

Info. Type	Category			Priority (優先度)	Reference No. of IBNET Indicator (IBI_), Other Indicator (OI_), IBNET Data (IBD_) and Other Data (OD_)	Name of Performance Indicator or Name of Data	Definition of Performance Indicator and its Equation for Calculation or Definition of Data	Answer																Score Calculation							
								Manual Input from IBNET or Other Record of Indicators				Auto-calculation of Indicators from Collected Data				Average				Scoring System		Score of Each Indicator Value (point)				Average Score for FI, Technical CD and Non-technical CD (points) (* is not average)					
	Large	Medium	Small		Utility A	Utility B	Utility C	Utility D	Utility A	Utility B	Utility C	Utility D	Utility A	Utility B	Utility C	Utility D	Max. (100 points)	Min. (0 point)	Utility A	Utility B	Utility C	Utility D	Utility A	Utility B	Utility C	Utility D					
Aspects to be Improved mainly by Program Approach		Staff efficiency	1st	IBI_12.1	Number of staff working specifically for water (Number/ '000 water connections)**	Total number of staff per thousand connections	=((IBD_36a)/(IBD_41))											≤ 5 staff	≥ 25 staff												
			2nd	IBI_14.1	Outsourced service costs - W&WW as percentage of total operational costs (%)**	Total cost of services contracted out to the private sector, expressed as a percentage of total annual operational costs	=((IBD_99)/(IBD_94))*100																								
			3rd	OI_9	Average days of training for water staff (days/person)	Total number of training days (participants * training event duration) per year for staff working for water supply / Total number of staff for water supply	=((OD_11)/(IBD_36a))																								
			3rd	OI_10	Response to customers' complaints within 10 days for water only (%)	Annual percentage of customer complaints responded to within 10 days	=((OD_12)/(OD_13))*100																								
			3rd	OI_11	Dormant connection ratio for water only (%)	Number of water connections disconnected for more than 3 months / Total number of active and disconnected water connections	=((OD_14)/(OD_15))*100																								
Aspects to be Improved mainly by Program Approach	W&WW information	Service coverage	1st	IBI_2.1	Sewerage coverage (%)**	Population with sewerage services (direct service connection) as a percentage of the total population under utility's notional responsibility	=((IBD_70)/(IBD_30a))*100																								
			2nd	IBI_18.1	Average revenue - W&WW (US\$/m3 water sold)	Total annual W&WW operating revenues / annual amount of water sold in US\$	=((IBD_90)/(IBD_6)/((IBD_59)*1000000))																								
Data for calculating the above Performance Indicators	Overall	Supply continuity	1st	IBD_61	Duration of water supply (hours/day)	Average hours of service per day (this indicator measures intermittent supply systems; interruptions due to unplanned failures or rehabilitation work should be excluded).																									
			2nd	IBD_61a	Number of customers receiving intermittent water supply ('000 inhabitants)	Percentage of residential customers who do not normally receive supply 24 hours per day																									
		Service coverage	1st	IBD_40	Population served - water ('000 inhabitants)	Population under utility's responsibility with access to water through house connections, yard taps and public water points (either with direct service connection or within 200m of a stand post). Any population outside the utility's area of responsibility who are served (e.g. people who come from outside to the utility's water points) should be excluded.																									
			1st	IBD_30	Total population in area of responsibility - water ('000 inhabitants)	Total population under notional responsibility of the utility for water supply, irrespective of whether they receive service																									
		Affordability/tariff	2nd	IBD_40a	Population served - direct water supply and shared taps ('000 inhabitants)	Population under responsibility of the utility with access to water through house connections and shared yard taps (where 2 or more houses share a private yard with a tap)																									
				IBD_C.4	Monthly water bill for a household consuming 6m ³ of water per month through a household or shared yard tap (but excluding the use of stand posts) (LC/month)	Monthly water bill for a household consuming 6 m ³ of water per month through a household or shared yard tap																									
			3rd	IBD_6	Exchange rate (LC/US\$)	Annual average exchange rate to the US dollar for the year to which the data apply																									
				IBD_5	GNI per capita (Atlas method) (US\$/person/year)	Annual GNI per capita (Atlas method) per country for the year to which the data apply (Source: World Development Report, World Development Indicators Database, etc. of World Bank)																									
				IBD_59a	Volume of water sold to residential customers (million m ³ /year)	Total volume of water billed to residential customers																									
				IBD_59b	Volume of water sold to industrial & commercial customers (million m ³ /year)	Total volume of water billed to industrial & commercial customers (excluding water to domestic customers, bulk water to other utilities and water to institutions)																									
	Water consumption	3rd	IBD_90e	Total billings for water to residential customers (LC/year)	Annual total amount billed in local currency for water to residential customers including fixed and volumetric charges																										
			IBD_90f	Total billings for water to industrial & commercial customers (LC/year)	Annual total amount billed in local currency for water to industrial and commercial customers including fixed and volumetric charges																										
		1st	IBD_55	Volume of water produced (million m ³ /year)	Total volume of water produced for the service area, i.e. volume leaving treatment works operated by the utility and purchased treated water, if any.																										
		3rd	OD_1	Daily treatment capacity (million m ³ /day)	Volume of water per day purified in the current purification plant (the capacity of failed or repaired facilities is excluded)																										
	OD_2		Maximum daily treatment capacity (million m ³ /day)	Recorded maximum volume of water per day supplied in the corresponding plant in a year																											
	Technical aspects	Water quality	1st	IBD_63	Required number of tests of treated water for residual chlorine (Number/year)	The number of samples of potable water that are required by law/regulation to be taken from the distribution system to be tested for residual chlorine																									
			1st	IBD_64	Number of tests of treated water for residual chlorine carried out	The number of samples of potable water actually taken from the distribution system, that have been tested for residual chlorine																									
			2nd	IBD_65	Number of tests of treated water for residual chlorine that passed the relevant standard (Number/year)	The number of samples of potable water taken from the distribution system, that have been tested for residual chlorine and comply with the national standard																									
		Distribution network management	3rd	IBD_60	Number of water pipe breaks in the distribution network (Number/year)	Total number of water pipe breaks in the distribution network during the year. Failures that require repair of mains, connections, valves and fittings that are the utility's responsibility are included. Repairs from active leakage control are excluded.																									
			3rd	IBD_54	Length of water distribution network (km)	Total length of the distribution network (excluding transmission lines and service pipes)																									
3rd			OD_3	Number of the water pipe breaks responded to within 24 hours (Number/year)	Total number of water pipe breaks responded to within 24 hours in the distribution network during the year. Failures that require repair of mains, connections, valves and fittings that are the utility's responsibility, are included. Repairs from active leakage control are excluded.																										
NRW		1st	IBD_59	Volume of water sold (million m ³ /year)	Total volume of water billed (metered and unmetered) irrespective of whether the bill is paid or not. Any unmetered volume must be estimated clearly from other information on the water users.																										
		1st	IBD_41	Number of water connections ('000)	Number of active water connections at year-end. All active connections should be counted – residential, non-residential etc - but inactive connections to vacant buildings should be excluded.																										
		2nd	IBD_53	Connections with an operating water meter ('000)	Total number of water connections with operating meter at year end																										
		1st	IBD_90	Total W & WW operating (billed) revenues (LC/year)	Total billing of water and wastewater services, connection fees, well abstraction fees, reconnection fees and other operational revenues including subsidies**10, but excluding all taxes**11 (shown in the utility's Profit and Loss statement (P/L))																										
1st	IBD_91	Total W & WW (cash) income (LC/year)	Income actually received for water and wastewater services (shown in the utility's Profit and Loss statement (P/L))																												
1st	IBD_94	Total W & WW operational expenses (LC/year)	Total operational expenses (W&WW) excluding depreciation and financing charges (interest and capital repayments) (shown in the utility's Profit and Loss statement (P/L))																												

*: 全てのスコアを用いる場合に平均値を計算する。1つのみ入力されている場合には、その値がそのまま表れる。2つ入力されている場合には、2つの平均値を計算する。

IBI_24.1(営業収支比率)は、水道事業者が下水道サービスも提供している場合には、著しく低くなる可能性があるため、下水道普及率(IBI_2.1)を参考とする必要がある。

IBI_18.1をIBI_18.3と比較することで、水道料金に比べて、どの程度下水道料金を請求しているかが分かる。

直接指標値を入力できない、もしくは入手した指標値の信頼性を確かめたい場合には、ここにデータを入力して指標値を自動計算する。

Abbreviations:
W = water service, WW = wastewater/sewerage service, NRW = Non Revenue Water, LC = Local Currency, FTE = Full Time Equivalent, B/C = Balance Sheet, P/L = Profit and Loss statement

Note on Indicators from IBNET:
**1: Coverage is a key development indicator. All coverage indicators (IBI_1.1, IBI_1.2, IBI_2.1) are impacted by whether the data on population and household size is up to date and accurate. The need to estimate the population served by public water points and/or the number of households per connection may affect the confidence that can be placed in the water coverage measure. Utilities are encouraged to provide a description of the implicit assumptions underlying their water and sewerage coverage estimates, including the number of people using public water points and household connections.
**2: The preferred water consumption indicator (IBI_4.7) is expressed in terms of litres/person/day. However there are data issues with the use of this indicator, namely 1) lack of accurate total consumption data (especially when metering is not universal) and 2) lack of up-to-date census data, or other relevant survey data, to determine household size, sharing of connections between households and number of households using public water points.
**3: The number of pipe breaks per km per year (IBI_9.1), relative to the scale of the system, is a measure of the ability of the pipe network to provide a service to customers. The rate of water pipe breaks can also be seen as an indicator of the general state of the network, although it also reflects operation and maintenance practices. It must be recognized, however, that highly aggregated reporting can hide the fact that sections of the network may be perpetually failing, whilst much of the remainder is in reasonable condition.
**4: Non Revenue Water represents water that has been produced and is "lost" before it reaches the customer (either through leaks, theft or through legal usage for which no payment is made). Part of this "lost" water can be retrieved by appropriate technical and managerial actions. It can then be used to meet currently unsatisfied demand (and hence increase revenues to the utility), or to defer future capital expenditures to provide additional supply (and hence reduce costs to the utility). The IWA distinguish between non revenue water (%) and unaccounted-for water, with the latter not including legal usage that is not paid for. There is a debate as to the most appropriate measure of non revenue water. A percentage approach (IBI_6.1) can make utilities with high levels of consumption, or compact networks, look to be better performing than those with low levels of consumption or extensive networks. To capture these different perspectives, the reporting of three measures of non revenue water (IBI_6.1, IBI_6.2 and IBI_6.3) has become the norm.
**5: Billing customers and getting paid are two different things. The effectiveness of the collections process is measured by IBI_23.2 while the NRW ratio is based on the amount of billed water and production.
**6: IBI_24.1 (&OI_4) and IBI_25.1 indicate whether revenues exceed operating costs and whether the utility's income enables it to service its debts.
**7: Unit operational costs (IBI_11.3) reflects the cost of providing water at the customer take off point.

**8: Utilities are often over staffed. IBI_12.1 provides insight into the impact of possible changes in future staff numbers. Indicator IBI_14.1 quantifies the degree to which outside (private) contractors are used to provide the utility service.
**9: According to the Japanese JWWA guidelines, Operating Ratio should be calculated including depreciation in the operational expenses; however, the IBNET's definition of Operating Ratio excludes depreciation from the operational expenses. Therefore, the indicator value of OI_4, which is based on IBNET's terminology, is higher than that calculated based on the definition of the Japanese JWWA Guidelines.
**10: Subsidies which can be included in the other operational revenues are external subsidies provided to the water utility for covering water charges and connection charge, partly or fully, for the people registered who are not able to pay due to financial difficulties.
**11: There are countries where special taxes related to water services are collected from residents, in addition to usual water charge and connection charge, for road cleaning, fire suppression etc.

Note on Financial Indicators from the JWWA Guidelines (Q100):
**12: OI_5 represents the ratio of the current assets to the current liabilities, that is, the capability to fulfill short-term obligations. The indicator value should be over 100 percent, otherwise a difficulty to pay daily expenses is indicated. If using this indicator to evaluate the paying capability, water utilities should check not only whether the value is small or large but also which of the current assets and liabilities is large or small.
**13: OI_6 represents the ratio of the owned capital to the total capital (liabilities plus capital), and is one of indices showing the soundness of finance. Water utilities should increase the indicator value to make their operation stable. Water utilities draw the most of their construction costs from external sources (loan capital), which decreases the indicator value. However, they should increase their own capital to ensure long-term stable operation.
**14: OI_7 shows how much owned capital is invested in the fixed assets. If the value is within 100 percent, it means that investments in the fixed assets are within the owned capital. If the value exceeds 100 percent, it means that loans are given for capital investment, which may cause problems in the repayment of the loans and interests. Water utilities rely on loan capital as a financial resource for most construction investment, which increases the indicator value.
**15: OI_8 represents the ratio of the operating income to the fixed assets, that is, how many times larger the operating income is than the fixed assets in a given period of time. The fixed assets turnover is very important, as drinking water supply services relate closely to facilities. If the indicator value is large, the facilities run effectively, but if small, excess investments may occur.

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								Manual Input from IBNET or Other Record of Indicators				Auto-calculation of Indicators from Collected Data				Average				Scoring System		Score of Each Indicator Value (point)				Average Score for FI, Technical CD and Non-technical CD (points) (* is not average)					
	Large	Medium	Small					Utility A	Utility B	Utility C	Utility D	Utility A	Utility B	Utility C	Utility D	Utility A	Utility B	Utility C	Utility D	Max. (100 points)	Min. (0 point)	Utility A	Utility B	Utility C	Utility D	Utility A	Utility B	Utility C	Utility D		
Aspects to be Improved mainly by Capacity Development (CD)	Non-technical aspects	Financial performance/ tariff	2nd	IBD_94a	Total operational expenses for water (LC/year)	Operating expenses excluding depreciation and financing charges (interest and capital repayments) for water supply services (usually shown in the utility's Profit and Loss statement (P/L))																									
			2nd	IBD_90c	Total operating (billed) revenues for water (LC/year)	Subset of IBD_90 for water services only (shown in the utility's Profit and Loss statement (P/L))																									
			3rd	IBD_120	Year end accounts receivable - W&WW (LC)	Total of all accounts receivable at year end including water billings, and all other outstanding invoices (shown in the utility's Balance Sheet (B/S))																									
			3rd	IBD_147	Connection charge - water (LC)	Lump sum cost for residential water connection per connection																									
			3rd	OD_4	Current assets - W&WW (LC)	Sum of cash, deposits, and bonds to be exchanged to cash within a year (shown in the utility's Balance Sheet (B/S))																									
			3rd	OD_5	Current liabilities - W&WW (LC)	Liabilities referring to short-term obligations to be redeemed within a year in normal transactions (shown in the utility's Balance Sheet (B/S))																									
			3rd	OD_6	Owned capital - W&WW (LC)	Sum of investments transferred when proper funds and fixed assets are acquired at the start of operation and surplus given through the acquisition of the fixed assets (shown in the utility's Balance Sheet (B/S))																									
			3rd	OD_7	Surplus - W&WW (LC)	Surplus given by subtracting capital from the water utility's net assets (shown in the utility's Balance Sheet (B/S))																									
			3rd	OD_8	Total of liabilities and capital - W&WW (LC)	Sum of liabilities and capital shown in balance sheets, which equals total capital (shown in the utility's Balance Sheet (B/S))																									
			3rd	IBD_114	Total debt service - W&WW (LC/year)	Total debt service costs (including interest and repayment of capital) (shown in the utility's Balance Sheet (B/S))																									
			3rd	OD_9	Fixed assets - W&WW (LC)	Fixed assets, which may be shown in Balance Sheet (B/S), referring to means held for long-term operation (more than one year), which equals the sum of tangible and intangible fixed assets, and investments																									
			3rd	OD_10	Commissioned work income (trust business revenues) - W&WW (LC/year)	Revenue given by constructing non-statutory waterworks facilities, for example, the introduction and repair of water supply equipment (shown in the utility's Profit and Loss statement (P/L))																									
		Aspects to be Improved mainly by Program Approach	W&WW information	Service information	1st	IBD_70	Population served - sewer connection ('000 inhabitants)	Population under the utility's responsibility with sewerage services through house connections																							
					1st	IBD_30a	Total population in area of responsibility - wastewater ('000 inhabitants)	Total population under notional responsibility of the utility for sewerage, irrespective of whether they receive service																							
					1st	IBD_36a	Total number of staff - water (FTE)	Total number of staff working at the utility on water services expressed as Full Time Equivalent (FTE) staff number.																							
2nd	IBD_99				Outsourced services costs - W&WW (LC/year)	Costs of all services within IBD_94 provided by private firms (shown in the utility's Profit and Loss statement (P/L))																									
3rd	OD_11				Total number of training days (participants * training event duration) in the year - water (days/year)	Annual total number of training days per year (participants * training event duration) for staff working for water supply. Duration of half-day and one-class training can be counted as 0.5 day and 0.25 day respectively.																									
Aspects to be Improved mainly by Program Approach	W&WW information	Service information	3rd	OD_12	Number of customer complaints responded to within 10 days - water (Number/year)	Annual number of customer complaints responded to within 10 days (solving the problem, taking an initial action in the field or explaining the procedure of solving the problem clearly to the customer).																									
			3rd	OD_13	Total number of customer complaints - water (Number/year)	Total annual number of customer complaints to the water utility																									
			3rd	OD_14	Number of water connections disconnected for more than 3 months (Number)	Number of water connections disconnected for more than 3 months. Possible reasons for being disconnected for more than 3 months include availability of alternative water sources, shortage of water distributed to the household or inability to pay, etc.																									
			3rd	OD_15	Total number of active and disconnected water connections (Number)	Total number of active and disconnected water connections																									

2.2 基本ツール②: セクター用チェックリスト - Basic Tool ②: Sector Checklist (SC)

オートフィルターによる質問の絞り込み方法 (Excel2002の場合)

- 1) 優先検討項目のみ: 1stを選択
- 2) 詳細検討項目も含める: すべてを選択

Category			Priority (優先度)	Question	Answer			
Large	Medium	Small	▼					
Current water supply conditions, etc.	Indicators from MDGs, etc.	Water coverage (WHO/UNICEF JMP)	1st	Q1: What is the % of population using house connections (piped into dwelling, yard or plot) in your country as reported in the latest report of JMP of WHO/UNICEF?	Year of the Latest Survey:			
			2nd	Q2: What is the % of population using other improved drinking water sources (public tap/stand pipe, tube well/borehole, protected dug well, protected spring, rainwater collection) in your country as reported in the latest report of JMP of WHO/UNICEF?				
			2nd	Q3: What is the percentage improvement in the population using house connections (piped into dwelling, yard or plot) in your country since the baseline year reported in the latest report of JMP of WHO/UNICEF?	Year of the Baseline Survey:			
		Poverty (The World Bank)	Improved sanitation coverage (WHO/UNICEF JMP)	2nd	Q4: What is the % of population using improved sanitation facilities? (Flush or pour-flush to piped sewer system, septic tank or pit latrine; Ventilated improved pit latrine; Pit latrine with slab; Ecosan/Compositing toilet; and Mobilisets)	Year of the Latest Survey:		
				1st	Q5: What is the GNI per capita (Atlas method, US\$/person/year) of your country in the latest World Development Report or World Development Indicators Database of the World Bank?	Year of the Latest Survey:		
					Q6: What is the % of population below \$1 (PPP) per day (poverty ratio) in the latest World Development Report or World Development Indicators Database of the World Bank?	Year of the Latest Survey:		
		Corruption (Transparency International)	Level of piped water supply services	Consistency	1st	Q7: What is the poverty gap ratio (%) at \$1.25 per day, which shows depth of poverty, in the latest World Development Report or World Development Indicators Database of the World Bank?	Year of the Latest Survey:	
	1st				Q8: What is the rank of your country's corruption perception index reported in the latest Global Corruption Report of Transparency International, out of the total number of the countries assessed? (e.g. in the survey of 2009: Japan, China, Indonesia and Iraq were 18, 72, 126 and 178 out of 180 countries in the ranking).			
	Availability and effectiveness of policies, national or regional plans, regulations and guidelines	Policy and plans	Continuity	1st	Q9-1: Are there any significant differences in water supply service levels between water utilities with small served populations and water utilities with large served populations? [Yes or No]			
				1st	Q9-2: If Yes, please describe the differences and their reasons.			
				1st	Q10: Is the demarcation of responsibility between urban water utilities and rural water suppliers clear, so that each urban water utility can calculate their current water coverage ratio based on the clear estimation of population under their responsibility? [Yes or No]			
				2nd	Q11: How many cities/towns have continuous piped water supply in your country? [1. No cities/towns, 2. Some cities/towns, 3. Half of cities/towns, 4. Majority of cities/towns, 5. Almost all or all cities/towns]			
2nd				Chlorination	Q12: How well is the chlorination of piped water supply implemented by urban water utilities in your country? [1. Not implemented in most water utilities, 2. Not implemented in some utilities, 3. Mostly implemented but not appropriate at many utilities, 4. Mostly implemented but not appropriate at some utilities, 5. Implemented at all utilities and mostly appropriate]			
					1st	Q13: Does the national policy include the following? 1) User-pays principle, 2) Concept of full cost recovery, and 3) Independent accounting system? [1. None of them, 2. Only one of them, 3. Two of them, 4. All of them]		
					1st	Q14: How many water utilities operate under their own independent (ring fenced) accounting system? [1. None, 2. Some, 3. Around half, 4. Most, 5. All]		
		1st	Q15-1: Are there any policies on each of following items at a national or regional level in the water sector? [Yes or No]		1) Expansion of water supply coverage			
Law/regulation		Guidelines	1st	Q15-2: If Yes, are the policies effectively incorporated into your country's national strategic plan or any other middle or long-term national plans? [Yes or No]	2) Minimum water service levels including drinking water quality and duration/amount of water supply			
				2nd	Q16-1: Are there any laws/regulations on each of followings items? [Yes or No]	3) NRW reduction and water saving		
						Q16-2: If Yes, have the laws/regulations been effectively followed by water utilities? [Yes or No]	4) Water supply to the urban poor	
				2nd	Q17-1: Are there any guidelines on each of following items? [Yes or No]	5) Water resource development		
	Q17-2: If Yes, are the guidelines effective and have the guidelines been followed by water utilities?					6) Merging of nearby utilities and clustering of small utilities to improve efficiency (facility integration, financial integration and/or services / office administration integration)		
	2nd				7) Human resource development for the sector			

Category			Priority (優先度)	Question	Answer	
Large	Medium	Small				
			2nd	7) Bulk water supply		
			2nd	8) Governance / management of water utility		
			2nd	9) Merger / clustering of utilities to improve efficiency (facility integration and/or office administration integration)		
			2nd	10) Environmental impact assessment		
		Integration	2nd	Q18: How well are existing policies, plans, laws, regulations and guidelines integrated without causing conflicts or operational difficulties in the water sector? [1. Not at all, 2. Not very well, 3. Fairly, 4. Well, 5. Very well]		
		Tariff	1st	Q19: Who has general oversight/control over utilities' minimum service levels and water charge levels? [1. Local, regional or national government department, 2. Independent board of stakeholders, 3. Independent service & price regulator, 4. Each utility, 5. Other]		
			2nd	Q20: Does the water supply act (law, regulations or their equivalent) in your country require water utilities to undertake 1) user-pays principle, 2) concept of full cost recovery, 3) independent accounting system; and to achieve an adequate level of water tariff? [1. None of the above, 2. One of the above, 3. Two of the above, 4. Three of the above]		
		Poverty	1st	Q21: How well-defined are the policies on securing funding for poverty alleviation regarding water supply services, in terms of the arrangement or balance between 1) cross-subsidies based on water tariff structures in each water utility, 2) subsidies from local government, 3) subsidies from the water supply sector's supervisory national organization to each utility, and 4) direct subsidies from the organization specializing in poverty alleviation and/or public welfare to each water utility? [1. Not at all, 2. Not very well, 3. Fairly well, 4. Well, 5. Very well]		
			1st	Q22: What proportion of water supply service subsidies for poverty alleviation come from the water sector of the central government, compared to subsidies from other sectors of central government such as welfare sector and subsidies from local governments? [1. None, 2. A little, 3. Some, 4. A reasonable amount, 5. A large amount]		
			2nd	Q23: What proportion of water supply subsidies for poverty alleviation come from the other sectors/ministries of central government or other departments of local government, compared to subsidies from the sector/ministry or department of local government in charge of urban water supply? [1. None, 2. A little, 3. Some, 4. A reasonable amount, 5. A large amount]		
	2nd		Q24-1: Does the urban water sector prohibit water utilities from having free public taps? [Yes or No]			
	Water quality control		2nd	Q24-2: If No, are there any guidelines or clear instruction for the operation and maintenance of the public taps, to avoid wastage of water and use of free water by people other than the intended recipients? [Yes or No]		
		1st	Q25: How many water quality indicators are included in your country's water quality standards as enforceable parameters for water utilities? [1. None, 2. Few, 3. Less than ten, 4. Less than twenty, 5. More than twenty]			
		2nd	Q26: Is there any national laboratory for water quality testing which can support the establishment or revision of water quality standards for drinking water, including the selection of suitable test methods for each water quality indicator? [Yes or No]			
			2nd	Q27: Are there any environmental standards established to protect drinking water sources? [Yes or No]		
	Soundness of inter-organizational operations in the sector	Governance/management	Government	1st	Q28: Does the central government issue updated mandates clearly stating the roles and responsibilities of each organization in the sector, such as the ministry, regulator, utilities, etc? [1. No, 2. Yes, but only to some extent, 3. Yes]	
			Regulatory body	1st	Q29-1: Is there any regulator monitoring the compliance and performance of water utilities in your country? [Yes or No]	
				1st	Q29-2: Does the regulatory body have enough autonomy to control water utilities without being influenced by the politics of personal affairs, budgeting, tariff setting, etc.? [Yes or No]	
				1st	Q30: How well are the regulatory functions covering water utilities in the water sector working? [1. Not working at all, 2. Working a little, 3. Working to some extent, 4. Working well, 5. Working very well]	
				1st	Q31-1: Is the current performance of water utilities statistically understood using performance indicators? [1. No, 2. To some extent, 3. Yes]	
1st				Q31-2: If 1. or 2., does the regulatory body prepare an annual report in which the performance of each water utility is assessed? [Yes or No]		
2nd			Q32: Are minimum service levels clearly defined for different types/sizes of water utilities, and agreed with each water utility in writing in your country? [1. Not at all, 2. Defined to some extent but not agreed in writing, 3. Defined clearly but not agreed in writing, 4. Defined clearly and agreed in writing with major urban water utilities, 5. Defined clearly and agreed in writing with most or all the urban water utilities]			
2nd			Q33: What aspects of water utilities are difficult to regulate?			
Water utility			1st	Q34: In general, how much positive and negative influence does central government or local governments have over the appointment of top management in water utilities, regarding sustainable capacity development in the water utilities? [1. Strong influence, 2. Some influence, 3 Almost no influence or no influence]		
			1st	Q35: How well is the status of the General Manager defined regarding his/her term, conditions of conduct, and authority? [1. Not at all, 2. Not very well, 3. Fairly well, 4. Well, 5. Very well]		
		1st	Q36: Regarding the utilities in your country which belong to the central or local governments, do the General Managers of these utilities have independent authority for operation and maintenance of facilities (excluding tariff setting and long-term planning)? [1. Not at all, 2. Not very much, 3. Fairly good authority, 4. Good authority and 5. Total authority]			
		1st	Q37: In general, how much positive and negative influence do central government or local governments have over the appointment of staff in water utilities, regarding sustainable capacity development? [1. Strong influence, 2. Some influence, 3. Almost no influence or no influence]			
		2nd	Q38: What kinds of positive and negative influences do politicians have on water utilities in terms of even water distribution to different areas (e.g. different electoral districts)?			
		2nd	Q39: Are water tariffs kept significantly low under any political influence? [1. Yes - very low, 2. Yes - low, 3. No - not low]			
		2nd	Q40: How low are the salary and benefits in your water utility in comparison to those of similarly qualified persons in the corresponding private sector? [1. Less than a half that of the private sector, 2. More than 50% but less than 100% of the private sector, 3. Similar level to private sector, 4. Higher than private sector]			
		2nd	Q41: How well are performance based incentives (pay rises, promotions and bonuses based on individual performance) working in your utility? [1. Do not exist, 2. Exist but not working, 3. Working to some extent, 4. Working fairly well, 5. Working very well]			
Funding		Investment	1st	Q42: How well are the central and local government procedures for helping water utilities access low-interest funds (including international funds) and subsidies for facility improvement working? [1. Not working at all, 2. Working a little, 3. Working to some extent, 4. Working well, 5. Working very well]		
			2nd	Q43: Does the urban water sector (i.e. supervisory organisations and water utilities) publish publicly accessible information, to help attract external investment from donors and the private sector (e.g. publication of annual reports and future plans on the internet)? [1. No public information, 2. Limited public information, 3. Moderate amount of public information, 4. Good level of public information, 5. Very good level of public information]		
			2nd	Q44: Are the levels of total investment and/or total revenue in the sector monitored every year based on financial statements reported from each utility? [1. Not monitored at all, 2. Total investment is monitored but total revenue is not monitored, 3. Both total investment and total revenue are monitored]		
			2nd	Q45: How much has the overall investment in the urban water supply sector increased in the last five years? [1. Reduced significantly, 2. Reduced slightly, 3. Almost the same level, 4. Increased, 5. Increased greatly]		
	Subsidy	1st	Q46: Does the central government have procedures for providing subsidies or low-interest loans to utilities meeting certain conditions, for capital investment in water source development, and construction of purification plants and/or pipe networks? [1. No procedures, 2. There is an unclear procedure, 3. There is a clear procedure but it is not yet implemented, 4. There is a clear procedure and some implementation, 5. There is a clear procedure and significant implementation]			
		2nd	Q47: Does the sector's supervisory organization have procedures for providing subsidies to small utilities to support mergers/clustering in order to improve their service quality and financial stability? [1. No procedures, 2. There is an unclear procedure, 3. There is a clear procedure but it is not yet implemented, 4. There is a clear procedure and some implementation, 5. There is a clear procedure and significant implementation]			

Category			Priority (優先度)	Question	Answer
Large	Medium	Small	▼		
			2nd	Q48: Is there an inter-ministerial agreement (or equivalent) to provide electricity subsidies to water utilities (whereby the water utility will be supported by the power supply ministry or its agencies)? [1. No such agreement 2. No, but some utilities get electricity at subsidized price, 3. Yes, but subsidies are not significant, 4. Yes, and subsidies are significant]	
		Private sector	1st	Q49: Has the involvement of the private sector in the operation, maintenance and management of water utilities increased significantly in recent years in your country? [1. No increase or decrease, 2. Increased a little, 3. Moderate increase, 4. Large increase]	
			2nd	Q50: How well are water utilities with more private sector involvement working, in comparison with water utilities with less private sector involvement? [1. Much worse, 2. Worse, 3. Similar, 4. Better, 5. Much better]	
			2nd	Q51: How much is private sector involvement in the management of water utilities expected to increase in your country? [1. No change expected, 2. Small increase expected, 3. Moderate increase expected, 4. large increase expected]	
Training at national or regional level	Training centre, etc.		1st	Q52-1: Are there any organizations or independent training centres providing training to staff of multiple water utilities at a national or regional level? [Yes or No]	
			1st		Q52-2: If Yes, please describe the name of main training centre/organization, training courses provided, which type of staff are offered training, and number of trainees.
			2nd		1-1) Suitability of the venue or building
			2nd		1-2) Installed facilities, equipment and instruments for training
			2nd		1-3) Adequate financing of O&M costs of training
			2nd		2-1) Management capacity for organizing and handling training programs
			2nd		2-2) Technical and/or communication capacity of the trainers
			2nd		3-1) Recognition by the central government of the need for training of water utilities' staff; support from local government and regulatory bodies
			2nd		3-2) Recognition of the need for training among the water utilities
			2nd		4-1) Incentives for the staff working for the training centre (centre managers, trainers, etc.)
			2nd		4-2) Incentives for participants from water utilities
			2nd		4-3) Ease of undertaking training for participants (transportation, fee, timing, etc.)
			2nd		5-1) Ensuring that programs and materials match policy, regulations, guidelines on water supply
			2nd		5-2) Ensuring that programs and materials meet the needs of technical staff (e.g. engineers, technicians) in water utilities
			2nd		5-3) Ensuring programs and materials meet the needs of administration and management staff (e.g. accountants, bill collectors, managers) in water utilities
	2nd		5-4) Ensuring programs and materials are based on personnel evaluation in water utilities		
	2nd		5-5) Ensuring programs and materials are consistent with public/vocational qualification requirements and certifications		
	2nd		5-6) Ensuring programs and materials are consistent with current research		
	2nd		Q53: Are there any workshops or training centres at a national or regional level which can provide facilities, equipment and technical support to water utilities for the following aspects? [Yes or No]	1) Testing the accuracy of customer and bulk water meters	
	2nd			2) Repair of mechanical or electrical equipment such as pumps	
	2nd			3) Basic operation of different pumps and valves	
	2nd			4) Basic installation of different pipes and fittings	
	2nd			5) Training yard designed for practicing leakage detection	
	2nd				
	Regulator		1st	Q54-1: Have there been any training programs carried out for the regulatory body inside or outside the country? [Yes or No]	
	Regulator		1st		Q54-2: If Yes, please describe the training programs.
	Cooperative ties		2nd	Q55-1: Are there any large and/or advanced water utilities which provide training to other utility(ies) having less capacity? [Yes or No]	
			2nd		Q55-2: If Yes, please name the water utilities providing training, the training courses provided, which employees are targeted for training, and the number of trainees.
			2nd	Q56-1: Are there any organizations or associations helping to coordinate communication between different national and local stakeholders in the water sector (e.g. between water utilities, consultants, contractors, suppliers, etc)? [Yes or No]	
			2nd		Q56-2: If Yes, please name these organizations.
		2nd	Q57-1: Are there any organizations conducting continuous research in the water sector? [Yes or No]		
		2nd		Q57-2: If Yes, please name these organizations.	
		2nd	Q58-1: Are there any organizations (e.g. water industry associations, universities) which dispatch lecturers/trainers to water utilities? [Yes or No]		
	2nd		Q58-2: If Yes, please name these organizations, the expertise of dispatched lectures/trainers, the target trainees, and the number of trainees.		
Training for small contractors		2nd	Q59-1: Are there any training programs on construction quality control for small contractors who install service pipes, water meters and/or branch distribution pipes, etc. (in order to improve their work quality and reduce leakage etc)? [Yes or No]		
		2nd		Q59-2: If Yes, please name the training centre/organization in charge, the type and scale of their training courses and approx. number of contractors receiving training each year.	
Other stakeholders	Beneficiaries	1st	Q60-1: Are there any reports containing socio-economic surveys regarding water supply in your country? [Yes or No]		
		1st		Q60-2: If Yes, please provide information on the reports, such as title, year of survey and implementation organization.	
	Donors	1st	Q61: Is there a well functioning channel for coordination between national/regional governments and donors to discuss and allocate projects, etc? [1. No channel exists, 2. It exists but is not functioning well, 3. It exists and is functioning well]		
		2nd	Q62: Which international donors are contributing significantly to your utility, and what roles do each of the contributing donors perform for your utility?		
	Small suppliers, etc.	2nd	Q63: Does the water sector have good control over small/community water supply systems (initially or notionally developed for irrigation, etc.) and/or water vendors which cannot provide good quality drinking water, in order to prevent people from health problems or prevent licensed urban water utilities from losing their customers? [1. They are not controlled at all, 2. They are not controlled very well, 3. They are fairly well controlled, 4. They are well controlled, 5. They are very well controlled]		
	Others	2nd	Q64-1: Are there any other significant stakeholders in the water sector besides the water utilities? [Yes or No]		
		2nd		Q64-2: If Yes, who are they and what are their roles?	

2.3 基本ツール③ 水道事業体の一般情報記入フォーム - Basic Tool ③: Utility General Form (UGF)

オートフィルターによる質問の絞り込み方法 (Excel2002の場合)

- 1) 優先検討項目のみ: 1stを選択
- 2) 詳細検討項目も含める: すべてを選択

Category	Priority (優先度)	Question	Answer
Basic information	1st	Q1: Utility name	1) Full name
	1st		2) Acronym or abbreviated name
	1st	Q2: Head of water utility	1) Name
	1st		2) Title
	2nd	Q3: Contact person	1) Name
	2nd		2) Title
	2nd		3) Email address
	2nd		4) Telephone
	2nd		5) Fax
	2nd		6) Mailing address
2nd	Q4: In which year was your utility established?		
2nd	Q5: In which month does the fiscal year start in your utility?		
Utility type and responsibilities	1st	Q6: Does your utility provide the following services?	1) Piped water supply services [Yes or No]
	1st		2) Wastewater services [Yes or No]
	1st		3) Stormwater drainage [Yes or No]
	1st		4) Solid waste services [Yes or No]
	1st		5) Other, please specify.
	1st	Q7: What type of utility is it?	1. National government water department (e.g. part of a ministry) - not ring fenced (i.e. financial information for water/wastewater functions is not reported separately from other government activities); 2. Local government water department (e.g. part of a municipality) - not ring fenced (see 1.); 3. National government water department (e.g. part of a ministry) - ring fenced (i.e. financial information for water/wastewater functions are reported separately from other government activities); 4. Local government water department (e.g. part of a municipality - ring fenced (see 3.); 5. Provider wholly owned by local or national government, operating under commercial law; 6. Jointly owned provider (Government and Private) operating under commercial law; 7. Not-for-profit provider operating under commercial law; 8. Privately owned provider operating under commercial law. Note: Generally, the further down the list, the higher the flexibility of management and necessity for governance of the utility.
	1st	Q8: To what extent is the private sector involved in your utility? Please choose up to 3 from the following: [1. Not at all, 2. Service contract(s), 3. Management contract(s), 4-1. Affermage**1 lease contract(s), 4-2. Other lease contract(s), 5. Concession contract(s), 6. Build, (own,) operate & transfer (BOOT, BOT) contract(s), 7. Full private sector ownership and operation, 8. Other type of public private partnership (PPP) including amalgamation contract].	
	1st	<i>Note: **1 - Under an affermage contract, a private company is paid a fee (referred to as the "operator's water supply rate" or sometimes the "operator's tariff"), which is the price (usually expressed per m³) for the volume of water produced and sold that the operator requires to cover all the costs of running the system. This price is the parameter that the bidders compete on. The operator's payment is calculated according to a formula set out in the affermage contract, which may contain factors designed to reward performance in certain areas. The operator collects revenue from consumers on behalf of the government according to the tariffs set by the state, retains the amount of their fee, and remits the difference to the government, who uses the balance to pay for investments made by the public authority.</i>	
	2nd	Q9-1: Are there any fixed assets (water supply facilities, etc.) which your utility uses but does not own? [Yes or No]	
	2nd	Q9-2: If Yes, please specify these assets and their owners.	
	2nd	Q9-3: If Yes, is your utility responsible for including the depreciation of these fixed assets in your utility's financial statement or cost recovery calculations? Please describe how your utility handles and reports the depreciation costs of those fixed assets that are utilised by the utility but owned by others.	
	2nd	Q10-1: Is your utility responsible for the following aspects of water supply, and how does your utility implement them?	1-1) Capital investment for water source development, including construction of intake and raw water transmission facilities [1. Yes, responsible and undertaken without external funding, 2. Yes, responsible but receive external funding, 3. No, not responsible]
	2nd		1-2) Capital investment for major water supply facilities including purification plants, pump stations, treated water transmission and distribution trunk mains for major service area expansions, major rehabilitation, etc. [1. Yes, responsible undertaken without external funding, 2. Yes, responsible but receive external funding, 3. No, not responsible]
	2nd		1-3) Capital investment for distribution branch mains and house connections for major service area expansions, major rehabilitation, etc. [1. Yes, responsible and undertaken without external funding, 2. Yes, responsible but receive external funding, 3. No, not responsible]
2nd	2-1) O&M for production for your utility [1. Yes, responsible and do not outsource it, 2. Yes, responsible but outsource it, 3. No, not responsible]		
2nd		2-2) O&M for production for other utilities (bulk supply) [1. Yes, responsible and do not outsource it, 2. Yes, responsible but outsource it, 3. No, not responsible]	

Category	Priority (優先度)	Question	Answer
	2nd	Q10-2: If your answer is "3. No", which organization is responsible for these aspects?	2-3) O&M of distribution systems other than pipe installation and replacement [1. Yes and do not outsource it, 2. Yes, but outsource it, 3. No]
	2nd		2-4) Small scale daily replacement/extension of distribution branch mains and installation/replacement of house connections [1. Yes, responsible and do not outsource it, 2. Yes, responsible but outsource it, 3. No, not responsible]
	2nd		2-5) Leak detection and repair [1. Yes, responsible and do not outsource it, 2. Yes, responsible but outsource it, 3. No, not responsible]
	2nd		3-1) Reading of customer meters [1. Yes, responsible and do not outsource it, 2. Yes, responsible but outsource it, 3. No, not responsible]
	2nd		3-2) Billing & collection [1. Yes, responsible and do not outsource it, 2. Yes, responsible but outsource it, 3. No, not responsible]
	2nd		4-1) If your utility is responsible for other work, please specify and describe how it is undertaken.
	2nd	Q11-1: Has there been any sector/utility reform or significant change affecting your utility's institutional form, responsibility or organizational structure in recent years? [Yes or No]	
	2nd	Q11-2: If Yes, please describe the reform or significant changes and explain how your utility has been dealing with the transition.	
Reports and databases	1st	Q12-1: Does your utility prepare an annual report? [Yes or No]	
	1st	Q12-2: If Yes, in which year was the latest annual report prepared?	
	1st	Q13-1: Does your utility have a Master Development Plan? [Yes or No]	
	1st	Q13-2: If Yes, when was it prepared?	
	1st	Q13-3: If Yes, what is the target year of the master plan?	
	1st	Q14: Are the following aspects of the water utility's operation computerized or automated?	1) Document management [Yes or No]
	1st		2) Asset/facility management [Yes or No]
	2nd		3) Pumping [Yes or No]
	2nd		4) Treatment [Yes or No]
	2nd		5) Billing/customer management [Yes or No]
	2nd		6) Accounting [Yes or No]
	2nd		7) Complaints management [Yes or No]
	2nd		8) Personnel systems [Yes or No]
2nd	9) Other, please specify.		
Service area	1st	Q15-1: Which areas is the utility responsible for? [1. Only a principal city or town, 2. Multiple cities or towns, 3. Region, state or province, 4. Nation, 5. Other]	
	1st		Q15-2: If 2. Multiple cities or towns, how many cities or towns are under its responsibility?
	1st		Q15-3: If 5. Other, please describe.
	1st	Q16: What is the nature of the service areas? [1. Urban, 2. Semi-urban, 3. Rural, 4. Urban, semi-urban and rural, 5. Urban and semi-urban, 6. Semi-urban and rural]	
	1st	Q17: What is the population served with piped water supply ('000 inhabitants) (same as IBD_30 of LPI)	
	2nd	Q18: Size of present service areas (square km)	
	2nd	Q19: Number of piped water supply connections ('000 connections)	1) Domestic (households)
	2nd		2) Non domestic (industrial, commercial, institutional, other)
	2nd		3) Bulk water connections
	2nd		4) Total (same as IBD_41 of LPI)
2nd	Q20: Please calculate the average population provided with piped water supply per town or city (= [Q17] / [Q15-2]) ('000 inhabitants/town or city)		
2nd	Q21: Please calculate average household size of served population (= [Q17] / [Q19-1]) (persons/domestic connection)		
Facilities	1st	Q22: Which of the following are sources of raw water?	1) Bulk water from another utility/company [Yes or No]
	1st		2) Storage reservoir/impoundment, [Yes or No]
	1st		3) Direct abstraction of river water [Yes or No]
	1st		4) Groundwater and river bed water [Yes or No]
	1st		5) Other, please specify
	2nd	Q23-1: Which methods of treatment are used in your utility? [1. Disinfection but not filtration and flocculation, 2. Disinfection and filtration but not flocculation, 3. Disinfection, filtration and flocculation, 4. Other]	
	2nd		Q23-2: If "4. Other", please specify.

2.4 基本ツール④: 水道事業体用基本チェックリスト - Basic Tool ④: Utility Basic Checklist (UBC)

(1) 本体部分 - Main Part

関連する援助タイプが施設投資(FI)とキャパシティ・デベロップメント(GD)の両方の場合には、「主要援助タイプ / 非主要援助タイプ」の順で記述してある (例: 「FI / CD」)。主要援助タイプについては、基本的には各質問が含まれる大カテゴリーと一致している。

この水道事業体用基本チェックリストに含まれる質問は、すべて1st Priorityである。一方、水道事業体用詳細チェックリスト(基本ツール⑤)には、2nd から 4th Priorityまでの質問が含まれている。

レベル4は、途上国の目標となるレベルであり、レベル5は先進国のレベルである。

Category			Project Type (援助形態)	Priority (優先度)	Question (Reference No. of the same indicator if it is included in BT①: LPI)	Level					Answer (1 - 5)	
Large	Medium	Small				1: Very Serious	2: Serious	3: Not Good Enough	4: Good	5: Very Good		
Aspects to be improved mainly by Facility Investment (FI)	Overall			FI/CD	1st	Q1: Existence of long or mid-term plan for facility expansion, rehabilitation, etc.	Long or mid-term plan for facility expansion, rehabilitation, etc. <u>does not exist at all.</u>	Long or mid-term plan for facility expansion, rehabilitation, etc. <u>exists but its target year has already passed.</u>	Long or mid-term plan for facility expansion, rehabilitation, etc. <u>exists but it has not been updated, although its target year has not yet passed.</u>	<u>Updated</u> long or mid-term plan for facility expansion, rehabilitation, etc. <u>exists but there are problems with its timely implementation.</u>	<u>Updated</u> long or mid-term plan for facility expansion, rehabilitation, etc. <u>exists and has encountered few or no problems in its implementation.</u>	
				FI/CD	1st	Q2: Continuity of supply	<u>Mostly intermittent supply, averaging approx. every 4 days or less.</u>	<u>Mostly intermittent supply, averaging approx. every 1-3 days, with some served areas receiving continuous supply.</u>	<u>Intermittent supply and continuous supply</u> are both common in the served areas.	<u>Mostly continuous supply, but still there are some served areas with intermittent supply due to small utilities' inability to employ operators for 24 hours, high water demand during summer, etc.</u>	<u>Continuous supply</u> in all served areas except for special cases such as serious drought.	
				Average_Overall								
	Expansion	Water supply service coverage	Purification plant	FI	1st	Q3: Overall water supply coverage (IBI 1.1) ^{**1}	Less than 50%	50-69%	70-84%	85-94%	95%-100%	
				FI/CD	1st	Q4: Water supply coverage for low income groups	<u>Majority of low income groups (including the urban poor) do not have piped water supply (including public taps/standpipes).</u>	<u>Around a half of low income groups (including the urban poor) do not have piped water supply (including public taps/standpipes).</u>	<u>Majority of low income groups (including the urban poor) have piped water supply (including public taps/standpipes).</u>	<u>Almost all the low income groups (including the urban poor) have piped water supply (including charged public taps/standpipes but excluding free public taps/standpipes).</u>	<u>Almost all the low income groups have house connections.</u>	
			FI	1st	Q5: Surplus purification capacity OI_2) ^{**2}	Less than - 30%	Less than -10%	Less than 0%	0 - 5%	More than 5%		
				Average_Expansion								
	Rehabilitation/Replacement	Conditions of facilities	Purification plant	FI	1st	Q6: Civil structures (such as basins and chambers in water purification plants)	Water leakage from civil structures is <u>common</u> , and some of these problems can only be solved by <u>replacement</u> rather than <u>partial repair</u> .	Water leakage from civil structures is <u>common</u> , but these problems can probably be solved by <u>partial repair</u> .	Water leakage from civil structures happens <u>sometimes</u> .	Water leakage from civil structures is <u>rare</u> .	Water leakage from civil structures <u>almost never happens</u> unless a strong earthquake hits, as regular assessments of facility strength are undertaken.	
				FI	1st	Q7: Transmission and distribution mains ^{**3}	<u>More than 75% of transmission and distribution mains are asbestos pipes, old cast iron pipes (excluding ductile cast iron) or old steel pipes, with rust significantly blocking flow.</u>	<u>50 - 75% of mains are asbestos pipes, old cast iron pipes (excluding ductile cast iron) or old steel pipes, with rust significantly blocking flow.</u>	<u>25 - 49% of mains are asbestos pipes, old cast iron pipes (excluding ductile cast iron) or old steel pipes, with rust significantly blocking flow.</u>	<u>10 - 24% of mains are asbestos pipes, old cast iron pipes (excluding ductile cast iron) or old steel pipes, with rust significantly blocking flow.</u>	<u>Less than 10% of mains are asbestos pipes, old cast iron pipes (excluding ductile cast iron) or old steel pipes, with rust significantly blocking flow.</u>	
				FI	1st	Q8: Service connections ^{**4}	<u>95 - 100% of house connections are more than 25 years old.</u>	<u>80 - 94% of house connections are more than 25 years old.</u>	<u>60 - 79% of house connections are more than 25 years old.</u>	<u>40 - 59% of house connections are more than 25 years old.</u>	<u>0 - 39% of house connections are more than 25 years old.</u>	
FI/CD				1st	Q9: Mechanical and electrical equipment ^{**5}	<u>More than 30% of installed major mechanical and electrical equipment (such as pumps, electrical transformers and generators) are not operated due to serious failures.</u>	<u>10 - 30% of installed major mechanical and electrical equipment (such as pumps, electrical transformers and generators) are not operated due to serious failures.</u>	<u>Less than 10% of installed major mechanical and electrical equipment (such as pumps, electrical transformers and generators) are not operated due to serious failures.</u>	<u>Most or all installed major mechanical and electrical equipment (such as pumps, electrical transformers and generators) are operated, however some or many operate with low performance or low efficiency.</u>	<u>Most or all installed major mechanical and electrical equipment (such as pumps, electrical transformers and generators) are operated. Most operate with appropriate performance and efficiency.</u>		
			Average_Rehabilitation/Replacement									
			AVERAGE (FI)									
Aspects to be improved mainly by Capacity Development (CD)	Overall			CD	1st	Q10: O&M of the facilities	Facilities <u>do not have</u> any O&M manuals.	Facilities <u>have</u> O&M manuals which are <u>not effective</u> , leading to O&M deficiencies.	Facilities <u>have</u> O&M manuals which are <u>not effective</u> , however the current O&M is <u>adequate</u> .	Facilities <u>have effective</u> O&M manuals, which are <u>followed reasonably well</u> .	Facilities have <u>effective and comprehensive</u> O&M manuals, which are <u>followed strictly</u> .	
	Distribution network management	CD/FI	1st	Q11: Drawings of pipe facilities	Available paper drawings of existing transmission and distribution trunk mains are <u>quite limited</u> .	Paper drawings are <u>available</u> for most of the existing transmission and distribution <u>trunk</u> mains, but drawings for <u>branch</u> distribution mains are <u>limited</u> .	Small/Medium utilities: Paper drawings are <u>available</u> for most of the existing distribution mains <u>including branch</u> distribution mains. Large utilities: As above, and a <u>primitive</u> GIS has been established for transmission mains, trunk distribution mains, etc.	Small/Medium utilities: <u>Updated CAD</u> files are <u>available</u> for most of the existing transmission and distribution mains. Large utilities: A GIS has been <u>well-established and updated</u> for management of transmission mains and distribution mains, <u>with reasonable accuracy</u> .	Small/Medium utilities: <u>A map book</u> of existing mains has been prepared for referencing and is periodically updated using CAD. Large utilities: A GIS has been <u>well-established and updated</u> for management of transmission, distribution mains, <u>customer information</u> , etc. <u>with good accuracy</u> .			
			1st	Q12: Zoning of distribution network ^{**6}	<u>Proper zoning</u> of distribution areas and <u>proper sub-zoning</u> of networks in each distribution area, based on considerations of topology and/or different water sources, <u>rarely exist or do not exist at all</u> .	<u>Proper zoning</u> of distribution areas <u>exists to some extent</u> , but <u>proper sub-zoning</u> of networks in each distribution area <u>rarely exists or does not exist at all</u> .	<u>Most</u> distribution areas are <u>properly zoned</u> , but <u>proper sub-zoning</u> of networks in each distribution area is <u>still limited</u> .	<u>All</u> the distribution areas are <u>properly zoned</u> , and <u>most</u> distribution areas have <u>proper sub-zoning</u> in their distribution network.	All the distribution areas are properly zoned, and most distribution areas have proper sub-zoning in their distribution network. <u>Multiple water sources, multiple lines of distribution trunk mains, and mutual connections</u> between distribution areas and sub-zones are also considered for improving the stability of water supply.			
			1st	Q13: Water pressure at customer meter points ^{**7}	At <u>most or all</u> points, pressure is <u>not</u> between <u>5-45m</u> .	At approximately <u>half</u> of the points, pressure is <u>not</u> between <u>5-45m</u> .	At approximately <u>a quarter</u> of the points, pressure is <u>not</u> between <u>10-45m</u> .	At <u>most</u> points, <u>usual</u> pressure is between <u>10-45m</u> but pressure <u>drops</u> significantly in the season of maximum water demand.	At <u>most</u> points, pressure is between <u>15-45m</u> <u>without</u> significant pressure <u>drop</u> in the season of maximum water demand; or <u>continuous and direct water supply with higher pressure</u> to high buildings without using customers' receiving and elevated tanks has been introduced for <u>water quality control</u> .			

Note:

****1:** Overall water supply coverage = (Population served)/(Population within responsible area of the utility)*100 or (Number of households served)/(Number of households within responsible area of the utility)*100. If responsible areas are not clearly understood, please assume the areas where the water utility will hold responsibility in the foreseeable future. The population served includes those who have direct water supply, yard taps and public taps/standpipes.

****2:** Surplus purification capacity = ((Daily treatment capacity - Maximum daily treatment capacity) / Daily treatment capacity) * 100 (unit: %). The daily treatment capacity (m³/day) is the volume of water per day purified in the current purification plant. The capacity of failed facilities and those under repair facilities is excluded. The maximum daily treatment capacity (m³/day) is the recorded maximum volume of water per day supplied by the plant in a year.

****3:** An example of expected lifetime of water mains is 50 years.

****4:** Expected lifetime of house connections can be 25 years or more if using corrosion-resistant materials.

****5:** Examples of expected lifetime of mechanical/electrical equipment and instruments are 20 years and 15 years respectively.

****6:** Proper zoning and sub-zoning of distribution networks is a basic requirement for good pressure control, effective reduction of NRW, etc. The concept of zoning and sub-zoning is explained in (2) Supporting Figures and Table.

****7:** Conversion table for different units of pressure is shown in (2) Supporting Figures and Table.

****8:** NRW (Non-Revenue Water) ratio = (1-(Annual water charged)/(annual water produced))*100. If all the bulk meters necessary for this calculation are not installed, estimation of this average NRW ratio can be carried out based on some data of NRW in some areas. The difference between NRW and UFW (Unaccounted for Water) is explained in (2) Supporting Figures and Table.

****9:** Expected lifetime of customer meters is usually between 8 and 10 years, depending on their type and quality.

****10:** Recommended calibration intervals for bulk flow meters are 5 years for wheel/mechanical type and 1 year for electromagnetic and ultrasonic types. The size of district

Category			Project Type (援助形態)	Priority (優先度)	Question (Reference No. of the same indicator if it is included in BT①: LPI)	Level					Answer (1 - 5)
Large	Medium	Small				1: Very Serious	2: Serious	3: Not Good Enough	4: Good	5: Very Good	
Aspects to be improved mainly by Capacity Development (CD)	Technical aspects	NRW reduction	CD/FI	1st	Q14: NRW ratio (IBI_6.1)**8	More than 50%	36 - 50%	21 - 35%	10 - 20%	Less than 10%	
			CD/FI	1st	Q15: Customer meters**9	There are <u>no customer meters</u> due to a flat-rate system, or the majority of existing customer meters are not functioning.	Functioning customer meters are supposed to be installed for every household, but <u>more than 30%</u> of them are <u>missing or not working well</u> .	Functioning customer meters are supposed to be installed for every household and replaced with new ones periodically, but <u>more than 10%</u> of them are <u>missing or not working well</u> .	<u>Most households</u> have <u>well-functioning</u> customer meters due to rigorous periodical meter exchange.	<u>Almost all households</u> have <u>well-functioning</u> customer meters <u>with good accuracy</u> .	
			CD/FI	1st	Q16: Bulk meters**10	Bulk meters for accurate measurement of water production and basic control of distribution are <u>not installed at most of the places</u> where they should be; or <u>most of the existing bulk meters do not work well</u> due to lack of maintenance.	There are <u>not enough</u> functioning bulk meters installed at the places requiring them for accurate measurement of water production and basic control of distribution; and existing bulk meters are <u>not well maintained</u> .	There are <u>enough</u> functioning bulk meters for accurate measurement of water production and basic control of distribution, but <u>not enough for calculating NRW ratio of each sub-zone (DMA) for effective NRW reduction</u> . Majority of the existing bulk meters are <u>well maintained</u> .	There are <u>enough</u> functioning bulk meters installed for <u>calculating NRW ratio of each sub-zone (DMA) for effective NRW reduction</u> . Most of the existing bulk meters are <u>well maintained</u> , and important meter readings are <u>recorded periodically</u> .	There are <u>enough</u> functioning bulk meters installed (with good accuracy) for calculating NRW ratio of each sub-zone (DMA) for effective NRW reduction. <u>All of the existing bulk meters are well maintained</u> , and important meter readings are <u>recorded periodically and analysed effectively</u> .	
		CD	1st	Q17: Water quality parameters tested at purification plants	Water quality testing is based on a <u>visual observation</u> of water cleanliness.	Water quality testing is based on <u>periodical simple water quality tests for pH, turbidity, chlorine, etc., using handheld water quality testers or pack test kits</u> . The treated water usually meets existing standards for the parameters tested.	Water quality testing is based on <u>periodical laboratory water quality tests for micro-organisms such as coliforms, and general physical and chemical water quality parameters</u> . The treated water usually meets existing standards for the parameters tested.	Water quality testing is based on <u>continuous and daily water quality monitoring</u> using appropriate water quality testing methods and well-maintained apparatus. The treated water <u>usually</u> meets existing standards for <u>basic</u> parameters selected with reference to <u>the WHO guidelines, etc.</u>	Water quality testing is based on <u>continuous and daily water quality monitoring</u> using appropriate water quality testing methods and well-maintained apparatus. The treated water <u>almost always</u> meets existing standards for <u>comprehensive</u> parameters selected in reference to <u>the WHO guidelines, etc.</u>		
	CD	1st	Q18: Drinkability of tap water**11	In <u>many</u> areas, tap water <u>does not meet</u> water quality criteria for <u>some key</u> parameters (including residual chlorine) and it is <u>not drinkable</u> in some areas <u>even after boiling</u> .	In <u>some</u> areas, tap water <u>does not meet</u> water quality criteria for <u>some key</u> parameters (including residual chlorine), but it <u>become drinkable after boiling</u> in all areas.	In <u>some</u> areas, tap water <u>does not meet</u> water quality criteria for <u>full list</u> of parameters (including residual chlorine), but it <u>become drinkable after boiling</u> in all areas.	In <u>all</u> areas, tap water <u>meets</u> the criteria for the <u>full list</u> of parameters (including residual chlorine) <u>with some exceptions</u> (e.g. in the case of seasonal degradation of water source quality). It is usually <u>drinkable directly</u> from the tap <u>with some risk</u> of water quality degradation due to accidental stoppages of water supply, etc.	In <u>all</u> areas, tap water <u>almost always meets</u> all criteria for the <u>full list</u> of parameters (including residual chlorine), and it is <u>almost always drinkable directly</u> from tap <u>without risk</u> , as long as receiving tanks at end users do not contaminate the water.			
	Average Technical										
	Non-technical aspects	Financial improvement	CD	1st	Q19: Cost recovery level (OI_4 is the same as IBI_24.1 if the utility provides water supply services only)**12	<u>Only part of the O&M costs</u> (excluding depreciation of water supply facilities) are covered by water charges. (OI_4 < 1)	<u>All O&M costs</u> (except for depreciation of water supply facilities) are fully covered by water charges. (OI_4 ≥ 1)	All O&M and <u>depreciation costs</u> are covered by water charges. (OI_12 ≥ 1, if not, check OI_14)	All O&M, depreciation and <u>financial costs</u> (interest & capital repayments) are covered by water charges. (1 ≤ OI_13 < 1.01, if not, check OI_15 and OI_16)	All O&M, depreciation and financial costs (interest and capital repayments), and <u>costs for own-capital-funded expansion</u> of facilities (to some extent) are covered by water charges. (OI_13 ≥ 1.01)	
			CD	1st	Q20: Collection ratio (IBI_23.2)**13	Less than 60%	60-74%	75-89%	90-94%	More than 95%	
		Organizational development	CD	1st	Q21: Effective personnel management rules and regulations including incentives**14	Working regulations and base salary systems are <u>not clear</u> .	Working regulations and base salary systems are <u>clear</u> , but there is <u>no incentive scheme</u> in place.	Working regulations and base salary systems are <u>clear</u> , but existing <u>incentive schemes are ineffective</u> .	Working regulations and base salary systems are <u>clear</u> , there are <u>effective incentive schemes</u> in place. <u>Some critical rules</u> on occupational health and safety are communicated to staff.	Working regulations and base salary systems are <u>clear</u> , and there are <u>effective incentive schemes</u> in place. <u>Full set of regulations</u> on occupational health and safety are communicated to staff.	
			CD	1st	Q22: Implementation of training**15	Training is <u>quite rare or not provided</u> at all.	<u>A limited number</u> of training programs on <u>some aspects</u> are provided, however there are no incentives for staff to undertake training programs.	There are <u>minimum levels</u> of training required for <u>important aspects</u> , but <u>incentives</u> for staff to undertake training programs are <u>limited</u> .	<u>An adequate number</u> of training programs are provided on <u>important aspects</u> , including management and technical matters. There are <u>enough incentives</u> for staff to undertake training programs.	<u>A wide range</u> of training programs are available. The completion of these training programs is generally a <u>condition of promotion</u> .	
Public relations		CD	1st	Q23: Complaint handling	A procedure or information system for complaint handling has <u>not been established</u> , and complaints are currently dealt with on an ad-hoc basis.	A procedure or information system for complaint handling <u>has been established</u> , but there is a <u>large backlog</u> of unresolved complaints.	A procedure or information system for complaint handling has been established, but there are <u>usually some complaints resolved</u> .	An <u>effective</u> procedure and information system for complaint handling has been established, and <u>data is recorded and analysed</u> . There can however be a <u>backlog of complaints in a particular season</u> .	An <u>effective</u> procedure and information system for complaint handling has been established, and data is recorded and analysed. <u>Even in peak complaints season</u> , there is no backlog.		
		CD	1st	Q24: Awareness-raising on NRW reduction, water saving, collection of water charges, etc.**16	<u>No or minimal</u> effective awareness-raising activities have been implemented.	<u>A few</u> effective awareness-raising activities have been implemented.	<u>Several</u> effective awareness-raising activities have been implemented.	<u>Many</u> effective awareness-raising activities have been implemented.	<u>Many</u> effective awareness-raising activities are being implemented <u>continuously</u> .		
Average Non-technical											
AVERAGE (CD)											
OVERALL AVERAGE (FI & CD)											
Aspects to be improved mainly by Program Approach	CD/FI	1st	Q25: Laws and regulations covering the water sector**17	<u>A water supply service act</u> or its equivalent <u>does not exist</u> .	<u>A water supply service act</u> or its equivalent <u>exists</u> , but it <u>does not require</u> your utility to have an <u>independent double-entry</u> accounting system.	A water supply service act or its equivalent exists, and it <u>requires</u> your utility to have an <u>independent double-entry</u> accounting system.	<u>Most</u> of the required laws and regulations listed in note**17 have been established.	<u>All</u> of the required laws and regulations listed in note**17 are <u>well established</u> .			
	FI	1st	Q26: Sewerage coverage (IBI_2.1)**18	0%	Less than 5%	Less than 30%	Less than 50%	More than 75%			
Average Program Approach											

ultrasonic types. The size of district meter area (DMA) is recommended to be about 1000 - 3000 households.

**11: Key water quality parameters are assumed to be residual chlorine, turbidity, colour, odour, taste, toxic matter and coliform count. Coverage of testing parameters and standards for water quality criteria can refer to the WHO standards if country-specific water quality standards have not been established.

**12: This assessment should be based on financial statements. The supporting financial indicators for judging the level of cost recovery are shown in (2) Supporting Figures and Table.

**13: Billing customers and collecting revenue are two different things. The effectiveness of the collections process is measured by this indicator, while NRW ratio (Q14) is based on amount billed and water production. Collection ratio = (Collected revenue at the end of fiscal year)/(Annual amount billed)*100

**14: Personnel management rules and regulations include: 1) working regulations, 2) base salary system, 3) incentive schemes, and 4) occupational health and safety regulations.

**15: Training programs are required for engineers, technicians, administration staff, managers, etc.

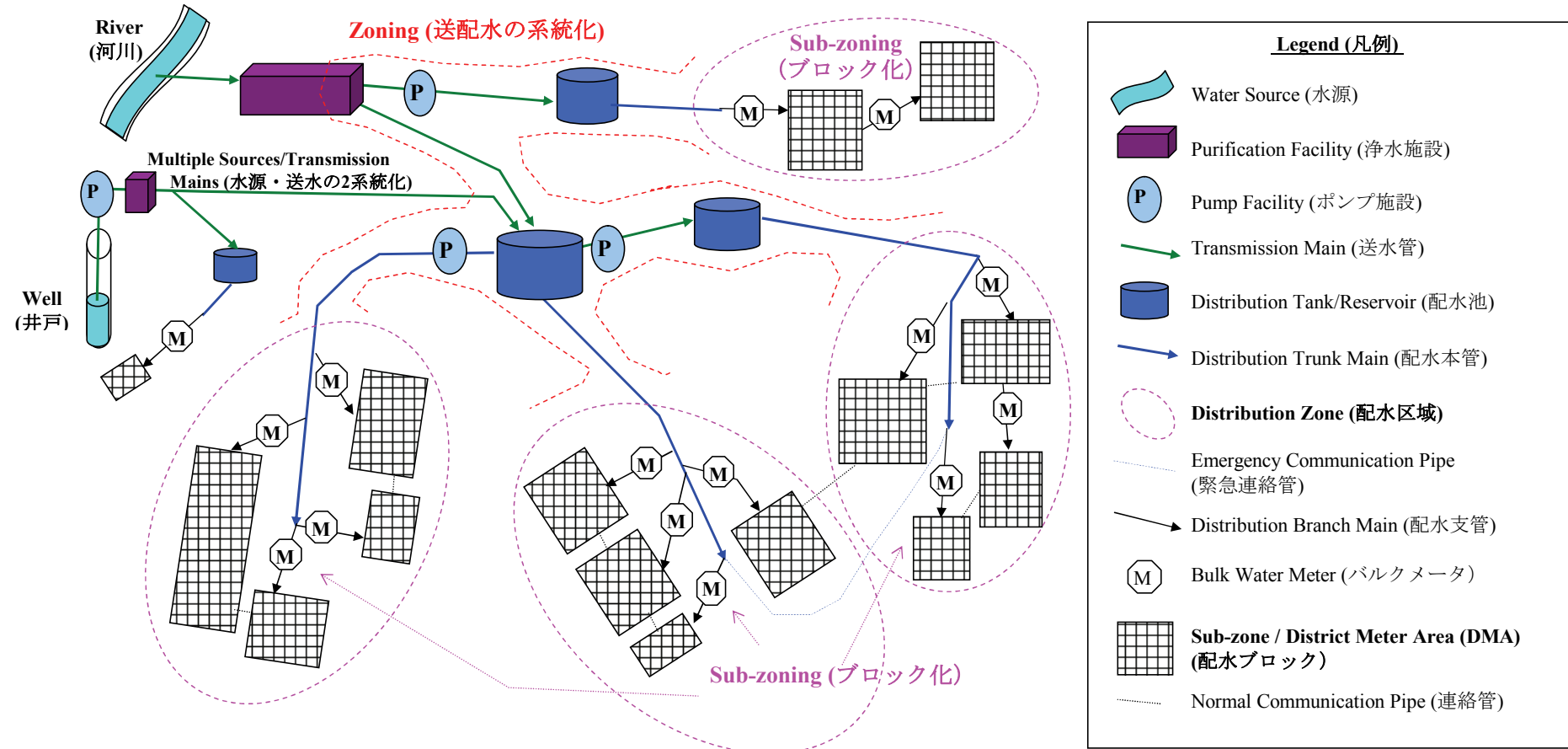
**16: Public awareness can be enhanced through: 1) general public relations & publicity, 2) special promotional programs, 3) monitoring research, 4) painting/writing contests, 5) school education, etc.

**17: Laws and regulations include: 1) water supply service act, 2) independent "double-entry bookkeeping" accounting requirement for the water utility, 3) water supply service ordinances, 4) regulations related to water intake, including groundwater regulations, 5) labour standards act, 6) road traffic act, etc.

**18: It is assumed that sewerage development does not usually commence until GDP per capita reaches about US\$3,000; and becomes full-scale at a GDP per capita of about US\$5,000. It is highly possible that sewerage is minimally developed in the countries and suburban cities where economic levels are low. It is recommended that the water utility explain the level of sanitary facility (toilet) coverage, particularly if it has answered the question on sewerage coverage as level 1(0%) or level 2 (5% or less).

(2) 補助図表 – Supporting Figures and Tables

For Q12: Concept of Zoning and Sub-zoning of Distribution Network



For Q13: Pressure Units Conversion Table

	H ₂ O Head (m)	Kgf/cm ²	Bar	Pascal (Pa) or (N/m ²)	Pounds per Square Inch (psi)
H ₂ O Head (m)	-	0.1	0.09807	9807	1.42
Kgf/cm ²	10	-	0.9807	98066	14.2
Bar	10.2	1.02	-	100,000	14.504
Pascal (Pa) or (N/m ²)	0.000102	0.0000102	0.00001	-	0.00014504
Pounds per Square Inch (psi)	0.7	0.070307	0.068948	6895	-

For Q14: Water Balance and the Difference between NRW and UFW (Unaccounted-For Water)

Authorized Consumption	Billed Authorized Consumption	Billed Metered Consumption (Including water exported)		NRW
		Billed Metered Consumption	Billed Non-metered Consumption	
Authorized Consumption	Unbilled Authorized Consumption	Unbilled Metered Consumption	Unbilled Non-metered Consumption	UFW
		Unauthorized Consumption		
Water Losses	Apparent Losses	Metering Inaccuracies	Leakage on Transmission and/or Distribution Mains	UFW
		Leakage and Overflows at Utility's Storage Tanks		
		Leakage on Service Connections up to Customers' Meters		

For Q19: Table of Supporting Financial Indicators and Data

Info. Type	Category	Reference No. of IBNET Indicator (IBI_), Other Indicator (OI_), IBNET Data (IBD_) and Other Data (OD_)	Name of Supporting Financial Indicator or Name of Supporting Financial Data	Definition of Supporting Financial Indicator or Definition of Supporting Financial Data	Equation with IBNET & Other Data Ref. No.	Answer	Abbreviation: LC = Local Currency, P/L = Profit and Loss statement
Supporting Financial Indicators	Cost Recovery	OI_4 (same as BI_24.1 (if the utility provides water supply services only) and OI_4 in LPI)	Operating ratio for water only, excluding depreciation and financial charges (interest and capital repayments) (%)**1	Total operating (billed) revenue for water / Total operational (O&M) expenses for water services (excluding depreciation). Expressed as a percentage.	$=[(IBD_90c)/(IBD_94a)]*100$	-	Note: **1: According to the Japanese JWWA guidelines, Operating Ratio should be calculated including depreciation into the operational expenses; however the IBNET's definition of Operating Ratio excludes depreciation from the operational expenses. Therefore, the indicator value of OI_4, which is based on IBNET's definition, is higher than that calculated based on the definition of the JWWA Guidelines. The definition of OI_12 uses the definition of Operating Ratio from the JWWA Guidelines. **2: Subsidies which can be included in "other operational revenues" are external subsidies provided to the water utility, to fully or partially cover water and connection charges for registered low-income customers. **3: In some countries, special taxes related to water services are collected from residents (in addition to the usual water and connection charges), for activities such as cleaning, use of fire hydrants, etc. **4: All the data for calculating the supporting financial indicators are reported in the utility's Profit and Loss statement (P/L).
		OI_12	Operating ratio for water only, including depreciation but excluding financial charges (interest and capital repayments) (%)	Total operating (billed) revenue for water / (Total operational (O&M) expenses for water services (including depreciation)). Expressed as a percentage.	$=[(IBD_90c)/((IBD_94a)+(OD_16))]*100$	-	
		OI_13	Operating ratio for water only, including depreciation and financial charges (interest and capital repayments) (%)	Total operating (billed) revenue for water / (Total operational (O&M) expenses for water services (including depreciation) + Financial charges including interest and capital repayments). Expressed as a percentage.	$=[(IBD_90c)/((IBD_94a)+(OD_16)+(OD_17)+(OD_18))]*100$	-	
	Proportion of costs related to cost recovery	OI_14	Ratio of depreciation related to water services to total operating (billed) revenue for water (%)	Depreciation related to water services / Total operating (billed) revenue for water. Expressed as a percentage.	$=[(OD_16)/(IBD_90c)]*100$	-	
		OI_15	Ratio of interest related to water services to total operating (billed) revenue for water (%)	Interest related to water services / Total operating (billed) revenue for water. Expressed as a percentage.	$=[(OD_17)/(IBD_90c)]*100$	-	
		OI_16	Ratio of capital repayments related to water services to total operating (billed) revenue for water (%)	Capital repayments related to water services / Total operating (billed) revenue for water. Expressed as a percentage.	$=[(OD_18)/(IBD_90c)]*100$	-	
Supporting financial data for calculating the above indicators**4	Cost recovery	IBD_90c (same as IBD_90c in LPI)	Total operating (billed) revenue for water (LC/year)	Total billing of water services, connection fees, well abstraction fees, reconnection fees and other operational revenues (including subsidies**2 but excluding all taxes**3), for water services only; as shown in the utility's Profit and Loss statement (P/L).			
		IBD_94a (same as IBD_94a in LPI)	Total operational (O&M) expenses for water, excluding depreciation (LC/year)	Operating expenses excluding depreciation and financing charges (interest and capital repayments) for water supply services (as shown in the utility's Profit and Loss statement (P/L)).			
	Proportion of costs related to cost recovery	OD_16	Depreciation related to water services (LC)	Total of depreciation expenditures and asset shrinkage (if estimated separately).			
		OD_17	Interest related to water services (LC)	Total of interest paid and expenses for bonds handled (if recorded separately).			
OD_18	Capital repayments related to water services (LC)	Capital repayments - this is the sum of repayments for loans/bonds on previous capital investments related to water services in the year.					

(3) 結果グラフの自動作成 - Auto-Preparation of Result Graph

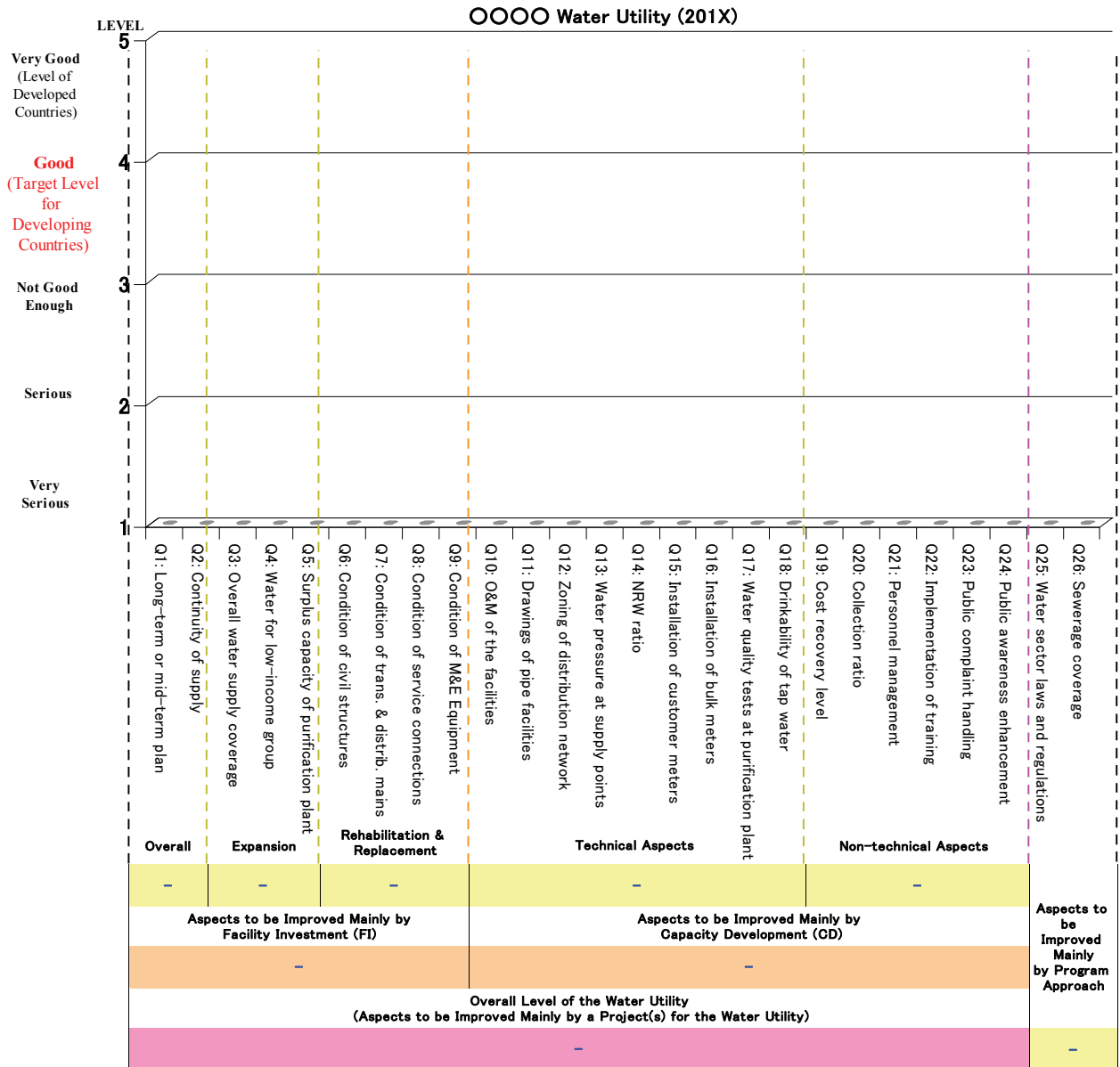


Figure: Results of the Capacity Assessment for 〇〇〇〇 Water Utility using Utility Basic Checklist (Basic Tool ④)