improved techniques and ensuring their transfer to agricultural extension workers and core farmers. Selection of appropriate vegetables and varieties for cultivation; development and improvement of methods of pest elimination; development and improvement of techniques for breeding and selecting superior strains; development and improvement of techniques for managing vegetable cultivation; transfer of relevant techniques through demonstrations and training.
78	Tanzania	Kilimanjaro Agricultural Training Center Project	1994.7-2001.6	Tech. Pro.	1-2	Aimed at improving the functions of the Kilimanjaro Agricultural Training Center in order to further develop technical expertise in irrigated rice farming among training instructors, agricultural extension workers, water management staff, agricultural machinery staff and core farmers. Activities to enhance technical expertise among training instructors; improvement of training methods; improvement of educational materials for training; and implementation of training for government officials and core farmers.
79	China	Project for Improvement of Feed Crops Production/Utilization Techniques in Hebei Province	1995.4-2000.3	Tech. Pro.	1-2	Carried out to promote grassland livestock farming, with the specific aims of further improving the functions of experimental and research organizations, encouraging research into grass types fitting local conditions, and making improvements to grazing lands. Introduction of crop varieties appropriate for making animal feed; management of the cultivation of crops for animal feed; introduction and modification of techniques for harvesting, adjusting and analyzing crops for animal feed; and instruction activities for the improvement of grazing practices.
80	China	Milk Product Processing Technology Improvement Project in Inner Mongolia	1994.6-1999.5	Tech. Pro.	1-2 3-3	Aimed at promoting livestock farming and traditional foods industry through research, development and dissemination of modern milk products. Technical instruction on the collection, separation, identification and preservation of microbes used in creating traditional milk products; production of basic milk products; and technical instruction regarding product sanitation and quality management.
81	Nepal	Horticulture Development Project Phase II	1992.11-1999.11	Tech. Pro.	1-2	Aimed at developing and disseminating appropriate techniques relating to fruit cultivation, with focus on the development of fruit production in hilly areas, based on the results of the Horticulture Development Project Phase I. Improvement of techniques for production of targeted fruits, and implementation of training and dissemination programs.

No	Country	Project Name	Period	Type of Schemes	Mid-term Objective	Characteristics
82	Thailand	Dairy Farming Development Project in Central Regions	1993.8-1998.7	Tech. Pro.	1-2	Aimed at contributing to increased domestic raw milk production to meet growing demand for milk and milk products by improving traditional techniques of dairy farming in central regions. Improvement of feeding management techniques for rearing stud bulls; improvement of technology for production of frozen semen; improvement of artificial insemination technology; improvement and testing of techniques for implanting fertilized eggs; improvement of sanitation techniques for breeding; improvement of techniques for feeding management; improvement of techniques for managing crops for feed and grazing land; and implementation of relevant training.
83	Thailand	National Institute for Animal Health Project Phase II	1993.12-1998.12	Tech. Pro.	1-2	Aimed at establishing plans for controlling major livestock diseases and standardizing diagnostic techniques. Immunology surveys and research activities for the establishment of plans to control diseases with significant economic impact; improvement of diagnostic methods in order to establish an appropriate diagnostic system; and instruction and training activities for target organizations in order to introduce modern diagnosis and research activities.
84	Pakistan	Plant Genetic Resources Institute Project	1993.6-1998.5	Tech. Pro.	1-2	Aimed at contributing to crop improvement through enhancement of the collection, evaluation, recording and distribution of crop genetic resources centered on cereals and beans, and the establishment of effective methods for the above. Search and collection of genetic resources; introduction and pathology of seeds; preservation of seeds and plants; breeding and rebreeding to increase genetic resources; evaluation of genetic resources; technical cooperation in data management and other areas; and relevant instruction and training.
85	China	Agricultural Machinery Repair Technology Training Project	1992.4-1998.3	Tech. Pro.	1-2	Aimed at promoting the mechanization of agriculture in China by improving the technical expertise of engineers involved in repairing agricultural machinery through implementation of training and upgrading of technical systems. Instruction and advice on training curricula, preparation of educational materials, and methods of training instruction; and advice and instruction on the upgrading of repair techniques including fault diagnosis, measuring techniques, maintenance techniques, and appropriate ways of using those techniques.
86	Philippines	Field Irrigation Technology Development Project Phase II	1993.5-1998.5	Tech. Pro.	1-2	Aimed at carrying out training for employees of related organizations and core farmers, using the technical manual created in the course of Phase 1 and F/U. (Improvements were made to the manual based on the results of verification.) Implementation of activities to transfer techniques in all fields at the irrigation technology center. As for field irrigation for cultivating subsidiary crops in rice fields, tests to examine the appropriateness of the manual were conducted in pilot areas, where case studies, introduction of systems and various types of training were also implemented.
87	Egypt	Rice Farming Mechanization Project (A/C)	1996.3-1998.3	Tech. Pro.	1-2	Aimed at supplying spare parts or replacements for machinery previously provided and offering technical instruction, in order to continue activities related to the development of systems for mechanization of rice farming and the improvement of techniques for post-harvest processing. Advice and instruction regarding the repair and upgrading of agricultural machinery; and advice and instruction related to the improvement of techniques for post-harvest processing.

No	Country	Project Name	Period	Type of Schemes	Mid-term Objective	Characteristics
88	Kenya	Mwea Irrigated Agriculture Development Project (MIADP)	1991.2-1998.1	Tech. Pro.	1-2	Aimed at disseminating integrated technical systems developed at pilot farms to other farms through the repair of existing irrigation facilities in the Mwea Region and technical cooperation regarding the introduction of dual cropping. Development of water management techniques; development of techniques for maintenance and management of irrigation/drainage facilities; establishment of training plans and preparation of educational materials; selection of varieties for wet-rice cultivation (dual cropping); testing applicability of agricultural machinery; and instruction and advice concerning techniques for handling, operating, maintaining and managing irrigation systems.
89	Dominican Republic	Pepper Development Project Phase II	1992.7-1997.7	Tech. Pro.	1-2	Aimed at developing techniques of pepper cultivation to further promote the business and contributing to the development of agriculture, based on the results of Phase I. Development of techniques for cultivation, enriching the soil and crop preservation; development of a post-harvest processing system and creation of farming management plans; demonstrations on exhibition farms and training for agricultural engineers and agricultural extension workers.
90	Côte d'Ivoire	Irrigation and Rice Farming Machinery Training Project	1992.8-1997.7	Tech. Pro.	1-2	Aimed at providing training to agricultural extension workers, instructors, core farmers and mechanics who repair agricultural machinery to enhance knowledge of rice farming mechanization and dissemination techniques. Human resources development of extension workers and instructors; upgrading of techniques for machinery used in irrigated rice farming (operation and maintenance techniques); and dissemination of techniques for irrigated rice cultivation.
91	Chile	Plant Genetic Resources Project	1989.1-1995.12	Tech. Pro.	1-2	Aimed at raising Chile's national agricultural productivity through improving efficiency of methods for modifying crop varieties. Search, collection, preservation, propagation, evaluation and establishment of a remote inspection system for the introduction of plant genetic resources; and use of biotechnology in the breeding of varieties of fruit, vegetables and oil crops.
92	Sri Lanka	Plant Genetic Center Project	1988.4-1995.3	Tech. Pro.	1-2	Aimed at promoting the improvement of crop varieties in the country through the collection, preservation and evaluation and usage of plant genetic resources (rice and bean plants). Search, collection, introduction, evaluation, propagation, preservation, processing and management of information regarding plant genetic resources.
93	Egypt	Nile Delta Water Management Improvement Project	2000.3-2005.2	Tech. Pro.	1-2	Aimed at verifying efficient and effective methods of improving irrigation, reducing shortage of water in terminal irrigation channels and raising crop productivity. Formulation of a land use program; formulation of an irrigation facility maintenance and management program; enhancement of farmers' water-use associations; and training to improve techniques for management of water on farms.
94	Bangladesh	Rural Development Engineering Center Functional Enhancement Project	2003.1-2006.1	Tech. Pro.	1-2	Aimed at making the Rural Development Engineering Center (RDEC) function as the technical core of the Local Government Engineering Department (LGED). Establishment of a technical library; advertisement of rationale for establishment of RDEC; technical surveys; formulation of plans for improvement of deliberation and training systems for enhancement of RDEC's utility; and setting up of new training courses.

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95	Paraguay	Soybean Production Technology Research Project	1997.10-2002.9	Tech. Pro.	1-2	Aimed at improving research capabilities related to breeding and cultivation of soy beans and soil management at the Regional Agricultural Industry Center. Collection and categorization of breeding materials; research into techniques for breeding superior varieties; improvement of methods for determining disease resistance; research into techniques for diversifying harvest before and after soy bean crops; research into techniques for attaining stable high yields of soy beans; and research into techniques of soil management in newly cultivated areas.
96	Philippines	Soil Research and Development Center Project Phase II	1995.2-2000.1	Tech. Pro.	1-2	Aimed at improving techniques for managing poor soils based on the results of Phase I. Surveys and research into improvement of poor soils including arid sol; and technical instruction on methods of classifying productivity potential of soils.
97	Brazil	Amazon Agricultural Research Cooperation Project	1990.6-1997.6	Tech. Pro.	1-2	Aimed at strengthening research activities of the Center for Agroforestry Research of Eastern Amazonia (CPATU) regarding useful and economically viable plants in order to contribute to the development of appropriate agricultural production systems in the Amazon Region. Identification and usage of plants for pharmaceutical purposes; identification and usage of natural pigments; use of tissue culture techniques; development of techniques for cultivation of pepper and designated tropical fruits; and instruction and advice regarding extraction of pepper oil and property surveys.
98	China	Rice and Wheat Research Project in Areas of Henan Province along Yellow River	1993.4-1998.3	Tech. Pro.	1-2	Aimed at promoting dual cropping of rice and wheat in regions along the Yellow River, through the development of techniques for producing and breeding high-quality varieties of rice and wheat to bring in high incomes, by improving underdeveloped research into cultivation techniques and pests. Instruction and advice for Chinese counterparts to help establish research in China into the following areas: breeding of high-yield, high-quality and disease-resistant wet cultivation rice varieties; improvement of methods for wet rice cultivation; improvement of techniques for artificial fertilization and raising soil fertility in fields used for dual cropping of rice and wheat; establishment of methods for cultivation of high-yield wheat grains; and establishment of techniques for removing pests on irrigated-rice and wheat.
99	Côte d'Ivoire	Small-scale Irrigation Farming Improvement Project	2000.3-2002.10	Tech. Pro.	1-2	Aimed at verification of appropriate planning methods for projects to improve farming systems at model sites. Selection and base-line survey of model sites; examination of order of priority of projects based on those results; holding of a Project Cooperation Management (PCM) Workshop; and establishment of goals and details of cooperation for Project Phase II.
100	Dominican Republic	Agricultural Development Project for Areas on Mountain Slopes	1997.9-2002.8	Tech. Pro.	1-2	Aimed at improving the livelihoods of small-scale farm households in three target areas located on mountain slopes. Development and verification of sustainable farming systems based on the introduction of pepper cultivation; introduction of improved varieties of existing crops and exhibition of crop production techniques; stepped-up efforts to organize farmers; promotion of collective shipments of agricultural products; preparation of training and dissemination plans; development of educational materials; training for agricultural extension workers and agricultural engineers; and instruction and training for leaders of farmers' and women's groups.

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101	China	Sanjiang Plain Agricultural Laboratory Project (A/C)	1997.1-1999.10	Tech. Pro.	1-2	Aimed at revitalizing activities for sustainable research and development at Sanjiang Plain Integrated Agricultural Laboratory, building on the success of the initial project involving the laboratory. Instruction and advice on research into low-temperature damage; instruction and advice on research into development of water resources.
102	Argentina	Plant Virus Research Project	1995.3-2000.2	Tech. Pro.	1-2	Aimed at enhancing research activities of the phytopathology/biology laboratories in combating viral diseases affecting given crops, in order to improve their productivity and quality by establishing methods for eradicating viral plant diseases. Development of techniques for isolation, identification and diagnosis of plant viruses; clarification of virus ecology; and development of methods of virus elimination.
103	Uruguay	"Fruit Tree Protection Technology Improvement Project"	1995.3-2000.2	Tech. Pro.	1-2	Aimed at enhancing the National Agricultural and Livestock Research Institute's research capabilities regarding citrus protection and cultivation techniques, in order to improve techniques of high-quality citrus fruit cultivation and promote cultivation management. Survey, analysis, and research and development of countermeasures in the fields of disease control, pest extermination and cultivation management.
104	Indonesia	Agricultural Research Enhancement Project (A/C)	1996.12-1998.12	Tech. Pro.	1-2	Aimed at maintaining and developing the results of the Agricultural Research Enhancement Project. Transfer of technical methods regarding breeding of viral disease resistant varieties of soy bean; related training and provision of equipment.
105	Mexico	Livestock Health Diagnosis Technology Improvement Project in Jalisco Province	2001.12-2006.12	Tech. Pro.	1-2	Aimed at enhancing integrated systems in Jalisco Province for pathological diagnosis of livestock disease. Improvement of techniques for examination of viruses and bacteria and for histopathological diagnosis; improvement of techniques for diagnosis of major infectious livestock diseases in the province; training for livestock health workers in the province; and provision of equipment for the above.
106	Mongolia	Infectious Animal Disease Diagnosis Technology Improvement Project	1997.7-2002.6	Tech. Pro.	1-2	Aimed at enhancing immunology and immunopathology research in order to improve techniques for diagnosis of infectious livestock diseases in Mongolia. Basic immunodiagnostics research; clinicopathologic research into infectious diseases; immunohematological and biochemical research through animal experiments; physiological research on host animals with infectious diseases.
107	Uruguay	Veterinary Laboratories Enhancement Project	1996.10-2001.9	Tech. Pro.	1-2	Aimed at improving veterinary techniques for quick and accurate diagnosis of contagious livestock diseases in order to establish an effective system for inoculation and elimination of such diseases. Transfer of pathological, bacteriological and virological techniques; establishment of techniques and systems for the production of laboratory animals.
108	Malaysia	ASEAN Poultry Disease Research and Training Project (A/C)	1996.8-1998.8	Tech. Pro.	1-2	Aimed at improving standards of scientific research into poultry disease (principally chicken disease) through the introduction of latest experimentation techniques. Technical guidance regarding research on latest methods of diagnosis and prevention in fields of bacteriology, parasitology, and pathology; technical guidance regarding improvement of methods for breeding chickens free from specified pathogens.

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109	Thailand	Grass Seed Production Development Project in Northeastern Thailand.	1999.8-2004.8	Tech. Pro.	1-2	Aimed at developing grass seeds for possible planting by small-scale seed producing farms and dairy farms in the northeastern region, and techniques for production, modification and usage of appropriate livestock feed. Development of techniques for the following: selection and evaluation of superior varieties of grass; production and harvest adjustment of seeds for feed grasses; quality control management techniques for seeds for feed grasses; production and usage of high-quality coarse feed.
110	Honduras	Pig-Breeding Development Project	1995.2-2000.35	Tech. Pro.	1-2	Aimed at contributing to the development of pig farming by the promotion of stud pig breeding through introduction of stud pigs, development of related techniques and training. Introduction of superior-quality stud pigs; experimental production and supply; development and improvement of pig rearing techniques; demonstration of verification models of appropriate breeding management techniques targeting farms raising pigs as subsidiary business; guidance on related techniques and training of technical staff.
111	Thailand	Water Management System Modernization Project	1999.4-2004.3	Tech. Pro.	1-2	Aimed at diversifying crops and increasing the rate of cropland under cultivation. Improvement of techniques for efficient usage of irrigation water at the farm level; improvement of water management techniques on the river basin level in order to supply appropriate water volumes to farms; development of related human resources.
112	Romania	Irrigation System Improvement Project	1996.3-2001.2	Tech. Pro.	1-2	Aimed at improving the efficiency of research, implementation and management concerning irrigation projects and providing relevant training. Irrigation: evaluation of various elements of irrigation projects; improvement of the design and application of irrigation methods; and relevant training. Water management: improvement of irrigation scheduling; improvement of water management methods; and relevant training. Water distribution facilities: improvement of water delivery facilities; improvement of technical information systems; and relevant training.
113	Ethiopia	Study for Project to Train Personnel for Irrigation Development in Central Oromia	2003.4-2004.10	Dev. Study	1-2	Aimed at improving farm incomes and food security in the central Oromia Region through development of irrigated agriculture. Capacity building for Oromia Irrigation Development Agency (OIDA) through development of small-scale irrigation facilities and improvements to existing model irrigation districts; and standardization of methods for developing small-scale irrigation facilities and for improving existing irrigation districts.
114	Indonesia	Study for Irrigation Facility Rehabilitation Project	2003.2-2004.3	Dev. Study	1-2	Implementation of inventory surveys of irrigation schemes covering over 1,000 hectares in Northern Sumatra, Central Java and Southern Sulawesi, followed by selection of model areas and by formulation of rehabilitation plans and scheme function restoration programs. Designed also to help raise the technical and management capacity of the Indonesian Ministry of Settlement and Regional Infrastructure regarding irrigation development.
115	Iran	Study for Basic Agricultural Infrastructure Improvement Project along Gharasu River	2002.12-2004.2	Dev. Study	1-2	Targeted at an area of 14,000 hectares in the northwestern part of Kermanshah City, Kermanshah Province. Selection of high priority areas based on categorization of issues and problems faced. Feasibility studies (irrigation and drainage projects, agricultural development projects) in the selected priority areas. Also transfer of survey and planning techniques to staff of the Kermanshah General Agricultural Agency.

No	Country	Project Name	Period	Type of Schemes	Mid-term Objective	Characteristics
116	Malawi	Study for Small-scale Irrigation Development Technology Improvement Project	2002.11-2005.3	Dev. Study	1-2	Aimed at reducing poverty among small-scale farm households nationwide. Selection of model areas based on a nationwide survey of irrigation development potential; implementation of verification studies; and establishment of methods for development of small-scale irrigation projects. Also, designed to help improve management and technical capacities among related organizations and farmers.
117	Ecuador	Study for Project to Increase Production Activities and Reduce Poverty in Southern Sierra	2002.10-2005.5	Dev. Study	1-2 3-6	Aimed at reducing poverty and improving the lives of residents of two provinces in the Sierra Region where poverty is widespread. Formulation of a master plan, indicating roles of various related organizations, to realize mid- to long-term regional development. Implementation of pilot projects in the master plan formulation process, which contribute to improvement of crop and livestock farming, raising off-farm incomes, improvement of residents' lives and environmental conservation. These pilot project are also designed to increase capabilities of government administrative organizations and residents, with the results being reflected in the master plan.
118	Philippines	Study for National Irrigation Area Water-Users Association Enhancement Project	2002.3-2003.7	Dev. Study	1-2	Aimed at developing and strengthening water-users associations. Formulation of an action plan for establishment of an efficient irrigation management system through strengthening of such associations and for transfer of management of irrigation facilities to those associations; and transfer of techniques concerning planning procedures and methods, as well as research methods for individual survey items, to engineers in counterpart organizations and members of water-users associations.
119	Syria	Study for Agricultural Produce Quality Improvement Project	2001.1-2002.8	Dev. Study	1-2	Formulation of plans to raise quality of agricultural produce by building a system capable of accurately identifying consumer needs for Syrian agricultural products and transmitting relevant information to producers and distributors. Aimed at increasing producers' incomes from a mid- to long-term perspective. Also, compilation of item-specific industry reports and transfer of relevant techniques through OJT.
120	Philippines	Study for Agrarian Reform Communities Development Project in Isabela Province	1999.9-2001.1	Dev. Study	1-2	Aimed at increasing productivity and incomes by improving farm management techniques at 22 agrarian reform districts in Isabela Province. Formulation of a development master plan for the region and feasibility studies in priority areas.
121	Kenya	Study for Irrigated Horticulture Development Project in Mt. Kenya Foothills	1997.7-1998.11	Dev. Study	1-2	Targeted at areas in the foothills of Mt. Kenya with high potential for development of horticultural agriculture. A master plan study aimed at developing horticultural agriculture based on improvement and proper management of infrastructure including small-scale irrigation focusing on organizing small farmers; and provision of improved ''soft'' services including dissemination of techniques and financing for farmers. Feasibility studies of model development factors selected in the master plan study.
122	Tanzania	Study for Lower Moshi Integrated Agricultural and Rural Development Project	1997.3-1998.7	Dev. Study	1-2	Formulation of an integrated agricultural/rural development program and implementation of feasibility studies. Aimed at disseminating systematized irrigation techniques and promoting effective improvement of farmers' lives. Targeted at the existing Lower Moshi Agricultural Development Project area and surrounding areas. An irrigation program including development of new water resources as a means of dealing with endemic water shortages and salt damage, and a program for improving rural living environment infrastructure, were worked out.

No	Country	Project Name	Period	Type of Schemes	Mid-term Objective	Characteristics
123	Indonesia	Study for Tropical Fruit Quality Improvement Project	1997.7-1998.6	Dev. Study	1-2	Targeted at Northern Sumatra, western part of Eastern Java, and Southern Sulawesi. Aimed at raising incomes of small farm households through improving quality of tropical fruit to meet the levels demanded by domestic and international markets. A plan to improve tropical fruit quality was formulated.
124	Egypt	Study for Northern Sinai Integrated Rural Development Project (water channel facilities design)	1999.3-2000.10	Dev. Study	1-2	Design of water channels (for agricultural, industrial and household use), pump stations, and water management facilities, as well as formulation of a plan to maintain and manage them. Preparation of project-bidding books.
125	Zimbabwe	Study for Lower Munyati River Basin Agricultural Development Project	1998.10-2000.11	Dev. Study	1-2	Aimed at developing small-scale farming in the Manyati River lower basin below Kudu Dam. Supplementary study on dam construction and summary design of trunk water channels, followed by formulation of an agricultural development plan for the area. Selection of pilot areas and formulation of pilot project plans including a plan for developing irrigation water channels.
126	Dominican Republic	Study for Yaque Del Sur River Basin Agricultural Development Project	1997.10-1999.8	Dev. Study	1-2	Targeted at the Yaque Del Sur River Basin Region and aimed at improving existing irrigation areas and developing new areas appropriate for irrigated agriculture, using water from the river. Implementation of a basic development study to formulate an integrated agricultural development program including water resources, rural infrastructure improvement and agricultural development, followed by feasibility studies in selected priority development areas.
127	Côte d'Ivoire	Study for San Pedro Plain Rural Development Project	1998.2-1999.8	Dev. Study	1-2	Aimed at developing irrigated agriculture in the lower San Pedro River Basin using outflow water from existing dams. Formulation of an integrated agricultural development master plan and implementation of feasibility studies in selected priority development areas.
128	Philippines	Study for Jalaur River Basin Irrigation Project	1996.12-1998.6	Dev. Study	1-2	Targeted at the Jalaur River Basin and aimed at promoting the regional economy by improving existing irrigation facilities and building new small dams in order to allow for year-round irrigation and increase regional agricultural production. Implementation of a master plan study, and feasibility studies for selected priority development projects.
129	Afghanistan	Study for Emergency Aid for Restoration of Agriculture in Kandahar Suburbs	2003.3-2004.9	Dev. Study	1-2	Aimed at restoring agricultural production in areas around Kandahar through securing irrigation water. Survey of current state of irrigation facilities and related fields; formulation and implementation of an agricultural restoration program categorized according to degrees of urgency and plans for projects requiring urgent response; capacity building for relevant Afghan parties.
130	Morocco	Study for Agricultural Development Project Involving Repair of Traditional Irrigation Facilities（Khettara) in Eastern Atlas	2003.2-2005.8	Dev. Study	1-2	Aimed at formulating an agricultural development plan for the Tafilalet region and improving supply of water to oasis areas by making use of Khettara to supply water. For feasibility studies in priority areas, implementation of verification studies involving simple projects, with the results being fed back into the development plan.
131	Cambodia	Study for Slakou River Basin Agricultural Infrastructure Rehabilitation and Development Project	2001.1-2002.2	Dev. Study	1-2	Aimed at raising incomes of small farm households and their living standards. Formulation of a plan for reconstruction of reservoirs and irrigation systems which were in disrepair, followed by implementation of a feasibility study. The plan served as a model for reconstruction of existing agricultural infrastructure, in terms of appropriateness not only in technical aspects but also operational and management aspects. Provision of technical assistance to help improve management capabilities of counterpart organizations.

No	Country	Project Name	Period	Type of Schemes	Mid-term Objective	Characteristics
132	Indonesia	Study for Irrigated Agriculture Development Project in Highlands	1999.7-2000.6	Dev. Study	1-2	Targeted at the eastern Bandon Region with focus on the establishment of a model of high altitude agriculture. Formulation of an integrated upland agricultural development program including improvement of irrigation facilities for small fields and farm management plans to promote field crop agriculture. Implementation of feasibility studies.
133	Laos	Study for Small-scale Rural Environment Improvement Project for Depressed Communities along Mekong River	1998.11-2000.7	Dev. Study	1-2	Targeted at counties of three provinces along Mekong River. Aimed at stabilizing farming households by introducing dry-season crops through development of small-scale irrigation facilities based on organization of farmers and improved financing systems for them. Formulation of a master plan for agricultural development, followed by implementation of feasibility studies in priority areas. Also, establishment of guidelines for irrigation development projects on the beneficiary-payment principle.
134	Sri Lanka	Study for Project to Develop Integrated Irrigation Agriculture in Arid Regions	1999.4-2000.10	Dev. Study	1-2	Targeted at arid and semi-arid areas. Aimed at promoting regional agriculture through farmer-led maintenance and management of irrigation facilities, centering on facility repair and improvement, and through enhancement of agricultural dissemination services. Formulation of a master plan and implementation of feasibility studies for priority projects.
135	Mexico	Study for Soconusco Region Integrated Agricultural, Livestock and Rural Development Project	1998.6-1999.8	Dev. Study	1-2	Aimed at stabilizing farm household livelihoods and increasing incomes in the target region. Formulation of a master plan for integrated rural development involving crop and livestock farming, with focus on support for improving irrigation facilities and other agricultural infrastructures, and on assistance measures for small farm households. Also, implementation of feasibility studies for priority projects.
136	Egypt	Study for Rural Water Environment Improvement Project in Central Nile Delta	1998.3-1999.7	Dev. Study	1-2	Targeted at rural areas in the northeastern part of the central Nile Delta. Aimed at raising living standards in the areas by increasing agricultural production through improvement of irrigation/drainage facilities and management systems. Formulation of a master plan for improving the region's water environment and promoting agricultural development. Implementation of feasibility studies for selected priority areas.
137	Pakistan	Study for Taunsa Dam Irrigation System Improvement Project	1997.8-1998.9	Dev. Study	1-2	Aimed at raising productivity and increasing agricultural production through repair of the aging Taunsa dam and irrigation systems. Formulation of system modification plans, based on a socio-economic situation survey; an investigation into the degree of the dam's degradation; a survey of erosion and accretion in the upper and lower streams; a survey of the Indus River's current course; and a survey of the current state of principal water channels.
138	Mongolia	Study for Project to Assist Regional Livestock Farming System Improvement to Counter Dzud Damage	2003.3-2005.2	Dev. Study	1-2	Aimed at mitigating Dzud damage and reducing overgrazing in Gobi Steppe. Building of a system for planned use of grazing land and improvement of well digging, restoration and operation through implementation of verification studies. Also, transfer of knowledge and techniques needed to form plans and carry out surveys to related government staff.

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139	Uganda	Study for Eastern Uganda Sustainable Irrigation Development Project	2003.10-2006.3	Dev. Study	1-2	Aimed at increasing rice self-sufficiency and improving rice-farming household incomes based on Uganda's national agricultural policy. Designed to propose measures for promotion of agriculture with focus on sustainable irrigation development and wet-rice farming in the target region (13 eastern provinces) through creation of development plans and action plans based on pilot projects. Also, capacity building for government ministries (centering on Ministry of Agriculture, Animal Industry and Fisheries) and local government agencies in terms of project planning and implementation.
140	Nepal	Study for Sunsari River Irrigation Development Project	2001.4-2003.3	Dev. Study	1-2	Aimed at building irrigation systems and formulating plans for sustainable agriculture in target areas of Koshi Province. A review of the existing program, a survey of Sunsari River for use as a source of water, and an evaluation of feasibilities of implementing the irrigation/drainage program. Also, formulation of a plan for promotion of sustainable agriculture and its implementation scheduling as well as presentation of a set of proposals.
141	Slovakia	Study to Support Sustainable Agriculture Development Project in Zahorska Lowlands	2001.6-2003.3	Dev. Study	1-2	Aimed at contributing to improvement of crop production and promotion of agriculture in the Zahorska Lowlands. Establishment of guideline technical measures and methods for achieving appropriate land and water usage and formulation of an optimal land and soil management program as a case study.
142	Malaysia	Study for Project to Modernize Agricultural Water Management Systems in Cereal Growing Areas of Peninsular Malaysia	1997.2-1998.8	Dev. Study	1-2	Aimed at raising rice production capacity in line with one of the national agricultural policy goals. Formulation of a master plan for modernization of agricultural water management systems targeting five low-productivity areas among the eight grain belts on peninsular Malaysia. Implementation of feasibility studies in three priority areas.
143	South Africa	Study for Northern State Oliphant River Basin Integrated Rural Development Project	2002.9-2006.11	Dev. Study	1-2	Aimed at promotion of agriculture, including establishment of self-sufficient farming, and increasing employment opportunities in the middle Oliphant River Basin area. Formulation of a sustainable agricultural development program taking into consideration the introduction of a soil conservation farming model and human resources development. Implementation of verification studies in high priority areas to work out a more realistic rural development plan.
144	Cuba	Study for Central Region Sustainable Rice Farming Technology Development Project	2003.10-2005.11	Dev. Study	1-2	Targeted at five central provinces which account for more than 40% of Cuba’s irrigated rice cultivation acreage. Aimed at proposing measures for small farms and organizations producing rice for delivery free from government control to increase production and productivity. Implementation of verification studies and formulation of a master plan. Also, transfer of survey and planning techniques to Ministry of Agriculture staff, rice-farming laboratories and related regional organizations.
145	Brazil	Study for Tocantins State Agriculture and Livestock Farming Integrated Development Project	1997.2-1998.5	Dev. Study	1-2	Targeted at all of Tocantins state. Formulation of a farmland zoning plan, development frameworks and development scenarios, in addition to understanding of barriers to development and analysis of development potential. An integrated crop/livestock farming development plan was worked out. Also, selection of priority projects and formulation of implementation plans.

No	Country	Project Name	Period	Type of Schemes	Mid-term Objective	Characteristics
146	Dominican Republic	Study for Project to Redevelop Former State-Owned Farms	2001.2-2003.2	Dev. Study	1-2	Formulation of an integrated agricultural/rural development plan with the aim of redeveloping sugar cane fields lying idle since the decline of sugar industry. Focus on agricultural development as a settlement model and social development of surrounding settlements. Establishment of a development approach with potential for application nationwide through implementation of pilot projects in model areas.
147	Ethiopia	Study for Meki Region Irrigation and Rural Development Project	2000.7-2002.8	Dev. Study	1-2	Aimed at improving living standards of residents in the Meki Region suffering from unstable agricultural production due to water shortages. Formulation of a development plan for model districts, followed by verification studies, which resulted in the presentation of proposals calling for revision of the model district development plan.
148	Thailand	Study for Northern Northeast Thailand Agrarian Reform Community Integrated Agricultural Development Project	1996.12-1998.7	Dev. Study	1-2	Aimed at improving living standards of farmers in the poorest areas through promotion of farming that takes into account fair land distribution and environmental conservation. Formulation of a basic development policy based on the results of an inventory survey targeting 35 agrarian reform areas under the direct control of Agrarian Reform Bureau in four northern provinces of northeast Thailand. Classification of projects into groups according to the development format. Selection of priority areas according to the classification, and implementation of feasibility studies in the selected areas.
149	Philippines	Project to Improve Riverbed Protection for Angat River Irrigation Regulating Dam	2001.6	Grant	1-2	Aimed at preventing the collapse of the entire dam and accompanying flood damage, and securing stable agricultural production in irrigated areas. Repairing of the dam apron; re-enforcement of the river bed and banks; procurement of materials necessary for operational maintenance.
150	Egypt	Project for Rehabilitation and Improvement of Mazoura Regulator on Bahr Yusef Canal	2000.6	Grant	1-2	The Bahr Yusef Canal was intended to irrigate 13% of Egypt's cultivated acreage. The canal's Mazoura sluice regulating dam was distributing water extremely inefficiently due to its age. The dam was also in danger of collapse. With this grant aid, construction of a new dam, attachment of gates, installment of auxiliary bridges, and building of an administrative office building were implemented.
151	Tanzania	Small-scale Irrigation Development Project in Morogoro Province's Mwega District	2000.6	Grant	1-2 3-4	Provided to build irrigation and related facilities at the Mwega district in Morogoro Province, with the aim of ensuring stable water supply to 580 hectares of land for stable crop production and food supply. Construction of head works and irrigation channels, road improvement, and river improvement were implemented.
152	Syria	Seed Production Capacity Improvement Project	2001.9	Grant	1-2	Provided in two phases. In the first phase, the aid was used to procure equipment for wheat processing facilities in order to raise the seed wheat supply self-sufficiency percentage in Aleppo and Idlib Provinces to the national average level of 57%, thereby increasing the wheat supply self-sufficiency rate and promoting incomes of farm households. In the second phase, it was used for procurement of equipment for potato tissue cultivation facilities, aimed at ensuring stable nationwide supply of 2,490 tons of seed potato in order to decrease reliance on potato imports and improve the nation's balance of payments.

No	Country	Project Name	Period	Type of Schemes	Mid-term Objective	Characteristics
153	China	Equipment Improvement Project for Research and Development Center for Sustainable Agricultural Technology	2000.12	Grant	1-2	Provided to procure necessary research/analysis tools and dissemination/training equipment for Research and Development Center for Sustainable Agricultural Technology which was being established to encourage environment-conscious practical research and development for achieving stable food self-sufficiency and to disseminate research results throughout China.
154	Uganda	Agricultural Extension Training Center Improvement Project	1998.5	Grant	1-2	Renovation of the agricultural extension/training center needed to achieve Uganda's mid-term agricultural modernization program which calls for research on and spread of modern agricultural techniques, regional agriculture promotion and enhanced partnership among farmers. Construction/repair of training center buildings and animal barns; construction of water supply facilities and regulating reservoirs; upgrading of farmland; provision of equipment for the training center; assistance for ''soft'' aspects of development including technical guidance.
155	Ghana	Irrigation Facility Improvement Project	1998.1	Grant	1-2	Aimed at improving existing irrigation facilities which did not function well due to aging and lack of adequate permeation among farmers. Measures taken included repair of irrigation/drainage facilities; construction of buildings/facilities; provision of equipment/materials for maintenance and farm management/operation.
156	Dominican Republic	Farmland Development Equipment/Materials Improvement Project	1999.7	Grant	1-2	Aimed at expanding food production and combating poverty through distribution of land to landless farmers by making uncultivated land arable. Equipment/materials needed to carry out the land improvement were provided.
157	Bolivia	Achacachi Region Agricultural Development Project	2000.6	Grant	1-1 3-4	Aimed at livelihood improvements in Achacachi Region by raising agricultural productivity and improving agricultural infrastructure in La Paz Province. Irrigation facilities, trunk roads and bridges were constructed.
158	Mozambique	Chokwe Irrigation Scheme Rehabilitation Project	2002.8	Grant	1-2	Aimed at raising farm incomes and food self-sufficiency by making it possible for farmers using the existing Chokwe Irrigation Scheme (which services 26,030 hectares) to be provided with year-round irrigation through the securing of necessary amounts of water flow. Construction of main canal works and water-level regulating dam, cross-canal works, and inflow works.
159	Zimbabwe	Second Nyakomba Irrigation Development Project	1999.6	Grant	1-2	Aimed at developing agriculture in Nyakomba, a severely underdeveloped black communal district in northeastern Manigaland Province. Pumps and irrigation facilities for one block (203 hectares) were built, and equipment/materials for maintenance/ management provided.
160	Dominican Republic	Jarabacoa District, Selcado River System Irrigation Improvement Project	2000.11	Grant	1-2	Aimed at promoting the country's agricultural development through expansion of irrigated areas in Jarabacoa District and increased production of non-traditional crops. Improvement of irrigation facilities; construction of new intake chambers, settling tanks and regulating reservoirs; repair of principal irrigation channels; improvement of roads for maintenance of principal irrigation channels.

No	Country	Project Name	Period	Type of Schemes	Mid-term Objective	Characteristics
161	Indonesia	Eastern Regions Irrigation Facility Improvement Project	1999.11	Grant	1-2	Aimed at improving living standards of poor farmers in three eastern states by raising agricultural productivity. Digging of wells for unirrigated lands; improvement of water channels for irrigation; and provision of generators and pumps.
162	Egypt	Third Upper Egypt Irrigation Facility Improvement Project	2002.11	Grant	1-2	Aimed at repairing badly-aged irrigation facilities in five locations to increase irrigated areas from 3,200 to 4,358 hectares, thereby expanding agricultural production and raising incomes of local farmers by 18%. Pumps and barges for five pumping stations were provided.
163	Philippines	Cagayan Irrigation Facilities Improvement Project	2003.8	Grant	1-2	Aimed at attaining stable supply of water through irrigation for target areas in Cagayan Province in order to increase rice production and farmers' incomes in the areas. Repair of pumping facilities, water intake gates and embankments were done, and equipment/materials for maintenance and management provided.
164	Cambodia	Irrigation Facility Improvement Project along Mekong River in Kandal Province	1999.6	Grant	1-2	Repair of irrigation canals, sluiceways and gates at Colmatage irrigation facilities in four areas of Kandal Province; provision of equipment for maintenance/management and for supporting water-users associations; and ''soft'' assistance for organizing water-use associations.
165	Viet Nam	Tanchi District Rural Drainage Systems Improvement Project	2000.7	Grant	1-2	Aimed at restoring and improving drainage capability of pumping stations in Tanchi District bordering northern Hanoi. Purchase of pumps and related equipment; construction of a new pumping station. These significantly reduced flood damage to rice crops, and was expected to lead to a 20% increase in rice production and improvement in living environment for local farmers.
166	More than one country	Securing Food Safety	Fiscal year 1999-2003	Training	1-2 3-3	Aimed at promoting learning of inspection techniques, understanding of quality control and monitoring techniques, and understanding of relevant international laws regarding chemicals produced by pathogenic microbes, such as mycotoxins, in agricultural products and processed foodstuffs. Lectures were given concerning chemical pollutants; microbe contamination; sampling techniques; and sanitation laws such as those related to regulations and standards connected with food safety.
167	More than one country	Post-harvest Rice Processing Techniques II	Fiscal year 2003-2007	Training	1-2	Aimed at improving the ability of trainees to provide instruction through administrative planning and proposals in their own country, by providing them with information concerning Japanese techniques for post-harvest rice processing. Lectures, practical training and study tours concerning paddy seeds; Japanese diet; agricultural product inspection systems; rice processing industry; summary explanation of rice harvesting machinery; post-harvest loss; quality measurement; and techniques for storing husked (brown) rice.
168	More than one country	Agricultural Extension Planning Administrators	Fiscal year 2000-2004	Training	1-2	Aimed at helping administrators acquire the capacity to exercise stronger leadership in planning and implementing training programs for agricultural extension workers in their own country, through introducing them to basic theories and methods of disseminating agricultural techniques and problems associated with it. Lectures, practical training and study tours concerning background to dissemination projects; summaries of agricultural improvement and dissemination projects; methods of promoting dissemination activities; training and development of extension workers; and ways of making use of them.

No	Country	Project Name	Period	Type of Schemes	Mid-term Objective	Characteristics
169	More than one country	Role of Agricultural Cooperatives in Revitalizing Rural Economies	Fiscal year 2000-2004	Training	1-2	Aimed at providing opportunities to learn the role and history of agricultural cooperatives in Japan and what they mean to farm management and farmers' lives, thereby increasing participants' capacity for dealing with promotion of agricultural cooperatives in their country. Lectures, practical training and study tours concerning the history and current state of Japanese agriculture and agricultural cooperatives; methods for revitalizing rural areas; methods for developing farmers' organizations; agricultural cooperatives' activities and business; their methods of executing multifaceted business operations; their organized activities and methods of business planning; their role in creating vibrant rural areas; and comparisons of circumstances in various countries.
170	More than one country	Irrigation/Drainage and Rural Development	Fiscal year 2000-2004	Training	1-2	Aimed at increasing technical expertise among engineers involved in agricultural engineering by equipping them with scientific knowledge and general techniques concerning irrigation and drainage. Lectures, practical training and study tours concerning agriculture in general, irrigation and drainage, farmland development, and design and construction.
171	Tsukuba International Center	Management of Irrigation Water Systems	Fiscal year 2001-2005	Training	1-2	Aimed at equipping trainees with necessary techniques/knowledge concerning appropriate operation and maintenance of various agricultural water facilities and thereby promoting agriculture and appropriate management/conservation of water resources. Lectures, practical training and study tours concerning techniques for planning basic water management; management and handling of water distribution; systems maintenance and operational management techniques; and theme-specific research.
172	More than one country	Rice Research II	Fiscal year 1983-2007	Training	1-2	Aimed at training personnel who can plan and implement research into development of rice cultivation techniques and analyze the results, by equipping trainees with knowledge of up-to-date Japanese techniques. Lectures, practical training and study tours concerning standardized cultivation techniques, basic theories and techniques, and research into various issues.
173	More than one country	Techniques for Transplant of Fertilized Eggs for Livestock	Fiscal year 2002-2006	Training	1-2	Aimed at training engineers who can provide instruction in their own country to disseminate and improve techniques of fertilized egg transplant, by equipping them with knowledge and techniques concerning latest technology for transport of fertilized eggs. Lectures, practical training and study tours concerning physiology of cattle breeding; physiology and form of fertilized cattle eggs; extraction of fertilized eggs; techniques for processing and transplanting fertilized eggs; significance of transplantation techniques; and related techniques.
174	More than one country	Techniques for Cattle Breeding and Artificial Insemination.	Fiscal year 2001-2005	Training	1-2	Aimed at contributing to promotion of livestock industry in developing countries through training of mid-level engineers involved in livestock improvement, by introducing livestock breeding techniques, breeding systems and related knowledge. Lectures, practical training and study tours concerning physiology of cattle breeding; theories of semen dilution and freezing; rectal examinations; artificial fertilization; techniques for determination of pregnancy; and theories of cattle breeding.

No	Country	Project Name	Period	Type of Schemes	Mid-term Objective	Characteristics
175	More than one country	Techniques for Poultry Rearing Management and Production	Fiscal year 2003-2007	Training	1-2	Aimed at developing personnel who can contribute to raising technical standards of poultry rearing in their own countries, by equipping technicians with techniques and knowledge of poultry breeding sanitation and other related areas. Lectures, practical training and study tours concerning livestock rearing in general; breeding and improvement; nourishment and feed; management of rearing; management of sanitation; distribution/processing/sale of eggs and poultry meat; and planning of measures to improve poultry rearing techniques.
176	More than one country	Veterinary Technology for Farm Animals	Fiscal year 2001-2005	Training	1-2	Aimed at equipping veterinary technicians with increased knowledge and raising their technical standards centering on techniques for disease prevention through sanitation and disease diagnosis and treatment in order to manage health of farm animals. Lectures, practical training and study tours concerning management of livestock rearing; diagnosis and treatment of internal and external conditions and injuries; diagnosis and treatment of animal disorders; measures for preventing mammary gland inflammation; clinical pathology inspection measures; and disease prevention through sanitation, food and environmental hygiene; and animal protection and management.
177	More than one country	Techniques for Production and Usage of Feed Crops	Fiscal year 2000-2004	Training	1-2	Aimed at contributing to development of livestock farming in developing countries by equipping technicians with techniques and knowledge to implement systematic management of feed crops from production to adjustment/usage. Lectures, practical training and study tours concerning overview of livestock production; breeding and experimental statistics; soil science; livestock nutrition; techniques for production/usage of feed crops; management of rearing; seed production; and dissemination of techniques.
178	More than one country	Sustainable Use of Plant Genetic Resources	Fiscal year 2000-2004	Training	1-2	Aimed at raising levels of technical expertise in participating countries by training researchers to act as instructors, through introduction to up-to-date techniques and research results related to plant genetic resources and through individual training on specialized techniques. Lectures, practical training and study tours concerning general theories of plant genetic resources and conservation/use of these resources. Individual training for practical techniques on specific themes.
179	More than one country	Sustainable Water Resources Development in Agricultural and Rural Areas	Fiscal year 2002-2006	Training	1-2	Aimed at promoting self-sustained development of administrators through instruction on effective use of irrigation water, surveying/planning/ implementation/maintenance/management of sustainable irrigation projects, and management of irrigation water. Lectures, practical training and study tours introducing measures, systems and background information about Japanese agricultural/rural areas; water resources development projects in those areas; citizen participation in water management; direction of Japan's technical cooperation in rural development; and new techniques.
180	Chubu International Center	OISCA (Organization for Industrial, Spiritual and Cultural Advancement International) Training Course for Developing Farmers	Fiscal year 2002-2006	Training	1-2	Aimed at developing regional leaders in participating countries by providing opportunities to learn organic farming and other environmentally-friendly techniques and to study matters useful for overall rural development. Lectures, practical training and study tours concerning techniques for wet rice, vegetable and fruit cultivation, development of productive soil, land survey, inspection and testing, and agricultural machinery.

No	Country	Project Name	Period	Type of Schemes	Mid-term Objective	Characteristics
181	Hokkaido International Center	Agricultural Development in Upland Field Cropping Areas	Fiscal year 1999-2003	Training	1-1 1-2	The course focused on land improvement projects in non-paddy field farming regions. Designed to improve knowledge and techniques in terms of overall survey planning, design and implementation management, with the aim of developing personnel in participating countries who can make appropriate proposals in this area of development. Lectures, practical training and study tours concerning overview of agriculture, improvements in agricultural/rural infrastructure and sustainable agricultural/rural development, all pertaining to Japan, particularly Tokachi Region in Hokkaido.
182	Osaka International Center	Genetic Engineering and Bioinformatics for Agriculture	Fiscal year 2003-2007	Training	1-2	Aimed at providing opportunities to learn about higher plant cell breeding techniques using microbacterium and to acquire basic techniques of genetic engineering. Lectures concerning policies for genetic modification experiments; ethical regulations; methods of vegetable cell cultivation; and other topics. Basic training concerning techniques for extracting and separating nucleic acids; practical training concerning fermentation of alcohol from starch by enzyme conversion; and laboratory study tours.
183	Okinawa International Center	Sustainable Utilization of Tropical Agricultural Resources	Fiscal year 1984-2004	Training	1-1 1-2	Designed to introduce participants to research methods and techniques for efficient production and sustainable use of bio-resources, particularly plant and forestry resources, in tropical and sub-tropical areas, with the aim of contributing to efficient use of existing resources and developing personnel who can play a central role in this field. Lectures, practical training and study tours concerning techniques for plant moisture management, protection from diseases and pests, management of plant production volume, and post-harvest management of products.
184	Hyogo International Center	Techniques for Mycotoxin Detection	Fiscal year 2000-2004	Training	1-2	Aimed at equipping trainees with knowledge of food sanitation in general, regulations/standards/techniques concerning mycotoxins and methods of analyzing food additives. Lectures, practical training and tours of facilities concerning food sanitation laws and food monitoring; codes and standards for food additives and other chemicals; monitoring of imported food products; mycotoxin producing bacteria and methods for their separation; types of mycotoxins; their toxicity and related regulations; and testing methods for food additives.
185	Hyogo International Center	Food Microbiological Testing Techniques II	Fiscal year 2003-2007	Training	1-1 1-2	Designed to equip laboratory technicians from participating countries with advanced Japanese techniques to increase their expertise, with the aim of developing personnel who can fulfill instructive roles in this field. Lectures, practical training and tours of related facilities concerning methods for detecting previously-known and newly-discovered pathogenic microbes including parasites and viruses, and administrative measures and theories.
186	Hokkaido International Center	Food Sanitation Administration	Fiscal year 2001-2005	Training	1-2	Focus on sub-Saharan African Countries. Designed to equip participants with knowledge of food sanitation administrative measures covering all stages from production to consumption, with the aim of contributing to improvement and promotion of public health in participating countries. Lectures, practical training and study tours concerning food sanitation, food chemistry and food production.

No	Country	Project Name	Period	Type of Schemes	Mid-term Objective	Characteristics
187	Tsukuba International Center	Training in Techniques for BSE Diagnosis	2003-	Training	1-2	Designed to equip participants with knowledge of four methods of BSE diagnosis to contribute to BSE reduction measures in their countries. Lectures and practical training concerning pathology and diagnostic techniques for each of the four methods: ELISA (Enzyme Linked Immuno Sorbent Assay) Method, Western Blot Method, histo-pathological diagnosis method, and immuno-histochemical diagnosis method.
188	Tsukuba International Center	Veterinary Techniques Research	Fiscal year 1999-2003	Training	1-2	Designed to equip participating veterinarians with knowledge of Japan's livestock sanitation systems and state-of-the-art livestock sanitation research techniques, with the aim of developing leading researchers in research/development of animal disease diagnosis techniques. Lectures, instructions and advice concerning pioneering veterinary technologies, understanding of current circumstances, and research into specific issues.
189	Osaka International Center	Techniques for Detecting Pathogens at Livestock Production Facilities.	Fiscal year 2003-2007	Training	1-2	Designed to introduce latest Japanese techniques for ensuring food safety to developing countries, with the aim of raising standards of technical expertise in participating countries. A comprehensive course with emphasis on practical experience including factory visits, basics and applications concerning parasite detection tests, virus diagnosis techniques, pathological test techniques, immunity, serologic test techniques, bacteriological examination techniques, and clinical diagnosis techniques.
190	Osaka International Center	Practical Greenhouse Horticulture Techniques	Fiscal year 2000-2004	Training	1-2	Aimed at developing personnel equipped with techniques for artificial adjustment and control of plant cultivation environments, by providing practical training using ‘‘plastic hothouses.’’ Lectures, practical training and study tours concerning effectiveness of human-induced adjustment and control of environments for producing plants; basic techniques for cultivation in plastic hothouses; multi-faceted assessments and methods for making plans for the introduction of new technology; solar energy generation technology as a means of securing a simplified source of energy; use of computers for planning and environmental measurement control; and techniques for measuring environmental elements.
191	Hokkaido International Center	Advanced Studies on Protozoan Diseases	Fiscal year 1987-2006	Training	1-2	Designed to equip participants with advanced knowledge and techniques concerning protozoic diseases, with the aim of increasing academic levels in their countries and developing researchers in instructive roles. Area-specific training in cutting-edge technology for diagnosis, treatment, prevention and response to host diseases.
192	Hyogo International Center	Integrated Pest Management for Plant Protection II	Fiscal year 2003-2007	Training	1-2	Designed to give opportunities to learn systems to supply resources for biological disease and pest control, methods to store them, and new techniques for genetic modification, with the aim of building disease/pest control strategies based on food safety. Lectures, practical training and study tours concerning dynamic trends in population, the state of food production and prospects for new techniques, global environment and food production, biological methods for pest control, plant pathology, weed prevention/elimination, and introduction of biotechnology into disease/pest control.

No	Country	Project Name	Period	Type of Schemes	Mid-term Objective	Characteristics
193	Hokkaido International Center	Approaches to Upland Farming Mechanization	Fiscal year 2000-2004	Training	1-2	Designed to equip agricultural machine engineers with knowledge concerning most up-to-date machine control technology, with the aim of developing personnel who can implement introduction and improvement of appropriate agricultural mechanization processes based on regional needs. Theoretical lectures and practical training on agricultural machinery, and training on agricultural machinery automation.
194	Hokkaido International Center	Upland Farming Management	Fiscal year 2002-2006	Training	1-2	Designed to help participants deepen understanding of non-paddy field farming management techniques by giving examples of systematic approaches taken on the basis of partnership between the central government, local authorities, various organizations and producers, with the aim of developing human resources that can contribute to regional agriculture in developing countries. Lectures, practical training and study trips concerning overview of agriculture in Tokachi District, information on cultivation techniques, agriculture-related organizations, examples of activities of farmers in rural areas, and agricultural education.
195	Tsukuba International Center	Vegetable Cultivation Techniques	Fiscal year 1999-2003	Training	1-2	Designed to equip agricultural technicians with integrated Japanese vegetable cultivation techniques, with the aim of training personnel who can make practical contributions to establishment of vegetable production techniques consistent with the situation in their own country. Lectures, practical training and study trips concerning vegetable cultivation techniques, vegetable seed production techniques, vegetable cultivation techniques that take the environment into consideration, overview of Japanese agriculture, and methods of test planning and statistical analysis.
196	Tsukuba International Center	Testing for Farm Machinery Evaluation	Fiscal year 2000-2004	Training	1-2	Designed to equip mid-level agricultural machinery engineers with techniques for evaluating and testing agricultural machinery, with the aim of improving capability to run evaluation and test systems appropriate to each country and developing human resources who can contribute to the development and dissemination of agricultural machinery. Lectures, practical training and study trips concerning Japanese systems, and techniques and methods for evaluating and testing agricultural machinery.
197	Hyogo International Center	Afro-biotechnology	Fiscal year 2000-2004	Training	1-2	Consists of lectures on fundamental fields of biotechnology and participant-specific individual training sessions. Aimed at equipping trainees with techniques relating to usage of microbes and more advanced organisms in biotechnology and deepening their general understanding biotechnology. Lectures, practical training on related issues and study tours regarding overview of biotechnology, genetics, biochemistry, genetic/cellular engineering and other fields.
198	Hokkaido International Center	Agricultural and Rural Development through Farmer Participation II	Fiscal year 2001-2005	Training	1-2	Designed to equip local government officials with knowledge and techniques of integrated rural improvement (through upgrading distribution systems and enhancement of farmers' organizations) and Japanese methods for village and personnel capacity building, with the aim of developing human resources responsible for rural development. Lectures concerning farmers' organizations, agricultural cooperatives, improvement of agricultural infrastructure, farmland conservation, land improvement districts, water management, distribution of agricultural produce, agricultural financing and livelihood improvement projects; study tours of related organizations, factories and groups.

No	Country	Project Name	Period	Type of Schemes	Mid-term Objective	Characteristics
199	Indonesia	Project to Assist Implementation of Integrated Development in Barru Province, Southern Sulawesi State	1995.1-2001.12	Volunteers	1-2 3-2	Dispatched to contribute to increasing agricultural incomes in six villages in Barru Province, Southern Sulawesi State, by supporting the implementation of PPWT (integrated regional development) Programs through increased use of irrigation facilities, improvement and dissemination of cultivation methods, promotion of auxiliary production, and verification studies and research that covered the possibility of increasing added value.
200	Malawi	Project for Dissemination of Appropriate Horticulture Techniques in Lobi (JOCV group dispatch)	1998.11-2003.11	Volunteers	1-2	Dispatched to conduct farmland tests to identify and work out appropriate horticulture techniques, and to disseminate related skills and techniques to farmers.
201	Brazil	Study on Improvement of Management of Cerrado Region Model Agricultural Cooperatives	2002.7-2003.3	Overs. Study	1-2 3-7	Analyzed the state and problems of industrial cooperatives (crop and livestock farming, sanitation, labor, etc.) in Tocantins Province which despite being given a central role in industrial reconstruction were not fulfilling that role adequately. Examined measures for improvement.
202	Papua New Guinea	Study for Rice Farming Restoration Project for Small Farmers	2002.5-2002.9	Overs. Study	1-2	Aimed at rectifying the situation in which supply of rice depended almost completely on exports despite rapidly growing demand for rice. Examined prevailing conditions of rice cultivation, milling, distribution and consumption; identified techniques and support structures needed for dissemination of rice cultivation; and formulated plans for restoring rice cultivation on small-scale farms.
203	Mexico	Agricultural and Rural Restoration in Semi-arid Areas	2001.7-2004.7	Grassroots	1-2	Provided to stabilize management of small/medium scale farm owners through introduction of farm management models based on recommended crops to selected model farms in areas surrounding La Paz.
204	Kenya	Rural Regional Integrated Development (Securing of water resources, agriculture, health and sanitation, promotion of small businesses)	2001.4-2004.3	Grassroots	1-2 3-4 3-8	Provided to carry out participatory-style rural development in 30 villages in Kitui District. Support for residents' own development project planning and implementation through training of leaders and activities to promote dissemination of agricultural techniques. Digging of 11 wells planned within the project area.
205	Tanzania	Sustainable Rice Cultivation by Mulch System	2001.10-2004.9	Grassroots	1-2 3-5	Focuses on the Cholima Agricultural Sciences Research Center in Morogoro Province, Tanzania as a base for implementing rice farming techniques for semi-arid areas using locally available mulch materials (Sustainable Rice Cultivation by Mulch System: SURIMU) and disseminating it to nearby farms. Aimed at causing the method to take root and increasing productivity and incomes at farms in the region.
2-2 Other Cooperation Related to Agricultural Production						
【Mid-term Objective 1-3: Strengthening Export Promotion Measures】						
206	Sri Lanka	Plant Quarantine Center Project	1994.7-1999.6	Tech. Pro.	1-2 1-3 2-3	Aimed at supporting activities of the Plant Quarantine Center in pathological/pest inspections and antiseptic processing of plants following its relocation and developing quarantine officers. Improvement of disease/pest inspection techniques for plant quarantine; improvement of insect pest identification and med fly breeding techniques; improvement of fumigation techniques and development of antiseptic processing techniques; and training of plant quarantine officers.

No	Country	Project Name	Period	Type of Schemes	Mid-term Objective	Characteristics
207	Kenya	Export Promotion Project Study	1990.9-1991.9	Dev. Study	1-3	Worked out a master plan to meet Kenya's need to promote international trade through improvement/reinforcement of trade promotion systems and organizations; development of export-orientated industry; and improvement of export promotion organizations. The plan included proposals on export promotion policies and systems; development of organizations and functions for export promotion; expansion and enhancement of information networks; expansion and strengthening of activities designed to facilitate trade, provide trade-related training and promote publicity and exhibitions; development of export-orientated industry; and improvement and dissemination of industrial techniques. An action plan was formulated to address issues raised in the master plan.
208	More than one country	Plant Quarantine (Techniques for med fly extermination) II	Fiscal year 2003-2007	Training	1-3	Aimed at contributing to the promotion of fruit/vegetable exports in participating countries by teaching new med fly heat treatment extermination techniques. Lectures, practical training and study tours concerning Japanese plant quarantine systems; classification and appearance of medflies; medfly physiology and ecology; artificial breeding; introduction to medfly extermination; experiments concerning extermination through low temperature treatments and steam treatments; and experiments concerning blight.
209	More than one country	Export Operations Management (Asian countries)	Fiscal year 1999-2003	Training	1-3	Designed to introduce administrative officers working on screening of exports for safety checks to actual examples of legal systems, procedures and restricted items necessary for export inspections. Aimed at improving trainees' understanding of the need to upgrade export management systems, thereby contributing to early introduction of such systems in the Asian Region.
210	More than one country	Application of WTO ''Dispute Settlement Understanding''	Fiscal year 2001-2005	Training	1-3	Eight years have passed since the inauguration of the World Trade Organization (WTO) in 1995. The Dispute Settlement Understanding (DSU) has been revised to make it more effective than before, enhancing the ''rule of law'' over trade policies and measures. However, the application of DSU requires very advanced levels of self-awareness and an understanding of precedents; developing countries cannot be said to be making full use of it. This course aims to help government officials in developing countries increase knowledge of DSU.
211	More than one country	Trade and Investment Promotion (Asia, Africa, Middle East, Central and South America)	Fiscal year 2002-2006	Training	1-3	Organized to help 1) Asian countries formulate policies for encouraging investment from overseas in an effort to promote Japanese investment, and 2) African, Middle East and Central/South American countries encourage foreign investment and promote exports, thereby contributing to their economic development and industrial promotion.
212	More than one country	Marketing Seminar on Japanese Market	Fiscal year 1999-2003	Training	1-3	Organized to equip participants with a basic knowledge of Japanese market environment and strategies for marketing in Japan necessary to increase exports of their own countries' products to Japan.
213	Malaysia	Study on Development of Refrigerated and Frozen Foods Market	2000.3-2001.3	Overs. Study	1-3	Examined opportunities for development of refrigerated and frozen foods industry at all stages of market distribution from production through consumption, with the aim of gathering basic data needed to establish plans for developing the industry. The study also covered countries and regions with sizable Islamic populations other than Malaysia; analyzed the state of the industry, supply and demand, commercial practices, and potential markets; and came up with a set of recommendations concerning the industry's potential for development.

No	Country	Project Name	Period	Type of Schemes	Mid-term Objective	Characteristics
【Mid-term Objective 1-4: More Careful Consideration of the Environment】						
214	Philippines	Project for Management of Environment and Production in Marginal Lands through Farmer Participation	2000.2-2005.1	Tech. Pro.	1-4	Aimed at establishing appropriate techniques for soil and water management in pilot marginal land areas. ‘‘Techno demo-farms’’ were set up with farmer participation, through which agricultural information systems and water resource management techniques were developed; the impact of soil conservation systems was assessed; and improvements were made in the productivity of marginal soils from the perspective of environmental conservation.
215	Chile	Participatory Rural Environmental Conservation Project	2000.3-2005.2	Tech. Pro.	1-2 1-4 3-1	Aimed at developing sustainable agriculture and alleviating poverty through soil and water conservation programs in small river basins located in inland arid areas. Focus on Ninhue District. Natural resources assessment and land use planning, instruction and training concerning soil and water conservation techniques, and verification of overall techniques.
216	More than one country	Zero Emission Agricultural/Rural Environment Systems	Fiscal year 2003-2007	Training	1-4	Organized to introduce participants to pioneering efforts to reduce and reuse surplus agricultural and livestock waste being made in Hokkaido's Tokachi Region, known for its large-scale non-paddy field and dairy farming. (These involve clean energy like biogas, solar power and wind power.) Aimed at developing human resources capable of administering, from institutional and technical perspectives, ‘‘zero emissions’’ agricultural and rural environment systems which can be practically applied in developing countries.
217	More than one country	Seminar on Prevention of Health Hazards due to Agricultural Work	Fiscal year 2000-2004	Training	1-4	Aimed at improving understanding and knowledge of the following issues among health care centers and rural health workers in developing countries: 1) policies for prevention of health problems accompanying modernization of rural areas; 2) rural housing, water and waste disposal; 3) health effects of agri-chemicals; 4) environmental pollution due to agri-chemicals; 5) health issues accompanying basic mechanization of agriculture and forestry; and 6) primary health care in rural areas.
218	Argentina	Environment Conservation Oriented Animal Production System	1999.2-2002.1	Research Cooperation	1-2 1-4 3-5	Provided to help expand beef exports to Mercosur and Southeast Asian Countries by building an environmentally friendly production system, raising beef productivity and improving beef quality.
【Mid-term Objective 1-5: Strengthening Agriculture-Related Higher Education】						
219	Viet Nam	Hanoi Agricultural University Enhancement Project	1998.9-2003.8	Tech. Pro.	1-5	Aimed at improving quality of education and research at Hanoi Agricultural University, a key agricultural education institution, in order to meet urgent need for training of instructors on agricultural policy/technology fitting the market economy. Improvement of research methods and assistance in writing theses; advice for improvement of educational materials and curriculum; advice for building of an operational management system for the central laboratories; and instruction on methods for management and maintenance of equipment.
220	Indonesia	Bogor Agricultural University Graduate School Project	1988.4-1993.3 1998.4-2001.3	Tech. Pro.	1-5	Aimed at enhancing Bogor Agricultural University’s graduate school. Focus on improvement of academic standards at Department of Agricultural Engineering, sustainable development of graduates, and promotion of academic exchange with other research institutes. Aftercare cooperation was extended to promote results of above measures and further enhance development of research activities. It involved technical instruction for maintenance of equipment provided previously, and instruction and advice for graduate student research activities in agricultural engineering.

No	Country	Project Name	Period	Type of Schemes	Mid-term Objective	Characteristics
221	Malaysia	University Putra Malaysia (Agricultural Department) Biotechnology Department Expansion Project	1990.6-1995.5 1999.4-2001.3	Tech. Pro.	1-5	Technical cooperation provided to improve university researchers' research capabilities in fields of enzyme/fermentation engineering, tissue culture, molecular biology and genetic engineering, and biological response processes. Aftercare cooperation involved the enhancing of the university's biotechnology department and development of human resources. Research instruction in two fields, biochemistry/fermentation and response processes, where there is potential for positive benefits for cooperation.
222	Bangladesh	Agricultural University Graduate School Project	1985.7-1995.7 1999.4-2001.3	Tech. Pro.	1-2 1-5	Aimed at contributing to improvement of practical agricultural research techniques in Bangladesh. Advice for teachers on surveying, planning and implementation in their research, advice for teachers on student research guidance, and advice on training of young researchers and engineers. Aftercare cooperation was provided to raise standards and quality of research/education and to implement measures for dealing with increasing complexity and diversity of research fields, based on results of Agricultural University Graduate School Project. Review of prior research, instruction/advice for dissemination activities, amendment of experimental instruction manuals, and maintenance of provided equipment.
223	Thailand	Kasetsert University Research Cooperation Project	1980.4-1985.4 1987.4-1994.4	Tech. Pro.	1-5	A multidisciplinary research center, agricultural machinery center and agricultural extension training center were constructed with grant aid between fiscal 1978-1979, followed by Phase I of this project along with agricultural extension and mechanization programs. Phase II combined these two programs and aimed to contribute to agricultural development in Thailand by expanding research capabilities at the university. Cooperation related to biological engineering and breeding for crop improvement, agricultural environment and product quality guarantee techniques, and agricultural mechanization techniques.
224	Zambia	Zambia University Veterinary Department Technology Cooperation Project	1985.1-1997.7	Tech. Pro.	1-5	Grant aid (fiscal 1983-1984) was provided and Phase I implemented to set up a veterinary department at Zambia University and develop veterinary surgeons, going most of the way to establishing education structures in the department. Phase II focused on strengthening of veterinary research and dissemination activities, establishment of graduate school educational programs, and maintenance and strengthening of education in the veterinary department, with the aim of developing Zambian academic staff.
225	Kenya	Jomo Kenyatta University of Agriculture and Technology	1980.4-2000.4	Tech. Pro.	1-5	Technical cooperation was implemented, between 1980 and 1990, for diploma curricula in three agriculture faculty departments and in three engineering faculty departments. Technical cooperation was also implemented, between 1990 and 2000, for doctorate curricula in three agriculture faculty departments and four engineering faculty departments concurrent with the rise in status of the institution to become a university college. Cooperation between 1980 and 1990 aimed to train mid-level engineers in both agricultural and engineering fields, while cooperation between 1990 and 2000 targeted seven university departments in order to produce personnel with sufficient knowledge and technical skill needed for agriculture and industry.

No	Country	Project Name	Period	Type of Schemes	Mid-term Objective	Characteristics
226	Kenya	African Institute for Capacity Development (AICAD)	2000.8-2007.7	Tech. Pro.	1-5	Development of personnel who can contribute to reducing poverty in African countries through three areas of ''research and development,'' ''research and dissemination'' and ''information upgrading and transmission,'' based on TICAD II (Second Tokyo International Conference on African Development) Tokyo Agenda for Action. Implemented joint projects with universities in three African Countries (Kenya, Tanzania and Uganda), research institutions, and NGO's.
227	Tanzania	Sokoine University of Agriculture Regional Development Center	1999.5-2004.4	Tech. Pro.	1-5	Establishment of a regional development center at Sokoine University of Agriculture to act as a key base for Tanzanians themselves to address national development, and to share and make use of the results together with regional residents and neighboring countries. Aimed at helping Tanzanians establish their own methods of regional development by reevaluating existing techniques through verification and case studies in model districts.
3. Stable Food Supply						
【Mid-term Objective 2-2: Improving Food Distribution Functions】						
228	Paraguay	Fruit and Vegetables Distribution Improvement Project	1991.3-1998.3	Tech. Pro.	2-2	Aimed at contributing to promotion of agricultural production by organizing distribution systems and improving quality control methods. Instruction on organization and management of vegetables/fruit collection, shipment and distribution systems involving agricultural cooperatives and central wholesale markets; instruction on management and use of necessary agricultural machinery; instruction on quality control regulations and standards and packaging; instruction on organization, operation and management of information systems; and instruction on improvement of management capabilities at central wholesale markets.
229	Cambodia	Study for Husked Rice Open Market Development Project	2003.11-2006.8	Dev. Study	2-2	Survey of current rice production and distribution in 13 provinces of Cambodia. Based on the results, three provinces are selected for pilot projects to clarify appropriateness of developing open markets for husked rice. Also seeks to improve skills of personnel connected with such markets.
230	Uganda	Study for Post Harvest Processing and Distribution Market Development Project	2003.5-2006.10	Dev. Study	1-2 2-2	Targeted at 14 locations in central and western Uganda. Aimed at establishing a development plan which suggests concrete measures for improving post harvest processing and distribution, in the context of development strategies for these areas set out in the Agricultural Modernization Program. Also, transfer of technology to administrative officials, centered on those at the Ministry of Agriculture, Livestock and Fisheries, farmers, and those in distribution industry.
231	Cambodia	Study for Rice Distribution System and Harvest Processing Improvement Project	2000.3-2001.8	Dev. Study	1-2 2-2	In major rice producing regions and capital Phnom Penh, a survey was conducted to look into the state of systems including post harvest rice processing and distribution facilities, which posed a major obstacle to revitalization of rice markets. A master plan was formulated for improving post harvest rice processing and distribution systems. Also, training of staff and farmers taking the planned system reforms into account.
232	Viet Nam	Study for Dong Thap Muoi Agricultural Development Project	1999.3-2000.9	Dev. Study	2-2 3-2	Designed to enhance living standards and agricultural productivity in Dong Thap Moui Region, a major grain belt, by reducing flooding, improving processing/distribution of agricultural products, and improving farm management and irrigation/drainage facilities. Establishment of an agricultural development program based on the needs of current situations, selection of priority areas, and formulation of priority plans.

No	Country	Project Name	Period	Type of Schemes	Mid-term Objective	Characteristics
233	Bolivia	Study for Santa Cruz Province Agricultural Marketing Distribution Improvement Project	1998.6-1999.7	Dev. Study	2-2	Targeted at Santa Cruz Province, which, despite being the country's largest agricultural region, did not have a fully-developed market distribution system. Aimed at organizing production/shipment, and improving and streamlining distribution by providing support to small farmers and small-scale distributors. A feasibility study was implemented with focus on working out a plan to improve facilities and wide-area distribution networks related to fruit and vegetable markets and collection/shipment.
234	Nepal	Study for Agricultural Market Development Project	2000.3-2001.5	Dev. Study	2-2	Establishment of a master plan and action plans for revitalization of regional agricultural markets through development of regional collection/shipment systems, improvement of market distribution systems and upgrading of infrastructure, in regions with high potential for development of agricultural markets. Also, seminars on transfer of related technology.
235	Nepal	Shindhuli Road Construction Project	1995, 1996, 1997	Grant	2-2 3-4	Aimed at securing safe and reliable transport year round between Bardibas and Dhulikhel to ensure stable supply of goods to Kathmandu and promote development of the Terai Region. Construction of four segments of a road totaling 158km in length, which has steadily been reducing transport costs and times, contributing to revitalizing regional economies along the route.
236	Mongolia	Grain Storage Construction Project	1995.6	Grant	2-2	Construction of grain storages in Mongolia, where, because of shortages of facilities to keep wheat, flour factories had to leave some harvested wheat out in the open, resulting in rotting due to melted snow, in addition to damage from wild birds and scattering by the wind.
【Mid-term Objective 2-3: Improving Import Systems】						
237	Philippines	Master Plan for Strategic Development of Nationwide Port Network	2002.11-2005.1	Dev. Study	2-3	Formulation of a master plan for developing nationwide port networks by 2024 which would encourage efficient use of ports and public investment. Aimed at selecting priority ports for inclusion in the country's mid-range development and investment plan (2004-2009). A survey of 450 ports nationwide, and transfer of technology to Transport and Communications Ministry.
238	Samoa	Apia Port Improvement Project, Repair and Modification Project	1985-1993	Grant	2-3	Small Pacific island countries need to overcome problems of dispersion, geographic isolation, and limited size of their domestic markets and territory; improvement and maintenance of transport/communications networks pose major challenges in their efforts to achieve social and economic development. From this perspective, Japan provided cooperation in the development of port facilities in Samoa. Emergency reconstruction assistance was provided later when the port facilities were damaged by a large cyclone.
【Mid-term Objective 2-4: Proper Use of Food Aids】						
239	More than one country	Food Assistance (KR)	2001	Food Aid	2-4	Provision of funds for purchase of wheat, rice and maize by developing countries facing food shortages, in response to requests for assistance from those countries. In fiscal 2001, 4.9 billion yen (budget basis) was provided to 16 countries, the largest recipient region being Africa, followed by Asia.

No	Country	Project Name	Period	Type of Schemes	Mid-term Objective	Characteristics
4. Promoting Rural Development						
240	Indonesia	Study for Project to Promote Vitality of Cooperative Unions in Rural Areas	1996.2-1999.2	Dev. Study	3-2	Aimed at revitalizing activities of KUD (village-based cooperatives) through introduction of industrial union functions. An assessment of past activities of all KUD nationwide, followed by the formulation of master plans for seven selected provinces suggesting concrete details of future KUD activities. Feasibility studies in two model districts.
241	Malaysia	Project to Improve Status of Women in Rural Areas of Sabah State	2002.1-2003.12	Dev. Study	3-1 3-2	Aimed at enhancing women's status and income from entrepreneurial activities in the state of Sabah, where the poverty rate was the highest and it was difficult for women in particular to start enterprises with support organizations lacking know-how. Analysis of the prevailing situation, formulation of a master plan, and implementation of a verification study.
242	South Africa	Entrepreneur Assistance Program	2000.7-2003.7	Com. Emp.	3-2	Alleviation of poverty through development of small-scale industry in rural areas.
【Mid-term Objective 3-3: Promoting Agricultural Processing Industry】						
243	Mongolia	Project to Improve Facilities for Processed Milk Products in Ulan Bator	1994.8	Grant	3-3	Milk products, along with meat, are an important source of nourishment for Mongolians. However, processing facilities supplying milk products to Ulan Bator were suffering from aging of equipment due of shortages of capital and spare parts, resulting in decreasing supply and worsening product quality. Grant aid was provided to restore functions of the facilities.
244	Mongolia	Darhan Meat Processing Plant Improvement Project	1994.8	Grant	3-3	Meat, along with milk products, is an important source of nourishment for Mongolians. However, processing facilities supplying meat to Darhan were suffering from aging of equipment due to insufficient repairs caused by lack of spare parts. Grant aid was provided to repair refrigeration and freezer equipment in order to rehabilitate functions of the facilities and ensure efficient meat production to meet rising demand.
245	More than one country	Food Processing and Preservation Technology II	Fiscal year 2001-2005	Training	1-2 3-3	Targeted at researchers working at research institutions dealing with food processing/preservation techniques in developing countries. Aimed at transfer of appropriate processing/preservation techniques and know-how, based on appropriate food sanitation standards. Introductory explanations of food processing/preservation techniques; laboratory/factory visits; practical training concerning techniques for production of useful substances by microbes, separation and breeding of yeasts for brewing, trial preparation and constituent analysis of processed foods using agricultural products such as rice, wheat and soy beans; and lectures on antiseptic techniques for food ingredients and packaging.
246	More than one country	Utilization and Preservation Techniques for Agricultural and Animal Products	Fiscal year 2001-2005	Training	1-2 3-3	Designed to equip food processing engineers and researchers with a series of processing and preservation techniques. Aimed at developing personnel who can contribute to maintaining the quality of agricultural produce and increase added value of food products. Training includes lectures on fattening, slaughter and dismemberment of livestock, meat science and sanitation, meat processing techniques, processing techniques for livestock products, food packaging and materials.

No	Country	Project Name	Period	Type of Schemes	Mid-term Objective	Characteristics
247	More than one country	Safety Control for Agricultural, Livestock and Fisheries Products	Fiscal year 2000-2004	Training	1-2 3-3	Targeted at sub-Saharan African Countries. Aimed at contributing to enhancement of food sanitation management in participating countries by transferring Japanese approaches in this field and methods to deal with the situation in each country. Lectures concerning introductions to food sanitation, processing and distribution; practical training concerning meat, raw milk and processed fisheries products, and detection of bacteria; and study tours of dairy farms, meat processing facilities, wholesale markets, and large outlet stores.
248	Malaysia	Sabah Agricultural Research Center	1998.11-2000.3	Com. Emp.	3-2 3-3	Promotion of training in food processing for products including coffee, meatballs, fish balls, and soy milk, at a training center in the state of Sabah, where agricultural incomes are low and young people are moving away from farming.
【Mid-term Objective 3-4: Improving Rural Infrastructures】						
249	Bhutan	Study for Regional Agriculture and Farm Road Development Project	2002.4-2003.3	Dev. Study	2-2 3-4	Aimed at increasing incomes and living standards of residents in rural areas through simultaneous development of farm roads and promotion of agriculture in two provinces in eastern Bhutan. Formulation of a master plan and action plans for priority areas and issues; and transfer of program formulation and implementation skills to Agricultural Ministry and local government staff.
250	Bhutan	Local Electrification Master Plan	2003.11-2005.11	Dev. Study	3-4	Aimed at helping the Bhutan Government go ahead with its regional electrification project, increasing the electrification rate in rural regions and ensuring stable supply of electricity within those regions. Formulation of basic electrification plans for each settlement across the country; and technology transfer to counterpart organizations to ensure revisions to the plans proceed smoothly.
251	Viet Nam	Nam Dam District, Nghe An Province, Rural Living Environment Improvement Project	2003.7	Grant	1-2 3-4	Aimed at ensuring stable agricultural production and smooth distribution of goods in Nam Dam District, Nghe An Province, improving the residents' living environment, and making the region a model of rural development in Vietnam. Repair of irrigation facilities, improvement of regional roads, and electrification of rural areas.
252	China	Poverty Alleviation Project for Guangxi Tianhu Poor Areas	2002.6	Grant	3-4	Designed to supply tap water and electricity to 75,000 of poorest residents of Guangxi Tianhu, thereby improving their basic living conditions, freeing them from hard labor including lifting water from wells, and reducing incidence of water-borne disease. Provision of equipment for water supply, electricity supply, construction and project supervision.
253	Mongolia	Local Settlements Road Improvement Equipment Project	2000.12	Grant	3-4	Aimed at revitalizing agricultural production activities and providing better social services in 12 of Morocco's poorest provinces through improvement of transport infrastructure. Provision of equipment necessary to improve 1,688 kilometers of rural roads over a period of seven years which should reduce children's travel time to school, reduce travel time to regional cities and markets, and reduce transport costs.
254	Guatemala	Local Road Construction Equipment Improvement Project	1999	Grant	3-4	Installment and upgrading of machinery/equipment to support mechanized regional road improvement units tackling urgent repair of 6,150 kilometers of roads in 159 local autonomous cities in 9 peaceful provinces. The aid led to improvement of transport access to isolated villages and administrative services, contributing to poverty reduction.

No	Country	Project Name	Period	Type of Schemes	Mid-term Objective	Characteristics
255	Indonesia	Aceh State Local Electrification Project	1997	Grant	3-4	Intended for six villages in Rerebe District of Aceh State which completely lacked an electricity supply. Installation of a small power station, which is easy to operate and maintain and does not require fuel expenses, and electricity supply lines. This made it possible to supply electricity to 1,000 households, around 5,500 persons, and 50 public facilities.
256	Togo	Water Supply Project for Rural Settlements	1997, 1998	Grant	3-4	Installment of deep wells fitted with hand pumps in 197 settlements in three coastal provinces; construction and repair of small-scale water supply facilities in 7 districts; and repair of over 100 existing deep wells fitted with hand pumps. This placed drinking water facilities within 500 meters of around 130,000 residents, thereby reducing the burden of water transport.
257	El Salvador	Water Supply Project for Local Rural Settlements	1997, 1998	Grant	3-4	Procurement of drilling machines and related equipment for development of underground water sources. Introduction of electricity-powered or solar-powered underwater motor pumps in districts without hand pumps. The project also organized beneficiaries and implemented transfer of technology regarding enhancement of sanitation awareness, maintenance, systems for collection of fees, and management of construction work as a whole.
258	Philippines	Development Project for Agrarian Reform Districts in Frontier Regions	2001.9	Grant	2-2 3-4	Aimed at invigorating social economy, improving sanitation including water supply and raising living standards for landless farmers in marginal regions where infrastructure and facilities are not fully developed and it is difficult for farmers to receive assistance. Construction of bridges, post harvest processing facilities, rural water supply facilities and multipurpose meeting halls; and repair of roads and rural water supply facilities.
【Mid-term Objective 3-5: Protecting Rural Environment】						
259	China	Sustainable Agricultural Technology Research and Development Project	2002.2-2007.2	Tech. Pro.	1-2 3-5	Aimed at establishing model approaches to development of practical technology for sustainable production of wheat, soy beans for oil and rice. Creation of an academic committee and building of efficient equipment maintenance/management systems; understanding of needs at production sites; technological development involving selective evaluation techniques and fertilizer application management techniques taking the environment into consideration; and building of partnership mechanisms using information networks.
260	Thailand	Eastern Thailand Farmland Conservation Project	1993.6-2000.3	Tech. Pro.	1-2 3-5	Aimed at contributing to establishment of sustainable agricultural production systems by developing effective farmland/water conservation techniques that can prevent soil losses occurring in a wide area of eastern Thailand. Formulation of technical standards for farmland and water conservation; supervision of construction work; creation of manuals for cultivation and soil management; and training.
261	Brazil	Eastern Amazon Sustainable Agricultural Technology Development Project	1999.3-2004.2	Tech. Pro.	1-2 3-5	Aimed at developing sustainable agricultural techniques satisfying local needs, including those for tropical fruit and pepper cultivation. Selection of tropical fruits for cultivation; screening of high productivity strains and appropriate stock for the selected fruits; development of methods for prevention of major diseases and pests; administered cultivation techniques and transfer of related research methods; development of disease prevention methods and administered cultivation techniques for pepper; and verification and evaluation of sustainable production systems including those for mixed planting.

No	Country	Project Name	Period	Type of Schemes	Mid-term Objective	Characteristics
262	Brazil	Cerrado Agricultural Environment Conservation Research Project	1994.8-1999.7	Tech. Pro.	1-2 3-5	Aimed at establishing techniques to promote sustainable agricultural development in the Cerrado. Understanding the dynamics of vegetation, soils and water resources; clarification of reasons for chemical, physical and biological degradation of soils and improvement of countermeasure techniques; clarification of actual conditions of disease/pest occurrence and study of prevention measures; and development of cropping systems which preserve soil fertility and protect soil.
263	Paraguay	Rural Development Project in Southern Pilar Region (F/U)	1994.7-2001.3	Dev. Study	1-2 3-5	Aimed at improving and disseminating techniques to raise land productivity through development of agricultural infrastructure, while taking into account farmland restoration and enhanced agricultural production at small farms in the target region. Formulation of water management plans; design and implementation of drainage management; study of socially and economically appropriate drainage management methods; experiments concerning improvement of cultivation techniques, cropping systems and land fertilization; exhibition of development techniques; and training for agricultural extension workers and government staff.
264	Costa Rica	Study for Tempisque River Middle Basin Integrated Agricultural Development Project	2000.6-2002.8	Dev. Study	1-2 3-5	Formulation of sector-specific outline development plans to establish an integrated basin development program, which took into account flood control at the Tempisque river basin and environmental considerations. A feasibility study was conducted, aimed at encouraging various administrative organizations concerned to implement the development program.
265	Iran	Study for Gorgan Plain Irrigation/Drainage and Agricultural Development Project	2001.12-2003.3	Dev. Study	1-2 3-5	Aimed at improving techniques for maintenance of irrigation/drainage facilities in order to prevent salt accumulation and reduce damage caused by salts. Mapping and various surveys in the target area, followed by formulation of sector-specific development plans for land use, irrigation and drainage, agricultural processing and distribution, environmental conservation, and improvement of rural infrastructure. Planning of a project implementation schedule.
266	Swaziland	Study for Project to Improve the Environmental of Degraded Rural Land	2000.12-2004.6	Dev. Study	3-1 3-5	Formulation of a rural environment improvement program, through implementation of pilot projects, for rehabilitation of degraded land and conservation of soil in High Veldt and Upper Middle Veldt areas, where soil degradation is very serious. A survey of existing circumstances, implementation and monitoring of pilot projects, and revision of original plans. Establishment of guidelines for improvement of degraded soil.
267	Burkina Faso	Study for Promotion of Measures to Combat Desertification	2001.12-2004.3	Dev. Study	1-2 3-1 3-5	Aimed at preventing desertification in the Sahel Region through promotion of sustainable agricultural, livestock and forestry practices, establishing new development frameworks based on participation of residents, and developing administrative structures necessary for full introduction of the new frameworks. Formulation of a program to set up structures to combat desertification, revision of the program according to results of verification projects, and preparation of instructional materials for NGOs and local government staff and educational materials for dissemination of techniques to residents.

No	Country	Project Name	Period	Type of Schemes	Mid-term Objective	Characteristics
268	Madagascar	Study for Southwestern Lake Aloatra Basin Conservation and Integrated Rural Development Project	Scheduled for 2003.8-2007.8	Dev. Study	3-1	Designed to formulate a basin management and rural development program for the southwestern Lake Alaotra Region, in order to promote environmental management and to secure sustainable economic activity for residents. Pilot projects will be carried out in target areas and the results fed back for improvement of the program's applicability. In the course of this study, program planning and project implementation techniques will be transferred to counterpart organizations and local residents. Instruction will also be given.
269	Brazil	Study for Environment-Oriented Rural Livelihood Improvement Project for Amazonas State	2000.3-2001.12	Dev. Study	3-5	Targeted at residents of four counties in Amazonas State engaged in family farming and gathering of natural resources. Aimed at increasing their incomes and creating employment through rational use of natural resources A master plan for improvement was formulated based on the results of a survey of local market trends.
270	Brazil	''Study for Degraded Land Restoration Project in Para State''	2000.3-2001.12	Dev. Study	3-5	Understanding the process of deforestation and the current state of degraded land through analysis of satellite images of Malaba County in Para State. Based on the findings of this analysis and results of a survey of social and market conditions, a plan for restoration of degraded land was formulated, and projects appropriate for implementation selected.
271	Chile	Study on Environment-oriented Agricultural Development in Metropolitan Suburbs	1998.6-1999.8	Dev. Study	1-2 3-5	Aimed at restoring irrigation channel networks and improve water quality in the suburbs of the capital in response to rising urban water demand. Formulation of an environmentally-friendly agricultural development plan and implementation of feasibility studies in priority areas.
272	China	Study for Hebei Province Taixing Shan Integrated Agricultural Development Project	1998.6-1999.10	Dev. Study	3-5	Formulation of a basic plan for integrated agricultural development for poverty alleviation and environmental conservation. The plan consisted of farmer-led village projects and government-sponsored public works and activities to support the farmer-led projects. Under the plan, priority model areas were selected where feasibility studies were implemented.
273	China	Study for Integrated Agricultural Development Project for Mountainous Areas in Ansai County, Shannxi Province	1997.11-1999.3	Dev. Study	1-2 3-5	Aimed at alleviating poverty and protecting agricultural/rural environments by improving agricultural infrastructure including soil conservation measures, establishing production technology systems, and improving the rural living environment. A master plan and development plans for model areas were formulated in connection with the integrated agricultural/rural development project for Ansai County in northern Shaanxi Province.
274	Niger	Study for Tillaberi Province Desertification Prevention Project	1997.11-1999.3	Dev. Study	3-5	Targeted at Tiilaberi Province, a populous center of agricultural and livestock production. Aimed at preventing desertification through improvement of the living environment and sustainable crop/livestock farming development which took into account effective use of resources including land and water. An integrated master plan using remote sensing as well as plans for implementing priority projects were formulated.

No	Country	Project Name	Period	Type of Schemes	Mid-term Objective	Characteristics
275	Tsukuba International Center	Sustainable Farming Mechanization Systems	Fiscal year 2001-2005	Training	1-1 1-2 3-5	Designed to equip machine engineers and administrative officials with knowledge of Japanese agricultural machinery techniques and their dissemination, with the aim of allowing them to contribute to progress in agricultural mechanization and capacity building for technical development in their own country. Lectures, practical training and study tours on techniques to work out and analyze plans for mechanization of rice and non-paddy field farming; techniques concerning structure, performance and inspection of small- and medium-sized machinery assembled in a haphazard way; analysis of mechanization-related problems; and knowledge about agriculture which considers environmental conservation and resources recycling.
276	Hokkaido International Center	Recycling-oriented Dairy Farming System	Fiscal year 2000-2004	Training	3-5	Aimed at equipping participants with understanding of philosophy and meaning of recycling-oriented dairy-farming systems and related knowledge and techniques, as well as human resources development. Lectures, training and study tours concerning production and storage of feed resources, environmentally sustainable cow production, cow sanitation management, disease control, dairy product safety, and reuse of organic livestock waste. Issue-specific laboratory training.
277	Hokkaido International Center	Soil Diagnosis and Environmental Conservation	Fiscal year 1999-2003	Training	3-5	Organized for personnel engaged in soil diagnosis and environmental conservation. Designed to improve their knowledge and skills by providing training in the Tokachi Region and introduce them to efforts being made to manage and improve soils for environmentally friendly agriculture, with the aim of developing human resources capable of making proposals on sustainable agriculture that takes into account soil improvement and environmental conservation. Focus on practical on-site training with lectures on technical issues as necessary.
278	China	Joint Research into Effective Application of Peat for Greening Decertified Land	1997.3-2000.2	Research Cooperation	3-5	Implementation of practical grass and tree cultivation experiments using peat. Fundamental knowledge concerning the useful application of peat was obtained.
279	Ghana	Integrated Development of African-type Swamp Paddies with Farmer Participation	1997.8-2001.3	Research Cooperation	3-5	Identified the direction of an approach to development of small lowland areas using a comprehensive forest-conservation model based on rice farming and demonstrated its superiority over traditional agricultural development systems. This led to the establishment of an integrated environment-friendly swamp paddy development method which fits both agricultural and social ecologies.
280	Indonesia	Regional Community Empowerment Project Using Natural Resources	2001.12-2004.11	Com. Emp.	3-2 3-5	Designed to increase farmers' incomes and stabilize their livelihoods through tourism and agricultural development.
281	Jordan	Dissemination of Environment Protection, Water Saving and Organic Farming Techniques through Resident Participation, and Establishment of Dissemination Center, in North Jordan Valley.	2003.12-2006.3 (scheduled)	Grassroots	1-2 3-5	Targeted at South Shuna District and Jerash District. Dissemination of organic farming methods which save water and protect the environment; improvement of economic productivity among the residents; and establishment of techniques and development of personnel for dissemination of the above farming methods.

No	Country	Project Name	Period	Type of Schemes	Mid-term Objective	Characteristics
【Mid-term Objective 3-6: Promoting Livelihood Improvement】						
282	Laos	Agricultural and Rural Development Project in Vientiane Province Phase II	1999.11-2002.10	Tech. Pro.	3-5 3-6 3-7	Aimed at establishing methods and techniques for sustainable agricultural/rural development through residents' participation in five target villages. Improvement of development methods by residents' participation; development of agricultural infrastructure and improvement of maintenance/management techniques; study of appropriate techniques for agricultural production; improvement of rural living environment and capability for managing it; and development and enhancement of farmers' organizations.
283	Philippines	Rural Life Improvement Training Enhancement Project	1996.6-2001.6	Tech. Pro.	3-1 3-6 3-7	Aimed at enabling farmers, fishermen and local agricultural extension workers to undergo training through a participatory approach. Enhancement of the agricultural training bureau's training capabilities through various cooperative activities. Selection of pilot villages and implementation of rural life improvement activities; creation of manuals for various methods, activities to apply and develop results of the above in other regions; and investigation and trial of methods for strengthening coordination with related institutions.
284	Gambia	Study for Rural Development in Upper Gambia River Basin	2003.2-2006.1	Dev. Study	3-1 3-6	Targeted at rural areas in Upper Gambia River Basin. Formulation of a master plan to help the residents improve their living standards and livelihoods through activities centered on agriculture. Implementation of verification studies in the master plan formulation process to promote coordination between administrative bodies and agricultural extension organizations. Consideration of ways to achieve self-sustained rural development through residents' participation based on local needs.
【Mid-term Objective 3-7: Promoting Rural Community Activities】						
285	Malawi	Verification Study for Reforestation and Rural Settlement Promotion in Mid Shire River Basin	2002.3-2005.3	Dev. Study	1-2 3-1 3-5 3-7	Verification studies on participatory natural resource management and rural promotion, incorporating reforestation, agroforestry and improvement of livelihoods. Selection of effective projects and identification of concrete procedures for implementation of the selected projects. Development of practical skills of rural residents and agricultural extension workers through project participation experience and training.
286	Philippines	Project to Foster Agricultural Cooperatives and Promote Regional Development	2000.4-2005.3	Tech. Pro.	1-2 3-7	Aimed at establishing systems to improve living conditions and raise incomes among residents, including women, in target areas, through development and introduction of integrated, participatory agricultural cooperative projects for model cooperatives and their surrounding areas. Analysis of existing agricultural cooperative activities, implementation of model programs, enhancement of management and instruction systems, formation of women's and young people's organizations and support for their sustained activities, and strengthening of cooperation between related organizations.
287	Indonesia	Integrated Agricultural and Rural Development Project in Southeastern Sulawesi State	1991.3-1998.2	Tech. Pro.	1-2 3-7	Aimed at raising existing regional technical standards and improving/strengthening farm management and farmers' organizations in the context of implementing an integrated agricultural/rural development plan in Kendari Province, Sulawesi, in order to increase agricultural incomes, revitalize rural areas, and improve skills among regional administrative officials and farmers. Practical training on formulation of agricultural/rural development plans, infrastructural improvement, and methods of agricultural technology exhibitions.

No	Country	Project Name	Period	Type of Schemes	Mid-term Objective	Characteristics
288	Thailand	Study on Application of Participatory Development Plan in Agricultural and Rural Development of Upper Lampati River Basin	2002.9-2005.2	Dev. Study	3-7	Aimed at formulating a participatory river basin development plan and helping Royal Irrigation Department staff learn methods for planning participatory projects. A participatory survey was conducted to understand and evaluate the current situation, followed by formation of pilot projects, and their implementation and verification. A basin development plan was worked out and technology transfer seminars held.
289	Turkey	Study for Participatory Coruh River Basin Restoration and Management Project	2002.9-2004.2	Dev. Study	1-4 3-7	Aimed at working out plans for land use, soil erosion control, and poverty reduction and livelihood improvement among residents of rural forested areas in the Coruh River Basin Region. A small priority model basin area was selected based on the results of an inventory survey, followed by formulation of model project plans, before a participatory master plan for restoration and management of the river basin region was worked out.
290	Brazil	Study for Agriculture and Livestock Development Project in Northern Tocantins State	2000.3-2002.9	Dev. Study	3-7	Aimed at promoting environment-oriented crop and livestock farming, establishing agricultural production organizations and improving the rural living environment, in northern Tocantins State. Development goals were set in 38 counties in the target region, detailed development plans formulated, and feasibility studies carried out in priority areas.
291	More than one country	Planning and Management of Participatory Local Social Development Projects	Fiscal year 2000-2004	Training	3-7	Aimed at training people concerned with JICA projects in project planning and management pursuing improvements and progress. Lectures, practical training and study tours concerning participatory development concepts and methods; basic concepts and frameworks for participatory local social development (PLSD); planning, management and evaluation of PLSD; verification of PLSD cases in Japan; and exercises in project improvement.
292	More than one country	Participatory Local Social Development, Theories and Practice	Fiscal year 2002-2006	Training	3-7	Training for local government and NGO staff on theories and methods of participatory local social development, aimed at enabling them to plan and manage participatory development projects appropriate to their own country. Introduction of projects trainees are involved in, and lectures, practical training, exercises and study tours concerning theories and practices of participatory development; examples of sector-specific participatory social development; introductions to Japanese experiences and examples; and frameworks and methods for participatory local social development.
293	More than one country	Seminar on Administration for Regional Promotion (One Village One Product Movement) ASEAN Countries: One Village One Product Movement Seminar	Fiscal year 2000-2001	Training	3-2 3-7	Organized to introduce administrative officers involved in regional economic development, from various ASEAN Countries, to the “one village, one product” campaign in Japan and to provide an opportunity for them to understand the administrative methods and practical activities involved in the movement, through the case study of its success, thus allowing them to contribute to regional development in their own country.
294	Mongolia	Promotion of Regional Vitality through One Village One Product Movement	2003.10-2004.9	Grassroots	3-1 3-2 3-7	Aimed at spreading the “one village, one product” movement in Bayankhongor Province, thereby contributing to developing human resources who can serve as supporters of regional development. As a means of promoting the movement, projects intended to implement sustainable development compatible with the regional environment will be carried out, to create special regional products and increase residents’ incomes.

No	Country	Project Name	Period	Type of Schemes	Mid-term Objective	Characteristics
295	Bangladesh	Participatory Rural Development Project through Empowerment of the Poor	2001.8-2004.7	Grassroots	1-2 3-7 3-8 3-9	Aimed at improving living standards of poor people in Kishoreganj County. Adult literacy classes, training of healthcare volunteers, development of and instruction for mutual aid groups, distribution of hand pumps and portable toilets, micro-credit schemes, improvement of small-scale infrastructure for capacity building for the poor, and provision of basic public services and opportunities for economic advancement.
296	Indonesia	Residents Empowerment Program in Lanchat Province, Northern Sumatra, for Increasing Incomes from Agricultural Produce through Improvement of Techniques for Insect Pests Extermination and Livestock Raising	2001.12-2004.11	Com.Emp.	3-7	Income from agricultural products increased through improvement of techniques for insect pest extermination and livestock raising.
For details, refer to Mid-term Objective 3-2 in "Approaches for Systematic Planning of Development Issues-Poverty Reduction - September 2003," and "Approaches for Systematic Planning of Development Issues - HIV/AIDS - May 2002."						
297	Kenya	Study for Integrated Rural Development Project in Baringo Semi Arid Area	1999.7-2002.2	Dev. Study	1-2 1-4 3-1 3-2 3-6 3-8	Designed to improve the livelihoods of rural residents in arid and semi-arid areas with severe natural conditions, with the aim of developing support systems for residents to enhance their capabilities to act on their own initiative and for administrative organizations to provide appropriate services (including health and sanitation promotion). An outline development plan was worked out, followed by a verification study. Based on the survey results, a development plan was formulated.
298	Guatemala	Study (and Verification Study) on Sustainable Rural Development for Reducing Poverty in Central Highland Regions	2000.2-2003.2	Dev. Study	1-2 3-1 3-5 3-6 3-8	Aimed at increasing incomes of rural residents, improving their living environment (including improving quality of drinking water and provision of health services), and protecting natural resources. Implemented in two stage (planning and verification). A participatory planning approach was used in the planning process. Residents participated in workshops in preparation for pilot project implementation. A detailed plan based on the needs of residents was formulated.
For dertails, refer to Mid-term Objective 3-1 in "Approaches for Systematic Planning of Development Issues - Poverty Reduction - September 2003, "and "Approaches for Systematic Planning of Development Issues - Basic Education - May 2002."						
299	Mali	Study for Southern Segou Region Desertification Prevention Project	2000.3-2003.6	Dev. Study	1-4 3-5 3-6 3-8 3-9	Formulation of an integrated rural development program to prevent desertification through sustainable development of crop and livestock farming and forestry. It included plans for land use; agricultural, livestock and forestry production; and promotion of the spread of crop and livestock farming, as well as design of facilities to improve agricultural and general infrastructures. Techniques related to study methods and project planning were transferred to counterpart organizations through implementation of verification studies (including literacy improvement projects).

Appendix 2 Basic Checklist (Agricultural and Rural Development)

The chart below lists basic indicators necessary to understand the current states of agricultural and rural development and related issues. It covers principal check items and indicators that can serve as a reference when implementing assistance for agricultural and rural development, based on the Overall Structural Framework of Agricultural and Rural Development Issues laid out in this report (refer to the relevant material attached).

The listed check items are mainly taken from World Development Indicators 2003, published by the World Bank. The UN Food and Agriculture Organization (FAO) also provides a comprehensive statistic database known as FAOSTAT from which a number of check items related to agriculture and livestock farming can be taken, but this appendix uses only major items from the FAO database because relevant data is directly available from the database with relative ease. Some check items in the field of agricultural development overlap those in the fields of health, medical care and basic education, so please refer to "Approaches for Systematic Planning of Development Projects" dealing with these fields for detail.

Note that the check items and indicators included here are just major items in order to grasp the current circumstances of agricultural and rural development, and it should be borne in mind that detailed studies of the target country or region are necessary when we start actual cooperation projects.

Items/Indicators		Unit	Calculation method	Remarks
I. Basic/Common Items (Basic indicators common to all areas)				
1	GNI: Gross National Income	billion US$	GDP (Gross Domestic Product) + Net receipts of factor income from overseas	GNI comprises GDP plus net receipts of factor income from overseas. In other words, it includes the income obtained by nationals of a country through employment and property overseas while excluding the income of foreigners earned through employment and property in the country concerned. To compare figures for different countries, per capita figures are commonly used. Purchasing power parity (PPP) facilitates further comparisons by removing the effect of price differentials. GNI indicates the size of the economy of a country on a nationality basis more clearly than GDP, thereby serving as a measure of the wealth and satisfaction of the people.
2	GNI per capita	US$	GNI/National population Atlas Method	
3	GNI per capita (in PPP terms)	US$	GNI/National population, converted in terms of purchasing power parity	
4	GDP: Gross Domestic Product	billion US$	Sum of gross value added=consumption + investment	GDP is the sum of gross value added by all resident producers in a country, plus any product taxes and minus any subsidies not included in the value of the products. Per capita and PPP figures are commonly used to allow for international comparison. GDP is often used in the assessment of project and corporate performance; it is an effective measure in studies and evaluations of agricultural industry activities. Note that per capita figures may appear relatively small in countries with large populations.
5	GDP (in PPP terms)	billion US$	GDP converted in terms of purchasing power parity	
6	GDP per capita	US$	GDP/National population	
7	GDP per capita (in PPP terms)	US$	GDP/National population, converted in terms of purchasing power parity	
8	GDP growth	%	Annual increase in GDP/ GDP	GDP growth generally refers to economic growth. It may be cancelled out if the population growth rate is high.
9	GDP per capita growth	%	Annual increase in GDP/ GDP/Population	

Items/Indicators		Unit	Calculation method	Remarks
10	Surface area	1,000 km^2	Surface area	These are basic indicators to measure any given country. The surface area and population suggest the size of the country's economy. Population growth is a compound indicator of the country's economic conditions as well as health/sanitation and social environments. If the population growth rate exceeds the economic growth rate, the distribution effects of economic growth may be eliminated. Rapid population increases in rural areas lead to the splitting up of holdings, often causing the expansion of slums and increasing the number of poor people.
11	Population	millions	Population	
12	Population density	persons/ km^2	Population/Surface area	
13	Population growth, annual	%	Annual increase in population/Population	
14	Extent of urbanization	%	Urban population/Total population	Indicates the degree of urban concentration, growth of slums and progress of a money economy. Also worth attention as an indicator of the degree of rural population decline, or the ability of the regional economy to support its population.
15	Inflation rate of commodities/Consumer Price Index	%	Annual price increase/ Prices (only items included in Index)	There are wholesale and retail price indices. Generally these indices are affected by business conditions, but recent years have seen inflation unrelated to business conditions. Many developed countries are now experiencing a deflationary trend. There are also many cases in which Consumer Price Index is used.
16	Budget for agriculture and food	US$		When formulating development plans, it is important to know how much money the country in question has set aside as a budget for development, in particular agricultural and food development, and how much importance it places on this area.
17	Budget for development	US$	Development budget/Total expenditure	
18	Net Official Development Assistance or Official Aid	million US$	Total loans and grants provided by all donors	By calculating how dependent a country is on aid, and the amount of aid it receives, 1) the scale of aid projects currently underway, if any, can be determined, and 2) the influence of the aid can be determined by comparing the aid amount with the size of the economy. In addition, knowing the ODA amount provided by each donor can help estimate the size of their past influence. Fluctuations in the amount and content of assistance over the years help reveal the priorities of the country's government and the state of the economy.
19	Net ODA per capita	US$/ person	Net ODA total/Population	
20	Aid dependency ratio (Aid as % of GNI)	%	Net ODA total/GNI	
21	Net bilateral aid by Japan	million US$		
22	Proportion of net aid distributed by Japan	%	Proportion of global total Japanese aid provided to a particular country or region	
23	Debt service ratio (DSR) to GNI	%	Debt service payments/ GNI	If a country's debt repayment levels are too high in relation to its economy, it may become difficult for the country to make repayments. This indicator shows the likelihood of such an eventuality.
24	Human Development Index (HDI)			The Human Development Index is a UN Development Programme (UNDP) measure of various aspects of human development, and is calculated mainly from life expectancy at birth, adult literacy rate and gross school enrolment ratio, and GDP per capita. The UNDP assigns a numerical value to each country, which is then ranked.
II. Sustainable Agricultural Production (Indicators related to agricultural production and production infrastructure)				
25	Extent of desertification (encroachment)	%		Indicates the proportion of land area undergoing or threatened by desertification. This indicator represents a loss of agricultural land, as opposed to the development of new agricultural land. This important indicator is observed on a year-to-year basis in regions such as the Sahel.
26	Proportion of area in nature protection reserves	%		Indicates the proportion of land area granted nature reserve status. This is one indicator of how much importance a government places on environmental protection.

Items/Indicators		Unit	Calculation method	Remarks
27	Concentration of water pollutants	kg/day		Measures the volume of water pollutant emissions. Pollutants can be divided into chemical and organic substances whose concentrations are measured using COD (chemical oxygen demand) and BOD (biochemical oxygen demand) respectively.
28	Fresh water resources per capita	m^3/ person	Volume of water resources/ Population	One indicator measuring the abundance of natural resources. In countries with large populations, water may be environmentally plentiful, but relatively scare when actually considered as a resource
29	Proportion of forest area	%	Forest area/Total land area	The total proportion of land area in the country covered by forest. In many developing countries, people tend to cut down forests and export timber as a relatively simple source of income; globally forest cover is decreasing, resulting in severe environmental consequences including lower levels of carbon dioxide fixation and the extinction of rare plant and animal species. The deforestation rate shows the area of forest permanently converted to other usages as a percentage of total forest cover. This measure does not include forest loss due to over collection of firewood, acid rain, and forest fires.
30	Average annual deforestation rate	%	Forest area/Total land area	
31	Ratio of women employed in agriculture	%	Women employed in agriculture/Total number of women employed	Expresses the number of women working in agriculture as a percentage of the total female workforce. It can be used as a yardstick of the opportunities available in non-agricultural employment. Further, the percentage of women among agricultural workers is a useful measure for an understanding of the nature of agricultural work and the structure of the agricultural industry. The percentage of women of working age who are actually employed can also be used as a measure to gauge the participation of women in economic activities. This is also true of the respective measures for men.
32	Ratio of men employed in agriculture	%	Men employed in agriculture /Total number of men employed	
33	Ratio of agricultural value added to GDP	%	Total agricultural value added/GDP	Gives an indication of the status of the agricultural industry within the overall economy of a country.
34	Average annual growth rate of agricultural products	%	Average annual growth rate of agricultural products	This indicator is important in terms of gaining a plain understanding of the state of the agricultural industry, changes in the industry over time, and the effects of natural disasters such as drought and floods.
35	Crop production index (1989-91 = 100)		Level of annual crop production compared to the reference year of 1989-90 (excludes crops for animal feed)	These indices are important in terms of gaining a plain understanding of the state of the agricultural industry, changes in the industry over time, and the effects of natural disasters such as drought and floods. The FAO uses the average of the two years from 1989 to 1991 as its benchmark value.
36	Food crop production index (1989-91 = 100)		Level of food crop production compared to the reference year of 1989-90	
37	Livestock production index (1989-91 = 100)		Level of annual livestock production compared to the reference year of 1989-90	
38	Wage from agricultural activities	US$	Changes depending on supply and demand balance	The wages of workers employed in agriculture. Usually refers to wages from seasonal employment (during busy seasons). The indicator shows the surplus or shortage in seasonal agricultural labor and changes over time.
39	Cereal yield	tons/ha	Volume of cereal harvest/ Area under cereal production	Shows how many tons of major cereals are harvested per hectare of land. Agricultural productivity depends on cereal yield, harvested area and land use ratio. In this regard, cereal yield is an important indicator related to higher agricultural productivity.

Items/Indicators		Unit	Calculation method	Remarks
40	Crop production (major crops)*1	1,000 tons		Product of yield per unit and harvested area. The harvested area can become larger through an increase in the area under cultivation and/or an in the proportion of the harvested area to the total area under cultivation due to spread of faming techniques and to enlargement of irrigation facilities.
41	Livestock population*2	millions		Population of livestock in the region. Serves as a measure of the spread of livestock farming. Livestock populations may vary within different regions of the same country due to regional, environmental, religious and ethnic factors.
42	Livestock production (major products)*3	1,000 tons		Output of major livestock products. This depends on the livestock population. Note that it is also affected by religious and other factors.
43	Dairy production (major products)*4	1,000 tons		Output of major dairy products. Affected by the same factors as output of livestock products, but also influenced by the availability of facilities.
44	Ratio of arable land (excluding permanent cropland)	%	Area of arable land/Total land area	The percentage of the total land area suitable for cultivation. One of the factors that may limit the potential of agricultural development. Other limiting factors include water resources, human resources, climate, and economic and social factors. Note must be made of altitude and the proportion of land already being used for purposes other than agriculture.
45	Ratio of permanent cropland	%	Permanent cropland/Total land area	The percentage of land under permanent cultivation. A useful indicator for measuring the extent of abandoned cropland.
46	Land under cereal production	1,000 ha		The area of harvested land among all arable land. If this percentage is low, it is important to establish the reason why.
47	Irrigated area	1,000 ha		The area and proportion of land benefiting from some form of irrigation facilities. Irrigation not only enhances cultivation (over how much of the year the land can be effectively used) but also improves yield per unit area, and is the most effective method of raising agricultural productivity. However irrigation is influenced by the total availability of water resources and their distribution, in addition to the required initial investment in facilities. Thus it can sometimes be difficult to extend.
48	Ratio of irrigated land	%	Area of irrigated land/(Area of arable land + Permanent cropland)	
49	Household classification by areas of agricultural land owned			Shows the relationship between the size of agricultural land and the number of households. Understanding the scale and distribution of farming in the target region is useful when making organizational or dissemination plans for development projects.
50	Tractors per 1,000 ha of arable land	tractors/ 1,000ha	Number of tractors/Area of arable land	One measure of the level of mechanization of agriculture in a given country. In developing countries, the mechanization of work previously carried out by bulls and water buffalo is progressing.
51	Fertilizer consumption per unit area of arable land	kg/ha	Volume of fertilizer consumed/Area of arable land	An indicator of the level of agricultural activities. In recent years, this figure has fallen in some instances in Japan due to the spread of organic farming.
52	Agro-chemical consumption per unit area of arable land	kg/ha	Volume of agro-chemicals consumed/Area of arable land	Another indicator of the level of agricultural activities. In recent years, this figure is falling in Japan due to the spread of farming without agrochemicals.
III. Stable Food Supply (Indicators related to food supply/demand, markets, etc.)				
53	Trade in agricultural raw materials (import and export)	%	Volume of trade in agricultural raw materials/ Total volume of trade (import and export)	The surplus or shortage in food supply in a given country can be referred to when making policy decisions on development assistance. Note that the proportion of processed products and differences in supply between products reflect consumer and industry trends in the country.

Items/Indicators		Unit	Calculation method	Remarks
54	Trade in food (import and export)	%	Volume of trade in processed foodstuffs/total volume of trade (import and export)	
55	Food supply, cereal total	tons	Volume of trade in processed foodstuffs/total volume of trade (import and export)	The volume of food supply, the relationship between supply and demand for major foodstuffs, and the self-sufficiency ratio are important indicators of the food supply/demand situation within the country.
56	Food demand supply balance sheet			
57	Annual main cereal consumption per capita	kg		These are main indicators of food consumption trends among the citizens of a given country. Although there may be some differences due to ethnic or religious factors, there is generally a relationship between food consumption and annual income or disposable income; as income increases, consumption of the staple food (such as cereals) decreases and consumption of livestock and diary products such as meat and cheese increases.
58	Annual livestock and dairy product consumption per capita	kg		
59	Farm gate price of major agricultural products	US$		The farm gate price, wholesale price and retail price of agricultural products change vary significantly not only with supply and demand but also due to the characteristics of the distribution system and consumption trends.
60	Wholesale price of major agricultural products	US$		
61	Food aid	US$		The amount of overseas assistance for food. Food aid is often given as emergency aid.
62	Paved roads	%	Length of paved road network/Total length of road network	One indicator to measure the level of basic social infrastructure in a given country. The percentage of paved roads impacts food delivery, distribution of goods, industrial development and population movement. It should be considered an important indicator along with other measures including the spread of the railway network.
IV. Promoting Rural Development (Indicators related to society, organization and infrastructure of rural areas)				
63	Number of people undernourished	millions	Length of paved road network/Total length of road network	The population and proportion of people undernourished. If special religious, climate and ethnic factors are discounted, undernourishment can generally be determined to have its roots in poverty. In particular, undernourishment among children is a significant obstacle to human capacity development.
64	Proportion of people undernourished	%	Number of people undernourished/Total population	
65	Population below national poverty line	%	Population of people below national poverty line/Total population	Both measures indicate the degree of poverty in a given country or region. The international poverty line is defined as 1 US$ per day (2 US$ per day in recent indicators). Note that national poverty lines may be substantially different depending on the country.
66	Population below international poverty line	millions	Population of people below international poverty line/ Total population	
67	Distribution of land in rural areas			Those engaged in the agricultural industry can be sub-divided into large-scale farmers, medium-scale farmers, small-scale farmers, landless farmers, and agricultural laborers. The size of agricultural holdings (if any at all) directly influences productivity, and is strongly connected to poverty. In particular many small-scale farmers and landless farmers are poor, and their structural problems need to be considered.

Items/Indicators		Unit	Calculation method	Remarks
68	Population growth, rural	%	Annual increase in population/Population	The population growth rate is a complex indicator reflecting the health and sanitation conditions, social status of women, and farming and living environments in the region, in addition to the regional economic situation. It should also be noted that movement of people from rural to urban areas is directly linked to the growth of urban slums.
69	Population of agricultural workers as a % of total rural labor force	%	Number of people employed in agriculture/Total rural labor force	An indicator referred to when investigating a region's organizations and institutions. It is used to measure the regional economy's dependence on agriculture as well as its vitality.
70	Ratio of female headed households in agricultural sector	%	Number of agricultural households headed by women/Total number of agricultural households	Agricultural households headed by women are often at a disadvantage in terms of access to the social infrastructure, including the agricultural production infrastructure, and labor conditions, compared with those headed by men, and they tend be poorer. The current situation must be grasped accurately.
71	Access to electrical power, of total population (urban, rural)	%	Population with access to electricity/Total population	The proportion of the population with physical and financial access to various public services (water, electricity, others). The indicator shows the quality of public services and also the quality of basic social infrastructure such as roads and transportation services. Note that access to electricity is complicated by the financial ability to pay bills and issues of rights and discrimination.
72	Access to safe water as a % of total population (urban, rural)	%	Total number of people or households with access to safe water/Total population or total number of households	In both rural and urban areas, there are many cases where difficulties in securing safe water supplies, lack of sanitation facilities, or excessive distance to the nearest available facility prevent poor people from accessing safe water and sanitation facilities resulting in a deterioration in health standards. Furthermore, in developing countries, transporting water is often the job of women, meaning that a lack of access to water supplies can often lead to women becoming overworked. Water supplies can be described as more essential than electricity.
73	Access to sanitation facilities as a % of total population (urban, rural)	%	Total population or number of households with access to sanitation facilities/Total population or number of households	
74	Percentage of adults infected with HIV	%	Number of HIV-infected adults/Adult population	An indicator enabling consideration of the impact of HIV infection on agricultural development, rural development and the regional economy. Particularly in Africa, HIV is endemic, and is a major obstacle to economic activity.
75	Access to rural micro credit	%	Population or number of households with access to rural micro-credit/Total population or number of households	For poor people in rural areas with no assets or resources, micro-credit is an important means of maintaining a living. This indicator measures the presence or absence of micro-credit facilities and access to those facilities.
76	Participation of farmers in farmers' organizations (F/Os)	%	Number of farmers participating in producers organizations/Total number of farmers	Measuring the participation of farmers in farmers' organizations and water users' associations is essential when studying regional organizations and institutions. Studies of function-specific mutual cooperative organizations in the region are also effective for grasping levels of social activity.
77	Participation of farmers in water users' associations	%	Number of farmers participating in water users' associations/Total number of farmers	
78	Collection rate of water fee	%		This indicator shows the extent of the activities of the water users' association, and also the levels of understanding and concern among farmers regarding the use and management of water resources.
79	Household numbers by income group	No. of households		One indicator of the distribution of income in a given region, making it possible to understand the regional economic situation and social structure.

Items/Indicators		Unit	Calculation method	Remarks
80	Agricultural extension and information centers	No. of centers		These indicators show the level of agricultural extension. They measure the extent of the government's commitment to regional development. An assessment of technical expertise levels among agricultural extension workers and services provided by information centers often helps understand the situation.
81	Agricultural extension officers	No .of persons		

Regional Comparison Based on Basic Indicators

	Items/Indicators	Unit	Sub-Saharan Africa	Middle East & North Africa	Europe & Central Asia	South Asia	East Asia & Pacific	Latin America & Caribbean	Source
I. Basic/Common Issues (Basic indicators common to all areas))									
1	GNI	billion US$	311	669	935	618	1,640	1,876	A
2	GNI per capita	US$	460	2,220	1,970	450	900	3,580	A
3	GNI per capita (PPP)	US$	1,750	5,430	6,320	2,570	3,790	6,900	A
4	GDP	billion US$	300.9	706.5	864.0	727.8	2,337.3	1,905.2	B
5	GDP (PPP)	billion US$	1,159.1	1,424.5	2,706.9	3,937.6	7,962.5	3,666.7	B
6	GDP per capita	US$	475	2,341	2,094	508	1,267	3,752	B
7	GDP per capita (PPP)	US$	1,831	5,038	6,598	2,730	4,233	7,050	B
8	GDP growth	%	2.9	3.0	2.3	4.9	5.5	0.4	A
9	GDP per capita growth	%	0.7	1.0	2.3	3.1	4.5	-1.1	A
10	Surface area	1,000 km^2	24,267	11,135	24,168	5,140	16,301	20,460	A
11	Population	millions	674	301	475	1,378	1,823	524	A
12	Population density	population / km^2	29	27	20	288	115	26	A
13	Population growth, annual	%	2.7	2.6	0.5	2.0	1.4	1.8	A
14	Extent of urbanization	%	32	58	63	28	37	76	A
15	Inflation rate of commodities / Consumer Price Index	%	-	30.2	49.8	4.1	9.9	19.1(1997)	D
16	Budget for agriculture and food	US$	-	-	-	-	-	-	E
17	Budget for development	%	-	-	-	-	-	-	E
18	Net Official Development Assistance or Official Aid	million US$	13,933	4,838	9,783	5,871	7,394	5,992	A
19	Net ODA per capita	US$ / person	21	16	21	4	4	11	A
20	Aid dependency (aid as % of GNI)	%	4.6	0.7	1.0	1.0	0.5	0.3	A
21	Net bilateral aid by Japan	million US$	849.0	352.4	306.9	1,156.8	2,987.6	738.2	A
22	Proportion of net aid distributed by Japan	%	13.3	5.5	4.8	18.1	46.8	11.5	A
23	Debt service ratio (DSR) to GNI	%	4.5	3.2	9.8	2.3	4.7	8.7	A
24	Human Development Index (HDI)		0.468	0.662	0.787	0.582	0.722	0.8	B
II. Sustainable Agricultural Production (Indicators related to agricultural production and production infrastructure)									
25	Extent of desertification (encroachment)	%	-	-	-	-	-	-	E
26	Proportion of area in nature protectionreserves	%	9.9	10.4	7.0	4.8	9.2	11.5	A
27	Concentration of water pollutants	kg / day	-	-	-	-	-	-	A
28	Fresh water resources per capita	m^3/person	8,306	1,413	13,465	2,777	6,020	31,530	A
29	Proportion of forest area	%	27.3	1.5	39.7	16.3	27.2	47.1	A
30	Average annual deforestation rate	%	0.8	-0.1	-0.1	0.1	0.2	0.5	A
31	Ratio of women employed in agriculture	%	-	-	21	-	-	11	A
32	Ratio of men employed in agriculture	%	-	-	21	-	-	21	A
33	Ratio of agricultural value added to GDP	%	16	-	10	25	15	8	A
34	Average annual growth rate of agricultural products	%	2.8	3.0	-1.9	3.1	3.2	2.4	A
35	Crop production index (1989-91 = 100)		129.4	128.2	-	122.8	136.9	125.9	A
36	Food production index (1989-91 = 100)		125.8	132.2	-	127.1	159.7	133.0	A
37	Livestock production index (1989-91 = 100)		114.9	137.9	-	137.1	202.7	133.4	A
38	Wage from agricultural activities	US$	-	-	-	-	-	-	A
39	Cereal yield	tons / ha	1.188	1.595	2.388	2.182	2.978	2.545	A
40	Crop production (major crops)*1	1,000 tons	76,204(T) 912(B) 2,293(W) 11,414(R) 26,438(M) 6,195(P)	87,001(T) 11,790(B) 49,962(W) 8,609(R) 11,213(M) 13,216(P)	248,934(T) 45,096(B) 130,994(W) 1,042(R) 37,227(M) 89,230(P)	290,315(T) 1,551(B) 92,909(W) 168,025(R) 13,857(M) 30,490(P)	590,372(T) 2,929(B) 91,676(W) 340,470(R) 146,081(M) 69,488(P)	137,768(T) 2,299(B) 21,526(W) 22,157(R) 79,073(M) 16,415(P)	C1

	Items/Indicators	Unit	Sub-Saharan Africa	Middle East & North Africa	Europe & Central Asia	South Asia	East Asia & Pacific	Latin America & Caribbean	Source
41	Livestock population*2	millions	215(CA) 754(CH) 7(D) 196(G) 3(H) 19(P) 161(S)	68(CA) 986(CH) 12(D) 98(G) 1(H) 1(P) 185(S)	74(CA) 874(CH) 33(D) 11(G) 6(H) 72(P) 68(S)	278(CA) 1,149(CH) 124(D) 216(G) 1(H) 19(P) 85(S)	151(CA) 5,606(CH) 832(D) 195(G) 12(H) 537(P) 20(S)	362(CA) 2,550(CH) 16(D) 36(G) 24(H) 79(P) 220(S)	C1
42	Livestock production (Major products)*3	1,000 tons	2,936(B) 989(C) 617(P) 546(MT) 17,332(MK) 1,046(E)	1,558(B) 3,176(C) 57(P) 1,368(MT) 30,690(MK) 1,970(E)	4,883(B) 3,417(C) 7,179(P) 620(MT) 98,731(MK) 4,728(E)	2,152(B) 1,813(C) 631(P) 408(MT) 118,714(MK) 2,592(E)	6,615(B) 14,190(C) 50,293(P) 1,767(MT) 19,813(MK) 27,855(E)	14,464(B) 13,683(C) 4,750(P) 295(MT) 59,981(MK) 5,358(E)	C1
43	Dairy production (major products)*4	1,000 tons	75(B) 194(C)	430(B) 1,170(C)	884(B) 1,797(C)	3,038(B) 1(C)	159(B) 253(C)	228(B) 980(C)	C1
44	Ratio of arable land (excluding permanent cropland)	%	6.6	4.8	11.2	42.5	12.0	6.7	A
45	Ratio of permanent cropland	%	0.9	0.7	0.4	2.1	2.6	1.3	A
46	Land under cereal production	1,000 ha	80,017	25,954	107,728	131,832	139,990	48,455	A
47	Irrigated area	1,000 ha	5,221	27,472	24,762	78,813	19,774	18,613	C1
48	Ratio of irrigated land	%	4.2	37.3	10.7	39.9	38.1	13.9	A
49	Household classification by agricultural land owned		-	-	-	-	-	-	E
50	Tractors per 1,000 ha of arable land	tractors/ 1,000 ha	1.5	12.3	17.0	9.1	7.1	11.8	A
51	Fertilizer consumption per unit area of arable land	kg/ha	13.0	78.7	33.9	106.5	234.6	89.5	A
52	Agro-chemical consumption per unit area of arable land	kg/ha	-	-	-	-	-	-	C1
III. Stable Food Supply (Indicators related to food supply/demand, markets, etc.)									
53	Trade in agricultural raw materials (export and import)	%	Export (7) Import(19)	Export (7) Import(19)	Export (3) Import(19)	Export (7) Import(19)	Export (2) Import(19)	Export (7) Import(19)	A
54	Trade in food (export and import)	%	Export (7) Import(20)	Export (7) Import(20)	Export (5) Import(20)	Export (7) Import(20)	Export (8) Import(20)	Export (7) Import(20)	A
55	Food supply, cereal total	tons	74,878,078	68,897,689	63,919,892	221,125,406	104,623,144	65,987,664	C1
56	Food demand supply balance sheet		-	-	-	-	-	-	C1
57	Annual main cereal consumption per capita	kg	120.7	190.3	154.0	163.4	175.3 (Excluding China and Oceania)	126.6	C1
58	Annual livestock and dairy product consumption per capita*5	kg	11.3(MT) 24.0(MK)	22.8(MT) 47.1(MK)	51.1(MT) 109.6(MK)	5.8(MT) 43.2(MK)	19.7(MT) 6.8(MK)	57.6(MT) 81.4(MK)	C1
59	Farm gate price of major agricultural products	US$	-	-	-	-	-	-	C1
60	Wholesale price of major agricultural products	US$	-	-	-	-	-	-	C1
61	Food aid	US$	-	-	-	-	-	-	C1
62	Paved roads	%	12.9	66.3	91.3	36.9	21.2	26.9	A
IV. Promoting Rural Development (Indicators related to society, organization and infrastructure of rural areas)									
63	Number of people undernourished	millions	198.4	40.9	33.6	293.1	212.1	53.4	C2
64	Proportion of people undernourished	%	33	10	8	22	11	10	C2
65	Population below national poverty line	%	-	-	-	-	-	-	A
66	Population below international poverty line	millions	300	7	17	490	46 (Including China 260)	77	D
67	Distribution of land in rural areas		-	-	-	-	-	-	E
68	Population growth, rural	%	1.8	1.5	-0.2	1.7	0.3	0.0	A
69	Population of agricultural workers as a % of total rural labor force	%	-	-	-	-	-	-	E
70	Ratio of female headed households in agricultural sector	%	-	-	-	-	-	-	E
71	Access to power, % of total population (urban, rural)	%	-	-	-	-	-	-	E

	Items/Indicators	Unit	Sub-Saharan Africa	Middle East & North Africa	Europe & Central Asia	South Asia	East Asia & Pacific	Latin America & Caribbean	Source
72	Access to safe water as a % of total population (urban, rural)	%	Urban (83) Rural (46)	Urban (96) Rural (78)	Urban (96) Rural(83)	Urban (94) Rural (80)	Urban (93) Rural (67)	Urban (94) Rural (65)	A
73	Access to sanitation facilities as a % of total population (urban, rural)	%	Urban (76) Rural (45)	Urban (94) Rural (72)	Urban (-) Rural (-)	Urban (66) Rural (21)	Urban (72) Rural (34)	Urban (86) Rural (52)	A
74	Percentage of adults infected with HIV	%	8.36	0.10	0.45	0.64	0.19	0.67	A
75	Access to rural micro-credit	%	-	-	-	-	-	-	E
76	Participation of farmers in farmers' organizations (F/Os)	%	-	-	-	-	-	-	E
77	Participation of farmers in water users' associations	%	-	-	-	-	-	-	E
78	Collection rate of water fee	%	-	-	-	-	-	-	E
79	Household numbers by income group	No. of households	-	-	-	-	-	-	E
80	Agricultural extension and information centers	No. of centers	-	-	-	-	-	-	E
81	Agricultural extension officers	No. of persons	-	-	-	-	-	-	E

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A	World Development Indicators(WDI), World Bank 2003	Sub-Saharan Africa	Middle East & North Africa	Europe and Central Asia	South Asia	East Asia & Pacific	Latin America & Caribbean
B	Human Development Report, UNDP 2003	Sub-Saharan Africa	Arab States	Central & Eastern Europe & CIS	South Asia	East Asia & Pacific	Latin America & Caribbean
C1	FAOSTAT, FAO in Jan. 2004	Africa South of Sahara	Near East	Eastern Europe & Former Area of USSR	South Asia	East & Southeast Asia, China and Developing Countries in Oceania	Latin America & Caribbean
C2	The State of Food Insecurity, FAO 2003	Sub-Saharan Africa	Near East & North Africa	Countries in Transition	South Asia	Asia & the Pacific-South Asia	Latin America & Caribbean
D	Approaches for Systematic Planning of Development Projects (Poverty reduction) Sept. 2003	Sub-Saharan Africa	Middle East & North Africa	Europe & Central Asia	South Asia	East Asia & Oceania	Central and South America
E	Useful reference check items and indicators in agricultural and rural development	As for A					

*1 T: Total Cereals, B: Barley, W: Wheat, R: Paddy rice, M: Maize, P: Potatoes
*2 CA: Cattle, CH: Chickens, D: Ducks, G: Goats, H: Horses, P: Pigs, S: Sheep
*3 B: Beef and veal, C: Chicken meat, P: Pig meat, MT: Mutton and lamb, MK: Milk, Total, E: Eggs Primary
*4 B: Butter & ghee, C: Cheese (All Kinds)
*5 MT: Meat, MK: Milk

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Terms and Abbreviations

Terms/Abbreviations	Remarks
Glossary of Agricultural and Rural Development Terms	
Agricultural Cooperative	An organization formed by farmers to maximize their own economic benefits. Japanese agricultural cooperatives are organized into a national federation which extends loans, accepts deposits, arranges joint vending of produce, purchases production and other materials, arranges joint use of facilities and machinery and provides guidance on management and technology. In developing countries, agricultural cooperatives usually refer to isolated organizations which arrange only the joint vending of produce.
Agricultural Extension	The dissemination of agricultural technolgy among the wider rural population through the work of agricultural extension workers and other methods. Technolgy diffuse in this way include new techniques and skills developed through experiment studies or by farmers themselves, and existing techniques in use in a limited area.
Agro-forestry	A method of land-use in which crops, livestock and trees are all produced on the same area of land.
Boomerang Effect	A process by which agricultural development assistance provided by a donor country increases agricultural production in the recipient country, causing exports to the donor country to increase, thus adversely affecting the donor country's domestic producers.
Breeding	Production of new varieties of crops, livestock and other organisms through the improvement of genetic make-up. (Definition from Takane Matsuo - Ikushugaku "Breeding")
BSE	Bovine Spongiform Encephalopathy: A cattle disease, first confirmed in the UK in November 1986, which is thought to be caused by abnormalities in proteins know as "prions." However a definitive pathology has yet to be established.
CGAIR	Consultative Group on International Agricultural Research: A strategic alliance of 16 agricultural research laboratories carrying out experimental research, technical development, and giving guidance in order to increase productivity and sustainability. The group aims in particular to implement efficient research on poverty reduction, living environment improvement, increasing agricultural productivity and protection of the environment. The 16 member institutions are listed below. ① International Rice Research Institute (IRRI), ② Centro Internacional de Mejoramiento de Maiz y Trigo (International Maize and Wheat Improvement Center: CIMMYT), ③ Centro Internacional de Agricultura Tropical (International Center for Tropical Agriculture: CIAT), ④ International Institute of Tropical Agriculture (IITA), ⑤ West Africa Rice Development Association (WARDA), ⑥ Centro Internacional de la Papa (CIP: International Potato Center), ⑦ International Crops Research Institute for the Semi-Arid Tropics (ICRISAT), ⑧ International Plant Genetic Resources Institute (IPGRI), ⑨ International Livestock Research Institute (ILRI), ⑩ International Food Policy Research Institute (IFPRI), ⑪ International Center for Agricultural Research in the Dry Areas (ICARDA), ⑫ International Service for National Agricultural Research (ISNAR), ⑬ International Crops Research Institute for the Semi-Arid Tropics (ICRAF), ⑭ International Water Management Institute (IWMI), ⑮ World Fish Center, ⑯ Center for International Forestry Research (CIFOR).
Community Workers	People who play a core role in improving and enhancing regional society, in other words, regional leaders.
Crop Rotation	Cyclic cultivation of more than one different crop on the same area of land according to a pre-determined order.
HACCP	Hazard Analysis and Critical Control Point: A system devised by NASA to control the sanitation and safety of food for astronauts which tests not only the final food product but also aims to control all food production processes. HACCP attempts to determine all possible points of microbe contamination, designate critical control points such as cleaning and temperature control, and make a daily record of check points. The method is rapidly spreading among food manufacturers and processors.
Informal Sector	Areas of economic activity conducted by people involved in a variety of small-scale businesses whose economic activities are not officially recorded.
JIRCAS	Japan International Research Center for Agricultural Sciences: A body established in October 1993 under the jurisdiction of the Ministry of Agriculture, Forestry and Fisheries through the reorganization of the Ministry's Tropical Agriculture Research Center founded in June 1970. The center become an Independent Administrative Institution in April 2004. The center makes an active international contribution in the fields of agriculture, food and environmental issues in developing regions.

Terms/Abbreviations	Remarks
Land Consolidation	A series of land consolidation designed to improve farmland infrastructure in order to raise the productivity of rice paddies, upland fields and labor.
Livelihood Improvement Movement	A movement organized after the second world war to improve livelihoods in rural areas throughout Japan. The movement was led by "livelihood improvement extension workers," and by the movement's beneficiaries, the farming families themselves. The movement methodology, which has also been applied to other sectors, involved improving livelihoods by uncovering problems in farming families' daily lives, and encouraging their self-reliant efforts to solve the problems.
Microfinance	Provision of small loans to the poor and those with low incomes in order to alleviate poverty.
Mixed Cropping	Cultivation of more than one kind of crop on the same area of farmland. Planting one crop between the hills or rows of the main crop pre-harvest is referred to as inter-cropping.
New Rice for Africa	New strains of upland rice suitable for cultivation in Africa. Developed by the West Africa Rice Development Association (WARDA) by crossing African and Asian rice strains. The rice matures more earlier than standard African rice, and provides greater yields. WARDA is currently developing new irrigated-rice varieties.
Participatory Poverty Assessment (PPA)	A method of measuring poverty. Attracts growing attention in view of the increased realization of poverty's multi-facetted nature. Asks poor people to themselves define what living conditions they consider to be "poverty," how they address problems, and what their real needs are. This method also attempts to conceptualize poverty as objectively as possible, by removing the influence of the evaluators' own prejudices and guidance.
Post-Harvest Processing	Processing carried out after completion of the harvest.
Primary Health Care (PHC)	Essential health and medical services that are scientifically valid and provided in a socially acceptable way which can be easily accessed by all regional residents upon payment of costs proportional to the extent of the development of the region. PHC places emphasis on preventative care rather than treatment-centered medical care, with focus on care in the community and public health rather than on hospitals. Activities tend to center on rural rather than urban areas.
Re-plotting (Substitute Lot)	A method of establishing ownership of new land plots after land consolidation which can significantly alter the appearance of the land, making it difficult to identify previous borders and conditions. "Substitute lots" are given in exchange for the "previous lots" through re-demarcation of borders.
Reproductive Health	The state of being able to make an independent choice about how many children to have and when to have them without hindrance due to mental or physical health problems, and without social pressure from tradition and other factors.
Safe Guard	A measure to curb imports by raising tariffs or taking other actions to protect domestic producers from sudden import increases and price collapse. The WTO (World Trade Organization) recognizes the right of its members to employ safeguards.
Safety Net	A development aid arrangement to protect the socially disadvantaged. Includes food distribution and unemployment insurance systems.
Silage	One type of preserved food for livestock. Storing grass in an anaerobic environment causes fermentation, which releases lactic acid, thus lowering the pH and preventing the multiplication of putrefying bacteria.
Small Water-Supply System	A municipal water supply system, defined in Japan by law as supplying water to a population not less than 101 people and not more than 5,000.
The Basic Law on Food, Agriculture and Rural Areas	A law enacted in July 1999, which represented the first revision in around 40 years of the former Agricultural Basic Law. The four basic concepts of the law are as follows: 1) revitalization of rural areas; 2) sustainable agricultural development; 3) securing a stable food supply; 4) full and proper use of multi-facetted functions of agriculture.
Urban Sprawl	Unplanned spread of urban areas. As residential areas and farmland intertwine, urban sprawl can have a negative effect on suburban agriculture.
WTO Agreements	Provide for fundamental rules governing international trade, which protect WTO member countries' basic interests in external trade. Also, bind governments to implement only trade policies which are within the scope of the agreements to promote interests for all.
Glossary of General Development and Assistance Terms	
BHN	Basic Human Needs: Defined to promote the concept of providing low-income people with assistance which is directly useful to them. Refers to food, housing, clothing and other physical basic necessities for daily life, in addition to safe drinking water, sanitation facilities, health care and education.

Terms/Abbreviations	Remarks
Capability	Refers to the concept of "well-being freedom." Implies not just that an individual encounters no external obstacles to their choices but also suggests they have "the positive ability to choose."
Capacity Building / Capacity Development	Refers to the development the capacity to operate and manage institutions, as distinct from institution building. In other words, building a self-reliant capacity for an organization directly responsible for implementation.
CBO	Community Based Organization
CDF	Comprehensive Development Framework: An integrated framework for the development of developing countries announced by the World Bank* in January 1999. Based on the following principles: ① Developing country ownership of the development agenda, ② Partnerships among governments, donors, civil society, the private sector and other parties, ③ Participatory decision-making process, ④ Results-orientated, ⑤ Longer-term perspectives which consider not only macro-economics but also structural, social and human elements.
Common Fund	A fund used by donor countries and organizations to promote effective and efficient use of financing for development by sharing a common account.
Conditionality	Measures relating to macro-economic and structural policy reform which recipient countries must implement as a condition of receiving aid from donor countries.
DAC Guidelines for Poverty Reduction	Established by OECD/DAC* in April 2001, at the DAC Senior-level Meeting,* following debate through DAC's informal poverty reduction network (POVNET), as part of efforts to achieve the DAC New Development Strategy Goals.
DAC New Development Strategy	A shorthand way of referring to the long-term development strategy for the 21st century, "Shaping the 21st Century: The Contribution of Development Cooperation," which was adopted at the 1996 DAC Senior-Level Meeting. The three major points of the new development strategy are as follows: ① Emphasis on ownership and partnership, ② Pursuit of comprehensive approaches and individual approaches and ③ Establishment of concrete development goals (including one calling for a 50% reduction in the number of people living in extreme poverty by 2015). The strategy proposes an proportional increase in spending on social infrastructure, together with the streamlining and decentralizing of donor countries' systems for implementing assistance.
DAC Senior-level Meeting	An annual meeting of senior development officials from various countries which discusses important development issues and adopts recommendations. At the 1996 OECD* DAC Senior-level Meeting, a recommendation was adopted calling for the number of the world's extremely poor to be reduced to half the level of 1990 by 2015.
Governance	Refers to the way in which an organization or an institution is controlled or managed. In some cases, the term refers to government functions (government and administrative mechanisms and capabilities) i.e. whether or not government administration is realizing its goals efficiently and effectively. In other cases its meaning also covers democratic political systems and democratic structures.
HDI	Human Development Index: Used by the United Nations Development Programme (UNDP) in publishing their Human Development Report, which examines human development from a diverse range of perspectives.
IFF	International Finance Facility: A multilateral framework proposed by the UK in November 2002, in order to procure and distribute additional development assistance funds needed to achieve MDGs.
Income Poverty	Poverty as defined in terms of those individuals or households falling below the poverty line. The poverty line is set according to a minimum level of various types of consumption needed to ensure survival (or according to the real levels of income necessary for such a level of consumption). Income is often used as a measure of poverty because it is easy to analyze in quantitative economic terms and deal with statistically.
International Development Goals (IDGs)	Goals put forward as part of the DAC New Development Strategy, which was adopted by the DAC's high level meeting held under the auspices of the OECD in 1996. The seven goals, to be achieved by 2015, related to poverty, primary education, primary health care and other areas.
Japan's Official Development Assistance Charter	Usually referred to as the ODA Charter. In the process of departure from the Cold War structure, the view that ODA should be considered as part of external policy strategy became increasingly prevalent. In this context, the charter, which put forward four basic concepts and four principles, was approved by the Cabinet in 1992.
LLDC	Least among Less Developed Countries: Recently UN documents usually call these countries as Less Developed Countries (LDCs). Refers to those developing countries at a particularly early stage of economic development. A revision of the LDC list published in 2003 defined LDCs as having a per capita GNI of less than US$ 750, and a total population of less than 75 million people.

Terms/Abbreviations	Remarks
Local ODA Task Force	Organized in each recipient country by the Ministry of Foreign Affairs. Aimed at strengthening the role of Japanese ODA offices overseas in the policy-making process of recipient countries. Involve not only local Japanese Embassies but other Japanese aid organizations including JICA and JBIC.
Medium-term Policy on Official Development Assistance	Usually referred to as the ODA Mid-term Policy. Based on a systematic and detailed review, the policy outlines the direction of Japan's ODA for the period of five of so years starting in 1999, with focus on effective and efficient implementation.
Millennium Development Goals (MDGs)	Formulated as an extension of DAC's New Development Strategy* and adopted as higher goals under an agreement reached at the UN General Assembly Session in September 2000. The following goals are to be achieved by 2015: ① Eradicate extreme poverty and hunger, ② Achieve universal primary education, ③ Promote gender equality and empowerment of women, ④ Reduce child mortality, ⑤ Improve maternal health, ⑥ Combat HIV/AIDS, malaria and other epidemics, ⑦ Create an sustainable environment, and ⑧ Develop a global partnership for development.
NEPAD	New Partnership for African Development: A new concept of reform that calls for a review of Africa's traditional dependence on aid from developing countries. It encourages African countries to take the initiative in becoming self-reliant and responsibility for their own development. Emphasizes peace, democracy, human rights, good governance and sound economic management, and aims to increase annual economic growth in Africa to 7% by around 2015.
NGO	Non-Governmental Organization
ODA	Official Development Assistance
PCM	Project Cycle Management: A method of managing the development aid project cycle of planning, implementation and evaluation, using the Project Design Matrix (PDM).
Poverty Line	Represents an income level below which citizens cannot achieve even a minimum standard of living.
Poverty Profile	A description that gives a given country's poverty index, details about the extent of poverty, measures to combat poverty, and the state of assistance provided for the country. Currently, poverty profiles have been completed for 29 countries.
PRA	Participatory Rural Appraisal: An approach that combines a scientific method for objective appraisal of strengths and weaknesses of the target rural society with the direct participation of members of that society. This approach frames the problems of the rural society as those for local residents themselves, engaging them in conducting surveys and analyses and in making decisions on their own. ("Participatory Development" by Fumihiko Saito, published by Nihon Hyoronsha.
PRSP	Poverty Reduction Strategy Paper: Documents to be prepared by the Heavily Indebted Poor Countries (HIPCs) for their debt relief. The preparation of PRSPs was proposed and agreed upon at the annual meetings of the World Bank and IMF in 1999. Aimed at ensuring that financial resources which become available following debt relief measures are allocated appropriately to development and poverty reduction activities.
Sector Approach	A sector can include multiple development activities that come under the same group in the light of objectives of public services such as health, education, agriculture and transportation. A sector approach focuses on promoting development activities in the same group motioned above.
Sector Program	A program targeted at a sector or sub-sector, formulated through participation by and coordination between various parties related to development, including donors, under the ownership of the government of a developing country.
Sector-wide Approaches (SWAPs)	An approach under which the government of a developing country, donor countries and international donors work together to establish development plans in the fields of education and health among others, and attempt to proceed with development and assistance in line with those plans. This approach is most often used with countries in Africa.
Social Capital	Various social factors, either within societies and organizations, or existing across societies and organizations, which can exert an influence on cooperative activity needed to attain development goals.
Social Safety Net (SSN)	Policies in terms of development assistance that provide protection to the socially vulnerable. In particular, the term often refers to those policies designed to protect the poor people in crisis situations due to serious declines in agricultural production, deterioration in trade conditions, hunger or natural disasters. Such policies include food price subsidies, food distribution, food allocation systems, employment compensation systems, and public social security systems.
Trust Fund	In development assistance, this term often refers to an amount of money deposited in a UN organization, which it then uses to implement development projects.

Terms/Abbreviations	Remarks
UN Conference on Financing for Development	Held in Monterrey, Mexico, in March 2002, on the theme of financing for development to reduce poverty. The conference was jointly sponsored by the UN, the International Monetary Fund (IMF), the World Bank and the World Trade Organization (WTO). Delegates from governments, private corporations, and civil societies attended.
UN Millennium Summit	Held in New York in September 2000, concurrently with the UN Millennium General Assembly. The summit adopted the Millennium Development Goals which were based on previously agreed international development goals.
World Summit for Social Development (WSSD)	Held in Copenhagen, Denmark, in 1995. The summit aimed to foster "human-centered" social development and declared a goal of halving absolute poverty around the globe.
World Summit on Sustainable Development	Held in Johannesburg, South Africa, in August 2002, ten years after the Rio Summit which was the first global conference to comprehensively address "Development and the Environment." Referred to as the Johannesburg Summit, the 2002 conference aimed to develop a framework for "Sustainable Development."
Glossary of Assistance Scheme Terms	
Community Empowerment Program	Projects entrusted by JICA to local NGOs in the target country which are engaged in aid activities to promote maternal health, elderly, disabled and child welfare, and poverty reduction.
Development Partnership Program	Projects entrusted by JICA to Japanese NGOs, local authorities and universities with experience and know-how in international cooperation. Aims to respond to the increasingly diverse regional needs of developing countries and implement fine-tuned grassroots-level assistance for local people. Renamed "Technical Cooperation at the Grass-roots Level"* in fiscal 2002.
Grant Assistance for Grass-roots Projects	A scheme to provide grant aid to assist small-scale projects which cannot be financed by regular grant aid, in response to requests for assistance from local authorities and NGOs in developing courtiers. This aid is distributed through Japanese diplomatic missions overseas.
JOCV	Japan Overseas Cooperation Volunteers: A volunteer organization inaugurated in 1965, which recruits those between the ages of 20 and 39. To date, a cumulative total of 23,000 people have been sent to 73 countries.
Local In-country Training	Training implemented in developing countries to spread and promote the results of Japanese technical cooperation.
M/P: Master Plan Study	A study aimed at formulating an integrated national or regional development plan, or a long-term sector-specific development plan.
Overseas Basic Study	A small-scale study to formulate simple basic development plans, analyze related fundamental data, and fill in gaps in official statistics. JICA's overseas offices oversee implementation. Before fiscal 2002, this type of study was called "Overseas Development Study."
Project-type Technical Cooperation	A form of cooperation carried out over a period of between three to five years, involving a complete cycle of planning, implementation and evaluation. Combines the dispatch of experts, acceptance of trainees and provision of equipment. Since fiscal 2002, this type of cooperation has been grouped into a new classification known as "Technical Corporation Projects" which also incorporates several other types of cooperation schemes.
Small-scale Partnership Program	Aims to provide cooperation promptly in a way which is more fine-tuned to local needs. A project that comes under this program lasts no more than one year and costs no more than 10 million yen. JICA entrusts the implementation of such projects to NGOs, local authorities and universities. In fiscal 2002, the scheme was renamed "Technical Cooperation at the Grass-roots Level."
Technical Cooperation at the Grass-roots Level	A cooperation program involving Japanese NGOs, universities, local authorities, and public-interest corporations that are willing to participate in international cooperation. JICA supports their aid activities for local people in developing countries as part of Japan's ODA. Particular emphasis on the following three conditions: ① the project involves technical cooperation through people; ② the project is urgently needed for reconstruction or other aims, and/or the region concerned urgently needs such assistance; and ③ the project provides an opportunity to promote Japanese citizens participation in and understanding of international cooperation.
Technical Cooperation Project	A type of cooperation based on a clear logical relationship between results and the resources invested to achieve them. Generally aims to achieve a certain level of results in a specified time frame. Combined as appropriate with the dispatch of experts, acceptance of trainees, and provision of equipment.
Third Country Training	A scheme under which trainees from developing countries are invited to participate in training courses held in a comparatively advanced developing country, which makes use of the skills of local personnel trained through Japanese technical cooperation.

Terms/Abbreviations	Remarks
Verification Study	Refers to a small-scale model project, often implemented with participation of residents. Carried out as part of a development study, in order to verify the appropriateness of a master plan formulated through the development study in question. The results of the verification study are fed back into the master plan.

Terms with * are listed in this chart.

Source: "*Imidas 2002*," Shueisha, "*Terminology on International Cooperation (Kokusai Kyoryoku Yogoshu)*," International Development Journal, "*Japan's Official Development Assistance 2002*," the Ministry of Foreign Affairs, "*Grand Dictionary on Agriculture (Nogyo Daijiten)*," Yokendo, "*Handbook on Irrigation, Drainage and Reclamation Engineering*" and "*Standard Dictionary on Irrigation, Drainage and Reclamation Engineering*," The Japanese Society of Irrigation, Drainage and Reclamation Engineering, "*Social Capital and International Cooperation – Summary*," Japan International Cooperation Agency etc.