

Irrigation Project Re-evaluation (5 countries / 8 projects)

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Third-party Evaluators : International Development Center of Japan (IDCJ)

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I Introduction

1. Features of this Survey

(1) Japan Bank of International Cooperation (JBIC) began conducting ex-post evaluations in 1975 to track both factors leading to successful outcomes, as well as problems, related to implementation, project effect, and sustainability. The program has since played a tremendous role in the form of feedback for new projects at all stages, including formulation, appraisal, implementation, monitoring after completion, and so on. Ex-post evaluation reporting can be divided into two broad categories: “evaluation by theme”, e.g. regional development, environmental concerns, social development, and so on—which is done utilizing the expertise of external specialists and institutes—and “project evaluation”, where projects are evaluated on an individual basis.

(2) The survey presented makes a fundamental departure from prior JBIC project evaluations in the following three respects:

- (i) It is a “global” survey of the irrigation sector.
- (ii) It represents a “re-evaluation” of projects previously subjected to ex-post evaluation.
- (iii) It offers proposals for a set of “rural development evaluation guidelines” expected to be formulated by JBIC for

the 21st century.

(3) This survey was conducted over the period of February-April 2001, primarily on-site, by a team of experts from the International Development Center of Japan and IC Net Limited. It was made possible with the tremendous assistance of the governments and project-related agencies of the countries concerned, local JBIC offices, specialists from Japan International Cooperation Agency (JICA), as well as local consultants.

2. Background

(1) An increase in food production was the first step toward the reconstruction of the world economy from the devastation of World War II.

Figure1 : Locations of Projects Surveyed



Despite the rise in the world's population from 2.5 billion in 1950 to 5.7 billion in 1995 (a 2.3-fold increase), sufficient food production, in terms of both quantity and quality, has been made possible due to the outcome of the "Green Revolution," which consisted of a combination of new types of seeds, fertilizers, and irrigation. Amongst these factors, the key was the irrigated farmland. The total of the land was also increased dramatically from 80 million hectares in 1945 to 250 million by 1995 (a 3.1-fold increase).

- (2) Many of the irrigation facilities of that period, however, have almost reached to the point of deterioration and rehabilitation. In particular, operation and maintenance of large-scale irrigation facilities, completed after 1980s, when self-sufficiency in food production was achieved, have fallen into disrepair. It was due to the restricted budgets of developing countries, partly caused by lower prices on the international food market. In addition, the farmers are also unwilling to take responsibility for operation and maintenance. Consequently, the facilities that would normally have a life expectancy of 30-50 years now require repair within a mere 6-7 years. If this vicious circle persists into the future, operation and maintenance costs for irrigation projects may rise sharply in the 21st century and, unable to support the increasing population, the world may again face a food shortage.
- (3) Furthermore, in the 21st century, the focus will be placed on "governance" of the governments and "ownership" of the farmers in respect to irrigation, in order to harmonize with a number of "human development issues": social problems in rural areas (e.g. health, education, income), global environmental concerns, and finally, the alleviation of poverty. In this regard, JBIC has decided that a comprehensive evaluation, incorporating updated concepts on rural development taking the above issues into consideration, was required for eight irrigation projects around the world.

3. Survey Objectives

This survey concerns a total of eight irrigation projects in five countries for which ex-post evaluation was conducted in the fiscal year of 1992. The

major objectives of the survey are summarized in the following points:

- (1) To perceive any changes come out in the projects since the last evaluation.
- (2) By piloting the Rapid Rural Appraisal (RRA), taking the Widas irrigation project in Indonesia as a target, to collect data on attitudes of beneficiary habitants on the irrigation facilities and the project (e.g. opinions and suggestions on the project, on operation and maintenance improvements, on their willingness to be engaged in farming, requests to government agencies, and so on).
- (3) As an additional view point in the survey, to investigate as much as possible in the health issues of beneficiaries of each project, and to extract lessons learned so that negative impacts on their health can be avoided.
- (4) Based on the outputs from the above three points, firstly to set of new criteria to be considered for sustainability of future irrigation projects; and secondly to present draft guidelines for evaluation of rural development centered in irrigation from a new view point.

4. Subjects of the Survey Report

The following eight projects are subjected in this report (see Table 1 and Figure 1 in the next page).

5. Comparison between the 1992 Survey and the 2001 Evaluation, and Updated Standpoints on Rural Development

- (1) On average, the eight projects subjected to evaluation in this report have the following points in common: (1) Loan Agreement (L/A) was concluded in 1978, (2) construction was completed in 1985, (3) detailed evaluation was carried out in 1987, and (4) impact surveys were implemented in 1992. This indicates that irrigation projects designed for the purpose of self-sufficiency in rice had basically achieved the goal between 1980s and 1990s. Subsequently, plagued by degradation of rice price in the international market, rural development projects had started focusing on a changeover from rice, or on the simultaneous production with rice, of cash crops (vegetables and fruits), livestock, and forestry.

(2) Since the early 1990s, international development policy began to reflect contemporary standpoints of human development, i.e. income, public health, and education, as well as environmental conservation. Under the leadership of the Japanese government in 1996, the “DAC Development Partnership Strategy: Shaping the 21st Century” was agreed upon as international goals. The specific contents of the agreement to be achieved by 2015 primarily included: 1) a reduction by one-half of the proportion of people living in poverty, 2) 100% pervasion of primary education, 3) a reduction by two-thirds in infant mortality rate, 4) a reduction by three-fourths in maternal mortality

rate, 5) the spread of reproductive health, and 6) a reversal of the current trend of the loss of environmental resources, all by 2015, and 7) elimination of gender disparity in primary and secondary education by 2005.

(3) Since approximately 1995, methodologies such as PCM (Project Cycle Management), PDM (Project Design Matrix), and RRA (Rapid Rural Appraisal), were incorporated into Japan’s ODA, in pursuit of the integrated project evaluation with consistency, logicity, participation, and accountability, from the beginning through to completion of projects, and to the impact evaluation in some years thereafter. The five

Table 1: Projects Surveyed

No.	Project Name ¹⁾	Country	Year of Completion	Details
1	Wonogiri Irrigation Project	Indonesia	1986	September 1989 - Detailed evaluation conducted. March 1993 - Sustainability survey implemented. 1997-1999 - Expansion and rehabilitation work carried out.
2	Widas Irrigation Project	Indonesia	1984	1984 - Dam construction and waterways rehabilitation completed. January 1989 - Non-field evaluation carried out. March 1993 - Sustainability surveys conducted.
3	Way Jepara Irrigation Project	Indonesia	1980	Rehabilitation being implemented. November 1983 - Detailed evaluation carried out. March 1993 - Sustainability surveys conducted. 1988-1996 - Rehabilitation and expansion project implemented.
4	Way Umpu and Way Pungbuan Irrigation Projects	Indonesia	1982	Second phase of project carried out, along with rehabilitation. February 1986 - Detailed evaluation conducted. 1987-1991 - Rehabilitation conducted. March 1993 - Sustainability survey carried out. 1998 - Ex-post evaluations conducted.
5	Inginimitya Irrigation Project	Sri Lanka	1986	January 1988 - Non-field evaluations carried out. March 1993 - Sustainability survey conducted. 1993 - SAPROF carried out.
6	Wadi Arab Dam and Irrigation Project	Jordan	1986	July 1987 - Detailed evaluation conducted. 1986-1990 - JBIC irrigation project implemented in Northern Goal. March 1993 - Sustainability survey carried out.
7	Lower Moshi Agriculture Development Project	Tanzania	1987	September 1988 - Detailed evaluation conducted. March 1993 - Sustainability survey carried out. 1998 - Joint evaluation conducted by JICA/CIDA.
8	Aglipo Agriculture Development Project	Dominican Republic	1989	December 1990 - Detailed evaluation conducted. March 1993 - Sustainability survey implemented. 1996-2004 - Aglipo Work II under construction.

1) Project names conform to those presented in JBIC’s “Report on the investigation of sustainability and impacts of projects in the irrigation sector” (March 1993, p 2.)”

DAC criteria (relevance, effectiveness, efficiency, sustainability, and impact) have been integrated into Japan's ODA evaluation, although their application is considerably limited. The Japan Evaluation Society established in 2000, has started active movement within the field.

- (4) In tandem with the massive process of globalization, it is natural that the focus of irrigation project evaluation will also evolve. The objectives of 1992 survey were: 1) status of farming, 2) status of irrigation, 3) impact on agriculture production, and 4) impact on the regional economy and society. The first three had essentially been stabilized approximately in 1992 when

seven years had passed since project completion. Table 2 shows the comparison between the results of the 1992 impact survey and the 2001 comprehensive evaluation, in regard to the main project indicators. There are three main conclusions drawn from the observations on the comparison: first, per-hectare yield has remained virtually unchanged; second, the increase in total yield in Wonogiri, Way Jepara, Inginimitya, and Aglipo, was mostly attributed to expansion of irrigated and cultivated areas; and third, the decrease of total yield in Lower Moshi was largely due to water shortage, caused by the water intake struggle in the upstream.

Table 2: Comparison Between the 1992 and 2001 Surveys

	Indicator	Planned	1992 Evaluation ¹⁾	2001 Comprehensive Evaluation ²⁾
Wonogiri Irrigation Project	Irrigated area (ha)	23,200	22,128	27,356
	Yield/ha (tons)	5.5	6.1	5.5
	Cultivated area (ha)	38,000	33,194	76,025
	Total yield (thousand tons)	209	201	418
Widas Irrigation Project	Irrigated area (ha)	8,600	9,000	8,729
	Yield/ha (tons)	6.5	6.5	5.6
	Cultivated area (ha)	13,000	9,000	11,130
	Total yield (thousand tons)	85	60	63
Way Jepara Irrigation Project	Irrigated area (ha)	5,950	4,250	6,651
	Yield/ha (tons)	3.0	5.7	5.4
	Cultivated area (ha)	5,950	5,444	12,250
	Total yield (thousand tons)	18	31	66
Way Umpu and Way Pungbuan Irrigation Projects	Irrigated area (ha)	12,500	5,932	12,500
	Yield/ha (tons)	4.5	3.5	3.8
	Cultivated area (ha)	15,000	7,426	6,768
	Total yield (thousand tons)	67	26	26
Inginimitya Irrigation Project	Irrigated area (ha)	2,251	1,323	1,332
	Yield/ha (tons)	4.1	3.4	4.1
	Cultivated area (ha)	3,849	1,474	2,305
	Total yield (thousand tons)	16	5.0	9.4
Wadi Arab Dam and Irrigation Project ³⁾	Irrigated area (ha)	1,250	1,194	1,250
	Yield/ha (tons)	-	-	18.9
	Cultivated area (ha)	1,588	1,273	880
	Total yield (thousand tons)	-	-	17
Lower Moshi Agriculture Development Project	Irrigated area (ha)	2,300	567	2,300
	Yield/ha (tons)	4.5	6.5	6.6
	Cultivated area (ha)	2,650	1,618	884
	Total yield (thousand tons)	12	11	6
Aglipo Agriculture Development Project	Irrigated area (ha)	7,500	5,852	7,758
	Yield/ha (tons)	4.3	5.8	7.0
	Cultivated area (ha)	15,000	7,781	9,618
	Total yield (thousand tons)	65	46	67

1) Source of averages for 1989-1991, "Report on the investigation of sustainability and impact of projects in the irrigation sector" (JBIC, March 1993, p. 31).

2) Averages for 1997-99.

3) Figures include grains, vegetables, and fruits.

(5) Among of the four factors mentioned above, the disparity in the results between the 1992 survey and the 2001 evaluation can be clearly seen in the fourth point, the impact on the regional economy and society. Due to the Asian currency crisis, which began in 1997, and political turmoil in Indonesia in particular, operation and maintenance of irrigation facilities have been further adversely affected. This survey was thereby carried out, in agreement with JBIC, with the special emphasis on the following two points. The first point is the impacts of a range of current factors on irrigation-dependent rural societies. These factors include establishment of the trade-related organizations such as APEC (Asia Pacific Economic Cooperation) and WTO (World Trade Organization) stimulated by substantial private investment in Asia, amounting several times more of the disbursed in the form of ODA; increasing water demand stemming from industrialization and urbanization; the participatory approach in development projects; and the roles played by NGOs. The second point is to illustrate tentative rural development strategies for the 21st century based on the above findings.

6. Proposals to Ensure the Lasting Success of Irrigation Projects

- (1) The term “rehabilitation” in this survey refers to a situation caused by “unsatisfactory operation and maintenance” in most of the eight projects. As shown in Table 1, irrigation facilities that would normally have a lifespan of 30-50 years have required rehabilitation every a few years. The main reason for this situation is that both the government and irrigation associations have lacked of the will to independently manage the facilities. Consequently, the use of the word “rehabilitation” itself ought to be avoided, as it may be understood as acknowledging such a situation.
- (2) The use of “renovation” is recommended to substitute “rehabilitation,” which is defined as “qualitative improvement of institutional and physical sustainability”. “Institution” in this context shall refer to “policies, laws, and organizations.” JBIC should take the step of basic strategic “renovation” in finance, at the start of the 21st century.

- (3) The term “participatory development” is also insufficient. Development should take one step further to “farmers-initiated development” approach, engaging the farmers in the process, so that they take the responsibility and ownership through the process. This will allow JBIC to make a loan just once in an infrastructure-oriented official development project. Thereafter, the farmers would take the responsibility and expand it both horizontally and vertically, including production methods, in cooperation with the ministries of agriculture, and of smaller enterprises and labor associations of the respective countries. There are two promoting elements for this to be achieved: one is to provide of incentives such as land ownership to farmers, and the other is to strengthen the financial foundation through activities of agricultural cooperatives. The passive attitudes of developing countries toward rural development that farmers simply participate in what the government decides to do, must be replaced to a basic principle of Japanese land reform law that all irrigation projects must be approved by at least two-thirds of the farmers. The starting point of development projects is a government approval on irrigation association leadership and institutional accountability based on clear quantitative indicators.

- (4) It is virtually impossible to raise farmers’ incomes to cover the irrigation costs alone by irrigation associations. A triune cooperation between the associations, agricultural cooperatives, and the government must be promoted from the implementing stage of the projects.
- (5) JBIC, which is considered to be one of the three largest donors operating in Asia, along



Irrigated Rice Paddy (Way Japara Irrigation Project)

with the World Bank and the Asian Development Bank (ADB), is expected to have specialized knowledge both on systems and equipments in rural development in the 21st century, even merely in the irrigation sector. In order to take responsibility in the broader global development strategy, a nation-wide approach of close coordination between donors (JBIC, JICA, third-party experts, universities, consultants, NGOs, and the government), is the key. Particularly for JBIC, a more flexible and broader incorporation with the Development Studies, the Project-type technical Cooperation, and the Japan Overseas Cooperation Volunteer (JOVC) program of JICA, grant aid programs and NGOs, is optimal.

II Evaluation of Participatory Approach to Development¹

1. Objective of Rapid Rural Appraisal (RRA)

- (1) In addition to interview surveys with the executing agency, to evaluate operation and maintenance (OM) systems for irrigation-system projects via RRA field research on the farming population.
- (2) To track project impact on project beneficiaries by RRA research.
- (3) To track the current status of irrigation associations through questionnaires with irrigation association chiefs and through group interviews with farmers; in addition, to evaluate a new irrigation association system in its pilot phase in Indonesia through a workshop on organizational analysis with participation of irrigation association leaders, which will elaborate future issues and potential problems.

2. Methodology Adopted in the Field Surveys

- (1) Where evaluations are conducted under time and budget constraints, the RRA and other swift methods of appraisal are considered efficient. However, due to the difficulty in obtaining the required quantitative data under RRA,

the result must frequently be supplemented by questionnaires and the like. The optimal combination of methodology should be determined considering the project scale, evaluation objectives, survey period, and the cost. It is also important to ensure that methodology does not take on a uniform standard.

- (2) Where RRA and questionnaire surveys are combined, RRA should be implemented first to obtain a qualitative overview of information from various angles. To verify RRA findings, it is advisable to devise a questionnaire, then to carry out the questionnaire following implementation of RRA.
- (3) The evaluation of the Widas project was done utilizing RRA, incorporating the above. Because quantitative analysis is difficult with RRA alone, it was supplemented with questionnaires addressed to the heads of the irrigation associations.

3. Evaluation Findings and Suggestions Derived from the Widas Irrigation Project

- (1) The “one village, one irrigation association” system, like that implemented in Eastern Java, had the effect of enhancing the relationship of the associations with the village government, and thereby facilitated easier coordination with the district governments. On the down side, some associations became highly dependent upon the district governments. In their current state, devoid of their own staff or revenue sources, few irrigation associations are



Beneficiary of the Irrigation Facilities who Cultivated New Padi-ies (Way Umpu and Way Pungbuan Irrigation Projects)

¹ As described above (I, 6(3)), the promotion of “farmer-initiated development” is considered ideal. However, because a leap of such proportions is unrealistic in the Widas Irrigation Project at this time, the term “participatory approach to development” has been used for this section.

believed to have sufficient organizational capacity to make an impact, even in cases where they are socially acknowledged.

- (2) Irrigation associations are expected to contribute to the enhancement of the agricultural sector, through the diversification of commodities produced and through their involvement in the distribution process. However, in the districts surveyed here, there were no irrigation associations systematically promoting the process of diversification, and the effect of the associations on enhancing the farming sector was minor. Interviews with irrigation association leadership indicate that while farmers are highly interested in production and prices of agricultural inputs, there is no systematic effort regarding the distribution process, and they do not receive assistance from the agricultural extension bureau or other external sources.
- (3) During this survey, a large number of farmers, particularly those living downstream, voiced concerns related to water shortages during the dry season. Because it is impossible to bolster the irrigation associations without solving this problem, it is advisable to conduct detailed research and formulate strategies to resolve major bottlenecks related to water shortages.
- (4) Pilot project areas employing new types of irrigation association operations systems were not clear on to what extent irrigation association should take responsibility, in terms of scale and cost, for OM, and therefore had no way of establishing irrigation service fee (ISF). It is consequently a matter of extreme urgency to establish general agreement on the issues as well as standards. Then, it is necessary for district governments to hold meetings closely with irrigation associations and to clarify district government OM planning and priorities to the associations. This enables the associations to track who is in charge of OM, what their level of responsibility is, and the necessary costs involved.
- (5) At present, ISF is set extremely low, to the extent that even if they were collected in full, they would not cover even 10% of OM costs. In order to ensure that costs other than those related to OM are covered (e.g. overhead costs

of running offices, personnel costs, and so on), the financial structure of the organizations must be enhanced. This requires that the following factors be considered: (i) severe increases in ISF, (ii) the role of management personnel, and (iii) basic organizational functions such as data management methodology and accounting.

III Impact on Health of Local Residents

1. Relationship Between Irrigation Projects and the Health of Local Residents

The relationship between irrigation projects and the health of people residing in the vicinity can be summarized in the following three points.

- (1) Positive economic and social impact
- (2) Increased convenience by irrigation water for a range of everyday usages, and, on the flip side, increases in digestive system infections related to problems with the sanitary environment of the area.
- (3) An increase in communicable diseases brought on by changes in the ecological system and the environment stemming from the project.

In investigating the eight irrigation projects, the survey focused on the following factors: (i) basic health indicators (infant mortality, maternal mortality, nutrition for children under five years of age); (ii) infections of the digestive system (diarrhea, dysentery, etc.); and (iii) communicable diseases (malaria, schistosomiasis, etc.). The possibilities of



A Farmer Working in the Irrigated Paddy Fields (Lower Moshi Agriculture Development Project)

potential health hazards as well as the positive benefits of irrigation projects subsequent to project completion were also analyzed.

2. Digestive System Infections

(1) Access to irrigation water for daily use has made the lives of residents more convenient. On the down side, however, the ingestion of water not originally used as drinking water, which is related to water supply shortages, has caused instances of stomach infections such as diarrhea and dysentery due to inadequate sanitary conditions. The rate of digestive system infection is high in seven areas out of eight project areas surveyed here. However, the root of the problem does not lie in the irrigation system itself, but rather with securing a sanitary environment, e.g. ensuring access to safe drinking water, the popularization of sanitation facilities, and enhancement of education on sanitation. In general, areas lacking in water for agricultural usage tend to be plagued with difficulties with securing safe drinking water. To solve this problem, it is advisable to take a general approach to securing water supply for the region instead of considering water for agricultural usage and water for daily use as two separate issues.

3. Instances of Communicative Disease

(1) In a number of villages affected by the Lower Moshi agricultural development project, there was a rise in the incidence rate of schistosomiasis between before and after project figures. The data collected over the course of this survey alone is insufficient to prove that the increase in the rate was attributed to this irrigation project. However, a number of other surveys carried out to date have served to point out a relationship between irrigation projects and increased population of the type of snails that hosts the schistosomiasis parasite. It can thereby be inferred that risk of the disease—linked to irrigation projects—in project areas is high. The agricultural cooperative (Chawampu) located in the project area, attributes the increase in schistosomiasis to the projects.

(2) The infection rate of malaria is high in three project areas. However, since there is no baseline (pre-project implementation) data, and because monitoring of infection rates does not

cover the entire project area, it is inappropriate to assert that this has been caused by the irrigation projects. However, for project areas where malaria is endemically high, it is advisable that a health impact assessment (HIA) be implemented at the project planning stage, and that, taking economic relevance into consideration, anti-malaria countermeasures be incorporated into project plans, such as in terms of OM methodology and/or in agricultural planning.

IV Proposals for Rural Development Evaluation Guidelines

1. Objective and Process of Evaluation

- (1) There are two objectives for an evaluation. One is to achieve “accountability” as to whether project objectives have been attained; this means to offer an explanation to external parties which is objective, transparent, and comprehensive. The second objective is to utilize for “management and learning” for the better project OM process. Most donors are implementing improvements to their evaluation methodologies to achieve these two objectives of evaluation.
- (2) In order to ensure a meaningful evaluation, it is critical to clarify, prior to project implementation: the overall goals, project purposes and activities for their achievement, baseline data and performance indicators to measure effectiveness and achievement of the purposes, as well as monitoring methodology.
- (3) The evaluation process is normally divided into three distinct stages: (i) ex-ante evaluation, (ii) implementation-stage review, and (iii) ex-post evaluation. It is extremely important to determine from what standpoint and for which aspects evaluation should be carried out, depending on the particular stage of evaluation, and to establish a close working relationship with related ODA institutions. It is also advisable that rules be established to ensure that a JBIC survey team be dispatched at least once during each stage of the evaluation process, a report compiled at each time, and the report findings shared with recipient countries.

2. Consistency from Ex-ante Evaluation to Implementation-Stage Review, and to Ex-post Evaluation

- (1) From the standpoint of enhancing evaluation of irrigation projects, the importance of establishing an integrated process incorporating ex-ante evaluation, implementation-stage review, and ex-post evaluation, following the project cycle has taken on greater importance.
- (2) To carry out evaluation-related surveys at each stage of the project implementation, total or partial incorporation of SAPROF, SAPI, or SAPS should be considered as a standard procedure in the project implementation. (These are currently utilized as supplementary survey programs). In this case, they should be taken as surveys to devise tactics to prevent problems

through preliminary examination on a range of important factors relevant to the implementation, to the contrary to the present SAPROF, SAPI, and SAPS, which have been designed to resolve problems arising under implementation.

3. Checklist for Rural Development Evaluation Guidelines

- (1) Table 3 represents a compilation of the above points. Among the various phases, that of project approval of appraisal based on ex-ante evaluation is particularly important, and since it forms the basis of the construction process as well as OM after the construction, it should, in principle, be officially announced. The appraisal process is clarified in a JBIC news release (PR/2001-7), dated May 30, 2001, entitled "Project Appraisal: Formulation and Dis-

Table 3: Checklist of Rural Development Evaluation Guidelines

Perspective	Sector/Issue	Checklist
Technical Feasibility	Weather / hydrology Soil/vegetation Irrigation / drainage Roads / electricity	Precipitation / temperature / water quality Soil q quality (physical and chemical) / desert / grassland / forests Lifting systems / underground sewage systems / dams / sluices Minimum rural district infrastructure
Economic Viability	Macroeconomics Agricultural production Processing / marketing Project income / expenditures	National development strategies and priorities / finances / trade revenues / foreign exchange Types of crops / livestock / forestry / fisheries Processing facilities / distribution and marketing Costs and benefits / financing
Social Acceptability	Agricultural land ownership system Employment/income Health / medical care Education/training	Percentages of owner farmers, tenant farmers and landless farmers Agriculture and non-farming income and expenditures Water-related infections / stomach infections / nutrition / agricultural chemicals Elementary schools / agricultural extension
Institutional Capability	Irrigation associations Agricultural cooperatives Local governments NGOs	Operations and maintenance revenues and expenditures / irrigation service fees / leadership / distribution systems / traditional farming organizations Purchasing / retail / profits stemming from credit / traditional purchasing and retail structures Autonomy from the central government / structure and role of local autonomous organizations Incorporation of local culture, major activities in affected areas
Environmental Sustainability	Natural environment Society / local resident life Economic aspects Political aspects	Sustainability of water, soil, and production Individual / group / general meetings / women Land usage / industry distribution Political stability / opposition between political parties / empowerment of local residents

Note 1: This checklist includes categories considered necessary from a broad-based standpoint of rural development, representing a mixture of items to be evaluated and to be examined for relevance. In applying these to individual projects, it is necessary to select the appropriate items based on close examination of project objectives and details.

closure—Striving for Improved Transparency in ODA Projects.”² This is a significant step in achieving the desired public disclosure.

- (2) Among the factors shown in Table 3, JBIC has had extensive experience in “Technical Feasibility” and “Economic Viability” in previous surveys. JBIC is currently studying the issue of “Environmental Sustainability” based on the September 2001 “Proposals for Environmental Guidelines”. Regarding the remaining two, “Social Acceptability” and “Institutional Capability”, due to the great diversity of these areas and significant differences depending on the sector, none of JBIC, the World Bank, and the Asian Development Bank have developed specific, concrete indicators. A set of what are considered the minimum necessary social development indicators for rural development

projects is shown in Table 4. Due to excessive costs, it may be unrealistic to research all of them. Rather than aiming to quantify and analyze all factors by indexes, it is at times more important to develop a qualitative evaluation. Accordingly, it is advisable to choose a sufficient number of appropriate indicators for each particular project.

² The publication of the appraisal report is designed to ensure greater effectiveness and efficiency as well as accountability and transparency in JBIC's ODA-loan project implementation. The report is comprised of the following eight parts: (i) the necessity of JBIC assistance, (ii) relevance, (iii) project objectives, (iv) project description, (v) goals for project effect, (vi) external factor risk, (vii) evaluation findings from similar past projects and lessons for the project at hand, and (viii) future evaluation planning. In particular, the report is designed to gauge project effect goals via specific quantitative indicators, to clarify lessons to be applied to the current project from past evaluation findings on similar projects, and to provide a basis for future evaluation planning

Table 4: Critical Social Development Indicators for Rural Development Projects

No.	Social Development Indicators		National	Irrigation Project		
		Stage of Evaluation	Ex-Ante Evaluation	Ex-Ante Evaluation ¹⁾	Implementation-Stage Review	Ex-Post Evaluation
1	Rural Society	Population				
2		Farming Population				
3		Landowners (%)				
4		No. of Irrigation Associations				
5		No. of Agricultural Cooperatives				
6		Human Development Indicators (HDI)				
7		Gender Development Indicators ²⁾				
8	Income/ Poverty	Per Capita GDP (U.S. \$)				
9		PPP / person (U.S. \$)				
10		Poverty Line(US\$/Year/Household)				
11		Persons living below the poverty line (%)				
12		Unemployed (%)				
13		Gini Coefficient				
14	Public Health/ Medical Care	Maternal mortality rate (per 100,000 persons)				
15		Infant mortality rate (per thousand)				
16		Average lifespan (age)				
17		Persons without access to safe water (%)				
18		Persons without access to public health services (%)				
19	Infection rates of major communicable diseases (%)					
20	Education/ Awareness	Literacy rate				
21		Primary school attendance rate				
22		Secondary school attendance rate				
23		Vocational school attendance rate				
24		Socially disadvantaged (%)				

Note 1: The following points are particularly important at the appraisal stage.

(i) Specification of control area; (ii) Qualitative baseline data on the area and quantitative questionnaire-derived data; (iii) Current analysis of agricultural organizations and tactics for enhancing leadership and organizational capacity; (iv) Specification of groups that require special consideration on social aspects; and (v) Assistance from local consultants/ NGOs, and for Japanese consultants.

Note 2: The Gender Development Indicator (GDI) is a compound indicator incorporating the same variables as the Human Development Indicator (HDI) (average lifespan, educational achievement, and income), adjusting for differences in gender by country for these and other variables. In other words, the GDI indicators are the HDI indicators adjusted to reveal gender disparities.