Financial Assistance Projects / Indicator Reference (Water Resources)

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 (*)	Mid-term objectives	Mid-term sub-targets	Types of infrastructure * Including projects that only provide equipment for the construction of these facilities	Standard indicators		Policy and methods for setting indicators	Reference projects by infrastructure type		
							Country name	Project name	Evaluation fiscal year
1. Achieving universal and equitable access to safe and affordable drinking water for all in urban areas [SDG targets 6.1 and 6.4]	**1-1. Increasing water supply coverage**	**1-1-2. Developing waterworks facilities**	**Waterworks facilities (water storage, intake, conveyance, treatment, transmission, and distribution facilities)**	**Operation indicators**	**Basic indicators** Service population (persons) Amount of water supplied (cubic meters per day) Number of water connections (connections) Facility utilization rate (percent) Water supply pressure (meters) **Supplementary indicators** Amount of water intake (cubic meters per day) Facility capacity (cubic meters per day) (e.g. the capacity of the water treatment plant) Reference: Global SDG Indicator 6.1. Proportion of population using safely managed drinking water services Reference: JICA's 4th Medium-term Objective Indicator: Number of people with access to safe water	●Service population (persons) (urban areas): population served with water supply (annual basis). This indicator should be used when the project is aimed at increasing population served. Although this indicator is widely used, water suppliers generally only keep a tally of the number of water connections (contracts) and do not keep a tally of the number of people they serve. There are different ways to calculate service population; in some cases, it is calculated by multiplying the number of connections by the average number of people per household, and in other cases, it is estimated based on the total population of the service area. Therefore, it is necessary to decide in advance on the calculation method. In addition, it should be noted that the installation of service pipes is not always included in the project scope. In this case, it is essential to consider whether the target value of the indicator is appropriate by taking into account who is responsible for installing service pipes and how many service pipes have been actually installed (the actual increase in connections). When service population includes users of public taps of public taps, it is difficult to determine their number; therefore, when there are many users of public taps, it is desirable to use "service population" as a reference indicator and set another measurable indicator to assess the effects of the project. ●Amount of water supplied (cubic meters per day) (urban areas): average daily water supply = (total annual water supply) / (number of service days) (annual data) ●Number of water connections (connections): number of households (contracts) connected to water supply services (annual data). Since the installation of service pipes is not always included in the project scope, it is essential to consider whether this indicator is appropriate. ●Facility utilization rate (percent): facility utilization rate (average) = (average daily water supply) / (facility capacity) x 100 This indicator should be used when the project includes the construction or rehabilitation of one or more water treatment plants. The target rate of each water treatment plant should be set by taking into account its service area and relationships with other existing water treatment plants. For example, in the case of seawater desalination plants, which are constructed, despite their high operating costs, to meet the peak demand or diversify water sources, the target facility utilization rate should be set lower. ●Water supply pressure (meters): pressure in the water distribution networks. This indicator should be used when the project is aimed at improving water pressure (e.g. replacing pumps and developing water distribution networks). When the project is aimed at eliminating low water pressure, select a measurement location that is likely to have the lowest water pressure, such as a water tap located at a high altitude or at the end of the distribution network. When the project is aimed at eliminating both high and low water pressure, the target can be set to maintain water pressure within a specific range. In Japan, the Ministerial Ordinance on Technical Standards for Water Supply Facilities specifies that the water pressure at a connection between the main and service pipe should be controlled within the range of 15 to 75 meters. Water pressure is generally measured in hydraulic head values (meters) or SI units such as megapascals (MPa). One megapascal equals approximately 100 meters. Although other measurement units can be also used, such as kilograms-force per square centimeter (kgf/cm^2), bars, yards, and pounds per square inch (psi), it is desirable to use hydraulic head (meters) or megapascal (MPa) in documents written in Japanese for Japanese readers.	Cambodia South Sudan	Siem Reap Water Supply Expansion Project The Project for the Improvement of Water Supply System of Juba	2009 2012

				Effect indicators	**Basic indicators** Service population (persons) Amount of water supplied (cubic meters per day) **Supplementary indicators** Water supply coverage (percent) Per capita water supply (liters per person per day)	●Amount of water intake (cubic meters per day): (total annual water intake) / (number of seconds or days of water intake per year). This indicator should be used when the project includes the construction of one or more water intakes. When the project includes the expansion of service areas and/or new connections, the amount of water intake may not always increase to the maximum facility capacity immediately after the project is completed because it may take time to develop distribution networks and install service pipes. This should be taken into account when setting the target value. Most of the projects that also include the construction of one or more water treatment plants do not use the amount of water intake but use the utilization rate of the water treatment plant(s) as their indicator. Although this indicator is measured in different units in different countries, such as liters per second, cubic meters per second, million gallons per day (MGD), it is commonly measured in cubic meters per day in Japan. It is therefore recommended to consistently use cubic meters per day in documents written in Japanese for Japanese readers. ●Facility capacity (cubic meters per day): The amount of water to be treated or to flow in the pipes when the facility operates properly should be set. Although this is measured in different units in different countries, such as liters per second, it is commonly measured in cubic meters per day in Japan. It is therefore recommended to consistently use cubic meters per day in documents written in Japanese for Japanese readers. It should be noted that even if the planned water supply is the same, the designed capacity varies among facilities (water intake, treatment, transmission, and distribution facilities). Moreover, although the water treatment plant capacity can be expressed in two different ways (input measures and output measures), it is generally expressed in output measures. ●Water supply coverage (percent): (service population) / (total population of the project area) x 100 (annual data). In Japan, “water supply coverage” means the proportion of service population in the total population of the planned service area, compared with “piped water coverage,” which means the proportion of service population in the total population of the administrative district. This indicator should be clearly defined in advance because the definition may differ between countries and regions (in some cases, service population includes those served not only by piped water but also by communal wells). It should be also noted that the denominator may change due to the expansion of the service area or the merger of administrative districts. It is therefore essential to ascertain the basis for the figures used to determine the target value. Careful consideration should be given when setting this indicator because it may be influenced by external factors outside the project’s control, such as the increase of total population, the reorganization of administrative districts, and the revision of service areas. Moreover, because the total population of the area (project area) used as a denominator to calculate the water supply coverage is usually estimated based on census data (which are collected every 10 years in most developing countries), when the definition of the area used as the denominator does not correspond to the census tract, it is difficult to determine the population size. Therefore, caution should be exercised when defining the area used as the denominator. ●Per capita water supply (liters per person per day): average daily per capita water supply = (average daily water supply) / (service population) (annual data). This indicator is used to assess the level of improvement in the living standards and the effectiveness of water-saving measures. If the data are broken down by purpose of use, it is desirable that the indicator reflects per capita water supply for domestic use.			

1. Achieving universal and equitable access to safe and affordable drinking water for all in urban areas [SDG targets 6.1 and 6.4	**1-1. Increasing water supply coverage**	**1-1-3. Developing water sources**	**Water intake and storage facilities**	**Operation indicators**	**Basic indicators** Amount of water intake (liters per second, cubic meters per second, or cubic meters per day) Service population (persons) Amount of water supplied (cubic meters per day) Reference: Global SDG Indicator 6.1. Proportion of population using safely managed drinking water services Reference: JICA's 4th Medium-term Objective Indicator: Number of people with access to safe water	●Amount of water intake (cubic meters per day): (total annual water intake) / (number of seconds or days of water intake per year). This indicator should be used when the project includes the construction of one or more water intakes. When the project includes the expansion of service areas and/or new connections, the amount of water intake may not always increase to the maximum facility capacity immediately after the project is completed because it may take time to develop distribution networks and install service pipes. This should be taken into account when setting the target value. Most of the projects that also include the construction of one or more water treatment plants do not use the amount of water intake but use the utilization rate of the water treatment plant(s) as their indicator. Although this indicator is measured in different units in different countries, such as liters per second, cubic meters per second, million gallons per day (MGD), it is commonly measured in cubic meters per day in Japan. It is therefore recommended to consistently use cubic meters per day in documents written in Japanese for Japanese readers. ●Service population (persons) (urban areas): population served with water supply (annual basis). This indicator should be used when the project is aimed at increasing population served. Although this indicator is widely used, water suppliers generally only keep a tally of the number of water connections (contracts) and do not keep a tally of the number of people they serve. There are different ways to calculate service population; in some cases, it is calculated by multiplying the number of connections by the average number of people per household, and in other cases, it is estimated based on the total population of the service area. Therefore, it is necessary to decide in advance on the calculation method. In addition, it should be noted that the installation of service pipes is not always included in the project scope. In this case, it is essential to consider whether the target value of the indicator is appropriate by taking into account who is responsible for installing service pipes and how many service pipes have been actually installed (the actual increase in connections). When service population includes public tap users, it is difficult to determine their number; therefore, when there are many public tap users, it is desirable to use "service population" as a reference indicator and set another measurable indicator to assess the effects of the project. ●Amount of water supplied (cubic meters per day) (urban areas): average daily water supply = (total annual water supply) / (number of service days) (annual data) ●Added water capacity (cubic meters per second): amount of water intake increased by developing one or more new facilities in the reservoir development project. This indicator should be used when the project includes the development of water sources such as reservoirs. ●Water supply coverage (percent): (service population) / (total population of the project area) x 100 (annual data). In Japan, "water supply coverage" means the proportion of service population in the total population of the planned service area, compared with "piped water coverage," which means the proportion of service population in the total population of the administrative district. This indicator should be clearly defined in advance because the definition may differ between countries and regions. ●Per capita water supply (liters per person per day): average daily per capita water supply = (average daily water supply) / (service population) (annual data). This indicator is used to assess the level of improvement in the living standards and the effectiveness of water-saving measures. If the data are broken down by purpose of use, it is desirable that the indicator reflects per capita water supply for domestic use. ●Amount of groundwater pumped (cubic meters per day; cubic meters per year): This indicator should be used when water sources are developed as alternatives to groundwater to prevent land subsidence. This is an alternative indicator used when it is difficult to monitor land subsidence. A decrease in the amount of groundwater extracted by water producers is the most direct indicator in the case of shifting the source of water supply from groundwater to surface water. When surface water is already used and the project is aimed at shifting groundwater from other purposes to piped water by expanding water supply capacity, it is necessary to confirm whether there is a monitoring system to properly measure groundwater extraction.	Malaysia	Beris Dam Project	2011
				Effect indicators	**Basic indicators** Added water capacity (cubic meters per second) Service population (persons) Amount of water supplied (cubic meters per day) **Supplementary indicators** Water supply coverage (percent) Per capita water supply (liters per person per day) Amount of groundwater pumped (cubic meters per day) Reference: Global SDG Indicator 6.1. Proportion of population using safely managed drinking water services Global SDG Indicator 6.4.1. Change in water-use efficiency over time Reference: JICA's 4th Medium-term Objective Indicator: Number of people with access to safe water				

1. Achieving universal and equitable access to safe and affordable drinking water for all in urban areas [SDG targets 6.1 and 6.4]	**1-1. Increasing water supply coverage**	**1-1-4. Increasing the number of water connections**	**Service connection equipment**	**Operation indicators**	**Basic indicators** Service population (persons) Number of water connections (connections) Reference: Global SDG Indicator 6.1. Proportion of population using safely managed drinking water services Reference: JICA's 4th Medium-term Objective Indicator: Number of people with access to safe water	●Service population (persons) (urban areas): population served with water supply (annual basis). This indicator should be used when the project is aimed at increasing population served. Although this indicator is widely used, water suppliers generally only keep a tally of the number of water connections (contracts) and do not keep a tally of the number of people they serve. There are different ways to calculate service population; in some cases, it is calculated by multiplying the number of connections by the average number of people per household, and in other cases, it is estimated based on the total population of the service area. Therefore, it is necessary to decide in advance on the calculation method. In addition, it should be noted that the installation of service pipes is not always included in the project scope. In this case, it is essential to consider whether the target value of the indicator is appropriate by taking into account who is responsible for installing service pipes and how many service pipes have been actually installed (the actual increase in connections). When service population includes public tap users, it is difficult to determine their number; therefore, when there are many public tap users, it is desirable to use "service population" as a reference indicator and set another measurable indicator to assess the effects of the project. ●Number of water connections (connections): number of households (contracts) connected to water supply services (annual data). Since the installation of service pipes is not always included in the project scope, it is essential to consider whether this indicator is appropriate. ●Water supply coverage (percent): (service population) / (total population of the project area) x 100 (annual data). In Japan, "water supply coverage" means the proportion of service population in the total population of the planned service area, compared with "piped water coverage," which means the proportion of service population in the total population of the administrative district. This indicator should be clearly defined in advance because the definition may differ between countries and regions. ●Per capita water supply (liters per person per day): average daily per capita water supply = (average daily water supply) / (service population) (annual data). This indicator is used to assess the level of improvement in the living standards and the effectiveness of water-saving measures. If the data are broken down by purpose of use, it is desirable that the indicator reflects per capita water supply for domestic use. ●Household connection rate (percent): This indicator can be used when the project includes the improvement of service accessibility by facilitating the transition from public taps to piped service connections to households. In its proposals for SDG monitoring, the WHO/UNICEF Joint Monitoring Programme (JMP) decided to include water available "on premises" in the criteria for "safely managed" drinking water services. Therefore, projects that facilitate the transition from public taps to piped service connections to households household water connections can be considered to contribute to SDGs	Myanmar	The Project for Improvement of Water Supply System in Mandalay City	2015
				Effect indicators	**Basic indicators** Service population (persons) **Supplementary indicators** Water supply coverage (percent) Per capita water supply (liters per person per day) Household connection rate (percent) Reference: Global SDG Indicator 6.1. Proportion of population using safely managed drinking water services Reference: JICA's 4th Medium-term Objective Indicator: Number of people with access to safe water				

1. Achieving universal and equitable access to safe and affordable drinking water for all in urban areas [SDG targets 6.1 and 6.4]	**1-2. Ensuring safe drinking water quality**	**1-2-4. Changing raw water**	**Water intake and storage facilities**	**Operation indicators**	**Basic indicators** Raw water quality Reference: Global SDG Indicator 6.1. Proportion of population using safely managed drinking water services Reference: JICA's 4th Medium-term Objective Indicator: Number of people with access to safe water	●Raw water quality: water quality parameters (annual data). This indicator should be used when the project is aimed at improving the quality of existing water sources by developing new water sources. Decide in advance where to monitor water quality (e.g. at the outlet of the water treatment plant, the tap, etc.). Select appropriate indicators according to the characteristics of the project, such as specific pollutant concentrations (e.g. pollutants that pose health risks and need to be eliminated through the project, such as arsenic and fluoride), typical water quality parameters (e.g. turbidity), and pass rates of the results of water quality tests against water quality standards. Because surface water varies in quality between rain and dry seasons, it is often specified that the annual maximum values shall meet the water quality requirements. ●Treated water quality: water quality parameters (annual data). The same caution should be exercised as with raw water quality mentioned above. In its proposals for SDG monitoring, the WHO/UNICEF Joint Monitoring Programme (JMP) decided to include freedom from contamination with E. coli, arsenic, and fluoride in the criteria for "safely managed" drinking water services.	India	Hogenakkal Water Supply and Fluorosis Mitigation Project	2007
				Effect indicators	**Basic indicators** Raw water quality **Supplementary indicators** Treated water quality (chromaticity (units), turbidity (NTUs), iron (milligrams per liter), manganese (milligrams per liter), etc.) Reference: Global SDG Indicator 6.1. Proportion of population using safely managed drinking water services Reference: JICA's 4th Medium-term Objective Indicator: Number of people with access to safe water				

1. Achieving universal and equitable access to safe and affordable drinking water for all in urban areas [SDG targets 6.1 and 6.4]	**1-2. Ensuring safe drinking water quality**	**1-2-6. Developing water treatment plants**	**Water treatment plants**	**Operation indicators**	**Basic indicators** Treated water quality (chromaticity (units), turbidity (NTUs), iron (milligrams per liter), manganese (milligrams per liter), etc.) Reference: Global SDG Indicator 6.1. Proportion of population using safely managed drinking water services Reference: JICA's 4th Medium-term Objective Indicator: Number of people with access to safe water	●Treated water quality: water quality parameters (annual data). The same caution should be exercised as with raw water quality mentioned above. In its proposals for SDG monitoring, the WHO/UNICEF Joint Monitoring Programme (JMP) decided to include freedom from contamination with E. coli, arsenic, and fluoride in the criteria for "safely managed" drinking water services.	Nepal Samoa	The Project for the Improvement of Water Supply Facilities in Urban and Semi-urban Centres The Project for Improvement of Urban Untreated Water Supply Schemes	2011 2014
				Effect indicators	**Basic indicators** Treated water quality (chromaticity (units), turbidity (NTUs), iron (milligrams per liter), manganese (milligrams per liter), etc.) Reference: Global SDG Indicator 6.1. Proportion of population using safely managed drinking water services Reference: JICA's 4th Medium-term Objective Indicator: Number of people with access to safe water			

1. Achieving universal and equitable access to safe and affordable drinking water for all in urban areas [SDG targets 6.1 and 6.4]	**1-2. Ensuring safe drinking water quality**	**1-2-7. Developing disinfection facilities**	**Water treatment plants (disinfection facilities)**	**Operation indicators**	**Basic indicators** Treated water quality (E. coli counts (MPN per 100 milliliters) or coliform bacteria counts (MPN per 100 milliliters)) Reference: Global SDG Indicator 6.1. Proportion of population using safely managed drinking water services Reference: JICA's 4th Medium-term Objective Indicator: Number of people with access to safe water	●Treated water quality (E. coli counts (MPN per 100 milliliters) or coliform bacteria counts (MPN per 100 milliliters)): This indicator can be used when the project is aimed at ensuring thorough disinfection of treated water by developing disinfection facilities. Coliform bacteria counts used to be widely used as an alternative indicator because it was difficult to count the number of E. coli; however, it is now relatively easier to count the number of E. coli. Select an appropriate indicator according to the water quality standards and laboratory testing system of the recipient country. ●Residual chlorine in the distribution system (milligrams per liter): Residual chlorine at the tap can serve as an indicator for projects aimed at ensuring thorough disinfection of treated water and maintaining residual chlorine at the tap by developing one or more disinfection facilities. In this case, because the residual chlorine concentration decreases in the distribution system, the monitoring site should be located where the residual chlorine concentration is likely to reach the lowest level, such as at the end of the distribution system.	Myanmar	Greater Yangon Water Supply Improvement Project	2014
				Effect indicators	**Basic indicators** Treated water quality (E. coli counts (MPN per 100 milliliters) or coliform bacteria counts (MPN per 100 milliliters)) **Supplementary indicators** Residual chlorine in the distribution system (milligrams per liter) Reference: Global SDG Indicator 6.1. Proportion of population using safely managed drinking water services Reference: JICA's 4th Medium-term Objective Indicator: Number of people with access to safe water				

1. Achieving universal and equitable access to safe and affordable drinking water for all in urban areas [SDG targets 6.1 and 6.4]	**1-2. Ensuring safe drinking water quality**	**1-2-9. Achieving 24 hours water supply to prevent contamination caused by intermittent water supply**	**Waterworks facilities (water storage, intake, conveyance, treatment, transmission, and distribution facilities)**	**Operation indicators**	**Basic indicators** Duration of water supply (hours per day) Amount of water supplied (cubic meters per day) Reference: Global SDG Indicator 6.1. Proportion of population using safely managed drinking water services Reference: JICA's 4th Medium-term Objective Indicator: Number of people with access to safe water	●Duration of water supply (hours per day) (urban areas): This indicator should be used when the project that includes the expansion of facility capacity is expected to extend the operating hours of water facilities in cities where water is supplied only during certain hours of the day. This indicator is usually measured in the number of hours of water supply per day (hours per day) but sometimes per week, depending on the water restriction level. It is necessary to set the operating hours through consultation with the counterpart organization about how they are planning to distribute water after the project completion because the duration of water supply may vary depending not only on the facility capacity but also on the stability of power supply, the affordability of operating expenses, and the water distribution management capacity. The duration of water supply can also be extended by reducing water leakages. In its proposals for SDG monitoring, the WHO/UNICEF JMP decided to use a minimum of 12 hours per day as a benchmark for the criteria for "safely managed" drinking water services; however, it is desirable, if possible, to supply water 24 hours a day in order to ensure water quality safety and reduce damage to water pipes. ●Amount of water supplied (cubic meters per day) (urban areas): average daily water supply = (total annual water supply) / (number of service days) (annual data) ●Per capita water supply (liters per person per day): average daily per capita water supply = (average daily water supply) / (service population) (annual data). This indicator is used to assess the level of improvement in the living standards and the effectiveness of water-saving measures. If the data are broken down by purpose of use, it is desirable that the indicator reflects per capita water supply for domestic use. ●Improvement in continuity of water supply (days per year): This indicator is used to compare the annual number of water restriction days between different years. This indicator can be used only when baseline data are available.	Timor-Leste	The Project for Improvement of Water Supply in Dili	2011
				Effect indicators	**Basic indicators** Duration of water supply (hours per day) **Supplementary indicators** Per capita water supply (liters per person per day) Improvement in continuity of water supply (e.g. days per week or days per year) Reference: Global SDG Indicator 6.1. Proportion of population using safely managed drinking water services Reference: JICA's 4th Medium-term Objective Indicator: Number of people with access to safe water				

1. Achieving universal and equitable access to safe and affordable drinking water for all in urban areas [SDG targets 6.1 and 6.4]	**1-3. Increasing water supply hours**	**1-3-1. Increasing water distribution capacity**	**Waterworks facilities (water storage, intake, conveyance, treatment, transmission, and distribution facilities)**	**Operation indicators**	**Basic indicators** Duration of water supply (hours per day) Amount of water supplied (cubic meters per day) Facility utilization rate (percent) Reference: Global SDG Indicator 6.1. Proportion of population using safely managed drinking water services Reference: JICA's 4th Medium-term Objective Indicator: Number of people with access to safe water	●Duration of water supply (hours per day) (urban areas): This indicator should be used when the project that includes the expansion of facility capacity is expected to extend the operating hours of water facilities in cities where water is supplied only during certain hours of the day. This indicator is usually measured in the number of hours of water supply per day (hours per day) but sometimes per week, depending on the water restriction level. It is necessary to set the operating hours through consultation with the counterpart organization about how they are planning to distribute water after the project completion because the duration of water supply may vary depending not only on the facility capacity but also on the stability of power supply, the affordability of operating expenses, and the water distribution management capacity. The duration of water supply can also be extended by reducing water leakages. In its proposals for SDG monitoring, the WHO/UNICEF JMP decided to use a minimum of 12 hours per day as a benchmark for the criteria for "safely managed" drinking water services; however, it is desirable, if possible, to supply water 24 hours a day in order to ensure water quality safety and reduce damage to water pipes. ●Amount of water supplied (cubic meters per day) (urban areas): average daily water supply = (total annual water supply) / (number of service days) (annual data)	India Jordan	Goa Water Supply and Sewerage Project The Project for Rehabilitation and Improvement of Water Facilities in Tafieleh Governorate	2007 2011
				Effect indicators	**Basic indicators** Duration of water supply (hours per day) **Supplementary** indicators Per capita water supply (liters per person per day) Improvement in continuity of water supply (e.g. days per week or days per year) Reference: Global SDG Indicator 6.1. Proportion of population using safely managed drinking water services Reference: JICA's 4th Medium-term Objective Indicator: Number of people with access to safe water	●Facility utilization rate (percent): facility utilization rate (average) = (average daily water supply) / (facility capacity) x 100 This indicator should be used when the project includes the construction or rehabilitation of one or more water treatment plants. The target rate of each water treatment plant should be set by taking into account its service area and relationships with other existing water treatment plants. For example, in the case of seawater desalination plants, which are constructed, despite their high operating costs, to meet the peak demand or diversify water sources, the target facility utilization rate should be set lower. ●Per capita water supply (liters per person per day): average daily per capita water supply = (average daily water supply) / (service population) (annual data). This indicator is used to assess the level of improvement in the living standards and the effectiveness of water-saving measures. If the data are broken down by purpose of use, it is desirable that the indicator reflects per capita water supply for domestic use. ●Improvement in continuity of water supply (days per year): This indicator is used to compare the annual number of water restriction days between different years. This indicator can be used only when baseline data are available.			

1. Achieving universal and equitable access to safe and affordable drinking water for all in urban areas [SDG targets 6.1 and 6.4]	**1-4. Ensuring equitable access**	**1-4-4. Improving water distribution management**	**Water transmission and distribution facilities**	**Operation indicators**	**Basic indicators** Water supply pressure (meters) Water pressure failure rate (percent) Amount of water supplied (cubic meters per day) **Supplementary indicators** Non-revenue water rate (percent) / non-revenue water amount (cubic meters per kilometer or cubic meters per connection) Leakage rate (percent) / leakage amount (cubic meters per kilometer or cubic meters per connection) Duration of water supply (hours per day) Reference: Global SDG Indicator 6.1. Proportion of population using safely managed drinking water services Reference: JICA's 4th Medium-term Objective Indicator: Number of people with access to safe water	●Water supply pressure (meters): This indicator can be used when the project is aimed at controlling water pressure within a proper range by increasing water flow in the distribution network, rehabilitating water pipes to reduce leakages, properly zoning distribution areas by taking altitude into account, and installing pressure reducing valves and tanks. In some cases, the water pressure may be too high and need to be lowered, while in other cases, it may be too low and need to be increased. ●Amount of water supplied (cubic meters per day) (urban areas): average daily water supply = (total annual water supply) / (number of service days) (annual data) ●Leakage rate/amount: This indicator should be used when the project includes the replacement of aged pipes. Although it is difficult to measure the leakage rate in the entire service area, it is sometimes possible to determine the leakage rate by restricting the measurement area. In principle, this indicator cannot be measured without conducting a leakage survey using the minimum night flow (MNF) method. Because most water utilities do not measure the minimum night flow but only estimate it, it is essential to decide in advance on the calculation method. ●Duration of water supply (hours per day) (urban areas): This indicator should be used when the project that includes the expansion of facility capacity is expected to extend the operating hours of water facilities in cities where water is supplied only during certain hours of the day. This indicator is usually measured in the number of hours of water supply per day (hours per day) but sometimes per week, depending on the water restriction level. It is necessary to set the operating hours through consultation with the counterpart organization about how they are planning to distribute water after the project completion because the duration of water supply may vary depending not only on the facility capacity but also on the stability of power supply, the affordability of operating expenses, and the water distribution management capacity. The duration of water supply can also be extended by reducing water leakages. In its proposals for SDG monitoring, the WHO/UNICEF JMP decided to use a minimum of 12 hours per day as a benchmark for the criteria for "safely managed" drinking water services; however, it is desirable, if possible, to supply water 24 hours a day in order to ensure water quality safety and reduce damage to water pipes. ●Per capita water supply (liters per person per day): average daily per capita water supply = (average daily water supply) / (service population) (annual data). This indicator is used to assess the level of improvement in the living standards and the effectiveness of water-saving measures. If the data are broken down by purpose of use, it is desirable that the indicator reflects per capita water supply for domestic use. ●Improvement in continuity of water supply (days per year): This indicator is used to compare the annual number of water restriction days between different years. This indicator can be used only when baseline data are available.	Philippines	The Project for the Improvement of Water Supply System in Metropolitan Cebu Water District	2014
				Effect indicators	**Basic indicators** Water supply pressure (meters) Amount of water supplied (cubic meters per day) **Supplementary indicators** Non-revenue water rate (percent) / non-revenue water amount (cubic meters per kilometer or cubic meters per connection) Per capita water supply (liters per person per day) Improvement in continuity of water supply (e.g. days per week or days per year) Reference: Global SDG Indicator 6.1. Proportion of population using safely managed drinking water services Reference: JICA's 4th Medium-term Objective Indicator: Number of people with access to safe water				

1. Achieving universal and equitable access to safe and affordable drinking water for all in urban areas [SDG targets 6.1 and 6.4]	**1-7. Improving water utility finances**	**1-7-2. Improving finances**	**Water distribution pipes and service connection equipment**	**Operation indicators**	**Basic indicators** Leakage rate (percent) / leakage amount (cubic meters per kilometer or cubic meters per connection) Amount of water supplied (cubic meters per day) **Supplementary indicators** Non-revenue water rate (percent) / non-revenue water amount (cubic meters per kilometer or cubic meters per connection) Duration of water supply (hours per day) Water supply pressure (meters) Reference: Global SDG Indicator 6.1. Proportion of population using safely managed drinking water services Global SDG Indicator 6.4.1. Change in water-use efficiency over time Reference: JICA's 4th Medium-term Objective Indicator: Number of people with access to safe water	●Leakage rate/amount: This indicator should be used when the project includes the replacement of aged pipes. Although it is difficult to measure the leakage rate in the entire service area, it is sometimes possible to determine the leakage rate by restricting the measurement area. In principle, this indicator cannot be measured without conducting a leakage survey using the minimum night flow (MNF) method. Because most water utilities do not measure the minimum night flow but only estimate it, it is essential to decide in advance on the calculation method. ●Amount of water supplied (cubic meters per day) (urban areas): average daily water supply = (total annual water supply) / (number of service days) (annual data) ●Non-revenue water rate/amount: Non-revenue water is water that is not billed, including water lost to leakages, meter errors, and illegal connections. This indicator should be used when the project includes the installation of flow meters and household meters and the replacement of aged pipes to reduce non-revenue water. It should be noted that when the project does not cover the whole service area, because there are many external factors, it is difficult to set a target for the non-revenue water rate and therefore, the target value is set based on estimates. Because there are many causes of non-revenue waters, such as leakages, meter errors, and illegal connections, attention should be paid to the causal relationships between the project's components and the objective of reducing non-revenue water as well as the impacts of external factors. Moreover, the calculation of non-revenue water rates and volumes requires data such as the amount of water measured at the water treatment plant outlet and the amount of water billed by customer meters, but these data are not collected but estimated in many developing countries; therefore, it is essential to decide in advance on the calculation method. Although the non-revenue water rate (percent) is widely used as an indicator because it is easy to understand, it should be noted that because it is calculated with the input into the water supply system (the amount of water distributed) as a denominator, the rate is affected by water distribution volumes, which fluctuate regardless of non-revenue water reduction measures. In light of this problem, the International Water Association (IWA) recommends not using the non-revenue water rate as an indicator. Instead, the IWA recommends using absolute quantities, such as the amount of non-revenue water per kilometer of extension of water mains and the amount of non-revenue water per connection. ●Duration of water supply (hours per day) (urban areas): This indicator should be used when the project that includes the expansion of facility capacity is expected to extend the operating hours of water facilities in cities where water is supplied only during certain hours of the day. This indicator is usually measured in the number of hours of water supply per day (hours per day) but sometimes per week, depending on the water restriction level. It is necessary to set the operating hours through consultation with the counterpart organization about how they are planning to distribute water after the project completion because the duration of water supply may vary depending not only on the facility capacity but also on the stability of power supply, the affordability of operating expenses, and the water distribution management capacity. The duration of water supply can also be extended by reducing water leakages. In its proposals for SDG monitoring, the WHO/UNICEF JMP decided to use a minimum of 12 hours per day as a benchmark for the criteria for "safely managed" drinking water services; however, it is desirable, if possible, to supply water 24 hours a day in order to ensure water quality safety and reduce damage to water pipes. ●Water supply pressure (meters): This indicator can be used when the project is aimed at controlling water pressure within a proper range by increasing water flow in the distribution network, rehabilitating water pipes to reduce leakages, properly zoning distribution areas by taking altitude into account, and installing pressure reducing valves and tanks. In some cases, the water pressure may be too high and need to be lowered, while in other cases, it may be too low and need to be increased.	Cambodia	The Project for Expansion of Water Supply Systems in Kampong Cham and Battambang The Project for Expansion of Water Supply System in Kampot	2013 2015
				Effect indicators	**Basic indicators** Leakage rate (percent) / leakage amount (cubic meters per kilometer or cubic meters per connection) Amount of water supplied (cubic meters per day) **Supplementary indicators** Per capita water supply (liters per person per day) Non-revenue water rate (percent) / non-revenue water amount (cubic meters per kilometer or cubic meters per connection) Duration of water supply (hours per day) Water supply pressure (meters) Reference: Global SDG Indicator 6.1. Proportion of population using safely managed drinking water services. Proportion of population using safely managed drinking water services Global SDG Indicator 6.4.1.				

					Change in water-use efficiency over time Reference: JICA's 4th Medium-term Objective Indicator: Number of people with access to safe water				
1. Achieving universal and equitable access to safe and affordable drinking water for all in urban areas [SDG targets 6.1 and 6.4]	**1-7. Improving water utility finances**	**1-7-2. Improving finances**	**Pumping facilities**	**Operation indicators**	**Basic indicators** Reduction in electricity consumption (1,000 kWh per year) Reduction in electricity charges **Supplementary indicators** Unit power consumption (electricity consumption per pump discharge volume (kWh per cubic meter)) Amount of water supplied (cubic meters per day) Reference: Global SDG Indicator 6.4.1. Change in water-use efficiency over time	●Unit power consumption (electricity consumption per pump discharge volume (kWh per cubic meter)): (annual electricity consumption) / (annual pump discharge) ●Amount of water supplied (cubic meters per day) (urban areas): average daily water supply = (total annual water supply) / (number of service days) (annual data) ●Reduction in maintenance costs (yen per year): (electricity rate) x (reduced annual electricity consumption) + (reduced pump repair costs) ●Reduction in electricity consumption (1,000 kWh per year): (actual power) x (operating hours) - (rated power) x (operating hours) x (1 - power reduction rate x safety factor) ●Reduction in electricity charges: (electricity rate) x (reduced annual electricity consumption)	Jordan	Project for Energy Conservation through Upgrading Water Supply Network	2009
				Effect indicators	**Basic indicators** Reduction in maintenance costs (yen per year) Reduction in electricity consumption (1,000 kWh per year) Reduction in electricity charges				

1. Achieving universal and equitable access to safe and affordable drinking water for all in urban areas [SDG targets 6.1 and 6.4]	**1-7. Improving water utility finances**	**1-7-6. Enhancing resilience and climate change mitigation**	**Pumping facilities**	**Operation indicators**	**Basic indicators** Reduction in electricity consumption (1,000 kWh per year) Reduction in electricity charges **Supplementary indicators** Unit power consumption (electricity consumption per pump discharge volume (kWh per cubic meter)) Amount of water supplied (cubic meters per day) Reference: Global SDG Indicator 6.4.1. Change in water-use efficiency over time	●Reduction in electricity consumption (1,000 kWh per year): (actual power) x (operating hours) - (rated power) x (operating hours) x (1 - power reduction rate x safety factor) ●Reduction in electricity charges: (electricity rate) x (reduced annual electricity consumption) ●Unit power consumption (electricity consumption per pump discharge volume (kWh per cubic meter)): (annual electricity consumption) / (annual pump discharge) ●Amount of water supplied (cubic meters per day) (urban areas): average daily water supply = (total annual water supply) / (number of service days) (annual data) ●Reduction in maintenance costs (yen per year): (electricity rate) x (reduced annual electricity consumption) + (reduced pump repair costs) ●Reduction in CO2 emissions (tons per year): (electricity CO2 emission factor (tons-CO2 per kWh) x (reduced annual electricity consumption (kWh per year))	Jordan	Project for Energy Conservation through Upgrading Water Supply Network	2009
				Effect indicators	**Basic indicators** Reduction in maintenance costs (yen per year) Reduction in electricity consumption (1,000 kWh per year) Reduction in electricity charges Supplementary indicators Reduction in CO2 emissions (tons per year)				

1. Achieving universal and equitable access to safe and affordable drinking water for all in urban areas [SDG targets 6.1 and 6.4]	**1-8. Promoting non-revenue water reduction measures**	**1-8-3. Promoting water loss (leakage) reduction measures**	**Water distribution pipes**	**Operation indicators**	**Basic indicators** Leakage rate (percent) / leakage amount (cubic meters per kilometer or cubic meters per connection) Amount of water supplied (cubic meters per day) **Supplementary indicators** Non-revenue water rate (percent) / non-revenue water amount (cubic meters per kilometer or cubic meters per connection) Duration of water supply (hours per day) Water supply pressure (meters) Reference: Global SDG Indicator 6.4.1. Change in water-use efficiency over time Reference: JICA's 4th Medium-term Objective Indicator: Number of people with access to safe water	●Leakage rate/amount: This indicator should be used when the project includes the replacement of aged pipes. Although it is difficult to measure the leakage rate in the entire service area, it is sometimes possible to determine the leakage rate by restricting the measurement area. In principle, this indicator cannot be measured without conducting a leakage survey using the minimum night flow (MNF) method. Because most water utilities do not measure the minimum night flow but only estimate it, it is essential to decide in advance on the calculation method. ●Amount of water supplied (cubic meters per day) (urban areas): average daily water supply = (total annual water supply) / (number of service days) (annual data) ●Non-revenue water rate/amount: Non-revenue water is water that is not billed, including water lost to leakages, meter errors, and illegal connections. This indicator should be used when the project includes the installation of flow meters and household meters and the replacement of aged pipes to reduce non-revenue water. It should be noted that when the project does not cover the whole service area, because there are many external factors, it is difficult to set a target for the non-revenue water rate and therefore, the target value is set based on estimates. Because there are many causes of non-revenue waters, such as leakages, meter errors, and illegal connections, attention should be paid to the causal relationships between the project's components and the objective of reducing non-revenue water as well as the impacts of external factors. Moreover, the calculation of non-revenue water rates and volumes requires data such as the amount of water measured at the water treatment plant outlet and the amount of water billed by customer meters, but these data are not collected but estimated in many developing countries; therefore, it is essential to decide in advance on the calculation method. Although the non-revenue water rate (percent) is widely used as an indicator because it is easy to understand, it should be noted that because it is calculated with the input into the water supply system (the amount of water distributed) as a denominator, the rate is affected by water distribution volumes, which fluctuate regardless of non-revenue water reduction measures. In light of this problem, the International Water Association (IWA) recommends not using the non-revenue water rate as an indicator. Instead, the IWA recommends using absolute quantities, such as the amount of non-revenue water per kilometer of extension of water mains and the amount of non-revenue water per connection. ●Duration of water supply (hours per day) (urban areas): This indicator should be used when the project that includes the expansion of facility capacity is expected to extend the operating hours of water facilities in cities where water is supplied only during certain hours of the day. This indicator is usually measured in the number of hours of water supply per day (hours per day) but sometimes per week, depending on the water restriction level. It is necessary to set the operating hours through consultation with the counterpart organization about how they are planning to distribute water after the project completion because the duration of water supply may vary depending not only on the facility capacity but also on the stability of power supply, the affordability of operating expenses, and the water distribution management capacity. The duration of water supply can also be extended by reducing water leakages. In its proposals for SDG monitoring, the WHO/UNICEF JMP decided to use a minimum of 12 hours per day as a benchmark for the criteria for "safely managed" drinking water services; however, it is desirable, if possible, to supply water 24 hours a day in order to ensure water quality safety and reduce damage to water pipes. ●Water supply pressure (meters): This indicator can be used when the project is aimed at controlling water pressure within a proper range by increasing water flow in the distribution network, rehabilitating water pipes to reduce leakages, properly zoning distribution areas by taking altitude into account, and installing pressure reducing valves and tanks. In some cases, the water pressure may be too high and need to be lowered, while in other cases, it may be too low and need to be increased.	Sri Lanka Brazil Peru	Water Sector Development Project (2) Non-Revenue Water Control Project in Sao Paulo State Northern Lima Metropolitan Area Water Supply and Sewerage Optimization Project	2007 2011 2015
				Effect indicators	**Basic indicators** Leakage rate (percent) / leakage amount (cubic meters per kilometer or cubic meters per connection) **Supplementary indicators** Non-revenue water rate (percent) / non-revenue water amount (cubic meters per kilometer or cubic meters per connection) Reference: Global SDG Indicator 6.4.1. Change in water-use efficiency over time Reference: JICA's 4th Medium-term Objective Indicator: Number of people with access to safe water				

2. Achieving universal and equitable access to safe and affordable drinking water for all in rural areas [SDG target 6.1]	**2-1. Increasing water supply coverage**	**2-1-2. Developing water supply facilities** **2-1-3. Developing water sources**	**Construction and rehabilitation of wells and hand pumps (Level 1 facilities)**	**Operation indicators**	**Basic indicators** Service population (persons) **Supplementary indicators** Amount of water supplied (cubic meters per day) Duration of water supply (hours) Reference: Global SDG Indicator 6.1. Proportion of population using safely managed drinking water services Reference: JICA's 4th Medium-term Objective Indicator: Number of people with access to safe water	●Service population (persons) (rural areas): additional population supplied with safe water from the developed facility. In the case of equipment projects, this shall be read as the additional population supplied with safe water from the wells which the project counterparts drilled and constructed using the equipment. Notes: It is difficult to precisely compare projects in different countries because the definition may differ between countries, as exemplified below: (i) the per capita water supply is set at a certain amount, and the service population is precisely estimated based on the amount of water extracted; (ii) the service population is estimated based on the assumption that a well constructed in a village serves the entire population of the village (500 to 1000 people); and (iii) the population served per well is set at a certain number, regardless of the amount of water extracted, and the service population is estimated based on the number of successful wells. * Data collection method: social surveys, data collected during well drilling, etc. ●Amount of water supplied (cubic meters per day) (rural areas): amount of water supplied from the developed facility. Notes: Although the water supply is expected to increase when a new facility is constructed, the actual water supply depends on the operating hours of the facility. For example, the amount differs between when water is supplied for an hour in the morning and in the evening, respectively, and when water is supplied during the whole morning. Therefore, the amount of water supplied is not really an appropriate indicator. Moreover, without a metered system, it is difficult to make an accurate estimate of actual water supply. * Data collection method: In the case of Level 1, data should be collected through interviews. In the case of Level 2, the calculation should be made based on the amount of water distributed and the number of operating hours. ●Duration of water supply (hours) (rural areas): length of time for which water is supplied from the developed facility. Notes: The duration of water supply can be extended in general by constructing/rehabilitating water supply facilities though it depends on the operation settings. However, this may not always apply in the case of Level 1 because the facility may operate 24 hours a day. * Data collection method: operation records, gasoline consumption (in the case of diesel-powered facilities), etc.	Malawi	The Project for Selected Market Centres and Rural Water Supply in Mchinji and Kasungu District	2012
				Effect indicators	**Basic indicators** Facility utilization rate (percent) Water quality (E coli, turbidity, iron, manganese, arsenic, fluoride, etc.) **Supplementary indicators** Reduction in water collection time Stable water supply Water collection distance Population benefiting from improvements in water supply School enrollment rate Increase in the female labor force participation rate Reduction in water-borne diseases Water supply rate (percent) Reference: Global SDG Indicator 6.1. Proportion of population using safely managed drinking water services Reference: JICA's 4th Medium-term Objective Indicator: Number of people with access to safe water	●Facility utilization rate (percent) = number of water supply facilities in use / total number of facilities x 100 The number of facilities in use should be determined by checking how they are maintained and whether they are used by target beneficiaries on a daily basis. Notes: This indicator is useful in assessing rehabilitation projects. * Data collection method: inventory surveys of water supply facilities, etc. ●Water quality: This indicator is used to assess how much the water quality has improved by developing new water supply facilities. Select appropriate water quality parameters for the indicator according to the problems identified in the conventional water sources. In general, shallow groundwater and surface water tends to have high E. coli and turbidity levels, while deep well water tends to have high iron, manganese, arsenic, and fluoride concentrations. ●Reduction in water collection time: This indicator adds up the total time taken for a round trip to and from the water facility/source, the waiting time at the water facility/source, and the time taken to pump water. This indicator should be used when the project is expected to reduce water collection time by constructing water supply facilities. In SDG monitoring, the WHO/UNICEF Joint Monitoring Programme (JMP) decided to include an improved water source within 30 minutes' round trip in the criteria for "basic" services. Notes: 1) A social study called a "time-allocation study" allows for a direct estimation of how long it takes to collect water, though this method takes much time and effort. In this method, the actions taken at regular or random intervals by women (who are mainly responsible for collecting water) from randomly selected households are (observed by investigators and) recorded. 2) In general, data are collected through home visit interviews, though it cannot provide accurate estimates. - Women from randomly selected households are asked multiple-choice questions on			

						water collection labor and reductions in water collection time as well as asked to provide comments on benefits they have realized. These comments can also be used for public relations. Data collection method: see the notes above.			
2. Achieving universal and equitable access to safe and affordable drinking water for all in rural areas [SDG target 6.1]	**2-1. Increasing water supply coverage**	**2-1-2. Developing water supply facilities** **2-1-3. Developing water sources**	**Construction and rehabilitation of wells and hand pumps (Level 1 facilities)**			●Stable water supply: whether the water supply is stable regardless of rainy or dry season. Notes: Although it has been rarely used as an indicator, this is particularly useful in regions where the dry season is severe and surface water and shallow groundwater are used as main water sources. * Data collection method: water extraction data, interviews, etc. ●Water collection distance: distance from home to the nearest safe water source. In SDG monitoring, the WHO/UNICEF Joint Monitoring Programme (JMP) suggested that service levels should be set not based on the distance travelled to collect water but based on the time taken to collect water. Notes: The average distance can be estimated in the following two ways, though caution should be exercised because both methods have some difficulties: i) Interviews with users living around the water supply facility to be developed - This method can determine the area where the users of the water facility are distributed. However, users can hardly tell the actual distance to the water source or time taken to collect water. ii) Survey of sampled households - The direct distance to the water supply point can be estimated by using GPS estimates. (However, it is difficult to estimate the actual walking distance. In some academic studies, researchers may measure the distance by walking, but this method takes much time and effort). - The average distance can be longer than estimated at the baseline survey because people living further away may come to the developed water supply point to collect water. - In the case of household-based surveys, it is often found that different water sources are used in different seasons. Therefore, if the baseline and ex-post surveys are conducted in different seasons, careful consideration should be given to how to ask questions. * Data collection method: see the notes above. ●Population benefiting from improvements in water supply: number of people benefiting from water supply that is better in terms of quantity, quality, continuity, and affordability than before the project implementation. In its proposals for SDG monitoring, the WHO/UNICEF Joint Monitoring Programme (JMP) decided to include an improved water source within 30 minutes' round trip in the criteria for "basic" services and include this requirement as well as an improved water source located on premises, available when needed, and free from fecal and chemical (fluoride and arsenic) contamination in the criteria for "safely managed" services. These criteria for SDG monitoring should be taken into consideration. Notes: This indicator is particularly useful in assessing rehabilitation projects, though it is necessary to define criteria for improvement. For example, it is difficult to quantitatively assess the effects of rehabilitation when the water facilities were deteriorated but worked enough so that the rehabilitation would not make significant changes in the quantity, quality, or continuity of water supply. ●School enrollment rate: proportion of children enrolled in school in the target area Notes: - A Guide to Water and Sanitation Sector Impact Evaluations (World Bank) provides examples of possible indicators of this impact.			

						- Other evaluation guides also suggest that the school enrollment rate and the school absenteeism/attendance rate should be considered separately. - The number of absent days may vary with the season because some students have to travel further to collect water during the dry season. However, it should be noted that absence may not always be due to water collection but sometimes due to farming and other activities. * Data collection method: see the notes above. ●Increase in the female labor force participation rate: change in the proportion of women with stable jobs in the target area Notes: - A Guide to Water and Sanitation Sector Impact Evaluations (World Bank) provides examples of possible indicators of “gender and social inclusion” and “income/consumption.” On the other hand, this Guide also states that “we are aware of no evaluations that demonstrate the impacts of WSS programs on poverty, including income, consumption levels, education, or gender and ethnic inclusion.” (pp. 6-7) - Regardless of reductions in water collection burdens, employment opportunities are limited in many areas. * Data collection method: see the notes above.			

2. Achieving universal and equitable access to safe and affordable drinking water for all in rural areas [SDG target 6.1]	**2-1. Increasing water supply coverage**	**2-1-2. Developing water supply facilities** **2-1-3. Developing water sources**	**Construction and rehabilitation of wells, pumps, public taps, and elevated water tanks (Level 2 facilities)**	**Operation indicators**	**Basic indicators** Service population (persons) Amount of water supplied (cubic meters per day) **Supplementary indicators** Duration of water supply (hours) Reference: Global SDG Indicator 6.1. Proportion of population using safely managed drinking water services Reference: JICA's 4th Medium-term Objective Indicator: Number of people with access to safe water	●Service population (persons) (rural areas): additional population supplied with safe water from the developed facility. In the case of equipment projects, this shall be read as the additional population supplied with safe water from the wells which the project counterparts drilled and constructed using the equipment. Notes: It is difficult to precisely compare projects in different countries because the definition may differ between countries, as exemplified below: (i) the per capita water supply is set at a certain amount, and the service population is precisely estimated based on the amount of water extracted; (ii) the service population is estimated based on the assumption that a well constructed in a village serves the entire population of the village (500 to 1000 people); and (iii) the population served per well is set at a certain number, regardless of the amount of water extracted, and the service population is estimated based on the number of successful wells. * Data collection method: social surveys, data collected during well drilling, etc. ●Amount of water supplied (cubic meters per day) (rural areas): amount of water supplied from the developed facility. Notes: Although the water supply is expected to increase when a new facility is constructed, the actual water supply depends on the operating hours of the facility. For example, the amount differs between when water is supplied for an hour in the morning and in the evening, respectively, and when water is supplied during the whole morning. Therefore, the amount of water supplied is not really an appropriate indicator. Moreover, without a metered system, it is difficult to make an accurate estimate of actual water supply. * Data collection method: In the case of Level 1, data should be collected through interviews. In the case of Level 2, the calculation should be made based on the amount of water distributed and the number of operating hours. ●Duration of water supply (hours) (rural areas): length of time for which water is supplied from the developed facility. Notes: The duration of water supply can be extended in general by constructing/rehabilitating water supply facilities though it depends on the operation settings. However, this may not always apply in the case of Level 1 because the facility may operate 24 hours a day. * Data collection method: operation records, gasoline consumption (in the case of diesel-powered facilities), etc. ●Facility utilization rate (percent) = number of water supply facilities in use / total number of facilities x 100 The number of facilities in use should be determined by checking how they are maintained and whether they are used by target beneficiaries on a daily basis. Notes: This indicator is useful in assessing rehabilitation projects. * Data collection method: inventory surveys of water supply facilities, etc. ●Water quality: This indicator is used to assess how much the water quality has improved by developing new water supply facilities. Select appropriate water quality parameters for the indicator according to the problems identified in the conventional water sources. In general, shallow groundwater and surface water tends to have high E. coli and turbidity levels, while deep well water tends to have high iron, manganese, arsenic, and fluoride concentrations. ●Per capita water supply (liters per person per day): average daily per capita water supply = (average daily water supply) / (service population) (annual data). This indicator is used to assess the level of improvement in the living standards and the effectiveness of water-saving measures. If the data are broken down by purpose of use, it is desirable that the indicator reflects per capita water supply for domestic use.	Senegal Rwanda Morocco Zambia	The Project of Supply of Drinking Water in the Region of Tambacounda The Project for Rural Water Supply (Phase 3) Rural Water Supply Project (2) The Project for Groundwater Development in Luapula Province (Phase 3)	2009 2014 2011 2014
				Effect indicators	**Basic indicators** Facility utilization rate (percent) Water quality (E coli, turbidity, iron, manganese, arsenic, fluoride, etc.) **Supplementary indicators** Per capita water supply (liters per person per day) Reduction in water collection time Stable water supply Water collection distance Population benefiting from improvements in water supply School enrollment rate Increase in the female labor force participation rate Reduction in water-borne diseases Water supply rate (percent) Reference: Global SDG Indicator 6.1. Proportion of population using safely managed drinking water services Reference: JICA's 4th Medium-term Objective Indicator: Number of people with access to safe water				

2. Achieving universal and equitable access to safe and affordable drinking water for all in rural areas [SDG target 6.1]	**2-1. Increasing water supply coverage**	**2-1-2. Developing water supply facilities** **2-1-3. Developing water sources**	**Well drilling equipment (rigs)**	**Operation indicators**	**Basic indicators** Number of wells drilled (per year) Service population (persons) Amount of water supplied (cubic meters per day) **Supplementary indicators** Duration of water supply (hours) Reference: Global SDG Indicator 6.1. Proportion of population using safely managed drinking water services Reference: JICA's 4th Medium-term Objective Indicator: Number of people with access to safe water	●Number of wells drilled (per year): total number of wells drilled per year using the provided equipment. Notes: It is impossible to know the quantity and quality of groundwater that can be extracted from each well until it is actually drilled. Wells are categorized into "successful" and "unsuccessful" depending on whether they meet the specified requirements or not. From the viewpoint of development effects, the total number of "successful wells" should be counted; on the other hand, from the viewpoint of the use of well drilling equipment, the number of drilled wells should be counted, regardless of whether they are successful or not. Therefore, both the counts should be recorded. * Data collection method: activity reports of implementing agencies, etc. ●Reduction in water-borne diseases: Number of patients with water-borne diseases in the target area. Notes: This is the most desired result that can be reached by supplying safe water; however, it is difficult to epidemiologically verify the causal relationship between supplied water and water-borne disease incidence because there are many other factors that may cause water-borne diseases, such as sanitation (toilets). * Data collection method: An interview survey is an appropriate tool to collect data. There will be no problem if data have been collected by public health centers and hospitals that have existed since before the project implementation; however, the number of patients reported may increase if new public health centers and/or hospitals are established after the project starts. Moreover, the number of patients may not correspond to the number of disease cases because many patients do not go to hospitals or public health centers. Careful consideration should be given when setting this indicator because it is difficult to collect quantitative data. For example, data on the number of water-borne disease cases are rarely available even at public health centers. Interviews with beneficiaries may also be biased. ●Water supply rate: Population supplied with safe water from the new (or rehabilitated) facility / total population of the target area Notes: Although this indicator is generally useful, careful consideration should be given to whether to use this indicator, especially in rehabilitation projects, because the baseline of the water supply rate may be high in such cases. Moreover, caution should also be exercised when setting this indicator because the water supply rate may be influenced by external factors outside the project's control, such as the increase of total population, the reorganization of administrative districts, and the revision of service areas. The service population may allow for a more direct assessment of effects. * Data collection method: inventory surveys, etc. ●Reduction in water collection time: This indicator adds up the total time taken for a round trip to and from the water facility/source, the waiting time at the water facility/source, and the time taken to pump water. This indicator should be used when the project is expected to reduce water collection time by constructing water supply facilities. In SDG monitoring, the WHO/UNICEF Joint Monitoring Programme (JMP) decided to include an improved water source within 30 minutes' round trip in the criteria for "basic" services. Notes: 1) A social study called a "time-allocation study" allows for a direct estimation of how long it takes to collect water, though this method takes much time and effort. In this method, the actions taken at regular or random intervals by women (who are mainly responsible for collecting water) from randomly selected households are (observed by investigators and) recorded. 2) In general, data are collected through home visit interviews, though it cannot provide accurate estimates. - Women from randomly selected households are asked multiple-choice questions on water collection labor and reductions in water collection time as well as asked to provide comments on benefits they have realized. These comments can also be used for public relations. * Data collection method: see the notes above.	Myanmar Bolivia	The Provision of Equipment for Rural Water Supply Project in the Central Dry Zone The Project for Drinking Water Supply in the Rural Areas of Beni and Pando Prefectures	2011 2012
				Effect indicators	**Supplementary indicators** Per capita water supply (liters per person per day) Reduction in water collection time Stable water supply Water collection distance Population benefiting from improvements in water supply School enrollment rate Increase in the female labor force participation rate Reduction in water-borne diseases Water supply rate (percent) Reference: Global SDG Indicator 6.1. Proportion of population using safely managed drinking water services Reference: JICA's 4th Medium-term Objective Indicator: Number of people with access to safe water				

2. Achieving universal and equitable access to safe and affordable drinking water for all in rural areas [SDG target 6.1]	**2-2. Ensuring safe drinking water quality**	**2-2-3. Developing water supply facilities**	**Construction and rehabilitation of wells, pumps, public taps, and elevated water tanks (Level 2 facilities)**	**Operation indicators**	**Basic indicators** Service population (persons) Amount of water supplied (cubic meters per day) **Supplementary indicators** Duration of water supply (hours) Reference: Global SDG Indicator 6.1. Proportion of population using safely managed drinking water services Reference: JICA's 4th Medium-term Objective Indicator: Number of people with access to safe water	●Service population (persons) (rural areas): additional population supplied with safe water from the developed facility. In the case of equipment projects, this shall be read as the additional population supplied with safe water from the wells which the project counterparts drilled and constructed using the equipment. Notes: It is difficult to precisely compare projects in different countries because the definition may differ between countries, as exemplified below: (i) the per capita water supply is set at a certain amount, and the service population is precisely estimated based on the amount of water extracted; (ii) the service population is estimated based on the assumption that a well constructed in a village serves the entire population of the village (500 to 1000 people); and (iii) the population served per well is set at a certain number, regardless of the amount of water extracted, and the service population is estimated based on the number of successful wells. * Data collection method: social surveys, data collected during well drilling, etc. ●Amount of water supplied (cubic meters per day) (rural areas): amount of water supplied from the developed facility. Notes: Although the water supply is expected to increase when a new facility is constructed, the actual water supply depends on the operating hours of the facility. For example, the amount differs between when water is supplied for an hour in the morning and in the evening, respectively, and when water is supplied during the whole morning. Therefore, the amount of water supplied is not really an appropriate indicator. Moreover, without a metered system, it is difficult to make an accurate estimate of actual water supply. * Data collection method: In the case of Level 1, data should be collected through interviews. In the case of Level 2, the calculation should be made based on the amount of water distributed and the number of operating hours. ●Duration of water supply (hours) (rural areas): length of time for which water is supplied from the developed facility. Notes: The duration of water supply can be extended in general by constructing/rehabilitating water supply facilities though it depends on the operation settings. However, this may not always apply in the case of Level 1 because the facility may operate 24 hours a day. * Data collection method: operation records, gasoline consumption (in the case of diesel-powered facilities), etc. ●Facility utilization rate (percent) = number of water supply facilities in use / total number of facilities x 100 The number of facilities in use should be determined by checking how they are maintained and whether they are used by target beneficiaries on a daily basis. Notes: This indicator is useful in assessing rehabilitation projects. * Data collection method: inventory surveys of water supply facilities, etc. ●Reduction in water-borne diseases: Number of patients with water-borne diseases in the target area. Notes: This is the most desired result that can be reached by supplying safe water; however, it is difficult to epidemiologically verify the causal relationship between supplied water and water-borne disease incidence because there are many other factors that may cause water-borne diseases, such as sanitation (toilets). * Data collection method: An interview survey is an appropriate tool to collect data. There will be no problem if data have been collected by public health centers and hospitals that have existed since before the project implementation; however, the number of patients reported may increase if new public health centers and/or hospitals are established after the project starts. Moreover, the number of patients may not correspond to the number of disease cases because many patients do not go to hospitals or public health centers. Careful consideration should be given when setting this indicator because it is difficult to collect quantitative data. For example, data on the number of water-borne disease cases are rarely available even at public health centers. Interviews with beneficiaries may also be biased .	Tanzania	The Project for Rural Drinking Water Supply in Hanang, Singida Rural, Manyoni and Igunga Districts	2007
				Effect indicators	**Basic indicators** Facility utilization rate (percent) **Supplementary indicators** Reduction in water-borne diseases Reference: Global SDG Indicator 6.1. Proportion of population using safely managed drinking water services Reference: JICA's 4th Medium-term Objective Indicator: Number of people with access to safe water				

3. Achieving access to adequate and equitable sanitation and hygiene for all and ending open defecation [SDG target 6.2]	**3-1. Improving access to sanitation facilities**	**3-1-2. Developing a system to extend sanitation facilities**	**Latrines, hand-washing facilities, and service connection pipes for handwashing for public buildings**	**Operation indicators**	**Basic indicators** Sanitation facility utilization rate (percent) Number of beneficiaries (persons) Reference: Global SDG Indicator 6.2. Proportion of population using safely managed sanitation services (including hand-washing facilities with soap and water)	●Sanitation facility utilization rate (percent) = number of sanitation facilities in use / total number of facilities x 100 The number of facilities in use should be determined by checking how they are maintained and whether they are used by target beneficiaries on a daily basis. Notes: In the SDG monitoring of usage of sanitation facilities (toilets), the WHO and UNICEF have developed the sanitation ladder aiming for step-by-step improvements (basic sanitation facilities which are not shared with other households and allow for safe disposal of excreta in situ or off-site treatment); however, it should be noted that service levels may be defined differently in some countries. ●Number of beneficiaries (persons) In the case of school latrines, students in the school should be counted as the number of beneficiaries. In the case of public latrines, the number of beneficiaries should be estimated by multiplying the estimated number of users per latrine per day by the number of latrines in use.	Senegal Philippines	Project of Construction of Lower Secondary Schools in Louga Region and Kaolack Region Provincial Cities Water Supply Project (Phase 5)	2012 2014
				Effect indicators	**Basic indicators** **Supplementary indicators** Reduction in water-borne diseases Students' hygiene attitude Female students' willingness to attend school Reference: Global SDG Indicator 6.2. Proportion of population using safely managed sanitation services (including hand-washing facilities with soap and water)	●Reduction in water-borne diseases: Number of patients with water-borne diseases in the target area. Notes: This is the most desired result that can be reached by supplying safe water; however, it is difficult to epidemiologically verify the causal relationship between supplied water and water-borne disease incidence because there are many other factors that may cause water-borne diseases, such as sanitation (toilets). * Data collection method: An interview survey is an appropriate tool to collect data. There will be no problem if data have been collected by public health centers and hospitals that have existed since before the project implementation; however, the number of patients reported may increase if new public health centers and/or hospitals are established after the project starts. Moreover, the number of patients may not correspond to the number of disease cases because many patients do not go to hospitals or public health centers. Careful consideration should be given when setting this indicator because it is difficult to collect quantitative data. For example, data on the number of water-borne disease cases are rarely available even at public health centers. Interviews with beneficiaries may also be biased. ●Students' hygiene attitude Conduct a questionnaire survey with target students to monitor the progress of improvements in their attitudes towards the proper use of latrines and hand washing. ●Female students' willingness to attend school From the viewpoint of gender equality, it is necessary to design the facility so that women are willing to use it. In some areas, female students' privacy cannot be ensured in latrines because they are shared by boys and girls, and this sometimes demotivates female students from attending school. In this case, it is effective to build single-sex latrines and use this indicator to monitor its effects.	Senegal	The Project for Water Supply and Improvement of Hygienic Conditions in Rural Areas	2015

3. Achieving access to adequate and equitable sanitation and hygiene for all and ending open defecation [SDG target 6.2]	**3-2. Improving hygiene practices**	**3-2-3. Developing water supply facilities**	**Hand-washing facilities, service connection pipes for handwashing, wells, and other water facilities for public buildings**	**Operation indicators**	**Basic indicators** Hand-washing facility utilization rate (percent) Number of hand-washing facility users (persons) Reference: Global SDG Indicator 6.2. Proportion of population using safely managed sanitation services (including hand-washing facilities with soap and water)	●Hand-washing facility utilization rate (percent) It is suggested that toilet facilities should be equipped with hand-washing facilities with soap and water in order to improve hygiene practices. In particular, the SDGs emphasize the importance of improving hygiene practices. Therefore, the focus of attention should be placed on the question of whether the installed hand-washing facilities are being equipped with soap and water and functioning properly. ●Number of hand-washing facility users (persons) Improvement of hand-washing practices is determined by whether or not the habit of washing hands after defecation is established. In order to determine not only whether toilet and hand-washing facilities have been properly constructed but also whether hygiene awareness promotion activities have been carried out and whether they have improved hygiene practices, it is necessary to check whether the hand washing facilities are actually being used. ●Reduction in water-borne diseases: Number of patients with water-borne diseases in the target area. Notes: This is the most desired result that can be reached by supplying safe water; however, it is difficult to epidemiologically verify the causal relationship between supplied water and water-borne disease incidence because there are many other factors that may cause water-borne diseases, such as sanitation (toilets). * Data collection method: An interview survey is an appropriate tool to collect data. There will be no problem if data have been collected by public health centers and hospitals that have existed since before the project implementation; however, the number of patients reported may increase if new public health centers and/or hospitals are established after the project starts. Moreover, the number of patients may not correspond to the number of disease cases because many patients do not go to hospitals or public health centers. Careful consideration should be given when setting this indicator because it is difficult to collect quantitative data. For example, data on the number of water-borne disease cases are rarely available even at public health centers. Interviews with beneficiaries may also be biased. ●Students' hygiene attitude Conduct a questionnaire survey with target students to monitor the progress of improvements in their attitudes towards the proper use of latrines and hand washing.	Senegal	The Project for Water Supply and Improvement of Hygienic Conditions in Rural Areas	2015
				Effect indicators	**Supplementary indicators** Reduction in water-borne diseases Students' hygiene attitude Reference: Global SDG Indicator 6.2. Proportion of population using safely managed sanitation services (including hand-washing facilities with soap and water)				

4. Substantially increasing water-use efficiency across all sectors and ensuring sustainable withdrawals and supply of freshwater to address water scarcity and substantially reducing the number of people suffering from water scarcity [SDG target 6.4]	**4-3. Developing water resources**	**4-3-1. Developing surface water resources**	**Water storage facilities (dams) and water intake facilities**	**Operation indicators**	**Basic indicators** Amount of water intake (liters per second, cubic meters per second, or cubic meters per day) Service population (persons) Amount of water supplied (cubic meters per day) Reference: Global SDG Indicator 6.4.1. Change in water-use efficiency over time Global SDG Indicator 6.4.2. Level of water stress (freshwater withdrawal as a proportion of available freshwater resources)	●Amount of water intake (cubic meters per day): (total annual water intake) / (number of seconds or days of water intake per year). This indicator should be used when the project includes the construction of one or more water intakes. When the project includes the expansion of service areas and/or new connections, the amount of water intake may not always increase to the maximum facility capacity immediately after the project is completed because it may take time to develop distribution networks and install service pipes. This should be taken into account when setting the target value. Most of the projects that also include the construction of one or more water treatment plants do not use the amount of water intake but use the utilization rate of the water treatment plant(s) as their indicator. When surface water sources are used for piped water supply, if the raw water has a high turbidity level or includes sewage and wastewater, it is necessary to consider treating the raw water according to its quality. Although this indicator is measured in different units in different countries, such as liters per second, cubic meters per second, million gallons per day (MGD), it is commonly measured in cubic meters per day in Japan. It is therefore recommended to consistently use cubic meters per day in documents written in Japanese for Japanese readers. ●Service population (persons) (urban areas): population served with water supply (annual basis). This indicator should be used when the project is aimed at increasing population served. Although this indicator is widely used, water suppliers generally only keep a tally of the number of water connections (contracts) and do not keep a tally of the number of people they serve. There are different ways to calculate service population; in some cases, it is calculated by multiplying the number of connections by the average number of people per household, and in other cases, it is estimated based on the total population of the service area. Therefore, it is necessary to decide in advance on the calculation method. In addition, it should be noted that the installation of service pipes is not always included in the project scope. In this case, it is essential to consider whether the target value of the indicator is appropriate by taking into account who is responsible for installing service pipes and how many service pipes have been actually installed (the actual increase in connections). When service population includes users of public taps, it is difficult to determine their number; therefore, when there are many users of public taps, it is desirable to use “service population” as a reference indicator and set another measurable indicator to assess the effects of the project. ●Amount of water supplied (cubic meters per day) (urban areas): average daily water supply = (total annual water supply) / (number of service days) (annual data) ●Added water capacity (cubic meters per second): amount of water intake increased by developing one or more new facilities in the reservoir development project. This indicator should be used when the project includes the development of water sources such as reservoirs. ●Amount of water supplied (cubic meters per day) (urban areas): average daily water supply = (total annual water supply) / (number of service days) (annual data) ●Water supply coverage (percent): (service population) / (total population of the project area) x 100 (annual data). In Japan, “water supply coverage” means the proportion of service population in the total population of the planned service area, compared with “piped water coverage,” which means the proportion of service population in the total population of the administrative district. This indicator should be clearly defined in advance because the definition may differ between countries and regions (in some cases, service population includes those served not only by piped water but also by communal wells). It should be also noted that the denominator may change due to the expansion of the service area or the merger of administrative districts. It is therefore essential to ascertain the basis for the figures used to determine the target value. Careful consideration should be given when setting this indicator because it may be influenced by external factors outside the project’s control, such as the increase of total population, the reorganization of administrative districts, and the revision of service areas. ●Per capita water supply (liters per person per day): average daily per capita water supply = (average daily water supply) / (service population) (annual data). This indicator is used to assess the level of improvement in the living standards and the effectiveness of water-saving measures. If the data are broken down by purpose of use, it is desirable that the indicator reflects per capita water supply for domestic use.	Malaysia	Beris Dam Project	2011
				Effect indicators	**Basic indicators** Added water capacity (cubic meters per second) Service population (persons) Amount of water supplied (cubic meters per day) **Supplementary indicators** Water supply coverage (percent) Per capita water supply (liters per person per day) Amount of groundwater pumped (cubic meters per day) Reference: Global SDG Indicator 6.4.1. Change in water-use efficiency over time Global SDG Indicator 6.4.2. Level of water stress (freshwater withdrawal as a proportion of available freshwater resources)				

						* Data collection method: water distribution data, etc. ●Amount of groundwater pumped (cubic meters per day; cubic meters per year): This indicator should be used when water sources are developed as alternatives to groundwater to prevent land subsidence. This is an alternative indicator used when it is difficult to monitor land subsidence. A decrease in the amount of groundwater extracted by water producers is the most direct indicator in the case of shifting the source of water supply from groundwater to surface water. When surface water is already used and the project is aimed at shifting groundwater from other purposes to piped water by expanding water supply capacity, it is necessary to confirm whether there is a monitoring system to properly measure groundwater extraction.			

4. Substantially increasing water-use efficiency across all sectors and ensuring sustainable withdrawals and supply of freshwater to address water scarcity and substantially reducing the number of people suffering from water scarcity [SDG target 6.4]	**4-3. Developing water resources**	**4-3-2. Developing groundwater resources**	**Construction and rehabilitation of wells, pumps, public taps, and elevated water tanks (Level 2 facilities)**	**Operation indicators**	**Basic indicators** Service population (persons) Amount of water supplied (cubic meters per day) Supplementary indicators Duration of water supply (hours) Reference: Global SDG Indicator 6.4.1. Change in water-use efficiency over time Global SDG Indicator 6.4.2. Level of water stress (freshwater withdrawal as a proportion of available freshwater resources)	●Service population (persons) (urban areas): population served with water supply (annual basis). This indicator should be used when the project is aimed at increasing population served. Although this indicator is widely used, water suppliers generally only keep a tally of the number of water connections (contracts) and do not keep a tally of the number of people they serve. There are different ways to calculate service population; in some cases, it is calculated by multiplying the number of connections by the average number of people per household, and in other cases, it is estimated based on the total population of the service area. Therefore, it is necessary to decide in advance on the calculation method. In addition, it should be noted that the installation of service pipes is not always included in the project scope. In this case, it is essential to consider whether the target value of the indicator is appropriate by taking into account who is responsible for installing service pipes and how many service pipes have been actually installed (the actual increase in connections). When service population includes users of public taps, it is difficult to determine their number; therefore, when there are many users of public taps, it is desirable to use “service population” as a reference indicator and set another measurable indicator to assess the effects of the project. ●Service population (persons) (rural areas): additional population supplied with safe water from the developed facility. In the case of equipment projects, this shall be read as the additional population supplied with safe water from the wells which the project counterparts drilled and constructed using the equipment. Notes: It is difficult to precisely compare projects in different countries because the definition may differ between countries, as exemplified below: (i) the per capita water supply is set at a certain amount, and the service population is precisely estimated based on the amount of water extracted; (ii) the service population is estimated based on the assumption that a well constructed in a village serves the entire population of the village (500 to 1000 people); and (iii) the population served per well is set at a certain number, regardless of the amount of water extracted, and the service population is estimated based on the number of successful wells. * Data collection method: social surveys, data collected during well drilling, etc. ●Amount of water supplied (cubic meters per day) (urban areas): average daily water supply = (total annual water supply) / (number of service days) (annual data) ●Amount of water supplied (cubic meters per day) (rural areas): amount of water supplied from the developed facility. Notes: Although the water supply is expected to increase when a new facility is constructed, the actual water supply depends on the operating hours of the facility. For example, the amount differs between when water is supplied for an hour in the morning and in the evening, respectively, and when water is supplied during the whole morning. Therefore, the amount of water supplied is not really an appropriate indicator. Moreover, without a metered system, it is difficult to make an accurate estimate of actual water supply. * Data collection method: In the case of Level 1, data should be collected through interviews. In the case of Level 2, the calculation should be made based on the amount of water distributed and the number of operating hours. ●Duration of water supply (hours per day) (urban areas): This indicator should be used when the project that includes the expansion of facility capacity is expected to extend the operating hours of water facilities in cities where water is supplied only during certain hours of the day. This is usually measured in the number of hours of water supply per day (hours per day) but sometimes per week, depending on the water restriction level. It is necessary to set the operating hours through consultation with the counterpart organization about how they are planning to distribute water after the project completion because the duration of water supply may vary depending not only on the facility capacity but also on the stability of power supply, the affordability of operating expenses, and the water distribution management capacity. The duration of water supply can also be extended by reducing water leakages. In its proposals for SDG monitoring, the WHO/UNICEF JMP decided to use a minimum of 12 hours per day as a benchmark for the criteria for “safely managed” drinking water services; however, it is desirable, if possible, to supply water 24 hours a day in order to ensure water quality safety and reduce damage to water pipes. ●Duration of water supply (hours) (rural areas): length of time for which water is supplied from the developed facility. Notes: The duration of water supply can be extended in general by	Bangladesh	The Project for Ground Water Investigation and Development of Deep Ground Water Source in Urban and Rural Areas	2012
				Effect indicators	**Basic indicators** Facility utilization rate (percent) **Supplementary indicators** Per capita water supply (liters per person per day) Reduction in water collection time Stable water supply Water collection distance Population benefiting from improvements in water supply School enrollment rate Increase in the female labor force participation rate Reduction in water-borne diseases Water supply rate (percent) Reference: Global SDG Indicator 6.4.1. Change in water-use efficiency over time Global SDG Indicator 6.4.2. Level of water stress (freshwater withdrawal as a proportion of available freshwater resources)		Zambia	The Project for Groundwater Development in Luapula Province (Phase 3)	2014

						constructing/rehabilitating water supply facilities though it depends on the operation settings. However, this may not always apply in the case of Level 1 because the facility may operate 24 hours a day. * Data collection method: operation records, gasoline consumption (in the case of diesel-powered facilities), etc. ●Facility utilization rate (percent) = number of water supply facilities in use / total number of facilities x 100 The number of facilities in use should be determined by checking how they are maintained and whether they are used by target beneficiaries on a daily basis. Notes: This indicator is useful in assessing rehabilitation projects. * Data collection method: inventory surveys of water supply facilities, etc. ●Per capita water supply (liters per person per day): average daily per capita water supply = (average daily water supply) / (service population) (annual data). This indicator is used to assess the level of improvement in the living standards and the effectiveness of water-saving measures. If the data are broken down by purpose of use, it is desirable that the indicator reflects per capita water supply for domestic use. ●Reduction in water collection time: This indicator adds up the total time taken for a round trip to and from the water facility/source, the waiting time at the water facility/source, and the time taken to pump water. This indicator should be used when the project is expected to reduce water collection time by constructing water supply facilities. In SDG monitoring, the WHO/UNICEF Joint Monitoring Programme (JMP) decided to include an improved water source within 30 minutes' round trip in the criteria for "basic" services. Notes: 1) A social study called a "time-allocation study" allows for a direct estimation of how long it takes to collect water, though this method takes much time and effort. In this method, the actions taken at regular or random intervals by women (who are mainly responsible for collecting water) from randomly selected households are (observed by investigators and) recorded. 2) In general, data are collected through home visit interviews, though it cannot provide accurate estimates. - Women from randomly selected households are asked multiple-choice questions on water collection labor and reductions in water collection time as well as asked to provide comments on benefits they have realized. These comments can also be used for public relations. Data collection method: see the notes above. ●Stable water supply: whether the water supply is stable regardless of rainy or dry season. Notes: Although it has been rarely used as an indicator, this is particularly useful in regions where the dry season is severe and surface water and shallow groundwater are used as main water sources. * Data collection method: water extraction data, interviews, etc. ●Water collection distance: distance from home to the nearest safe water source. In SDG monitoring, the WHO/UNICEF Joint Monitoring Programme (JMP) suggested that service levels should be set not based on the distance travelled to collect water but based on the time taken to collect water. Notes: The average distance can be estimated in the following two ways, though caution should be exercised because both methods have some difficulties: i) Interviews with users living around the water supply facility to be developed - This method can determine the area where the users of the water facility are distributed. However, users can hardly tell the actual distance to the water source or time taken to collect water. ●Population benefiting from improvements in water supply: number of people benefiting from water supply that is better in terms of quantity, quality, continuity, and affordability than before the project implementation. In its proposals for SDG monitoring, the WHO/UNICEF Joint Monitoring Programme (JMP) decided to include an improved water source within 30 minutes' round trip in the criteria for "basic" services and include this requirement as well as an improved water source located on premises, available when needed, and free from faecal and chemical (fluoride and arsenic) contamination in the criteria for "safely managed" services. These criteria for SDG monitoring should be			

						taken into consideration. Notes: This indicator is particularly useful in assessing rehabilitation projects, though it is necessary to define criteria for improvement. For example, it is difficult to quantitatively assess the effects of rehabilitation when the water facilities were deteriorated but worked enough so that the rehabilitation would not make significant changes in the quantity, quality, or continuity of water supply. ●School enrollment rate: proportion of children enrolled in school in the target area Notes: A Guide to Water and Sanitation Sector Impact Evaluations (World Bank) provides examples of possible indicators of this impact. - Other evaluation guides also suggest that the school enrollment rate and the school absenteeism/attendance rate should be considered separately. - The number of absent days may vary with the season because some students have to travel further to collect water during the dry season. However, it should be noted that absence may not always be due to water collection but sometimes due to farming and other activities. * Data collection method: see the notes above. ●Increase in the female labor force participation rate: change in the proportion of women with stable jobs in the target area Notes: - A Guide to Water and Sanitation Sector Impact Evaluations (World Bank) provides examples of possible indicators of “gender and social inclusion” and “income/consumption.” On the other hand, this Guide also states that “we are aware of no evaluations that demonstrate the impacts of WSS programs on poverty, including income, consumption levels, education, or gender and ethnic inclusion.” (pp. 6-7) - Regardless of reductions in water collection burdens, employment opportunities are limited in many areas. * Data collection method: see the notes above. ●Reduction in water-borne diseases: Number of patients with water-borne diseases in the target area. Notes: This is the most desired result that can be reached by supplying safe water; however, it is difficult to epidemiologically verify the causal relationship between supplied water and water-borne disease incidence because there are many other factors that may cause water-borne diseases, such as sanitation (toilets). * Data collection method: An interview survey is an appropriate tool to collect data. There will be no problem if data have been collected by public health centers and hospitals that have existed since before the project implementation; however, the number of patients reported may increase if new public health centers and/or hospitals are established after the project starts. Moreover, the number of patients may not correspond to the number of disease cases because many patients do not go to hospitals or public health centers. Careful consideration should be given when setting this indicator because it is difficult to collect quantitative data. For example, data on the number of water-borne disease cases are rarely available even at public health centers. Interviews with beneficiaries may also be biased. ●Water supply rate: Population supplied with safe water from the new (or rehabilitated) facility / total population of the target area Notes: Although this indicator is generally useful, careful consideration should be given to whether to use this indicator, especially in rehabilitation projects, because the baseline of the water supply rate may be high in such cases. Moreover, caution should also be exercised when setting this indicator because the water supply rate may be influenced by external factors outside the project’s control, such as the increase of total population, the reorganization of administrative districts, and the revision of service areas. The service population may allow for a more direct assessment of effects. * Data collection method: inventory surveys, etc.			

4. Substantially increasing water-use efficiency across all sectors and ensuring sustainable withdrawals and supply of freshwater to address water scarcity and substantially reducing the number of people suffering from water scarcity [SDG target 6.4]	**4-3. Developing water resources**	**4-3-2. Developing groundwater resources**	**Well drilling equipment (rigs)**	**Operation indicators**	**Basic indicators** Number of wells drilled (per year) Service population (persons) Amount of water supplied (cubic meters per day) **Supplementary indicators** Duration of water supply (hours) Reference: Global SDG Indicator 6.4.1. Change in water-use efficiency over time Global SDG Indicator 6.4.2. Level of water stress (freshwater withdrawal as a proportion of available freshwater resources)	●Number of wells drilled (per year): total number of wells drilled per year using the provided equipment. Notes: It is impossible to know the quantity and quality of groundwater that can be extracted from each well until it is actually drilled. Wells are categorized into “successful” and “unsuccessful” depending on whether they meet the specified requirements or not. From the viewpoint of development effects, the total number of “successful wells” should be counted; on the other hand, from the viewpoint of the use of well drilling equipment, the number of drilled wells should be counted, regardless of whether they are successful or not. Therefore, both the counts should be recorded. * Data collection method: activity reports of implementing agencies, etc. ●Service population (persons) (urban areas): population served with water supply (annual basis). This indicator should be used when the project is aimed at increasing population served. Although this indicator is widely used, water suppliers generally only keep a tally of the number of water connections (contracts) and do not keep a tally of the number of people they serve. There are different ways to calculate service population; in some cases, it is calculated by multiplying the number of connections by the average number of people per household, and in other cases, it is estimated based on the total population of the service area. Therefore, it is necessary to decide in advance on the calculation method. In addition, it should be noted that the installation of service pipes is not always included in the project scope. In this case, it is essential to consider whether the target value of the indicator is appropriate by taking into account who is responsible for installing service pipes and how many service pipes have been actually installed (the actual increase in connections). When service population includes users of public taps, it is difficult to determine their number; therefore, when there are many users of public taps, it is desirable to use “service population” as a reference indicator and set another measurable indicator to assess the effects of the project. ●Service population (persons) (rural areas): additional population supplied with safe water from the developed facility. In the case of equipment projects, this shall be read as the additional population supplied with safe water from the wells which the project counterparts drilled and constructed using the equipment. Notes: It is difficult to precisely compare projects in different countries because the definition may differ between countries, as exemplified below: (i) the per capita water supply is set at a certain amount, and the service population is precisely estimated based on the amount of water extracted; (ii) the service population is estimated based on the assumption that a well constructed in a village serves the entire population of the village (500 to 1000 people); and (iii) the population served per well is set at a certain number, regardless of the amount of water extracted, and the service population is estimated based on the number of successful wells. * Data collection method: social surveys, data collected during well drilling, etc. ●Amount of water supplied (cubic meters per day) (urban areas): average daily water supply = (total annual water supply) / (number of service days) (annual data) ●Amount of water supplied (cubic meters per day) (rural areas): amount of water supplied from the developed facility. Notes: Although the water supply is expected to increase when a new facility is constructed, the actual water supply depends on the operating hours of the facility. For example, the amount differs between when water is supplied for an hour in the morning and in the evening, respectively, and when water is supplied during the whole morning. Therefore, the amount of water supplied is not really an appropriate indicator. Moreover, without a metered system, it is difficult to make an accurate estimate of actual water supply. * Data collection method: In the case of Level 1, data should be collected through interviews. In the case of Level 2, the calculation should be made based on the amount of water distributed and the number of operating hours. ●Duration of water supply (hours per day) (urban areas): This indicator should be used when the project that includes the expansion of facility capacity is expected to extend the operating hours of water facilities in cities where water is supplied only during certain hours of the day. This indicator is usually measured in the number of hours of water supply per day (hours per day) but sometimes per week, depending on the water restriction level. It is necessary to set the operating hours through consultation with the counterpart organization about how they are planning to distribute water after the project completion because the duration of water supply may vary depending not only on the	Bangladesh	The Project for Ground Water Investigation and Development of Deep Ground Water Source in Urban and Rural Areas	2012
				Effect indicators	**Supplementary indicators** Per capita water supply (liters per person per day) Reduction in water collection time Stable water supply Water collection distance Population benefiting from improvements in water supply School enrollment rate Increase in the female labor force participation rate Reduction in water-borne diseases Water supply rate (percent) Reference: Global SDG Indicator 6.4.1. Change in water-use efficiency over time Global SDG Indicator 6.4.2. Level of water stress (freshwater withdrawal as a proportion of available freshwater resources)				

						facility capacity but also on the stability of power supply, the affordability of operating expenses, and the water distribution management capacity. The duration of water supply can also be extended by reducing water leakages. In its proposals for SDG monitoring, the WHO/UNICEF JMP decided to use a minimum of 12 hours per day as a benchmark for the criteria for “safely managed” drinking water services; however, it is desirable, if possible, to supply water 24 hours a day in order to ensure water quality safety and reduce damage to water pipes. ●Duration of water supply (hours) (rural areas): length of time for which water is supplied from the developed facility. Notes: The duration of water supply can be extended in general by constructing/rehabilitating water supply facilities though it depends on the operation settings. However, this may not always apply in the case of Level 1 because the facility may operate 24 hours a day. * Data collection method: operation records, gasoline consumption (in the case of diesel-powered facilities), etc. ●Per capita water supply (liters per person per day): average daily per capita water supply = (average daily water supply) / (service population) (annual data). This indicator is used to assess the level of improvement in the living standards and the effectiveness of water-saving measures. If the data are broken down by purpose of use, it is desirable that the indicator reflects per capita water supply for domestic use. ●Reduction in water collection time: This indicator adds up the total time taken for a round trip to and from the water facility/source, the waiting time at the water facility/source, and the time taken to pump water. This indicator should be used when the project is expected to reduce water collection time by constructing water supply facilities. In SDG monitoring, the WHO/UNICEF Joint Monitoring Programme (JMP) decided to include an improved water source within 30 minutes’ round trip in the criteria for “basic” services. Notes: 1) A social study called a “time-allocation study” allows for a direct estimation of how long it takes to collect water, though this method takes much time and effort. In this method, the actions taken at regular or random intervals by women (who are mainly responsible for collecting water) from randomly selected households are (observed by investigators and) recorded. 2) In general, data are collected through home visit interviews, though it cannot provide accurate estimates. - Women from randomly selected households are asked multiple-choice questions on water collection labor and reductions in water collection time as well as asked to provide comments on benefits they have realized. These comments can also be used for public relations. Data collection method: see the notes above. ●Stable water supply: whether the water supply is stable regardless of rainy or dry season. Notes: Although it has been rarely used as an indicator, this is particularly useful in regions where the dry season is severe and surface water and shallow groundwater are used as main water sources. * Data collection method: water extraction data, interviews, etc. ●Water collection distance: distance from home to the nearest safe water source. In SDG monitoring, the WHO/UNICEF Joint Monitoring Programme (JMP) suggested that service levels should be set not based on the distance travelled to collect water but based on the time taken to collect water. ●Population benefiting from improvements in water supply: number of people benefiting from water supply that is better in terms of quantity, quality, continuity, and affordability than before the project implementation. In its proposals for SDG monitoring, the WHO/UNICEF Joint Monitoring Programme (JMP) decided to include an improved water source within 30 minutes’ round trip in the criteria for “basic” services and include this requirement as well as an improved water source located on premises, available when needed, and free from faecal and chemical (fluoride and arsenic) contamination in the criteria for “safely managed” services. These criteria for SDG monitoring should be taken into consideration. Notes: This indicator is particularly useful in assessing rehabilitation projects, though it			

						is necessary to define criteria for improvement. For example, it is difficult to quantitatively assess the effects of rehabilitation when the water facilities were deteriorated but worked enough so that the rehabilitation would not make significant changes in the quantity, quality, or continuity of water supply. ●School enrollment rate: proportion of children enrolled in school in the target area Notes: A Guide to Water and Sanitation Sector Impact Evaluations (World Bank) provides examples of possible indicators of this impact. - Other evaluation guides also suggest that the school enrollment rate and the school absenteeism/attendance rate should be considered separately. - The number of absent days may vary with the season because some students have to travel further to collect water during the dry season. However, it should be noted that absence may not always be due to water collection but sometimes due to farming and other activities. * Data collection method: see the notes above. ●Increase in the female labor force participation rate: change in the proportion of women with stable jobs in the target area Notes: - A Guide to Water and Sanitation Sector Impact Evaluations (World Bank) provides examples of possible indicators of “gender and social inclusion” and “income/consumption.” On the other hand, this Guide also states that “we are aware of no evaluations that demonstrate the impacts of WSS programs on poverty, including income, consumption levels, education, or gender and ethnic inclusion.” (pp. 6-7) - Regardless of reductions in water collection burdens, employment opportunities are limited in many areas. * Data collection method: see the notes above. ●Reduction in water-borne diseases: Number of patients with water-borne diseases in the target area. Notes: This is the most desired result that can be reached by supplying safe water; however, it is difficult to epidemiologically verify the causal relationship between supplied water and water-borne disease incidence because there are many other factors that may cause water-borne diseases, such as sanitation (toilets). * Data collection method: An interview survey is an appropriate tool to collect data. There will be no problem if data have been collected by public health centers and hospitals that have existed since before the project implementation; however, the number of patients reported may increase if new public health centers and/or hospitals are established after the project starts. Moreover, the number of patients may not correspond to the number of disease cases because many patients do not go to hospitals or public health centers. Careful consideration should be given when setting this indicator because it is difficult to collect quantitative data. For example, data on the number of water-borne disease cases are rarely available even at public health centers. Interviews with beneficiaries may also be biased. ●Water supply rate: Population supplied with safe water from the new (or rehabilitated) facility / total population of the target area Notes: Although this indicator is generally useful, careful consideration should be given to whether to use this indicator, especially in rehabilitation projects, because the baseline of the water supply rate may be high in such cases. Moreover, caution should also be exercised when setting this indicator because the water supply rate may be influenced by external factors outside the project’s control, such as the increase of total population, the reorganization of administrative districts, and the revision of service areas. The service population may allow for a more direct assessment of effects. * Data collection method: inventory surveys, etc.			

4. Substantially increasing water-use efficiency across all sectors and ensuring sustainable withdrawals and supply of freshwater to address water scarcity and substantially reducing the number of people suffering from water scarcity [SDG target 6.4]	**4-3. Developing water resources**	**4-3-4. Developing other unconventional water sources**	**Desalination plants**	**Operation indicators**	**Basic indicators** Service population (persons) Amount of water supplied (cubic meters per day) Salinity (milligrams per liter) Facility utilization rate (percent) **Supplementary indicators** Facility capacity (cubic meters per day) (e.g. the capacity of the water treatment plant) Reference: Global SDG Indicator 6.4.1. Change in water-use efficiency over time Global SDG Indicator 6.4.2. Level of water stress (freshwater withdrawal as a proportion of available freshwater resources)	●Service population (persons) (urban areas): population served with water supply (annual basis). This indicator should be used when the project is aimed at increasing population served. Although this indicator is widely used, water suppliers generally only keep a tally of the number of water connections (contracts) and do not keep a tally of the number of people they serve. There are different ways to calculate service population; in some cases, it is calculated by multiplying the number of connections by the average number of people per household, and in other cases, it is estimated based on the total population of the service area. Therefore, it is necessary to decide in advance on the calculation method. In addition, it should be noted that the installation of service pipes is not always included in the project scope. In this case, it is essential to consider whether the target value of the indicator is appropriate by taking into account who is responsible for installing service pipes and how many service pipes have been actually installed (the actual increase in connections). When service population includes users of public taps, it is difficult to determine their number; therefore, when there are many users of public taps, it is desirable to use “service population” as a reference indicator and set another measurable indicator to assess the effects of the project. ●Amount of water supplied (cubic meters per day) (urban areas): average daily water supply = (total annual water supply) / (number of service days) (annual data) ●Salinity (milligrams per liter) This indicator can be used when the salinity in groundwater used for water supply has increased and one or more desalination plants are constructed as a countermeasure. In some cases, water desalinated by the desalination plant(s) is mixed with other water and then distributed to customers; therefore, consideration should be given to whether to monitor water immediately after it is desalinated at the desalinated plant or somewhere in the distribution network. ●Facility utilization rate (percent): facility utilization rate (average) = (average daily water supply) / (facility capacity) x 100 This indicator should be used when the project includes the construction or rehabilitation of one or more water treatment plants. The target rate of each water treatment plant should be set by taking into account its service area and relationships with other existing water treatment plants. For example, in the case of seawater desalination plants, which are constructed, despite their high operating costs, to meet the peak demand or diversify water sources, the target facility utilization rate should be set lower. ●Facility capacity (cubic meters per day): The amount of water to be treated or to flow in the pipes when the facility operates properly should be set. Although this is measured in different units in different countries, such as liters per second, it is commonly measured in cubic meters per day in Japan. It is therefore recommended to consistently use cubic meters per day in documents written in Japanese for Japanese readers. ●Per capita water supply (liters per person per day): average daily per capita water supply = (average daily water supply) / (service population) (annual data). This indicator is used to assess the level of improvement in the living standards and the effectiveness of water-saving measures. If the data are broken down by purpose of use, it is desirable that the indicator reflects per capita water supply for domestic use. ●Water supply coverage (percent): (service population) / (total population of the project area) x 100 (annual data). In Japan, “water supply coverage” means the proportion of service population in the total population of the planned service area, compared with “piped water coverage,” which means the proportion of service population in the total population of the administrative district. This indicator should be clearly defined in advance because the definition may differ between countries and regions (in some cases, service population includes those served not only by piped water but also by communal wells). It should be also noted that the denominator may change due to the expansion of the service area or the merger of administrative districts. It is therefore essential to ascertain the basis for the figures used to determine the target value. Careful consideration should be given when setting this indicator because it may be influenced by external factors outside the project’s control, such as the increase of total population, the reorganization of administrative districts, and the revision of service areas.	Tunisia Cape Verde Tunisia	The Project for Desalination of Groundwater in Southern Region Water Supply System Development Project in Santiago Island Water Supply and Sewage System Improvement Project in South-Tunisia	2009 2013 2004
				Effect indicators	**Basic indicators** Service population (persons) Amount of water supplied (cubic meters per day) Salinity (milligrams per liter) **Supplementary indicators** Water supply coverage (percent) Per capita water supply (liters per person per day) Reference: Global SDG Indicator 6.4.1. Change in water-use efficiency over time Global SDG Indicator 6.4.2. Level of water stress (freshwater withdrawal as a proportion of available freshwater resources)				

4. Substantially increasing water-use efficiency across all sectors and ensuring sustainable withdrawals and supply of freshwater to address water scarcity and substantially reducing the number of people suffering from water scarcity [SDG target 6.4]	**4-4. Increasing water use efficiency and savings**	**4-4-2. Increasing domestic water use efficiency and savings**	**Water distribution pipes**	**Operation indicators**	**Basic indicators** Leakage rate (percent) / leakage amount (cubic meters per kilometer or cubic meters per connection) Amount of water supplied (cubic meters per day) **Supplementary indicators** Non-revenue water rate (percent) / non-revenue water amount (cubic meters per kilometer or cubic meters per connection) Duration of water supply (hours per day) Water supply pressure (meters) Reference: Global SDG Indicator 6.4.1. Change in water-use efficiency over time Global SDG Indicator 6.4.2. Level of water stress (freshwater withdrawal as a proportion of available freshwater resources)	●Leakage rate/amount: This indicator should be used when the project includes the replacement of aged pipes. Although it is difficult to measure the leakage rate in the entire service area, it is sometimes possible to determine the leakage rate by restricting the measurement area. In principle, this indicator cannot be measured without conducting a leakage survey using the minimum night flow (MNF) method. Because most water utilities do not measure the minimum night flow but only estimate it, it is essential to decide in advance on the calculation method. ●Amount of water supplied (cubic meters per day) (urban areas): average daily water supply = (total annual water supply) / (number of service days) (annual data) ●Non-revenue water rate/amount: Non-revenue water is water that is not billed, including water lost to leakages, meter errors, and illegal connections. This indicator should be used when the project includes the installation of flow meters and household meters and the replacement of aged pipes to reduce non-revenue water. It should be noted that when the project does not cover the whole service area, because there are many external factors, it is difficult to set a target for the non-revenue water rate and therefore, the target value is set based on estimates. Because there are many causes of non-revenue waters, such as leakages, meter errors, and illegal connections, attention should be paid to the causal relationships between the project's components and the objective of reducing non-revenue water as well as the impacts of external factors. Moreover, the calculation of non-revenue water rates and volumes requires data such as the amount of water measured at the water treatment plant outlet and the amount of water billed by customer meters, but these data are not collected but estimated in many developing countries; therefore, it is essential to decide in advance on the calculation method. Although the non-revenue water rate (percent) is widely used as an indicator because it is easy to understand, it should be noted that because it is calculated with the input into the water supply system (the amount of water distributed) as a denominator, the rate is affected by water distribution volumes, which fluctuate regardless of non-revenue water reduction measures. In light of this problem, the International Water Association (IWA) recommends not using the non-revenue water rate as an indicator. Instead, the IWA recommends using absolute quantities, such as the amount of non-revenue water per kilometer of extension of water mains and the amount of non-revenue water per connection. ●Duration of water supply (hours per day) (urban areas): This indicator should be used when the project that includes the expansion of facility capacity is expected to extend the operating hours of water facilities in cities where water is supplied only during certain hours of the day. This indicator is usually measured in the number of hours of water supply per day (hours per day) but sometimes per week, depending on the water restriction level. It is necessary to set the operating hours through consultation with the counterpart organization about how they are planning to distribute water after the project completion because the duration of water supply may vary depending not only on the facility capacity but also on the stability of power supply, the affordability of operating expenses, and the water distribution management capacity. The duration of water supply can also be extended by reducing water leakages. In its proposals for SDG monitoring, the WHO/UNICEF JMP decided to use a minimum of 12 hours per day as a benchmark for the criteria for "safely managed" drinking water services; however, it is desirable, if possible, to supply water 24 hours a day in order to ensure water quality safety and reduce damage to water pipes. ●Water supply pressure (meters): This indicator can be used when the project is aimed at controlling water pressure within a proper range by increasing water flow in the distribution network, rehabilitating water pipes to reduce leakages, properly zoning distribution areas by taking altitude into account, and installing pressure reducing valves and tanks. In some cases, the water pressure may be too high and need to be lowered, while in other cases, it may be too low and need to be increased.			
				Effect indicators	**Basic indicators** Leakage rate (percent) / leakage amount (cubic meters per kilometer or cubic meters per connection) **Supplementary indicators** Non-revenue water rate (percent) / non-revenue water amount (cubic meters per kilometer or cubic meters per connection) Reference: Global SDG Indicator 6.4.1. Change in water-use efficiency over time Global SDG Indicator 6.4.2. Level of water stress (freshwater withdrawal as a proportion of available freshwater resources)				

(*) Development Strategic Objectives that are not associated with any financial assistance projects are omitted. Other irrelevant mid-term objectives and sub-targets are also omitted.