

Standard Indicators by Development Strategic Objective

Financial Assistance Projects / Indicator Reference (Agricultural and Rural Development)

Note: Those written in blue are Global Sustainable Development Goal (SDG) Indicators. In light of recent global trends, relevant Global SDG indicators are listed for project officers who may wish to refer to these indicators when formulating a project plan (setting indicators)

Development strategic objectives (*1)	Mid-term objectives	Mid-term sub-targets	Types of infrastructure	Standard indicators		Policy and methods for setting indicators	Reference projects by infrastructure type		
							Country name	Project name	Evaluation year
1. Sustainable agricultural production	1-2. Improving, maintaining, conserving and managing production infrastructure	Land use and soil conservation	Developing and improving agricultural land	Operation indicators	Basic indicators (1) Newly reclaimed area (ha) (2) Planted area (ha)	Basic indicators (1) (2) These indicators should be evaluated by comparing planned values with actual values at the time of ex-post evaluation (The same shall apply hereinafter). (2) The planted area should be estimated for the rainy and dry seasons, respectively.	Malawi	The Bwanje Valley Irrigation Development Project	2006
				Effect indicators	Basic indicators (1) Crop yield (tons/ha)				
1. Sustainable agricultural production	1-2. Improving, maintaining, conserving and managing production infrastructure	Water management	Improving irrigation and drainage facilities	Operation indicators	Basic indicators (1) Benefited area (ha) (2) Irrigation coverage (percentage of farms where irrigation water is delivered)	As for the indicators related to production (e.g. production volumes and unit yields), it is desirable to collect national and provincial data (data of the province where the project is located) at the same time. Basic indicators (1) Benefited area: Area of arable land to be benefited by the project, which generally means the area of arable land to be benefited by the irrigation and drainage facilities developed through the project. (Check whether the irrigation and drainage facilities were developed as planned.) (2) Irrigation coverage: Ratio of irrigated area (where irrigation water is delivered) to total benefited area. If double cropping takes place, the irrigation coverage should be estimated for the rainy and dry seasons, respectively. (Check whether the irrigation and drainage facilities were developed as planned.)	Philippines	The Project for Rehabilitation of Cagayan Irrigation Facilities	2008
							Vietnam	The Project for Improvement of Drainage System in Tan Chi Agricultural Area	2005
							Mozambique	The Project for Rehabilitation of Chokwe Irrigation Scheme (Phase 1)	2006
							Egypt	The Project for Rehabilitation of Floating Pump Stations in Upper Egypt (Phase 3)	2007
							Macedonia	Zletovica Basin Water Utilization Improvement Project (ODA Loan)	2014
1. Sustainable agricultural production	1-2. Improving, maintaining, conserving and managing production infrastructure	Water management	Improving irrigation and drainage facilities	Operation indicators	Supplementary indicators (1) Water users association membership rate (%) (2) Total annual water discharge (m ³ /year) (This indicator should be used if the project includes dam construction) (3) Sediment volume (m ³ /year) (This indicator should be used if the project includes dam construction) (4) Reduction in the annual number of incidents causing damage to canals (by lining them with concrete)	Supplementary indicators (1) Water users association membership rate: Ratio of water users association members to total beneficiary farmers (2) Total annual water discharge: Total annual amount of water discharged for irrigation from the dam reservoir (Amount of water discharged through the intake facilities) (3) Sediment volume: Sediment accumulation in the reservoir. This indicator can also be used to evaluate the outcomes of canal rehabilitation (e.g. reduction in time required for sediment removal and dredging as a result of rehabilitation).	Indonesia	Countermeasure for Sediment in Wonogiri Multipurpose (I) (ODA Loan)	2008
							Indonesia	Countermeasure for Sediment in Wonogiri Multipurpose (II) (ODA Loan)	2013
							Madagascar	The Project for Rehabilitation of Irrigation System in South-West of Alaotra Lake	2017

				Effect indicators	Basic indicators (1) Production volume of major crops (tons/year) (2) Unit yield of major crops (tons/ha) (3) Gross farm income per household (yen/year/household) (4) Planted area by crop (ha) (5) Water fee collection rate (%)	Basic indicators (1) Production volume of major crops: Volume of each crop produced in the benefited area (rainy/dry seasons) (2) Unit yield of major crops: Yield of each crop per season (rainy/dry seasons) (3) Gross annual farm income per household: Estimated per year based on a scenario of model farm management. Gross farm income = production volumes of all crops x their respective prices (prices received by farmers) "Net farm income per household" should be used as an alternative to this indicator when production cost data are available. (4) Planted area by crop: Total area of planted land by crop in the benefited area. Because it generally varies depending on the season (e.g. rainy vs. dry season), it should be estimated for each season. (Check whether the area is farmed as planned.) (5) Water fee collection rate: Percentage of water fees collected from beneficiaries, which is generally calculated by dividing the area for which water fees have been collected by the total benefited area. (This is because the management of water users associations to maintain irrigation facilities is funded largely with water fees.)	India Peru Zimbabwe Indonesia Rwanda Egypt	Kurnool-Cuddapah Canal Modernization Project (II) (ODA Loan) Sierra Small and Medium Irrigation Project (ODA Loan) The Project for Irrigation Development for Nyakomba Irrigation Scheme Decentralized Irrigation System Improvement Project (IV) (ODA Loan) The Project for Rehabilitation of Irrigation Facilities in Rwamagana District Project for Construction of the New Dirout Group of Regulators (ODA Loan)	2014 2011 2015 2014 2016 2014
1. Sustainable agricultural production	1-2. Improving, maintaining, conserving and managing production infrastructure	Water management	Improving irrigation and drainage facilities	Effect indicators	Supplementary indicators (1) Net farm income per household (yen/year/household)	Supplementary indicators (1) Net farm income per household: Estimated per year based on a scenario of model farm management. Net farm income = gross farm income - (total production cost - family labor cost - rent value for self-owned land - interest on equity) The total production cost includes water fees, rent, and interest.	Tanzania Philippines Bangladesh India	Small Scale Irrigation Development Project (ODA Loan) Agrarian Reform Infrastructure Support Project (Phase 3) (ODA Loan) Small and Marginal Sized Farmers Agricultural Productivity Improvement and Diversification Financing Project (ODA Loan) Rengali Irrigation Project (Phase 2) (ODA Loan)	2013 2007 2014 2014
				Operation indicators	Basic indicators (1) Pump discharge per second (m ³ /s) Supplementary indicators (1) Annual electricity consumption (GWh)		Uzbekistan	Amu-Bukhara Irrigation System Rehabilitation Project (ODA Loan)	2014

				Effect indicators	Basic indicators (1) Electricity intensity (annual electricity consumption (KWh) / annual pump discharge (m ³ /s))	If the project aims to reduce electricity consumption, "electricity intensity" should be used as a basic indicator. If the project also aims to increase irrigation coverage, irrigated areas, and yields per unit area, "electricity intensity" should be used as a supplementary indicator along with the other indicators related to these project outcomes.	Laos	The Project for the Improvement of Irrigated Agriculture in Tha Ngon	2017
1. Sustainable agricultural production	1-2. Improving, maintaining, conserving and managing production infrastructure	Water management	Support activities for the creation of water users associations (as a soft component)	Operation indicators	Basic indicators (1) Attendance rate at general meetings of water users associations (%) (2) Maintenance plan implementation rate (%) (3) Water distribution plan implementation rate (%) (4) Proportion of women on the boards of directors of water users associations (%)	Basic indicators (1) Attendance rate at general meetings of water users associations: Proportion of association members attending general meetings to approve annual plans, etc. (Reason for addition: Because it is important to strengthen the management of water users associations, this indicator is added to evaluate their transparency and the active involvement of their members) (2) Maintenance plan implementation rate: Ratio of tasks completed to tasks specified in the maintenance plan. (Because irrigation system maintenance is one of the most important tasks for water users associations, this indicator is added to evaluate the implementation of their maintenance plans.) (3) Water distribution plan implementation rate: Ratio of tasks completed to tasks specified in the water distribution plan. (Because water distribution is one of the most important tasks for water users associations, this indicator is added to evaluate the implementation of their water distribution plans.) (4) In developing countries, women account for a large proportion of the agricultural labor force. This indicator is used to assess the proportion of women serving as decision-makers on the boards of directors of water users associations. (This indicator is added to evaluate performance towards SDG Targets 5.5 and 5.a as well as the growth and stability of agricultural production.)	Cambodia	The Project for Improvement of Facilities of Colmatage Systems in Kandal Province along the Mekong River	2006
							India	Rengali Irrigation Project (Phase 2) (ODA Loan)	2003
							Philippines	Bago River Irrigation System Rehab. And Improvement Project (ODA Loan)	2012
							Bangladesh	Small Scale Water Resources Development Project (ODA Loan)	2007
							India	Rengali Irrigation Project (3) (ODA Loan)	2009
							Peru	Irrigation Sub-Sector Project (ODA Loan)	2006
							Pakistan	Punjab Irrigation System Improvement Project (ODA Loan)	2008
							India	Rajasthan Minor Irrigation Improvement Project (ODA Loan)	2004
							Philippines	National Irrigation Sector Rehabilitation and Improvement (ODA Loan)	2011
							India	Rengali Irrigation Project (Phase 2) (ODA Loan)	2014
					Supplementary indicators (1) Water users association membership rate (%)	Supplementary indicators (1) Water users association membership rate: Number of water users association members (or total area of their land parcels) / Number of beneficiary farmers (or total area of their land parcels)	India	Andhra Pradesh Irrigation and Livelihood Improvement Project (ODA Loan)	2006
							Indonesia	Participatory Irrigation Rehabilitation and Improvement Management (ODA Loan)	2007

				Effect indicators	Basic indicators (1) Water fee collection rate (%) (2) Irrigation coverage (3) Planted area by crop Supplementary indicators (1) Annual maintenance to revenue ratio (%)	Basic indicators (1) Water fee collection rate: Amount of water fees collected / Total amount of water fees payable in the benefited area (In addition, the ratio of water fees to agricultural sales/income per unit area should also be estimated. If water fees are not collected in the project, the “annual maintenance to revenue ratio” should be used as an alternative to this indicator. Supplementary indicators (1) Annual maintenance to revenue ratio: Maintenance cost / Maintenance budget (consisting of administrative agency funds and water fees and other charges collected from farmers)	Indonesia India India Uganda	Decentralized Irrigation System Improvement Project (V) (ODA Loan) Rajasthan Water Sector Livelihood Improvement Project (1) (ODA Loan) Andhra Pradesh Irrigation and Livelihood Improvement Project (Phase 2) (1) The Project for the Development of Irrigation System in Atari Basin Area	2007 2014 2017 2018				
1. Sustainable agricultural production	1-3. Securing agricultural production equipment/materials, improving their use	Agricultural machinery and equipment	Improving workshops for agricultural machinery maintenance Developing centers for agricultural machinery inspection	Operation indicators	Basic indicators (1) Operating hours of workshops for agricultural machinery maintenance in intensive farming seasons (hours/day) (2) Number of repairs made by workshops for agricultural machinery maintenance in intensive farming seasons (numbers/year)	Supplementary indicators (1) Land productivity improvement means to increase yields and reduce harvest losses by appropriate seeding time and harvesting time within cultivation season(s). Labor efficiency improvement means to reduce working hours or increase the area of cultivated farmland without increasing working hours by mechanizing agriculture or to increase earnings per working hour by raising the proportion of products of high quality.	Myanmar	Agriculture Income Improvement Project (ODA Loan)	2017				
				Effect indicators	Supplementary indicators (1) Land productivity and labor efficiency improvement through the immediate repair of agricultural machinery in intensive farming seasons								
		Stable supply of seeds	Developing centers for seed Equipment for technical development in seed production	Operation indicators	Basic indicators (1) Amount of seeds processed at the seed center (tons/year)					Basic indicators Indicators (4) and (5) are used to assess the productivity improvement achieved by shifting from direct sowing (which prevents dense planting and makes it difficult to weed, resulting in lower productivity) to transplanting of paddy rice. Indicator (6) is used to assess the increase in the unit yield of unhulled grains to seed future fields. Indicator (7) is used to assess whether the drying and processing of unhulled grains to remove sick grains can contribute to increasing yields.	Myanmar	Agriculture Income Improvement Project (ODA Loan)	2017
				Effect indicators	Basic indicators (1) Pass rate of certified seeds produced by the seed center (%) (2) Seed replacement rate among rice production farmer (%) (3) Unit yield of major crops (tons/ha) (4) Ratio of transplanted area to total planted area (%) (5) Yield of transplanted crops (tons/ha) (6) Yield of unhulled grains in transplanted fields (tons/ha) (7) Proportion of unhulled grains dried and processed in transplanted fields (%)								
Cuba	Project for improvement of agricultural machinery advances in rice seeds production techniques	2017											
1. Sustainable agricultural production	1-4. Capacity building for research and development	Strengthening testing, research and technological development	Equipment for testing and research institutes	Operation indicators	Basic indicators (1) Utilization rate of experimental equipment (%) (2) Number of undergraduate/graduate students enrolled (3) Number of training hours at experimental fields (hours/year) (4) Number of public training courses per year (5) Number of published research papers		China	The Project for Improvement of Equipment for Japan China Research and Development Center for Agriculture Technology	2005				

				Effect indicators	Supplementary indicators (1) Number of test reports		Sri Lanka	The Project for the Establishment of Research and Training Complex at the Faculty of Agriculture, University of Jaffna	2016
	1-10. Rural finance	Organizational development and functional enhancement of lending institutions (lenders) and farmers and farmer groups (borrowers)	N/A	Operation indicators	Basic indicators (1) Outstanding balance of medium- and long-term loans for agricultural capital formation (2) Number of farmers and farmer groups receiving medium- and long-term loans for agricultural capital formation (households or groups)		Myanmar	Agriculture and Rural Development Two Step Loan Project	2016
				Effect indicators	Supplementary indicators (1) Increase in the appraisal and risk management capacity of financial institutions (2) Balanced urban and rural development				
3. Promoting vitality in rural areas	3-2. Improving the distribution and sale of food	Improvement of market infrastructure	Bridges and feeder roads	Operation indicators	Basic indicators (1) Average time required to transport agricultural products to markets (minutes)		Philippines	The Project for the Bridge Construction for Expanded Agrarian Reform Communities Development, Phase II (Umiray Bridge)	2011
				Effect indicators	Basic indicators (1) Increase in farmers' income in the target area by streamlining and expanding distribution in the area (2) Increase in agricultural traffic Supplementary indicators (1) Increase in perishable traffic (e.g. fruits, especially peaches) (2) Average time required to cross the river (seconds) (3) Number of impassable days per year due to swollen rivers and floods (days/year) (4) Increase in agricultural transport capacity (5) Increase in agricultural sales (by reducing damage in transport and handling) (6) Reduction in labor cost (per traffic unit, by improving roads for heavier truck traffic to increase the transport volume per trip)				
3. Promoting vitality in rural areas	3-2. Improving the distribution and sale of food	Improvement of rural roads	Rural road construction/maintenance equipment, rural roads and bridges	Operation indicators	Basic indicators (1) Utilization rate of rural road construction/maintenance equipment (%) (2) Annual average daily traffic (AADT) (vehicles/day; vehicles/12 hours)	When setting indicators for projects falling under the infrastructure type of rural road construction/maintenance equipment, the indicators related to the infrastructure type of bridges and feeder roads under the mid-term sub-target of improving market infrastructure should be referred to if required.	Philippines	The Project for the Bridge Construction for Expanded Agrarian Reform Communities Development, Phase II (Umiray Bridge)	2011
				Bhutan	The Project for Improvement of Machinery and Equipment for Construction of Rural Agricultural Road		2009		

				Effect indicators	Basic indicators (1) Total length of additional rural roads constructed (km) (2) Total length of rural roads maintained (km) (3) Annual average daily traffic (AADT) (vehicles/day; vehicles/12 hours) (4) Reduction in travel time (hours) (5) Increase in agricultural income by streamlining the process of collecting and shipping agricultural products and improving efficiency in farming (6) Change in the means of transport (shift in the ratio of animal to truck transport) Supplementary indicators (1) Reduction in transportation cost (hours, yen (and its equivalent in local currency) per year) (2) Increase in average travel speed (km/hour) (3) Number of impassable days per year due to swollen rivers and floods (days/year)		Nicaragua	The Project for Complementation and Amplification of Construction Equipment for the Rehabilitation and Maintenance of the Rural Roads	2009
							Afghanistan	The Project for Rehabilitation of Small Irrigation Facilities and Village Accessibility in Dehsabz Area, Kabul Province	2011
							Bhutan	The Project for Improvement of Machinery and Equipment for Construction of Rural Agricultural Road (Phase 2)	2013
							Bhutan	The Project for Improvement of Machinery and Equipment for Construction of Rural Agricultural Road (Phase 3)	2015
							Myanmar	Agriculture Income Improvement Project (ODA Loan)	2017
	3-2. Improving the distribution and sale of food	Development of stockpiling systems	Development of stockpiling and storage warehouses	Operation indicators	Basic indicators (1) Food reserves (Mt) (2) Number of beneficiaries receiving food aid (households or persons)		Bangladesh	Improvement of the Capacity of Public Food Storage	2012
3. Promoting vitality in rural areas	3-6. Improving the rural living environment	Rural electrification (*2) and development of water supply systems	Rural water supply wells	Operation indicators	Basic indicators (1) Number of people supplied with water (persons) (2) Amount of water supplied (m3/day) Supplementary indicators (1) Number of water supply hours (hours) (2) Number of new wells drilled in the target villages (wells)		Malawi	The Bwanje Valley Irrigation Development Project	2006
				Effect indicators	Basic indicators (1) Water supply coverage (%) Supplementary indicators (1) Amount of water supplied per capita (liters/person/day)				
3. Promoting vitality in rural areas	3-8. Improving the health and education standard of rural residents	Improving health and medical services	Rural road construction/maintenance equipment and rural roads	Operation indicators	Basic indicators (1) Utilization rate of rural road construction/maintenance equipment (%)		Nicaragua	The Project for Complementation and Amplification of Construction Equipment for the Rehabilitation and Maintenance of the Rural Roads	2009
				Effect indicators	Basic indicators (1) Total length of additional rural roads constructed (km)				
							Bhutan	The Project for Improvement of Machinery and Equipment for	2009

					(2) Total length of rural roads maintained (km) (3) Number of healthcare centers and hospitals to which access has been improved Supplementary indicators (1) Reduction in time required to access the facilities in question (hours)		Bhutan	Construction of Rural Agricultural Road	
							Bhutan	The Project for Improvement of Machinery and Equipment for Construction of Rural Agricultural Road (Phase 2)	2013
							Bhutan	The Project for Improvement of Machinery and Equipment for Construction of Rural Agricultural Road (Phase 3)	2015
3. Promoting vitality in rural areas	3-8. Improving the health and education standard of rural residents	Expansion of education services	Rural road construction/maintenance equipment, rural roads and bridges	Operation indicators	Basic indicators (1) Utilization rate of rural road construction/maintenance equipment (%)		Nicaragua	The Project for Complementation and Amplification of Construction Equipment for the Rehabilitation and Maintenance of the Rural Roads	2009
				Effect indicators	Basic indicators (1) Total length of additional rural roads constructed (km) (2) Total length of rural roads maintained (km) (3) Number of educational facilities to which access has been improved (4) Number of students who have gained access to school as a result of opening the bridge Supplementary indicators (1) Reduction in time to access the facilities in question (hours) (2) Improvement in the first-grade enrollment rate and the completion rate		Bolivia	The Project of Equipment for the Rural Development of La Paz Prefecture	2010
							Bhutan	The Project for Improvement of Machinery and Equipment for Construction of Rural Agricultural Road	2009
								The Project for Improvement of Machinery and Equipment for Construction of Rural Agricultural Road (Phase 2)	2013
								The Project for Improvement of Machinery and Equipment for Construction of Rural Agricultural Road (Phase 3)	2015

(*1) Development Strategic Objective 2 (stable food supply) is omitted because it is not associated with any financial assistance projects. Other irrelevant mid-term objectives and sub-targets are also omitted.

(*2) Relevant indicators should be added if the project includes rural electrification.

Reference:

SDG Indicator 2.3.1 Volume of production per labour unit by classes of farming/pastoral/forestry enterprise size

SDG Indicator 2.3.2 Average income of small-scale food producers, by sex and indigenous status

SDG Indicator 2.4.1 Proportion of agricultural area under productive and sustainable agriculture

Reference:

Japanese Government's SDGs Implementation Guiding Principles Indicator: Number of projects made in consideration of SDGs

Reference:

JICA's 4th Medium-term Objective Indicators:

(i) Number of countries where the Smallholder Horticulture Empowerment Project (SHEP) approach, etc. are applied and the number of relevant training courses (the number of trained technical trainers and the number of training courses for smallholders)

(ii) Number of projects related to food value chains (the number of projects supporting income growth for farmers by spreading high-quality varieties or improving farm management, distribution systems, etc. and projects supporting the promotion of agricultural exports by strengthening countermeasures against residual chemicals or assisting in obtaining certifications)