Extraction of “Knowledge Lessons” (A Cross-Sectoral Analysis of Evaluation Results)

(Nature conservation / irrigation, drainage and water management / fisheries / disaster management)

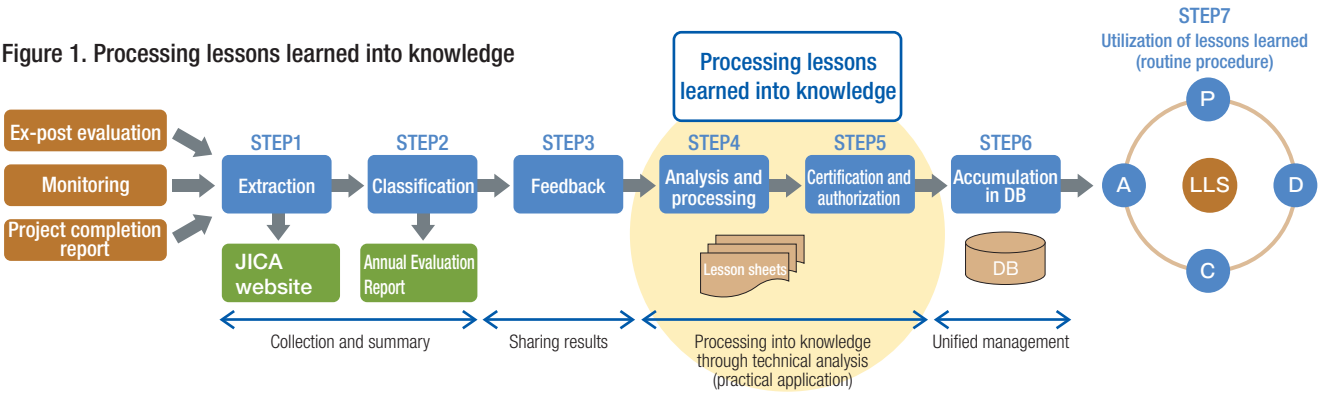
Operational consultant: OPMAC Corporation

1 Background to this study

Last year’s thematic evaluation “Analysis of the Improvement of Management System for Utilizing Lessons Learned in PDCA Cycle” proposed introducing the Lessons Learned System (LLS). One of its key points was using a template to ensure consistent analysis of risks and lessons learned and share the results among those concerned. The study also identified problems in using lessons learned: practicality (no concrete countermeasures had been suggested); accessibility (numerous lessons learned had not been compiled); lack of acknowledgement and identification of significant lessons learned for future projects; inconsistent use of lessons learned depending on the individual staff member; lack of assessment of the results obtained by using lessons learned.

This year’s thematic evaluation “Extraction of Knowledge Lessons (A Cross-sectional Analysis of Evaluation Results)” is an analysis based on the recommendations of the above-mentioned study. In particular, this year’s study focused on the following two steps to use lessons learned: analyzing and processing lessons learned from individual projects (Step 4) and certifying and authorizing lessons deemed as knowledge (Step 5). This study aimed to identify and systematize practical and universal lessons by reviewing previous cooperation projects in the following four sectors: nature conservation; irrigation, drainage and water management; fisheries; and disaster management. Moreover, this study proposed an approach of processing lessons learned into knowledge and training content to utilize lessons learned.

Figure 1. Processing lessons learned into knowledge



2 Process of generating “knowledge lessons”

This study performed a cross-sectional analysis of lessons learned, mainly from JICA’s completed projects, as well as capturing tacit knowledge of JICA staff and others concerned. They were analyzed and processed into practical and generalized knowledge that should be used to formulate and implement similar projects in future (processing lessons learned into knowledge). These important lessons were then systematized as “knowledge lessons.”

This study was conducted from April to December 2014, taking the steps illustrated in Figure 2 to generate “knowledge lessons”. In this study, a taskforce was formed, comprising members of the Thematic Departments and Knowledge Management Networks in the relevant sectors as well as the Evaluation Department, who held a total of four meetings to consider “knowledge lessons”. The first meeting aimed to share a common understanding of the design of this study, including basic perspectives; the second was to discuss the draft “knowledge lessons” (version 1); the third to exchange opinions with external experts in a workshop setting and discuss the draft “knowledge lessons” modified through field studies (version 3) and the fourth and final meeting to finalize the “knowledge lessons”.

1) Step 1: Select the sectors and projects for this study and share basic perspectives

The four priority sectors for which the lessons learned needed to be systematized to revise thematic guidelines and provide input to international conferences were selected for this study. Subsequently, the Thematic and Evaluation Departments selected the projects to be reviewed. The number of projects ranged from 50 to 90, depending on the sector. Subsequently, basic perspectives were adopted for the analysis by reviewing the relevant thematic guidelines, reports and documents of projects to be reviewed and other reports issued by thematic departments.

2) Step 2: Review evaluation reports and other relevant documents and analyze the cases of other donors

Through detailed analysis of reports and other documents of the selected projects, the study team (consultants) extracted information on the lessons learned that could be processed into knowledge. They were selected based on the following four criteria: (1) the concreteness of information; (2) logic; (3) universality; and (4) practicality. Subsequently, they were further categorized into three types: (1) lessons learned for project management; (2) sector-specific lessons learned; and (3) country/region-specific lessons learned. In addition to this document analysis, the study team interviewed JICA staff and Senior Advisors to capture their tacit knowledge and examined how other donors had drawn lessons from their experience.

3) Step 3: Draft the Knowledge Lesson Sheets

Knowledge Lesson Sheets (version 1) were drafted based on the above-mentioned individual lesson sheets. A cross-sectional analysis of lessons learned from individual projects was performed based on basic perspectives.

4) Step 4: Discuss and deliberate "knowledge lessons" during taskforce meetings

The study team modified the Knowledge Lesson Sheets as version 2 based on comments from JICA Senior Advisors, taskforce members and others concerned.

5) Step 5: Obtain comments from external experts

A workshop was held to receive technical comments on the draft "knowledge lessons" from external experts, including consultants engaged in ODA projects, academic experts in the fields of this study and staff from relevant government agencies. During this workshop, a number of valuable and concrete suggestions were made on a wide range of problems and their countermeasures. These opinions were then reflected in the draft Knowledge Lesson Sheets.

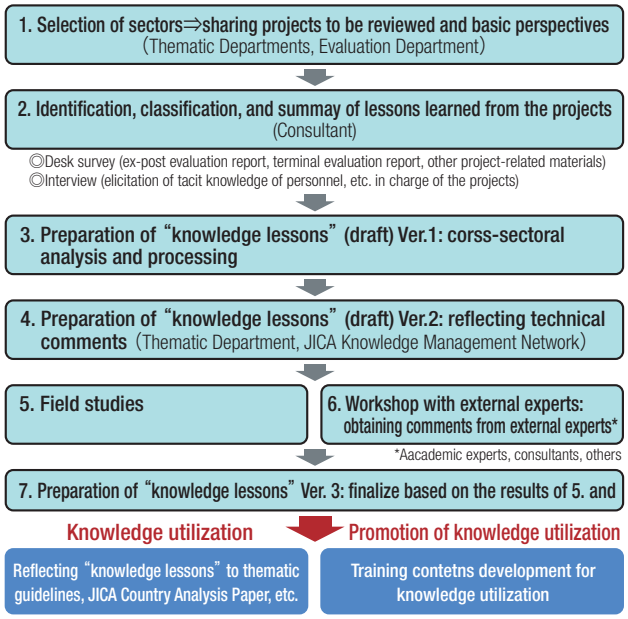
6) Step 6: Conduct field studies

To deepen the analysis of "knowledge lessons", field studies were conducted in the following countries for the sectors covered in this study: Vietnam for the nature conservation sector; Cambodia for irrigation, drainage and water management sectors; Cambodia and Laos for the fisheries sector; and the Philippines for the disaster management sector. The criteria used to select these countries included involvement in many cooperation projects in the relevant sectors and the countries concerned having designated these sectors as priority development issues.

7) Step 7: Finalize the Knowledge Lesson Sheets

The Knowledge Lesson Sheets were revised as version 3 based on the results of the above steps and finalized during the fourth taskforce meeting. Eventually, a total of 67 "knowledge lessons" were identified as "knowledge lessons", including 14 for the nature conservation sector, 19 for the irrigation, drainage and water management sectors, 19 for the fisheries sector and 15 for the disaster management sector.

Figure 2. Process of generating "knowledge lessons"



3 Knowledge Lesson Sheets

The "knowledge lessons" refer to the practical and generalized lessons identified and systematized through the above-mentioned process. The Knowledge Lesson Sheet format includes the following items to describe them to facilitate efforts by the JICA staff and other project team members to determine any potential risks, when they may arise and how they can be reduced. Thus, "knowledge lessons" have been formulated to be applied easily.

Figure 3. Knowledge Lesson Sheet format

- Type of lessons learned
- Title and sector
- Key words
- Applicable cases
- Risks (where no countermeasures are taken)
- Timing of application
- Countermeasures
- Expected effects
- Projects from which lessons were learned

4 Transformation to a learning organization (promoting the use of "knowledge lessons")

The "knowledge lessons" generated by this study are expected to be reflected in thematic guidelines and other project documents prepared by project management departments as well as presented on occasions such as international conferences. The "knowledge lessons" are also expected to be used in daily operations to enhance project management in the PDCA cycle, particularly when JICA staff analyze possible risks during the formulation and planning stages of new projects and explore measures to mitigate those pointed out in the Knowledge Lesson Sheets. JICA is planning to archive the Knowledge Lesson Sheets while creating a useful information system environment to ensure access to the necessary information. Meanwhile, to promote the use of lessons learned, JICA must further consolidate its culture as an organization that learns lessons from the past. Accordingly, this study also developed training content for JICA staff. The focus of the training is to increase awareness of how to manage risks in project management because the use of lessons learned means risk management.

Through the above-mentioned efforts, JICA is expected to improve its projects by further promoting the generation, accumulation and use of lessons learned.

“Knowledge Lessons” learned from nature conservation projects

In the nature conservation sector, the following 14 knowledge lessons were identified based on analysis of Technical Cooperation and ODA Loan projects, which adopted community-based participatory approaches to nature conservation. The following tables outline the points to be considered and measures to be taken for the “knowledge lessons”, including the applicability of participatory approaches and the development and deployment of model schemes.

◆ List of “Knowledge Lessons”

Lesson	Title
1	Assessing the applicability of community-based participatory approaches to nature conservation
2	Setting Overall Goals, Project Purposes and Indicators that can be shared among all project team members
3	Considering to provide long-term support by taking program approach
4	Developing and verifying model schemes
5	Disseminating model schemes (including scaling up mechanisms)
6	Selecting project target areas
7	Motivating local residents to participate in nature conservation activities

Lesson	Title
8	Potential for increasing cash income
9	Financial sustainability after the project completion
10	Criteria and selection of target groups
11	Using local human resources and knowledge
12	Involving multiple organizations in a project
13	Investigating the actual application of forest-related laws and regulations
14	Land ownership and land-use rights

The key “knowledge lessons” are as follows:

Lesson 1	Assessing the applicability of community-based participatory approaches to nature conservation
Applicable cases	When a project for nature conservation is requested, it is essential to assess the applicability of community-based participatory approaches before making any decision on whether to adopt such approaches.
Risks	• A new project may be formulated without acknowledging the valuable lessons learned from previous participatory approaches. • Some projects may be designed without clearly defining how income-generating activities can contribute to nature conservation. • Participatory activities may be discontinued after the end of the project period, due to the limited capacity of counterpart organizations and local communities.
Possible measures to be taken	**[Applicability assessment]** Review approaches to date in the target country/region. Carefully consider whether to adopt a participatory approach and, if appropriate, how to involve local residents in the project planning phase. **[Natural conditions]** Under a severe natural environment, it is difficult for community residents to independently manage and conserve natural resources, even if income-generating mechanisms are developed. Identify the level of government intervention required in such cases. **[Institutional conditions]** Determine how government systems promote participatory forest management (e.g. extension/support mechanisms). Examine laws and regulations on natural resource management and conservation as well as community organizations. **[Local residents]** Explore possible needs and incentives of local residents for nature conservation from a wider perspective, including not only individual income generation but also public welfare. Assess the educational and technical levels of local residents and traditional practices in relation to nature conservation.

Lesson 2	Setting Overall Goals, Project Purposes and Indicators that can be shared among all project team members.
Applicable cases	Where project team members do not share a common understanding or definition of the Project Purpose, Overall Goal, Indicators, etc. after the start of the project period.
Risks	• Project activities may be implemented in different ways depending on individual understanding due to the lack of a clear definition or common understanding of terms (e.g. “model” and “system”) among the organizations/people concerned. • The progress and achievements of a project cannot be monitored or evaluated because some indicators are too vague to be measured or inadequate to assess the degree of contribution of the project.
Possible measures to be taken	**[Target setting]** Clearly define targets in the project planning phase (When abstract terms are used to describe the Overall Goal and Project Purpose, they should be specified by Indicators). **[Review and modification]** Create opportunities to review and revise, if necessary, the Overall Goal, Indicators and Activities to ensure the sustainability of project results and the achievement of the Overall Goal. **[Preparation for evaluation]** Conduct a baseline study to evaluate the achievement of the Project Purpose and Outputs (Identify the time and human resources required for the study). **[Indicator setting]** Set measurable Indicators. If the volume of forest resources is unmeasurable or inappropriate to evaluate the project results, the applicability of performance indicators should be considered, such as changes in the awareness and behavior of project participants.

Lesson 4	Developing and verifying model schemes
Applicable cases	When developing effective model schemes that can be scaled up is formulated
Risks	• Some model schemes cannot be verified by the end of the project period and thus cannot be appreciated by government officials or local residents in partner countries. • Some projects may be terminated before completing the verification process to check whether the model schemes developed under the initiative of Japanese experts can be implemented by their counterparts. • Some model schemes cannot be extended elsewhere due to the lack of implementation mechanisms (e.g. limited human resources, budget and commitment) after the end of the project period.
Possible measures to be taken	**[Planning stage]** Right from the start, design project activities to ensure that the model scheme developed under the project can be taken over and scaled up by local partners. **[Definition of the term “model”]** Define the term “model” so that all project team members can share a common understanding of its purpose, role, features and functions. **[Project period]** If it is essential to improve the awareness and behavior of residents in project target areas, secure sufficient time to do so and have project counterparts verify the feasibility of the model scheme to be applied. **[Selection of model sites]** Carefully select model sites by focusing on their adequate number, locations, accessibility and zoning in accordance with the Project Purpose. **[Model type]** Develop an economical model scheme, affordable for farmers in target areas (including introductory costs, mechanisms and technologies). **[Review and record the results]** Review and record the input and output of model schemes to analyze how to support their installation and deployment.

Lesson 7	Motivating local residents to participate in nature conservation activities
Applicable cases	Where local residents in the project target areas have little interest in forest conservation or few incentives to participate in such activities when a community-based participatory approach is adopted
Risks	• If visible outcomes cannot be achieved in a short timeframe, residents’ motivation may decline over time, failing to sustain their participation. • In a country where local governments have control over activities implemented by residents, tensions may arise between them, which may result in a long time required to build mutual trust.
Possible measures to be taken	**[Shared understanding]** Explain the nature of the project to be implemented before it starts; promoting the understanding of local residents. Encourage them to develop and implement an exit strategy for self-support to raise their ownership. **[Benefits]** Conduct activities that can directly contribute to nature conservation (e.g. agroforestry, sustainable exploitation of forest resources and development of reservoirs). If a project includes activities to improve living standards, such activities are implemented in a way that can contribute to nature conservation (benefits and obligations). **[Secured financial resources]** Consider how to secure financial resources to meet the demands of each project (e.g. public finances, profit-sharing and payments for ecosystem services (PES)). **[Forest exploitation planning]** Obtain the understanding of local residents and enhance the practicability of project activities by jointly planning forest management (including rules and benefit-sharing arrangements) with local residents. **[Authorization]** Obtain the administrative authorization of community-based organizations and activities as well as documenting local residents’ obligations to ensure the continued participation of all concerned.

Lesson 8	Potential for increasing cash income
Applicable cases	Where project target areas produce agricultural, forestry and other products that can generate cash income
Risks	• Income-generating activities may be discontinued after the end of the project period due to limited market access. • Environmentally friendly, income-generating mechanisms may not spark a drastic increase in earnings in a short timeframe. • Some income-generating activities cannot benefit local residents as expected if those activities result in over-production or when affected by market price fluctuations.
Possible measures to be taken	**[Diverse perspectives]** Assess the sales potential of products that can generate income in a short time as well as contribute to forest conservation in the project planning phase. **[Target groups]** In addition to analyzing the potential to generate income, the roles and responsibilities of project target groups should be examined. It is also necessary to identify the attributes of people who may have impacts on forests. **[Risk management]** Provide local residents with explanation about the income-generating activities to be introduced, including their risks. Take measures to mitigate the risks.

Lesson 10	Criteria and selection of target groups
Applicable cases	Where target groups are selected at the planning or implementation stage
Risks	• If target groups are selected without clear criteria, some people may consider it unfair. • There are many cases where even if a business model is established, only a limited number of people can use it, resulting in widening income inequalities and escalating tensions in the community. • Some socially vulnerable people may be excluded from the process of organizing local residents for a joint management system.
Possible measures to be taken	**[Selection criteria, explanation and monitoring]** Set criteria to select direct beneficiaries and explain them clearly in advance. Monitor the progress to ensure the participation of all stakeholders and identify any negative impacts (e.g. the burden of compulsory participation). **[Core farmers]** Develop and effectively deploy core farmers to catalyze the success of business models. **[Selection of target groups]** Involve all stakeholders who may play an important role in forest conservation by investigating traditional patterns of use in advance. Focus particularly on social disadvantaged groups and gender equality. **[Support to ensure fairness]** Consider implementing activities to benefit wide-ranging people (e.g. training).

Lesson11	Using local human resources and knowledge
Applicable cases	Where it is considered more effective for Japanese experts to work not only with their counterparts but also with other local human resources Where it is difficult for project counterparts to implement or monitor project activities by themselves due to their limited capacity.
Risks	• It may take considerable time for Japanese experts to develop the capacity of their counterparts and they may lack time to take action for local residents before the end of the project period. • Project team members, not only Japanese experts but also their counterparts, may be unfamiliar with local conditions and thus unable to adequately consider the sociocultural and structural characteristics of individual communities.
Possible measures to be taken	**[Clearly defining the roles of project counterparts]** Assess their capacity and define their roles and functions accordingly. Train facilitators, if necessary, in the project process. **[Use of other human resources than project counterparts]** Hire or train local human resources (e.g. community/farmer facilitators and NGOs) if the above-mentioned approach is difficult. -> Use local human resources to build trust and develop a sustainable mechanism to continue activities after the end of the project period.

Lesson12	Involving multiple organizations in a project
Applicable cases	Where it is essential to involve wide-ranging stakeholders, such as central and local governments, relevant ministries, NGOs and private entities in project activities
Risks	• It may take considerable time to make decisions at every stage of project activities because it is difficult to share information among all those concerned before decision-making. • If excessive emphasis is placed on establishing project implementation mechanisms and coordinating relevant organizations, it may prove costly and obscure individual responsibility (e.g. the division of roles and the shares of contributions), which will delay the project schedule.
Possible measures to be taken	**[Clear division of responsibilities]** Identify relevant organizations through stakeholder analysis. Establish a project implementation mechanism by writing down (visualizing) the responsibilities of individual organizations and their relationships. **[Establishment of a platform]** Discuss and coordinate with relevant organizations to establish a project platform. Stipulate the roles of individual organizations as well as management procedures, including the decision-making process and achieve consensus on these points. Review and modify the platform flexibly according to the progress and achievement of the project.

Lesson13	Investigating the actual application of forest-related laws and regulations
Applicable cases	Where a legal system has been established for forest management at the national level but has not yet been fully applied at a local level
Risks	• Some projects cannot be realized as planned due to the gap between the legal system and reality. For example, even if laws and regulations restrict the exploitation of forest resources in conservation areas, local people make a livelihood from the forests. • It may take considerable time for the outcomes of project intervention to take root in local society when national laws and regulations, if any, outline policies but do not provide detailed rules, implementation flow, or systems for forest management at field level.
Possible measures to be taken	**[Investigation into existing laws and regulations]** Examine the concreteness and effectiveness of relevant laws and regulations developed at the local/field level. Explore approaches to ensure their effectiveness. **[Clear division of activities]** Analyze the political and institutional foundations for project activities. Define the activities to be implemented by local governments and communities. **[Capacity development]** Develop and improve guidelines and manuals as well as organizing training programs to strengthen the capacity of local/field staff to implement policies and systems (practicability at the local/field level).

Lesson14	Land ownership and land-use rights
Applicable cases	Where land ownership and land-use rights have not been formalized or relevant information is not available in potential project target areas
Risks	• Some local residents cannot benefit from nature conservation unless land ownership and land-use rights are clearly defined.
Possible measures to be taken	**[Entitlement]** Ensure the allocation of land-use rights to villages as a precondition for project implementation or promote that process through project activities involving relevant organizations. Obtain information on the authorities in charge of registering land ownership and land-use rights and the administrative framework and procedures for formalizing these rights. **[Risk management]** Take measures for both statutory and customary land-use rights if there is any difference between them. Avoid implementing project activities in areas with land dispute issues.

“Knowledge Lessons” learned from irrigation, drainage and water management projects

In the irrigation, drainage and water management sector, the following 19 “knowledge lessons” were identified based on the analysis of relevant Technical Cooperation, ODA Loan and Grant Aid projects. The following tables outline the points to be considered and measures to be taken for the “knowledge lessons”, including the selection criteria for partner countries/regions, the needs of target farmers, the development and maintenance of irrigation facilities and the implementation and dissemination of agricultural models.

◆ List of “Knowledge Lessons”

Lesson	Title
1	Selection criteria for partner countries/target areas
2	Needs of target farmers to enhance agricultural productivity and generate income
3	Financial and technical sustainability of pump irrigation systems
4	Preconditions for developing new irrigation facilities
5	Irrigated agriculture projects in disaster-prone areas
6	Appropriate project implementation period and scope of activities (Technical Cooperation projects)
7	Clear definition of target groups
8	Disputes and conflicts between farmers in project target areas
9	Development of on-farm irrigation canals at the expense of partner countries
10	Activities and costs incurred by partner countries (financial cooperation)

Lesson	Title
11	Smooth acquisition of land for irrigation
12	Availability of irrigation water and water resource use plans
13	Establishing and developing the capacity of irrigation associations
14	Modifying water distribution methods and plans following changes in the pattern of agricultural production
15	Developing farming models which local farmers can apply
16	Deployment of farming models
17	Managing the project schedule in case of collaboration with other assistance schemes and donor organizations
18	Motivating project counterpart organization staff
19	Exploring the potential to provide medium- to long-term assistance by taking a program approach

The key “knowledge lessons” are as follows:

Lesson 1	Selection criteria for partner countries/target areas
Applicable cases	When assistance for irrigated agriculture is requested
Risks	• Irrigated agriculture may not be as sustainable and productive as expected if hard infrastructure (irrigation facilities) or soft infrastructure (facility maintenance systems and agricultural models) do not function well.
Possible measures to be taken	**[Investigating the natural conditions]** Assess the feasibility of irrigation and the appropriateness of irrigation methods by analyzing meteorological, hydrological and other related information. **[Examining the prerequisites for irrigation]** Investigate water sources, water rights, land ownership and land-use plans. **[Examining the needs and incentives of farmers for irrigated agriculture]** Survey target areas, including the economic conditions, income-generating activities of farmers, market and demand for agricultural products, market access and social conditions (e.g. the characteristics and education levels of communities). **[Examination of governmental systems and policies]** Analyze the positioning of irrigated agriculture in the policy arena, farming support systems.

Lesson 3	Financial and technical sustainability of pump irrigation systems
Applicable cases	When assistance for developing pump irrigation facilities is requested
Risks	• Pump irrigation may not be sufficiently profitable to offset maintenance costs. • Some irrigation facilities cannot be maintained for technical reasons such as the lack of spare parts and repair expertise.
Possible measures to be taken	**[Assessing the sustainability and financial feasibility of pump irrigation]** Analyze profitability whether there is any demand for cash crops, barriers to market access, the availability of agricultural support systems, the technical skills of farmers, the presence of farmer-based organizations, the availability of spare parts, the availability of engineers who can repair pumps and similar. **[Assessing the technical feasibility of pump irrigation]** Examine the geographical conditions (where water pumping facilities should be located) and explore appropriate water pumping and irrigation systems.

Lesson 4	Preconditions for developing new irrigation facilities
Applicable cases	When assistance for new irrigation facility development is requested
Risks	• It may take considerable time for newly established irrigation associations to start working or for irrigated agriculture to take root. • When a project is designed to assist immigrants with no experience in agriculture, if they lack any other income source, they may be unable to survive without welfare and may eventually abandon the irrigated land.
Possible measures to be taken	**[Confirmation of land ownership and land-use rights in project target areas]** If there is any other land-use plan, the land is highly likely to be sold or converted to other uses. **[Examination of how to use or plan to use water]** Assess the availability of water in terms of quality and quantity. **[Examining the agricultural needs of farmers]** Examine whether local farmers have incentives to adopt irrigated agriculture and skills to maintain it. **[Examination of agricultural support systems]** Examine whether there is any technical support system to help farmers introduce and maintain irrigated agriculture. **[Examination of farmer-based organizations]** Examine whether there is any farmer-based organization to maintain irrigation facilities. **[Analysis of agricultural markets]** Assess whether there is demand for agricultural products produced in local areas.

Lesson 6	Appropriate project implementation period and scope of activities (Technical Cooperation projects)
Applicable cases	When setting a project implementation period and scope of activities for a Technical Cooperation project to support irrigated agriculture
Risks	• A three- to five-year project cannot be expected to increase agricultural output or income by the end of the project period although these benefits are the best incentive for farmers.
Possible measures to be taken	**[Setting project components and targets]** Set project components and outputs in accordance with the circumstances of each target area (e.g. the presence of irrigation facilities, the experience of irrigated agriculture and the technical skills of irrigation engineers). **[Setting the time frame required to achieve the Project Purpose and Outputs]** A three- to five-year project cannot be expected to identify and solve the challenges facing project target areas. **[Capacity development activities and the time required for it]** Identify the skills to be learned and estimate the time required to master them based on analysis of the technical level of irrigation engineers in partner countries.

Lesson 7	Clear definition of target groups
Applicable cases	Where there is a need to develop the capacity of project target groups to use irrigation facilities and their agricultural skills
Risks	• When project target groups and their needs for capacity development are unspecified, efforts to strengthen their capacity may not be accomplished by the end of the project period and some problems may remain unsolved.
Possible measures to be taken	**[Identify the needs for capacity development and the narrowing down of target groups]** Conduct a detailed capacity assessment in the preparatory study phase to identify the issues to be addressed and narrow down the scope of cooperation activities and target groups. **[Strategically set targets and steps for capacity development]** Set targets for capacity development and steps to accomplish them after identifying target groups and their needs. Provide technical training support to target groups after all project team members reach consensus on the content and level of training, based on the results of a baseline survey to assess the capacity of target groups.

Lesson 9	Development of on-farm irrigation canals at the expense of partner countries
Applicable cases	Where an irrigation facility development project is implemented in a country/region where underdeveloped on-farm canals have become a bottleneck for the irrigation system as a whole
Risks	• Irrigation systems that do not work as a whole cannot efficiently supply water across project target areas. • A delay in constructing main canals may discourage local farmers from developing on-farm canals and cause problems such as poor drainage of irrigated land and its surrounding areas.
Possible measures to be taken	**[Assessing the capacity of partner countries to develop irrigation facilities]** Assess the technical and financial capacity of partner countries when on-farm canals will be constructed at their expense. **[Setting realistic project outcomes]** Formulate a practical project implementation plan. And set outcomes that can be achieved only through project activities in target areas and exclude potential benefits to the irrigated land covered by the on-farm canals to be developed. **[Consideration of providing support for developing irrigation infrastructure, including on-farm canals]** Consider providing comprehensive support for developing irrigation infrastructure, including on-farm canals, if it is almost impossible for partner countries to do so. In this case, focus on the possibility of on-farm canal development entailing complex procedures for land acquisition and extend the project period.

Lesson 12	Availability of irrigation water and water resource use plans
Applicable cases	Where there are any other water use plans for the river from which water is to be taken for irrigation (e.g. other irrigation plans by upstream farmers and other intended uses of water such as water supply, power generation and commercial use of water).
Risks	• An adequate supply of water cannot always be ensured as planned, or the expected effects of irrigation development may not be obtained due to the time taken to coordinate water use. • Water pollution may adversely affect irrigated agriculture.
Possible measures to be taken	**[Confirmation of water and land-use plans]** Confirm whether there are any other water or land-use plans, such as the water resource use plan and development plan, in the entire river basin, including project target areas. **[Examination of coordination mechanisms]** Examine coordination mechanisms such as laws and regulations regarding the use of water resources. **[Assistance/collaborative support to establish coordination mechanisms]** Support the establishment of coordination mechanisms, in collaboration with other donors as necessary, if no such mechanism exists. **[Review of the scope and scale of support for irrigation facility development]** When consensus cannot be reached among all those concerned, there is a need to review the scope and scale of support for irrigation facility development.

Lesson 13	Establishing and developing the capacity of irrigation associations
Applicable cases	Where on-farm irrigation facilities are maintained at the expense of beneficiaries (farmer participatory approaches)
Risks	• Unless roles or responsibilities for maintaining on-farm irrigation canals are clearly divided, the necessary efforts may not be made, hindering all or most of the irrigation system function as a whole. • An unequal distribution of water may discourage some farmers from maintaining irrigation facilities and the area of irrigated land may become smaller than planned.
Possible measures to be taken	**[Establishing and developing the capacity of irrigation associations]** Build irrigation associations, develop maintenance manuals and train association staff to maintain on-farm canals. **[Equal distribution of water]** Establish a coordination mechanism to formulate and implement water distribution plans via a participatory approach. **[Setting irrigation service fees payable by beneficiaries]** Let beneficiaries set service fees at an affordable level.

Lesson 15	Developing farming models which local farmers can apply
Applicable cases	When designing a project to build farming models
Risks	• If the application of the developed model requires more resources than locally available (e.g. financial, technical and human resources), it is unlikely to spread beyond the pilot sites.
Possible measures to be taken	**[Assessing the input local farmers can afford]** Properly narrow down the package of techniques to be introduced so that local farmers can afford to apply them. **[Developing a farm management improvement model combined with techniques that incur no cost]** Develop a model combined with simple techniques that incur no cost to farmers, such as plowing fields. Provide guidance to farmers on water management methods suitable for their farming systems. **[Consensus on the definition and content of the model to be developed]** Reach consensus with the partner government during the project planning phase on the development concept of models that can be widely applicable. **[Involvement of the organizations concerned with model development]** Consider, as required, how to involve the organizations concerned, such as irrigation and agricultural agencies, in developing and deploying agricultural models. **[Selection criteria for pilot sites]** Select pilot sites that can serve as bases for model deployment. At this time, focus on their locations to ensure easy access and maximize demonstration effects.

Lesson 16	Deployment of farming models
Applicable cases	When considering whether to support the deployment of the farming model developed by a project
Risks	• Without support, productivity may decline due to performance degradation and incorrect application of cultivation techniques. • Without support, deployment efforts may be limited. In such cases, the farming model will be unable to spread or take root in target areas. • Without support, local farmers may be unable to continue the input required for the model.
Possible measures to be taken	**[Timely delivery of farming guidance and support to coincide with irrigation facility development]** Deliver farming guidance and technical support, including measures such as free distribution of seeds, immediately after the completion of irrigation facilities. [1] Where agricultural communities of a certain size are clustered within a relatively small area: develop the capacity of commune-level agricultural extension service providers, provide technical support by utilizing demonstration farmers/fields and reflect agricultural extension activities in policy and budget processes. [2] Where it is geographically and physically difficult for agricultural extension service providers to reach all farmers because they are scattered over a wide area: Apply a farmer-to-farmer extension approach.

“Knowledge Lessons” learned from fisheries projects (inland aquaculture / fishery resource management)

In the fisheries sector (inland aquaculture / fishery resource management), the following 19 “knowledge lessons” were identified based on analysis of Technical Cooperation projects for inland aquaculture and fishery resource management. The following tables outline the points to be considered and measures to be taken for the “knowledge lessons”, including aquaculture extension approaches, the production and supply of fish seed for the inland aquaculture sector, organizing fishermen and establishing consensus-building mechanisms for the fishery resource management sector.

◆ List of “Knowledge Lessons”

<Inland aquaculture>

Lesson	Title
1	Selection criteria for partner countries/areas
2	Objectives of introducing aquaculture
3	Small-scale aquaculture as an income driver
4	Selection of production systems
5	Effective aquaculture extension approaches (farmer-to-farmer extension training approaches)
6	Functions of an aquaculture center

Lesson	Title
7	Production and supply of fish seed 1 (securing and managing quality parent fish)
8	Production and supply of fish seed 2 (using hormones)
9	Production and supply of fish seed 3 (fish seed production bases)
10	Selection of fish type (foreign species)
11	Production and supply of aquaculture feed
12	Consideration of the socially vulnerable groups

<Fishery resource management>

Lesson	Title
13	Organizing fishermen
14	Motivation for participation
15	Consensus-building mechanisms
16	Consideration of socioeconomic impacts (the importance of baseline surveys)

Lesson	Title
17	Effectiveness of fishery resource management
18	Using local human resources for fishery resource management
19	Exploring the potential to provide long-term support by adopting a program approach

The key “knowledge lessons” are as follows:

Lesson 2	Objectives of introducing aquaculture
Applicable cases	When promoting aquaculture in non-Asian countries, particularly African countries
Risks	A introduction of “small-scale = low-input aquaculture” without careful consideration may not lead to income growth, which will discourage fish farmers, particularly in African countries, due to the high expectations of aquaculture as an income driver.
Possible measures to be taken	**[Market analysis]** Strategically select fish with high sales potential after assessing consumer needs and market trends for fishery products as well as the impact of competition from wild and imported frozen fish. **[Production systems]** Farmers can invest in producer goods if they can eventually make profits. Therefore, consider the possibility of introducing semi-intensive aquaculture instead of extensive one. **[Strengthening the management capacity of fish farmers]** Train fish farmers on business management so that they can keep accounts for their aquaculture business and monitor profitability. **[Aquaculture extension activities focused on profitability]** Emphasize “profitable aquaculture” in extension activities and provide necessary information.

Lesson 4	Selection of production systems
Applicable cases	When initially considering what type of production system to select as an aquaculture model to be extended
Risks	It is necessary to select an aquaculture production system that suits the local circumstances and meets the needs of target groups. Otherwise, the system will be unable to attract new participants and thus only applicable to limited areas. An appropriate aquaculture production system should be adopted, based on careful assessment of the needs and capacity of target groups.
Possible measures to be taken	**[Extensive aquaculture]** This production system stimulates the growth of plankton by fertilizing ponds. It can be applied by economically vulnerable farmers since they can start aquaculture production very economically. **[Intensive aquaculture]** Most business entities engaged in commercial aquaculture can operate independently. They are rarely included in the target group of JICA projects. **[Semi-intensive aquaculture]** This production system is relatively flexible in terms of production timing. With this production system, farmers can secure their income even during the off-season and diversify their production, which will allow the system to contribute to stable farm management. Note that it can also be applied by farmers who can invest a certain amount of money.

Lesson 5	Effective aquaculture extension approaches (farmer-to-farmer extension training approaches)
Applicable cases	Where effective aquaculture extension services are needed but cannot be fully provided due to weak public support systems for promoting and extending aquaculture
Risks	Many of the administrative organizations in partner countries lack [1] human resources and [2] financial resources for extension services as well as [3] the capacity of input in early time to produce or supply. These three problems mean an extension approach based on government intervention may not work and inland aquaculture would not develop as expected.
Possible measures to be taken	Considering the farmer-to-farmer extension training approach that incorporates the following features: **[Transfer of fish seed production prosecution to core farmers]** This extension approach will engage core farmers in business activities to produce and sell fish seed to trained farmers. **[Dispersive production of fish seed]** The most of core farmers would produce and sell fish seed. This means that fish seed production bases will be spread nationwide, allowing general farmers easy access to fish seed. **[Transfer of technical support functions from aquaculture extension service providers to core farmers]** This extension approach will encourage core farmers to train general farmers as a means of acquiring new customers. This can save administrative organizations from the labor of providing technical support.

Lesson 7	Production and supply of fish seed 1 (securing and managing quality parent fish)
Applicable cases	Where a stable supply of quality seed is required to promote and extend aquaculture
Risks	Various problems may occur, such as fish diseases and low productivity, unless parent fish are properly managed.
Possible measures to be taken	**[Import of parent fish]** It is essential for Japanese experts to discuss in detail with their counterparts about the import of parent fish, because importing fish without a proper quarantine process or system may result in the outbreak of fish diseases and because improper management of imported fish may damage genetic resources. **[Establishment of fish seed production networks]** It is important to support the creation of seed producer networks so that they can cooperate to renew parent fish and exchange information on know-how to manage parent fish.

Lesson 9	Production and supply of fish seed 3 (Fish seed production bases)
Applicable cases	Where a stable supply of quality seed is required to promote and extend aquaculture
Risks	• The poor road access and long distance between fish seed production bases and buyers (fish farmers) may threaten the lives of young fish. • A limited number of fish seed production bases may restrict the extension of aquaculture.
Possible measures to be taken	**[Selection of fish seed producers]** Establish criteria to select fish seed producers while focusing on accessibility between suppliers and buyers. **[Integrated support to establish a fish seed production system]** Develop farmers who can produce fish seed to ensure a stable supply of quality seed for neighboring small-scale farmers. Provide technical training and support for motivated farmers who have been chosen as model fish seed producers. Assist fish seed producers in all stages, from spawning and hatching to fry rearing, while taking into account the characteristics of target areas and farmer groups.

Lesson 11	Production and supply of aquaculture feed
Applicable cases	Where economical and efficient feed is required to promote and extend aquaculture
Risks	Although economical and efficient feed is hardly available in partner countries, expensive feed may undermine the sustainability of aquaculture, no matter how effective.
Possible measures to be taken	**[Identifying and adopting locally available feed resources]** Produce feed from local resources (e.g. rice bran, corn bran, waste rice, termites, insects, earthworms, water plants and vegetables) to ensure a stable supply of low cost feed. **[Joint purchase]** Form networks of fish farmers for joint purchase of feed. Commercial feed vendors may offer a discount for joint purchase. If neighboring countries produce commercial feed, consider the possibility of jointly importing the same.

Lesson 13	Organizing fishermen
Applicable cases	When implementing projects in countries/regions where fishermen have not been organized to manage fishery resources
Risks	Without fishermen organizations, selfish and indiscriminate fishing activities may continue, which may undermine fishery resource management measures. When a fishermen organization needs to be created from scratch, it may take considerable time for it to start working properly.
Possible measures to be taken	**[Baseline survey]** Conduct a baseline survey to collect the information required for organizing fishermen, such as whether there are any group activities. Analyze this information when considering how to organize fishermen. **[Relevance of organization]** Select the form of organization that fits local circumstances. **[Authorization of organizations]** The organizational functions of fishery resource users can be strengthened when authorized by administrative organs. **[Development of leaders]** Actively support the selection and training of leaders. Consider the possibility of giving them official status.

Lesson 14	Motivation for participation
Applicable cases	Where a project requires the wide participation of fishermen in fishery resource management activities
Risks	Only some of stakeholders may be involved in fishery resource management when many remain unaware of its importance and if there is no economic or social incentive for participation. This will hamper efforts to continue effective management.
Possible measures to be taken	**[Promoting understanding and awareness]** Create an environment conducive to facilitating the active participation of resource users in fishery resource management by promoting their understanding of the severity of resource depletion and the need for countermeasures. **[Effectively combining management and support measures]** Because introducing aquatic resource management may impose extra economic burdens on fishermen in the short term, measures must be taken to alleviate that negative impact (e.g. by offering incentives). **[Presenting benefits from organization activities]** If a fishermen organization has been established, clearly present the benefits of joining the organization (e.g. access to jointly purchased materials) to encourage continued participation.

Lesson 15	Consensus-building mechanisms
Applicable cases	When establishing a mechanism to coordinate interests and build a consensus for aquatic resource management
Risks	Without any effective autonomous mechanism to coordinate interests and build a consensus among all stakeholders, the effects of fishery resource management measures may be undermined in the medium- to long-term.
Possible measures to be taken	**[Establishing a mechanism to coordinate interests and build a consensus]** In countries/areas where local communities are traditionally entitled to use specific marine resources and have established social mechanisms to exploit the same (e.g. Oceanian island countries), it is effective to incorporate the functions of resource management into existing mechanisms. If no such mechanism exists, it must be established using project management frameworks, such as project steering committees, as well as legal authorization. **[Involvement of stakeholders]** It is important to ensure the participation of all major stakeholders. Facilitate their participation by appointing them as official meeting members and securing budget for the meetings.

Lesson 18	Using local human resources to manage fishery resources
Applicable cases	Where fishery resource management is performed in remote islands and rural areas that are not staffed by public service workers (e.g. fisheries extension service providers)
Risks	If project target areas are limited to where fisheries extension service providers are allocated (or areas easily accessible for Japanese experts and their counterparts), the areas most in need of fishery resource management may not receive the required support.
Possible measures to be taken	**[Active involvement of local human resources]** Recruit and train community leaders so that they can serve as community-based extension service providers instead of public service providers. Clearly define criteria to select these community-based service providers. Consider the possibility of human resource development using JICA's thematic training courses. **[Authorization of the local human resources involved]** Strengthen the effectiveness of community-based extension service by properly authorizing them. There are three main ways to give them authority: [1] appointing them as legally authorized representatives; [2] appointing them under the administrative jurisdiction of state fisheries authorities; and [3] appointing them with community approval.

“Knowledge Lessons” learned from disaster management projects

In the disaster management sector, the following 15 “knowledge lessons” were identified based on the analysis of Technical Cooperation, ODA loan and Grant Aid projects for disaster management administration, community-based disaster management and disaster education. The following tables outline the points to be considered and measures to be taken for the “knowledge lessons”, including developing the capacity of disaster management agencies, developing disaster management models to be extended and establishing community-based disaster management systems.

◆ List of “Knowledge Lessons”

Lesson	Title
1	Strategic approaches to disaster management support
2	Points to be considered in supporting efforts to develop the capacity of disaster management agencies
3	Establishing disaster management models to be extended
4	Enhancing coordination mechanisms among central government agencies
5	Role of central government agencies in promoting disaster management activities at a local level
6	Identifying disaster risks
7	Reflecting disaster risk assessment in disaster management policies and plans
8	Operation and maintenance of disaster prevention structures

Lesson	Title
9	Operation and maintenance of disaster forecast and warning systems
10	Effective mechanisms for disseminating disaster forecast and warning information
11	Community-based disaster management approaches that can contribute to community development
12	Establishing community-based disaster management systems
13	Disaster management in communities with underdeveloped community organizations
14	Collaboration among schools, communities and local governments
15	Regional approaches (support for multiple countries)

The key “knowledge lessons” are as follows:

Lesson 2	Points to be considered in supporting efforts to develop the capacity of disaster management agencies
Applicable cases	When designing a project supporting efforts to develop the capacity of central-level government agencies responsible for disaster management
Risks	Disaster management plans may not be fully implemented due to disaster management agencies’ limited financial and human resources, expertise in fields related to disaster management and the power of influence in government.
Possible measures to be taken	**[Disaster management plans, laws and regulations]** Examine whether there are disaster management plans, laws and regulations and, if any, how effective they are. **[Authority and the chain of command]** Design a project implementation framework by examining the chain of command and the authority of relevant ministries (including their regional branches) based on the results of stakeholder analysis. **[Capacity assessment]** Assess the capacity of disaster management agencies and identify the baseline level (e.g. their authority and positioning in government, the number and capacity of their staff and the budget allocation). Subsequently, set targets so that project team members, both JICA and partner country sides, can share a vision on the outcomes to be achieved by the project.

Lesson 3	Establishing disaster management models to be extended
Applicable cases	When promoting disaster management measures, such as community-based disaster management and disaster education, in countries where disaster management measures have not yet been established at local and community levels.
Risks	• If a project places excessive focus on disaster management at a local level, it cannot fully involve the central government or reflect the results of activities in national disaster management policies, which means the disaster management model developed through the project cannot be extended. • Without strong initiative and commitment on the part of local governments, project activities may be frustrated, failing to develop a disaster management model.
Possible measures to be taken	**[Selection of pilot sites]** Upon selecting pilot sites for developing disaster management models, prioritize areas where people have significant disaster awareness, where local governments have a strong commitment and where JICA has provided support for structural measures **[Support for securing financial resources]** Investigate the budget systems of local governments and examine how to secure budgets for disaster management activities at a community level. **[Verification of disaster management models]** Verify the feasibility of a series of community-based disaster management activities (e.g. hazard mapping, disaster risk mapping by local residents, evacuation drills). Reflect the results in national-level disaster management policies.

Lesson 4	Enhancing coordination mechanisms among central government agencies
Applicable cases	Where there is a need to improve coordination between the central government ministries responsible for disaster management
Risks	Central government ministries responsible for disaster management may have strong jurisdictional awareness, which may prevent them from close collaboration and hinder the progress of disaster management plans.
Possible measures to be taken	**[Analysis of the capacity of disaster management agencies]** Strengthen the capacity of disaster management coordination agencies to analyze their own status quo (e.g. their organizational structure, staff strength, authority and the current situation of collaboration with other organizations concerned) and develop proper approaches to enhance cooperation with other organizations concerned. **[Establishing coordination mechanisms among central government agencies]** Establish a committee involving all organizations concerned. Strengthen coordination mechanisms through the committee and other activities (e.g. regular meetings and exchange of disaster-related information). Define the role of each organization. **[Promoting understanding of disaster management systems and plans of central government agencies]** Enhancing the understanding and awareness of the organizations concerned through workshops and seminars.

Lesson 5	Role of central government agencies in promoting disaster management activities at a local level
Applicable cases	Where disaster management plans cannot be properly formulated or implemented by local governments and are thus supported by central government
Risks	Some disaster management activities cannot be properly implemented due to lack of awareness on the part of local governments of the disaster management plans and central government measures or due to budget shortfalls.
Possible measures to be taken	**[Enhancing mechanisms to assist local governments in their disaster management activities]** Facilitating collaboration among the organizations concerned at a local level by strengthening the capacity of regional branches of national disaster management agencies and enhancing cooperation among central government agencies. **[Improving disaster management activities of local government and promoting their implementation]** Assisting the central government in [1] monitoring, evaluating and supporting improvement; [2] providing incentives to local governments (e.g. allocating budget to disaster management plans); [3] sharing information among local governments; and [4] deploying disaster management measures at the local government level (e.g. organizing seminars).

Lesson 7	Reflecting disaster risk assessment in disaster management policies and plans
Applicable cases	Where the central government has a low level of disaster awareness and has not initiated disaster management measures or developed disaster management policies or plans
Risks	• Disaster risk assessment activities may be hindered by the lack of capacity of evaluators or staff shortages, particularly at a local level. • The results of the disaster risk assessment may not be properly reflected in disaster management policies or plans due to a lack of understanding on the part of policy makers.
Possible measures to be taken	**[Establishing implementation mechanisms to assess disaster risk and map hazards]** Identify individuals who can assess disaster risks and make hazard maps. Define their roles in these activities. **[Promoting awareness of the need for disaster risk management]** Increase awareness of the need for disaster risk management among central ministries and government agencies responsible for disaster management through workshops and similar. **[Developing the capacity to formulate disaster management policies and plans based on the results of disaster risk assessment]** Strengthen the capacity to formulate disaster management policies and plans based on the results of disaster risk assessment after examining the accuracy and validity of the assessment as well as the practicability of disaster management measures.

Lesson 8	Operation and maintenance of disaster prevention structures
Applicable cases	Where disaster prevention structures are not properly operated and maintained
Risks	• Due to the lack of technical and financial capacity for maintenance, disaster prevention facilities may not function as required during disasters, failing to reduce risks to residents. • Disaster prevention facilities may not be maintained or function properly because their management has not been transferred to responsible local governments.
Possible measures to be taken	**[Developing the capacity of national disaster management officers]** Develop human resources of national disaster management agencies to provide technical guidance to local technical officers. **[Developing the capacity of local disaster management officers]** Assist instructors from central government agencies in training and supervision on a pilot basis. **[Secured budget for maintenance]** Investigate the budget framework and allocation mechanism of countries where projects are to be implemented. Support efforts to secure a budget for maintenance.

Lesson 9	Operation and maintenance of disaster forecast and warning systems
Applicable cases	Where disaster forecast and warning systems are not properly maintained
Risks	• Due to limited technical capacity and knowledge of disaster management agency staff, appropriate flood forecast and warning information cannot be provided to local residents, failing to reduce risks to them. • Some disaster forecast and warning systems cannot function during disasters due to insufficient budget for system maintenance. • If there are regional differences in the design and specifications of disaster forecast and warning systems, the limited financial and human resources may not meet the needs for human resource development or maintenance.
Possible measures to be taken	**[Developing the capacity of national disaster management officers]** Strengthen the capacity of technical officers of central government agencies in charge of disaster forecast and warning services (e.g. meteorological agencies) to collect and analyze data and forecast disasters. **[Developing the capacity of local disaster management officers]** Analyze budget frameworks and allocation mechanisms. Support efforts to secure budget. **[Integration of warning systems]** Introduce standard disaster forecast and warning systems after investigating existing systems.

Lesson 10	Effective mechanisms for disseminating disaster forecast and warning information
Applicable cases	When introducing disaster forecast and warning systems
Risks	Warning information cannot be properly or promptly received by those who need it, which may delay their evacuation.
Possible measures to be taken	**[Strengthening the capacity of officers who issue evacuation alerts]** Identify what information should be given to municipal governments and train responsible officers on how to make such information easy to understand. **[Diversification of information delivery methods]** Develop a mechanism comprising multiple reliable means of delivering information after examining and trying out several ways (e.g. notification by siren, phone, radio, television, wireless communication and SMS). **[Practical exercises to deliver information from emergency alert stations to local residents]** Organize training programs and seminars on information delivery, involving all organizations concerned with disaster forecast and warning information delivery. **[Community-based disaster monitoring and enhancement of disaster awareness]** Establish a mechanism where local communities monitor disaster risks, inform the residents of alerts and evacuate them as required. To this end, promote disaster awareness in the community.

Lesson 12	Establishing community-based disaster management systems
Applicable cases	When establishing disaster management systems at a community level
Risks	• It may take considerable time to improve awareness and understanding of the importance of disaster preparedness and the need for disaster management activities, which may prevent those activities from taking root. • Without community leaders, disaster management activities may be discontinued.
Possible measures to be taken	**[Points to be considered in implementing community-based disaster management activities in pilot sites]** Investigate [1] existing community-based organizations, including their activities, community centers and other facilities; [2] disaster experiences and countermeasures; [3] promotion of disaster awareness by involving local residents in hazard mapping; and [4] emergency information delivery methods. **[Developing the capacity of disaster management officers of local governments to assist communities in disaster management]** Establish a mechanism for local disaster management officers to supervise and monitor community-based disaster management activities. Strengthen their capacity to reflect the lessons learned from their activities in the disaster management plans of their local governments. **[Target groups to be trained to maintain disaster management facilities]** Train not only local government staff but also community leaders and volunteers.

Lesson 14	Collaboration among schools, communities and local governments
Applicable cases	When supporting disaster education in communities with little experience in disaster education
Risks	Disaster education only to students at schools may have a limited effect, failing to increase disaster awareness in society.
Possible measures to be taken	**[Collaboration between communities and schools in disaster education]** Establish a mechanism where schools promote disaster education in collaboration with communities. **[Horizontal collaboration at the local government level]** Ensure that projects include activities to establish collaboration/coordination mechanisms between local disaster management agencies and education administration authorities. Enhance the perception of decision-makers, such as local education administration leaders and school principals, of the need for collaboration with community-based disaster management activities. **[Vertical collaboration between central and local governments and communities]** Implement pilot projects at a local level and develop national-level guidelines, in cooperation with central government (e.g. disaster management agencies and the ministry of education), to widely disseminate the results of the pilot activities.

Analysis for Enhancing the Evaluability of JICA's Cooperation Programs

Operational consultant: Foundation for Advanced Studies on International Development

Background to this study

To maximize the effect of development efforts with finite resources, it is essential to make aid efforts more strategic and effective. To this end, JICA has promoted the "Program Approach", whereby independent projects are integrated and managed collectively as part of "JICA's Cooperation Programs" (hereinafter referred to as "Cooperation Programs") to achieve collaborative and synergistic benefits in specific sectors in developing countries. JICA has also evaluated 11 Cooperation Programs*1, while applying the concept of contribution*2, with which the plausibility of causal relationships between JICA's interventions and the development results achieved in developing countries was indirectly analyzed.

To make Cooperation Programs more strategic and objectively evaluate their development effects to further enhance their management and publicize the lessons and knowledge learned, it is becoming increasingly important to improve program planning and design, including the program purpose and scenario setting.

This thematic evaluation study was conducted while focusing on the "evaluability" of Cooperation Programs to clarify the requirements to be met in formulating Cooperation Programs ("Requirements for Evaluability").

Outline and methodology of this study

This study commenced with a cross-sectional analysis of Cooperation Program Plans formulated by JICA and the existing program evaluation done by other donors. Based on this analysis, the first version of "Requirements for Evaluability" of Cooperation Programs was drafted. The practicability of these requirements was then tested and improved by trial application to actual Cooperation Programs through a literature survey and field studies. Ultimately, the following three outputs were proposed: (1) a draft list of Requirements for Evaluability of the Cooperation Programs, or an evaluability assessment checklist, to be used through the stages of formulation, implementation, and evaluaction of the Cooperation Programs; (2) a draft of the evaluation criteria and evaluation questions for the Cooperation Programs; and (3) a draft of the tools/formats for evaluation of the Cooperation Programs.

Results of the review of cooperation program plans and a list of requirements for evaluability (draft)

A cross-sectoral review of 26 Cooperation Program Plans prepared by JICA from 2008 to 2012 from an evaluability perspective identified the following problems (refer to the left column in Table 1).

Based on these results, a list of Requirements for Evaluability of Cooperation Programs was created (refer to the right column in Table 1). This is a checklist to be used throughout the formulation, implementation and evaluation stages of Cooperation Programs to enhance their evaluability, including points to be considered when setting their program purpose, indicators, scenario and implementation system and when assessing their relevance to policies.

*1 "Support to the Victims of Armed Conflict and their Coexistence and Reconciliation Program" in the Republic of Colombia was evaluated in fiscal 2013.

*2 The concept of contribution means an idea to distinguish between progress in terms of improving development issues in a developing country (e.g. access to basic education in Bangladesh) and the results achieved by an organization through its development program and to indirectly assess the plausibility of causal relationships between them.

Table 1. Major problems in program planning and requirements for evaluability of cooperation programs

Major Problems	Draft Requirements for Evaluability (excerpt)
The program purpose is ambiguous (not concretely defined).	● The positioning of the Cooperation Program in the development policies of the partner country should be clearly defined. ● The partner country government should have a shared understanding and strong commitment toward achieving the purpose of the program.
The program purpose is set at too high/low a level.	● The program purpose should be set appropriately (practical target setting) ● The targets (at the Outcome and Impact levels) should be set properly to facilitate their achievement through integrated implementation of multiple projects.
The causal relationship between the program purpose and outcomes is weak.	● The scenario to achieve the program purpose should be set properly. ● The positioning and role of each sub-component project should be clearly defined in the Cooperation Program scenario.
Some indicators are set improperly.	● The indicators should be set properly so that they can be used to assess the program purpose. ● The program purpose should be set properly so that it can be used to assess the achievement of the development goals (or subordinate strategic targets) of the partner country.
Analysis of external factors is insufficient.	● A wide range of risks should be analyzed. ● The program period should be set properly along with a clear exit strategy. ● A shift in the direction of the Cooperation Program caused by the addition of core projects and other drastic changes should be reflected in its plan (e.g. the program purpose, scenario and indicators).
The selected target area deviates from the objective.	● The program purpose should be set properly so that it can be achieved through activities within the target area by the end of the program period.
Measurable development targets are not set when determining the cooperative scope.	● The indicators of the program purpose should be set properly so that they can provide concrete measures to assess the achievement of the program purpose.
The monitoring system and methodology have not been planned in advance.	● The implementation system of the Cooperation Program should be defined in its plan / a monitoring system for centralized monitoring of the progress made toward the program purpose and outcomes of the Cooperation Program as well as sharing of the monitoring results should be established by agreement among JICA members, their counterparts and other people concerned. The methodology, timing, frequency and actors of monitoring should be also specified and agreed by those concerned.

Source: JICA Evaluation Department

Evaluation criteria, questions, tools and formats (draft)

(1) Evaluation criteria and questions (draft)

The abovementioned list of Requirements for Evaluability is expected to enhance the evaluability of each Cooperation Program. The following table shows the focal points in an actual evaluation study. The significance and planning of Cooperation Programs should be assessed at the ex-ante evaluation stage. In addition to these two evaluation criteria, the process and results (degree of achievement of the program purpose) should be evaluated on completion of the program.

Table 2. Evaluation criteria and questions for cooperation programs (draft)

Evaluation criteria	Evaluation questions (main questions)	Evaluation questions (sub-questions)	Ex-ante evaluation	Ex-post evaluation
Ⅰ. Significance of the Cooperation Program	1. Is the program purpose aligned with the development policy or plan of the partner country and the Japanese aid policy?	1-1. Is the Cooperation Program consistent with the development policy and plan of the partner country?	○	○
		1-2. Is the Cooperation Program consistent with the prioritized development needs of the partner country?	○	○
		1-3. Is the Cooperation Program consistent with the country / thematic assistance policies of Japan?	○	○
Ⅱ. Planning of the Cooperation Program	2. Is the scenario to achieve the program purpose appropriate?	2-1. Is the program purpose clear?	○	○
		2-2. Can the program purpose be examined based on the data or facts?	○	○
		2-3. Can the program purpose (its target value) be achieved within a program period?	○	○
		2-4. Is the logical sequence from the each sub-component project to the program purpose clear?	○	○
		2-5. Was the Cooperation Program structured by considering the endeavors of the partner country, other donors and international organizations in order to effectively achieve the program purpose?	○	○
Ⅲ. Process of the Cooperation Program	3.Were the sub-component projects implemented properly to achieve the program purpose?	3-1. Did collaboration among sub-component projects generate scale-up and synergy effects to achieve the program purpose?	×	○
		3-2. Was there any collaboration or coordination with the partner country and other donors and international agencies to achieve the program purpose?	×	○
		3-3. Was the purpose of the Cooperation Program managed as necessary (e.g., monitoring, communication among stakeholders, risk management, and program revision)?	×	○
Ⅳ. Results of the Cooperation Program	4. Was the program purpose achieved?	4-1. To what extent was the program purpose achieved?	×	○
		4-2. What kinds of impact did the implementation of the Cooperation Program generate to achieve the development goal of the partner country?	×	○
		4-3. What other impact was generated by the implementation of the Cooperation Program?	×	○

Source: JICA Evaluation Department

(2) Formats and tools (draft)

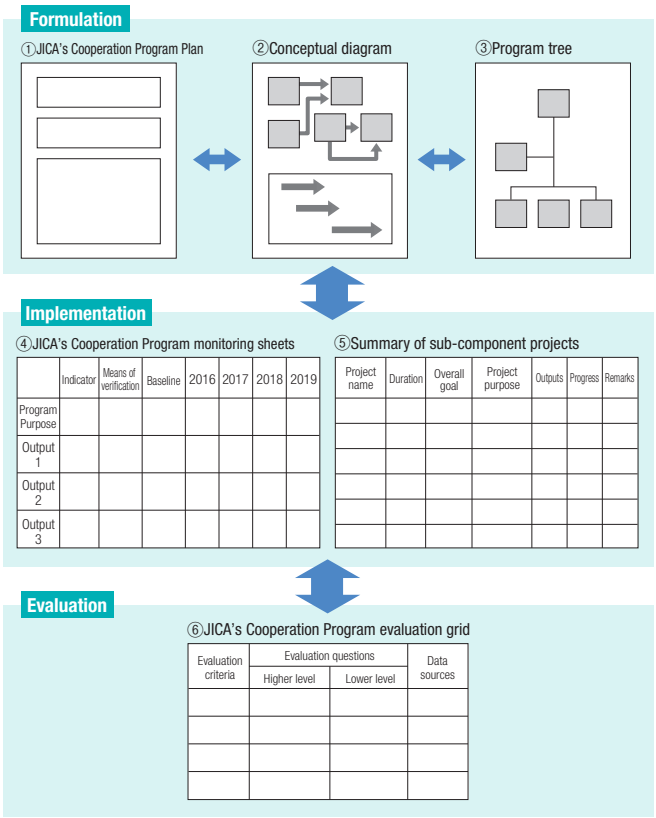
Draft formats and tools were developed based on the following principles:

- Refine the number of common tools and formats.
- Ensure the consistent utilization of tools through the program management cycle.
- Make simple tools to be utilized easily.
- Take into consideration the psychological reluctance to the matrix and logic tree.
- Pay attention to the limitation of the conceptual illustration (they are useful for understanding the main points but less so for illustrating scenarios).

Based on these principles, the following six formats and tools were drafted. It is desirable to use them selectively according to the level of evaluability. As guidelines for the application of these formats and tools, the “Monitoring and Evaluation Reference for Cooperation Programs” was drafted based on the “Classification of Cooperation Programs according to their evaluability” mentioned below (For more details, refer to the Thematic Evaluation Report on the Analysis for Enhancing Evaluability of JICA’s Cooperation Programs).

<Formats and tools (draft)>

① JICA’s Cooperation Program Plan
② Conceptual diagram
③ Program tree
④ JICA’s Cooperation Program monitoring sheets (for annual and program-period monitoring)
⑤ Summary of sub-component projects
⑥ JICA’s Cooperation Program evaluation grid



Recommendations

Based on the results of this study, the following recommendations are made to enhance the evaluability of Cooperation Programs:

Recommendation 1 Utilize the evaluation assessment checklist for JICA's Cooperation Programs

The evaluability of Cooperation Programs represents two things: a determinant of the success or failure of evaluation (practical evaluability) and a requirement for valuable programs (evaluability in principle). It should be recognized as a key factor for the planning, implementation and evaluation of Cooperation Programs. High evaluability can be achieved by improving program design to meet specific requirements. It is also crucial to use the checklist of Requirements for Evaluability to make Cooperation Programs more strategic.

Recommendation 2 Select the method of program evaluation according to the level of evaluability

It is more effective to classify Cooperation Programs into the following four types (see Table 3) and select evaluation methods according to the evaluability of each Cooperation Program than evaluating all Cooperation Programs in the same way, which is mainly intended to draw lessons and recommendations using the concept of contribution, as has been done conventionally.

Recommendation 3 Define the objectives of program evaluation

Previously, the program evaluation objectives were limited to improving the Cooperation Program in question and drawing on lessons learned for subsequent Cooperation Programs. Accountability to the public was not emphasized, despite being an important evaluation objective, as much so as the improvement of Cooperation Programs. Moreover, given that Cooperation Programs should aim to assist the partner countries in tackling development challenges and that such programs must be aligned with the actions of partner countries and other donors, it is also significant to publicize the progress and results of Cooperation Programs. Accordingly, the objectives of program evaluation (on completion of Cooperation Programs) and monitoring should be clearly defined by including the abovementioned three concepts, while determining how to use the evaluation results. To ensure accountability, JICA must objectively and quantitatively assess the contribution of its Cooperation Programs to development in developing countries. Assessing the plausibility of causality based on the concept of contribution, as has been done conventionally, is insufficient.

Recommendation 4 Review the concept of "contribution" used in the evaluation of JICA's Cooperation Programs and make clear a difference between "formative evaluation" and "summative evaluation"

In the current guidelines, Cooperation Programs are evaluated to assess the causal relationships between progress made toward the development goals of the partner countries and the results achieved by Cooperation Programs based on the concept of contribution. However, in practice, it is difficult to accurately assess the plausibility of causality.

Accordingly, it is essential to selectively use formative evaluation (to assess the process to draw lessons and recommendations for improvement) and summative evaluation (to assess the direct effect of interventions) according to the maturity and evaluability of the Cooperation Program to be evaluated. Cooperation Programs with high evaluability are fit for summative evaluation, but those with lower evaluability are fit for formative evaluation, which can be done through ex-ante evaluation using part of the evaluation criteria and annual monitoring. At the same time, particularly for the Type 3 Cooperation Program, strengthening their strategic value is important.

Recommendation 5 Link the evaluation of a JICA's Cooperation Program to the evaluation of projects and sub-components composing the JICA's Cooperation Program

An evaluation system should be established for Cooperation Programs with high evaluability (Type 1) by linking together project and program evaluations. For example, the achievements of sub-component projects can be assessed collectively as the middle/high-level target (outcome) of the Cooperation Program through its summative evaluation instead of being assessed separately through their respective ex-post evaluations.

The program evaluation that collectively assesses the achievements of sub-component projects must satisfy the objectives of the ex-post evaluation for projects, such as ensuring accountability to the public, improving the projects in question and drawing lessons for future projects. Based on these points, the following recommendations are

Table 3. Classification of cooperation programs and evaluation methods according to their evaluability

Type of Cooperation Program	Evaluability	Evaluation method
Type 1. Cooperation Program with high evaluability	●High	●Conduct an ex-ante evaluation. ●Conduct an evaluation at the completion of the program.
Type 2. Cooperation Program under a multi-donor framework.	●Evaluability is low as the program itself. ●This type of Cooperation Programs can be jointly evaluated against the targets jointly set with the government of the partner country and/or other donors.	●Conduct a joint evaluation with the partner country and/or other donors.
Type 3. Cooperation Program, or a group of standalone projects, whose strategy is to be strengthened.	●Evaluability is low, but it can be improved in future.	●Enhance evaluability while remotely monitoring progress.
Type 4. A group of standalone projects	●Low	●This type is not subject to monitoring or evaluation as a Cooperation Program. ●Evaluate and monitor individual projects.

Source: JICA Evaluation Department

made.

The sub-component projects of Cooperation Programs should be separately evaluated on the achievement of their project purposes and overall goals at the time of their completion. The results of these evaluations should then be recorded in the terminal evaluation reports of the projects for future reference when the relevant Cooperation Program is evaluated. Where implementation of sub-component projects was significantly hindered and such projects failed, or were likely to fail, to achieve their project/program purposes and overall goals at the time of their completion, they should be subject to individual ex-post evaluations, apart from the evaluation on completion of the Cooperation Program.

Recommendation 6 Build a common understanding among JICA staff of the JICA's Cooperation Program approach, and build the implementation system of Cooperation Programs

To enhance the effectiveness of Cooperation Programs, it is imperative to ensure all those concerned with the Cooperation Program share a common understanding of it by deepening understanding among JICA staff on efforts to introduce and promote the Cooperation Approach, its effectiveness and necessity and an effective means of managing the Cooperation Program.

At the same time, a cross-sectional system to manage Cooperation Programs is needed to promote the Cooperation Approach. In addition, a certain level of investment may be required, such as assigning program managers and offering them tailor-made pre-assignment training. Without these efforts, Cooperation Programs cannot realize their potential. It may be also effective to broadly share best practices of the Cooperation Approach within JICA to foster a common understanding of Cooperation Programs.

Recommendation 7 Accept the option of not formulating a JICA's Cooperation Program

Certain groups of projects for which a common aim is not strategically targeted can be carried out separately, instead of being integrated into a Cooperation Program. Some projects also have to be managed on a standalone basis due to constraints in terms of budget, project period, security and other factors. Even in such cases, if several projects target similar objectives in the same sector, it should be possible for them to collaborate with each other in their planning and implementation phases. Such indirect collaboration facilitated by loosely grouping projects while managing them on a standalone basis would not result in any specific inconvenience. Rather, this would be better than integrating them into a Cooperation Program and imposing the unnecessary burden of managing them as a whole.

The abovementioned recommendations, as well as the results of this study such as the Requirements for Evaluability, evaluation criteria and questions and other tools and formats for Cooperation Programs, will be integrated into JICA guidelines through subsequent revisions and used by the Evaluation Department and project management departments.

Column

Assessment of Draft List of Requirements for Evaluability of the "Programme for Strengthening Rice Production Capacity" in Tanzania

The Study applied a draft list of Requirements for Evaluability of the cooperation program, a draft set of evaluation criteria and questions and a draft set of tools and formats, which were prepared based on a literature survey, on a trial basis to an actual cooperation program, the "Programme for Strengthening Rice Production Capacity" in Tanzania (Table 4) and implemented a "field trial" to assess the effectiveness and revision of these items.

Table 4 Outline of the Programme for Strengthening Rice Production Capacity in Tanzania

Cooperation program title	Programme for Strengthening Rice Production Capacity in Tanzania
Program period	FY2011 to FY2018
Program purpose	Support for increasing the rice production (from 0.899 million ton in 2008 to 1.963 million ton in 2018: the goal of NRDS which is to be achieved in collaboration with the support by other donors)
Program outputs	1. Promotion and dissemination of Irrigation Development 2. Increase of the productivity of irrigated rice cultivation

As well as identifying the effectiveness of the draft list of Requirements for Evaluability, the Study found that ① the cooperation program was aligned with the Tanzanian policy to improve access to knowledge and technologies, etc. to increase farmers' productivity, profitability and income as the program is positioned as part of the Agricultural Sector Development Programme (ASDP), the aid framework of which supports the Agricultural Sector Development Strategy (ASDS) of the Government of Tanzania; ② achievement of the program purpose is anticipated; ③ synergic effects with the efforts of other projects and donors are high; and ④ the cooperation program corresponds to Type 2 of cooperation program as shown in Table 3. Conversely, a few improvements were pointed out as recommendations, including difficulty in strictly assessing the contribution level of the cooperation program due to the fact that the program purpose sets the same targets as the policy goal of the Tanzanian Government; namely, the National Rice Development Strategy.

JICA's Impact Evaluation

To further enhance the effectiveness and quality of its projects, JICA has facilitated evidence-based project implementation. As part of this effort, JICA has promoted the use of impact evaluation methodologies in its projects. In particular, in cases where evidence to assess the effects of projects (interventions) is lacking and where there is a plan to scale up existing projects (interventions), impact evaluation is crucial to accurately assess their effects.

Because statistical and econometric methods are used to measure impact, a certain understanding of these methods is required to plan and perform evaluation as well as apply its results in practice. Accordingly, JICA has also trained internal and external personnel.

Against this backdrop, the number of impact evaluations conducted by JICA, as well as the range of sectors covered, has increased year by year. In 2014, around 20 impact evaluations were conducted in different sectors, including health, education, industrial development, infrastructure, public services, environment, community development sectors, by the JICA Research Institute, Evaluation Department and project management departments.

The results of these evaluations are presented in academic journals and at conferences within and outside Japan to contribute to the accumulation of evidence and knowledge as international public goods.

Example 1. Project to Strengthen the Development of Human Resource for Health in Tanzania

JICA has conducted the Program of Total Quality Management for Better Hospital Services in 15 African countries, including Tanzania, since 2007. This Program introduced a Japanese quality management method known as the 5S-KAIZEN approach ("5S" stands for sort, set, shine, standardize and sustain) into pilot hospitals to enhance the quality of their medical services. Because the effects of this method had not been accurately assessed, impact evaluation was conducted in the Technical Cooperation Project to Strengthen the Development of Human Resources for Health, launched in 2010, to rigorously assess the effects of the 5S-KAIZEN approach using a cluster randomized controlled trial (CRT) methodology.

A CRT is one of the most accurate assessment methods used to measure impact. This is a type of randomized controlled trial (RCT), in which multiple similar groups are formed by randomly assigning clusters of potential subjects (clustered by hospital in this project) to participant and non-participant groups (i.e. random assignment) before interventions commence (i.e. measures and activities performed in the project) to compare differences between them some time after interventions get underway. In this project, three types of activities were carried out at pilot hospitals (the intervention group): (1) training of trainers (TOT) on the 5S-KAIZEN approach; (2) visits to the pilot hospitals for guidance; and (3) progress report meetings. The effects of these activities were assessed by questioning outpatients at the pilot and other hospitals about (1) the cleanliness of outpatient wards, (2) the waiting time at outpatient wards, (3) the patient experience in diagnosis and treatment and (4) general satisfaction scores and ratings; and asking hospital staff about (1) the cleanliness of hospitals, (2) motivation and satisfaction with their work and (3) the conditions of their working environments at three points in time (before and six and 12 months after interventions respectively).

The results of this statistical analysis revealed that pilot hospitals had significantly improved in terms of the cleanliness of hospitals; the perceived waiting time; the actual waiting time in the treatment room and medical record department; the general ratings by patients; and the working environment conditions. Based on these results, suggestions will be made on how to improve and apply the 5S-KAIZEN approach more effectively.

Patient satisfaction survey

Example 2. Project to Promote Sustainable 3R Activities in Maputo in Mozambique

The ongoing Technical Cooperation Project to Promote Sustainable 3R Activities in Maputo, Mozambique, is one of the projects aimed to enhance project quality through evidence-based implementation.

As one of its outcomes, a pilot project to promote separate waste collection is being implemented to develop a model that can be scaled up and eventually improve the capacity to collect and transport solid waste. What is the most effective approach to encourage citizens to separate their waste for recycling? After field studies and discussions with their counterparts, Japanese experts suggested three approaches that would be capable of changing citizens' behavior, which were proposed based on the experience of experts in similar projects, although neither had been tested for effectiveness. Therefore, the impact evaluation is being performed in the pilot project to assess the effects of the approaches. This evaluation is to compare the effects of the three approaches using a RCT methodology, which is considered the most objective means to assess impact and this will be the first JICA project in the waste management sector to use the methodology. This impact evaluation is expected to identify the most effective approach to changing citizens' behavior. The approach selected through the evaluation will then be scaled up and applied to surrounding areas.

Development models proposed based on detailed deliberation by experts are not necessarily effective. Accordingly, it is crucial to identify the most effective approach via accurate assessment in the pilot project phase. This process can reduce the risk of scaling up ineffective development models.

Weighing the waste collected

Example 3. Share of experience at international conferences

JICA has been very active in sharing its knowledge learned from impact evaluation with other donors on occasions such as international conferences. In 2014, JICA made two presentations at the International Conference "Making Impact Evaluation Matter: Better Evidence for Effective Policies and Programs" held at the ADB headquarters in Manila from September 3 to 5 (cosponsored by the ADB and 3ie*) as follows.

The first presentation outlined JICA's experience in impact evaluation as well as its future policies and strategies for evidence-based project implementation. This presentation was positively acclaimed by other donor agencies, some of which also commented on the practical difficulties in evaluating impact accurately (experimental approaches) as well as the time and technical constraints on a field level, which sparked discussion on a wide range of issues.

The second presentation described a Technical Cooperation project for maternal and child health in Bangladesh, focusing on research concerning the impact of the model developed through the project on the national antenatal care rate. This presentation suggested a simple method to measure impact using secondary data published from other donor agencies. This suggestion obtained favorable comments, such as "It will be a useful approach as an increasing volume of data is becoming available worldwide."

This conference was attended, not only by donor agencies but also other development partners such as NGOs, as well as researchers from universities and other institutions, worldwide. More than 100 presentations were given over the three days of the conference. Against a backdrop of international trends that increasingly emphasize the importance of impact evaluation, JICA will continue to share its experience at international conferences and use the knowledge learned there to make improvements and promote evidence-based evaluation and project implementation.

* 3ie (International Initiative for Impact Evaluation) is an international NGO promoting evidence-based development.