

Report on the Survey of Progress
towards IWRM

Report

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Japan Water Forum

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1. Survey outline

1.1 Background

Water is essential to human development. The entire food production chain depends on water. Water resources support economic growth through, industrial processing, energy, transportation and tourism. Clean water sustains a healthy population and contributes to the quality of life of households by meeting the basic needs for drinking water and sanitation. Water can also cause social and economic damages through water related disasters such as floods, droughts and epidemics. The relevance of the Millennium Development Goals impels us to consider that water resources play an important role in meeting these poverty related goals and achieving sustainable development.

Therefore, integrated and coordinated management of water and other related natural resources is important. Integrated Water Resources Management is “a conceptual framework and an implementation process that coordinate management of water and other related natural resources with the objective of promoting economic and social development and enhancing the environment (Tokyo, December 2004).” As for IWRM, all countries committed to prepare integrated water resources management and water efficiency plans (IWRM Plans) by 2005 in the Johannesburg Plan of implementation, and this commitment was confirmed again at the Ministerial Conference of the 3rd World Water Forum in Japan in March 2003, International Conference on IWRM and the second meeting of the Advisory Board on Water and Sanitation in Tokyo in December 2004.

Many activities have been carried out in order to expedite the preparation of IWRM plans and the implementation of IWRM processes. It is important to monitor the process of IWRM in each country in order to facilitate the progress. The recommendation adopted at the International Conference on IWRM states that “International society, including multilateral organizations such as United Nations, regional development banks and inter-governmental organizations, should assume a firm role in monitoring and supporting full-scale IWRM implementation in each country”. It is necessary that such monitoring efforts are facilitated through international collaboration.

Furthermore, in the 4th World Water Forum which is held in Mexico City, March 2006, the mega session under the theme of IWRM is convened. Some reports on the states of progress towards IWRM implementation and some issues regarding to the establishment of IWRM Plans are planned to be discussed and deepen the argument.

1.2 Survey goals

This survey is intended to contribute to the enactment of IWRM plans up to 2005 and the promotion of the implementation of IWRM by evaluating the progress of the IWRM in countries around the world in order to stimulate activities to monitor the IWRM to achieve the Millennium Development Goals (MDGs) and by announcing the results of the evaluation.

1.3 Outline of the survey

Integrated Water Resources Management (IWRM) is a process which promotes the coordinated development and management of water, land and related resources, in order to maximize the resultant economic and social welfare in an equitable manner without compromising the sustainability of vital ecosystems. Progress towards IWRM will, therefore, contribute to economic growth and improvement of hygiene or the conservation of the natural environment through the more efficient use of water resources, and it is assumed these achievements will reduce poverty rates and stimulate the development of human capabilities.

The story of the IWRM began at the World Summit on Sustainable Development held in Johannesburg in 2002 when the participating countries agreed to enact a plan for integrated water resources management to improve water efficiency by 2005. Then the Cabinet Conference at the Third World Water Forum held in Japan in March 2003 reiterated this pledge. But its progress has not been adequate, and according to a survey by the Global Water Partnership (GWP), while smooth progress has been achieved in 10% of the world, only a few steps have been completed in 50%, and in the remaining 40%, the process has not begun. (Information Stakeholder Baseline Survey; April 2004).

This survey, that has been undertaken in response to this situation, is intended to evaluate the progress towards IWRM by “clarifying the state of water resources management of countries” and conducting an “indicator evaluation survey” in order to clarify the progress already achieved in IWRM in each country. The following is a description of the survey and Figure 1 shows a flow chart of the study.

(1) Clarification of the state of water resources management of countries

The results of the follow-up survey to the PWA (Portfolio of Water Actions) carried out by the Government of Japan in 2005 have clarified the state of water resources management of countries.

The PWA follow-up survey was carried out as a questionnaire survey of the members of the United Nations (191 countries). Its basic goal was to learn about efforts to achieve the PWA in each country, but some of its questions could also reveal the state of water resources management. For this reason questions of this kind were revised and reorganized to clarify the progress of policies to promote IWRM in various countries.

The results of the PWA Follow-up Survey are publicized on the PWA web site: <http://www.pwa-web.org/>. The application of the results of the PWA Follow-up Survey to revise the questions to examine the state of water resources management in various countries was done based on a judgment by the JWF and the evaluation method etc. are entirely the responsibility of the JWF.

(2) Indicator evaluation survey

It is assumed that in countries where the concept of IWRM has penetrated domestically and has now demonstrated its effectiveness, basic data of various kinds have reached a level higher than in other countries. This means that it is possible to evaluate the degree of progress towards IWRM in a country by collecting numerical data of various kinds that presumably represent characteristics of the country. Several specific indicators could be applied to clarify the degree of penetration of the

concept of IWRM in each country. However the indicators related closely to water resources development from among the indicators applied to monitor the Millennium Development Goals (MDGs), were selected for this survey and applied to clarify the degree of progress towards IWRM in countries around the world.

(3) Evaluation of the state of progress towards IWRM

In order to clarify the state of progress towards IWRM around the world, at the same time as the degree of progress of systems related to water resources management of countries is clarified based on the PWA Follow-up Survey, the resulting degree of progress is clarified based on the indicator evaluation survey.

Specifically, each item clarified by the PWA Follow-up Survey and by the Indicator Evaluation Survey is quantitatively evaluated by scoring conditions in each country. Finally, the degree of progress towards IWRM is evaluated based on the score in each country.

The degree of progress towards IWRM which is evaluated by the method above, is first example in the point which has been based on the questionnaire where each national government replied, and together with the indicator evaluation based on the objective data, high credibility is achieved.

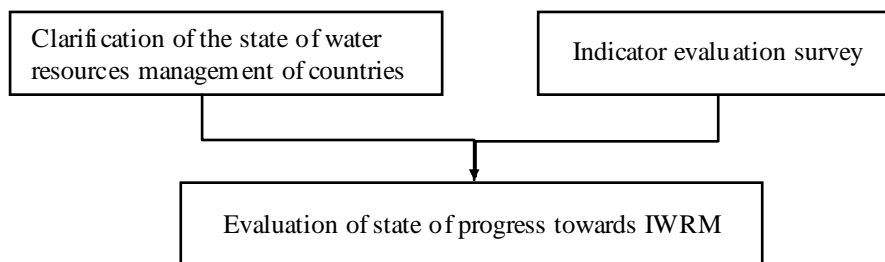


Figure 1.1 Study flow chart

1.4 Survey method

1.4.1 Method of clarifying the state of water resources management of countries

(1) Concept of referring to the PWA Follow-up Survey

The following table presents the structure of the questions in the PWA Follow-up Survey. Although it is basically intended to monitor PWA, many of the questions concern the integrated development and management of water resources, or in other words, the IWRM concept.

Therefore, for this survey, refer to the PWA Follow-up Survey as in Table 1.1.

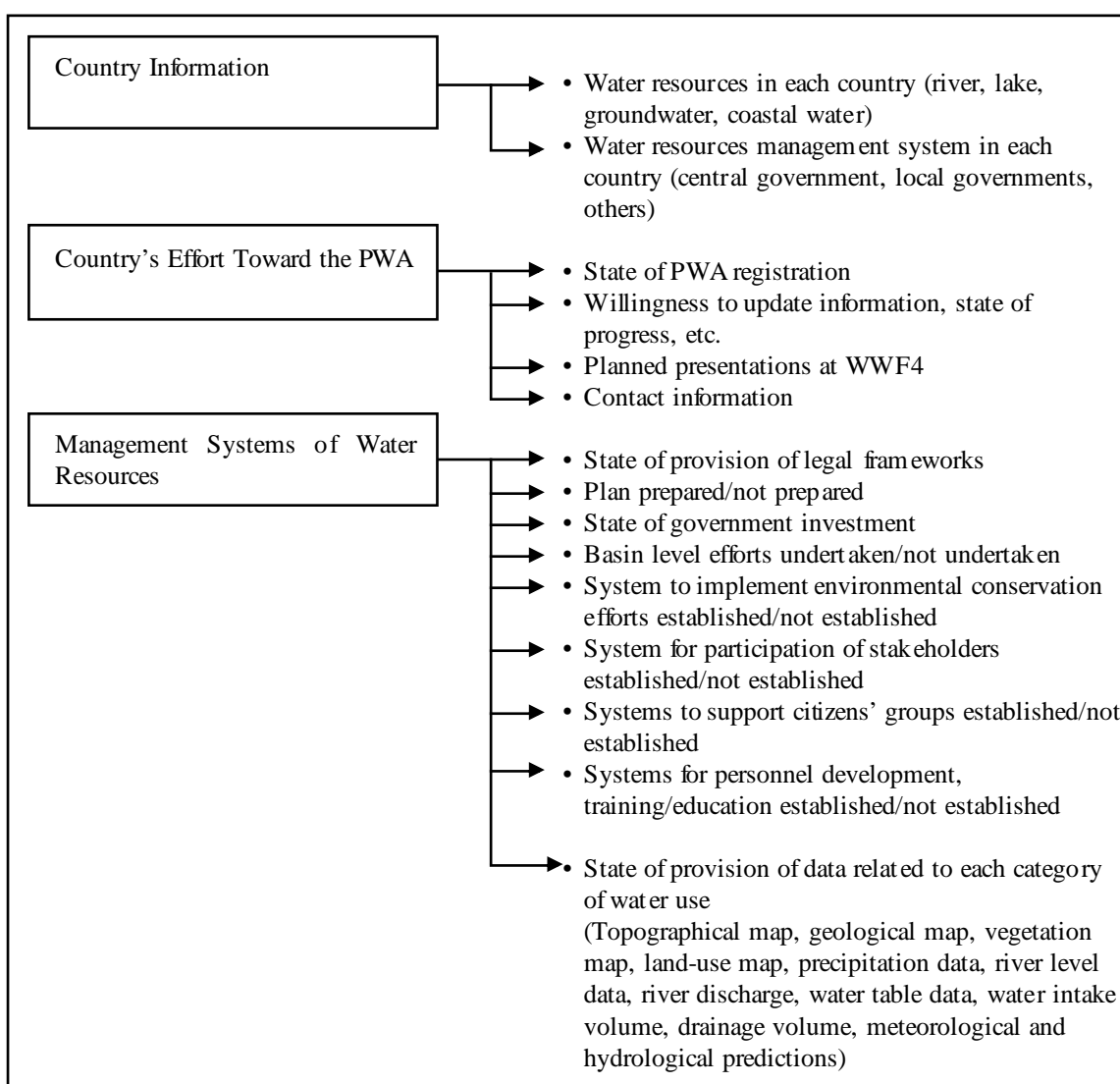


Figure 1.2 PWA Follow-up Survey Outline of the Structure of the Questions

(<http://www.pwa-web.org/>)

Table 1.1 Method of Referring to the Concept of IWRM in the PWA Follow-up Survey

	Method of referring to the IWRM concept
Country Information	Basic information about water resources management in each country
Country's Effort Toward the PWA	(Cannot be applied usefully.)
Management Systems of Water Resources	State of progress of systems to achieve IWRM

(2) Specific methods of clarifying the state of water resources management of countries

A specific method of clarifying the state of water resources management of countries is studied based on the results of the PWA Follow-up Survey.

II. Water Resources Management Systems in the PWA Follow-up Survey presents questions about the state of provision of legal frameworks, state of provision of plans, and state of continuously allocated government expenditures concerning the management of water resources that include rivers, lakes, groundwater, and coastal water.

Within a single related framework, there are questions such as, "Is there a comprehensive legal framework for the management of "all" water resources, or are there specific plans?" and "Are there government expenditures?"

If this legal framework, plan, and government expenditure is grasped in terms of the IWRM concept, they can be restated as degree of sharing of the concept, degree of specification of the concept, and degree of implementation of the concept respectively. These relations can be represented schematically as shown in Figure 1.3.

Table 1.2 shows the how the questions in the PWA Follow-up Survey are substituted in the IWRM concept based on such concepts.

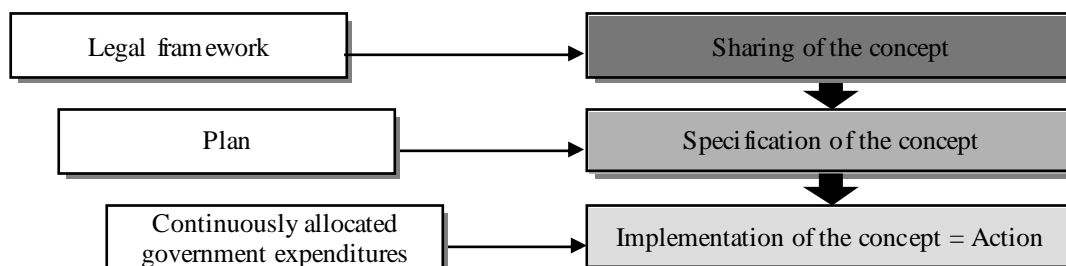


Figure 1.3 Method of Referring to Questions in the PWA Follow-up Survey

Table 1.2 Method of Referring to Questions in the PWA Follow-up Survey

PWA Follow-up Survey: Questions in the Questionnaire			Perspectives in the IWRM concept
Question No.	Question	Answers	
National Information			
Q1	What kinds of water resources do you have in your country?	Rivers Lakes Groundwater Coastal water	Basic information about water resources (State of water resources possessed by your country)
Q2-1	Organizations for the management of water resources For each water resource; (rivers, lakes, groundwater, coastal water)	Central government Local governments Others None	Basic information concerning water resources management (organizations formed/not formed)
Q2-2	Country-level organizations for the management of all water resources	FA (organization name)	
Q2-3	Country-level organizations for the management of multiple water resources	FA (organization name)	
I. Questions about efforts towards the PWA			
Q3-1	Has your country registered plans in the PWA?	Yes / No	Little relationship with IWRM (questions concerning registration in PWA)
Q3-2	Did your agency know your country had registered plans of action?	Yes / No	
Q4-1	Does your country intend to register/update new plans of action in PWA?	Yes/able to do so/no	
Q4-2	Does your country have a concrete plan to do so?	Yes / No	
Q5-1	Are there plans of action currently in progress?	Yes / No	
Q5-2	Does your country plan a presentation on progress at WWF4?	Yes/able to do so/No	
Q6-1	Is your agency (department) the contact organization?	Yes / No	
Q6-2	Please introduce contact organization.	FA (contact)	
Q7	Comments and opinions concerning the PWA etc.	FA	
II. Questions concerning water resource management systems			IWRM policy promotion system
Q8	Do you have legal frameworks for managing water resources in your country?		Sharing the IWRM concept
8-1 ~ 8-4	For each water resource: (rivers, lakes, groundwater, coastal water)	Yes / No	
8-5	Do you have comprehensive legal frameworks to manage all resources?	Yes / No	
8-6	Do you have comprehensive legal frameworks to manage multiple water resources?	Yes / No	
Q9	Do you have plans for managing water resources?		Specification of the IWRM concept
9-1 ~ 9-4	For each water resource: (rivers, lakes, groundwater, coastal water)	Yes / No	
9-5	Do you have plans for managing all water resources?	Yes / No	
9-6	Do you have plans for managing multiple water resources?	Yes / No	
Q10	Government spending for the management of water resources		Degree of action of the IWRM concept
10-1 ~ 10-4	For each water resource: (rivers, lakes, groundwater, coastal water)	Yes / No	
Q11	Do you make basin level efforts for water resources management in your country?		Basin level efforts
11-1	Do you have basin level organizations or plans?	Yes / No	
11-2	Do you have basin level legal frameworks?	Yes / No	

11-3	Is basin level government spending done?	Yes / No	
Q12	Do you have mechanisms to conserve the environment related to water resources management?		Efforts to conserve the environment
12-1	Legal framework for environmental conservation	Yes / No	
12-2	Government spending to conserve the environment	Yes / No	
Q13	Participation of stakeholders in water resources management		Creation of systems for participation of stakeholders
13-1	Do you have legal frameworks for participation of stakeholders?	Yes / No	
13-2	Is there government spending for participation of concerned parties?	Yes / No	
Q14	Do you have support systems for citizens' group involved in water resources management?		Creation of systems for citizen participation
14-1	Do you have legal frameworks for supporting citizens' groups?	Yes / No	
14-2	Is there government spending to support citizens groups?	Yes / No	
Q15	Personnel education and training in water resources management		Creating of systems for personnel education
15-1	Personnel education and training in water resources management	Yes / No	
15-2	Is there government spending for personnel education and training?	Yes / No	
III. State of Provision of Basic Data			
Q16	State of provision of various water resource related data		
16-1	Topographical maps	All drainage basins Some drainage basins None	Clarifying basic information about water resources management • Topographical maps • Geological maps • Vegetation maps • Land-use maps
16-2	Geological maps		
16-3	Vegetation maps		
16-4	Land-use maps		
16-5	Precipitation observations		Clarifying hydrological data • Precipitation • River level and river discharge • Water table level
16-6	River level observations		
16-7	River discharge observations		
16-8	Water table level observations		Clarifying the state of water use • Water intake and water drainage
16-9	Intake flow observations from rivers, lakes, groundwater, and coastal water		
16-10	Drainage discharge observations into rivers, lakes, groundwater, and coastal waters		
16-11	Do you make meteorological predictions?		Providing hydrological prediction data • Meteorological predictions and hydrological predictions
16-12	Do you make hydrological predictions?		
Q17	How much do you invest in water resources development?		Little relationship with IWRM
17-1	National budget	_____ USD	
17-2	Share of national budget invested in water resources development	_____ USD	

1.4.2 Indicator evaluation survey method

(1) Indicator evaluation survey implementation procedure

The indicator evaluation is performed to clarify the degree of penetration of the concept of IWRM. IWRM is a process, but when the concept has penetrated, it is possible that the various situations surrounding water resources improve. Therefore, for this survey, each country's degree of penetration of the concept of IWRM is evaluated by clarifying the indicators showing various situations surrounding water resources. There are several indicators showing various situations surrounding water resources, but there are also such indicators within the indicators of the MDGs. As this reason, the method of indicator evaluation was decided to select any indicators which related to water resources.

The relationships of MDGs with IWRM and other problems related to water are clarified by documents from the United Nations Committee of Inquiry on Water and Hygiene.

Figure 1.4 is a flowchart that shows the specific procedure followed to use MDGs indicators to clarify the situation in each country, and the specific contents are explained in the following items.

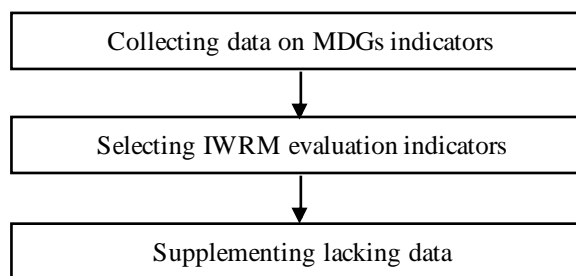


Figure 1.4 Indicator Evaluation Implementation Procedures

(2) Collecting data on MDGs indicators

MDGs consist of goals for the following 8 items, targets for 18 items, and indicators for 48 items. Data from each country were collected for 48 items with selecting indicators that can be used to evaluate IWRM as the prior stage.

- Goal 1: Eradicate extreme poverty and hunger (2 targets and 5 indicators)
- Goal 2: Achieve universal primary education (1 target and 3 indicators)
- Goal 3: Promote gender equality and empower women (1 target and 4 indicators)
- Goal 4: Reduce child mortality (1 target and 3 indicators)
- Goal 5: Improve maternal health (1 target and 2 indicators)
- Goal 6: Combat HIV/AIDS, malaria and other diseases (2 targets and 7 indicators)
- Goal 7: Ensure environmental sustainability (3 targets and 7 indicators)
- Goal 8: Develop a Global Partnership for Development (7 targets and 17 indicators)

The actual indicators data are publicly released data of the United Nations Development

Programme (UNDP). These data were data released to the public by the UNDP that used them to calculate the Human Development Indicator (HDI). They were selected because, assuming that they were collected by the world-wide information network of the UNDP, they were judged to be highly reliable thanks to their broad inclusiveness. The collected data is included at the end of this report.

(3) Selecting the IWRM evaluation indicators

Indicators used to evaluate IWRM are selected from the MDGs indicators data that were collected. The indicators used to evaluate IWRM were selected considering the following points.

<p><IWRM evaluation indicators selection guidelines></p> <ul style="list-style-type: none"> • Indicators were selected assumed to be strongly related to IWRM. • This considered the strength of the correlation of the MDGs with water problems clarified by documents of the United Nations Committee of Inquiry on Water and Hygiene. • And the strength of relationships with IWRM are considered at the same time as indicators with little lacking data are selected.
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Table 1.3 shows the indicators selected according to the above guidelines. Table 1.3 lists all MDGs indicators for 48 items along with the state of availability of data. Finally, items with the symbol in the IWRM column are IWRM evaluation indicators.

Table 1.3 Indicators Used to Monitor the Millennium Development Goals (MDGs)

Goals and targets for achieving MDGs	Indicators used to monitor progress	% of data Obtained	Selected
Goal 1. Eradicate extreme poverty and hunger			
Target 1. Halve, between 1990 and 2015, the proportion of people whose income is less than one dollar a day	1. Proportion of population below \$1 (1993 PPP) per day	36.6%	-
	2. Poverty gap ratio [incidence x depth of poverty]	-	
	3. Share of poorest quintile in national consumption	66.0%	
Target 2. Halve, between 1990 and 2015, the proportion of people who suffer from hunger	4. Prevalence of underweight children under five years of age	69.6%	-
	5. Proportion of population below minimum level of dietary energy consumption	59.2%	
Goal 2. Achieve universal primary education			
Target 3. Ensure that, by 2015, children everywhere, boys and girls alike, will be able to complete a full course of primary schooling	6. Net enrolment ratio in primary education	84.3%	-
	7. Proportion of pupils starting grade 1 who reach grade 5	56.0%	
	8. Literacy rate of 15-24 year-olds	58.6%	
Goal 3. Promote gender equality and empower women			
Target 4. Eliminate gender disparity in primary and secondary education, preferably by 2005, and in all levels of education no later than	9. Ratio of girls to boys in primary, secondary and tertiary education	Pri. 81.2% Sec. 69.6% Tri. 72.8%	-
	10. Ratio of literate women to men, 15-24 years old	58.6%	
	11. Share of women in wage employment in the non-agricultural sector	-	

Goals and targets for achieving MDGs	Indicators used to monitor progress	% of data Obtained	Selected
2015	12. Proportion of seats held by women in national parliament	85.3%	
Goal 4. Reduce child mortality			
Target 5. Reduce by two thirds, between 1990 and 2015, the under-five mortality rate	13. Under-five mortality rate 14. Infant mortality rate 15. Proportion of 1 year-old children immunized against measles	100.0% 91.6% 91.1%	-
Goal 5. Improve maternal health			
Target 6. Reduce by three quarters, between 1990 and 2015, the maternal mortality ratio	16. Maternal mortality ratio 17. Proportion of births attended by skilled health personnel	86.9% 84.8%	-
Goal 6. Combat HIV/AIDS, malaria and other diseases			
Target 7 Have halted by 2015 and begun to reverse the spread of HIV/AIDS	18. HIV prevalence among pregnant women aged 15-24 years 19. Condom use rate of the contraceptive prevalence rate 19a Condom use at last high-risk sex 19b Percentage of population aged 15-24 years with comprehensive correct knowledge of HIV/AIDS 20. Ratio of school attendance of orphans to school attendance of non-orphans aged 10-14 years	- 19a women 23.6% 19a men 19.9% -	-
Target 8. Have halted by 2015 and begun to reverse the incidence of malaria and other major diseases	21. Prevalence and death rates associated with malaria 22. Proportion of population in malaria-risk areas using effective malaria prevention and treatment measures 23. Prevalence and death rates associated with tuberculosis 24. Proportion of tuberculosis cases detected and cured under DOTS	50.8% prevention 17.8% treatment 17.8% 91.1% 75.9%	-
Goal 7. Ensure environmental sustainability			
Target 9. Integrate the principles of sustainable development into country policies and programmes and reverse the loss of environmental resources	25. Proportion of land area covered by forest 26. Ratio of area protected to maintain biological diversity to surface area 27. Energy use (kg oil equivalent) per \$1,000 GDP (PPP) 28. Carbon dioxide emissions per capita (UNFCCC, UNSD) and consumption of ozone-depleting CFCs (ODP tons) 29. Proportion of population using solid fuels	89.5% 60.7% 86.9% 41.9%	-
Target 10. Halve, by 2015, the proportion of people without sustainable access to safe drinking water and sanitation	30. Proportion of population with sustainable access to an improved water source, urban and rural 31. Proportion of population with access to improved sanitation, urban and rural	70.2% 78.5%	
Target 11. By 2020, to have achieved a significant improvement in the lives of at least 100 million slum dwellers	32. Proportion of households with access to secure tenure	-	-
Goal 8. Develop a global partnership for development			
Target 12. Develop further an open, rule-based,	33. Net ODA, total and to LDCs, as percentage of OECD/Development Assistance Committee (DAC) donors' gross national income	11.5%	-

Goals and targets for achieving MDGs	Indicators used to monitor progress	% of data Obtained	Selected		
<p>predictable, non-discriminatory trading and financial system. Includes a commitment to good governance, development and poverty reduction - both nationally and internationally</p> <p>Target 13. Address the special needs of the least developed countries. Includes: tariff and quota-free access for least developed countries' exports; enhanced programme of debt relief for heavily indebted poor countries (HIPC) and cancellation of official bilateral debt; and more generous ODA for countries committed to poverty reduction</p> <p>Target 14. Address the special needs of landlocked developing countries and small island developing States (through the Programme of Action for the Sustainable Development of Small Island Developing States and the outcome of the twenty-second special session of the General Assembly)</p> <p>Target 15. Deal comprehensively with the debt problems of developing countries through national and international measures in order to make debt sustainable in the long term</p> <p>Target 16. In cooperation with developing countries, develop and implement strategies for decent and productive work for youth</p>	34. Proportion of total bilateral, sector-allocable ODA of OECD/DAC donors to basic social services (basic education, primary health care, nutrition, safe water and sanitation)	10.5%			
	35. Proportion of bilateral ODA of OECD/DAC donors that is untied	9.4%			
	36. ODA received in landlocked developing countries as a proportion of their GNIs	-			
	37. ODA received in small island developing States as proportion of their GNIs	-			
	38. Proportion of total developed country imports (by value and excluding arms) from developing countries and from LDCs, admitted free of duty	-			
	39. Average tariffs imposed by developed countries on agricultural products and textiles and clothing from developing countries	-			
	40. Agricultural support estimate for OECD countries as percentage of their GDP	-			
	41. Proportion of ODA provided to help build trade capacity	-			
	42. Total number of countries that have reached their Heavily Indebted Poor Countries Initiative (HIPC) decision points and number that have reached their HIPC completion points (cumulative)	-			
	43. Debt relief committed under HIPC initiative	-			
	44. Debt service as a percentage of exports of goods and services	61.3%			
	45. Unemployment rate of young people aged 15-24 years, each sex and total	15.7%			
	Target 17. In cooperation with pharmaceutical companies, provide access to affordable essential drugs in developing countries	46. Proportion of population with access to affordable essential drugs on a sustainable basis		90.1%	-
	Target 18. In cooperation with the private sector, make available the benefits of new technologies, especially information and communications	47. Telephone lines and cellular subscribers per 100 population		91.1%	-
		48a. Personal computers in use per 100 population		-	
48b. Internet users per 100 population		91.1%			

(4) Supplementing lacking data

There are some of countries lacking any data for the two items selected as IWRM evaluation indicators. In order to perform evaluations by comparing data from different countries, it is essential to supplement these lacking data using a suitable method. But in order to compare the degree of IWRM progress between countries based on the indicators that were finally selected, it is important that the reliability of the supplementary data not fall.

A variety of methods of supplementing lacking data have been considered and at this time, the methods of supplementing lacking data are shown in Table 1.4. In this case, Proposal C was adopted accounting for the actual quantity of work while ensuring a certain degree of reliability.

Table 1.4 Comparison of Methods of Supplementing Lacking Data

Proposal	Supplementing method	Merits/demerits	Comparison
Proposal A	Interviewing concerned organizations in concerned countries by item and by country	<ul style="list-style-type: none"> • Can collect highly reliable data • Cannot necessarily supplement all data • Extremely large quantity of work 	Not Appropriate
Proposal B	For each item, calculating an average using all data for indicators values of countries with data to uniformly supplement data for lacking countries.	<ul style="list-style-type: none"> • Minimal quantity of work • Can supplement all data • May supplement with data from countries with completely different characteristics, and reliability is low 	Fair
Proposal C	First grouping countries, then excluding countries with lacking data, calculating the average of each group and supplementing lacking data within the group.	<ul style="list-style-type: none"> • Relatively small quantity of work • Can supplement for all data • Because it supplements with data with similar national characteristics, its reliability is relatively high. 	Appropriate

When lacking data are supplemented based on Proposal C, the reliability of the data differs according to differences between the grouping methods. The following are candidate grouping methods, and typical countries grouped by each method and their characteristics are shown in Table 1.5.

- Grouping by the United Nations
- Grouping by the UNDP
- Grouping by UNICEF
- Grouping by the World Bank

Of these groupings, grouping by UNICEF was selected. This was done because comparing the UNICEF method with other grouping methods shows that grouping by UNICEF results in more countries with similar characteristics being included in each group, and the reliability of the supplementary data is judged to be relatively high as a consequence. Table 1.6 shows groupings of the world's countries.

Table 1.5 Methods of Grouping the World's Countries by Major International Organizations

International organization	Categories	Member countries (Examples)	Remarks	
UN http://www.un.org/aboutun/mainbodies.htm	UN Economic & Social Council (ECOSOC)		<ul style="list-style-type: none"> • It is an economics based categorization. • Russia, Central Asia, Turkey, Egypt, etc. are members of multiple regions • Countries with islands belong to multiple groups, even in regions different from the mainland. • Because it is not one country – one region, it is unsuited to preparing indicators. 	
	1	Economic Commission of Africa		Africa
	2	Economic Commission for Europe		Europe, Russian Federation, CIS, Central Asia & Caucasias, Israel, Turkey, United States of America
	3	Economic Commission of Latin America and the Caribbean		Latin America, Caribbean, North American (United States of America, Canada), Other isolated islands (French territory, Italian territory, Dutch territory, Portuguese territory, etc.)
	4	Economic and Social Commission for Asia and the Pacific		Japan, Asia, Oceania, Russian Federation, Central Asia & Caucasias, Turkey, United States of America
	5	Economic and Social Commission for Western Asia		Middle and Near East (exclude Iran, Israel), Egypt
UNDP http://www.undp.org/regions/	1	Africa	Africa * exclude North Africa (Morocco, Algeria, Tunisia, Libya, Egypt)	<ul style="list-style-type: none"> • European countries from Hungary to the west do not belong to Europe and the CIS. • Not all countries are categorized. • There are big differences between indicators in a single region (our subjective judgment).
	2	Europe & the CIS	No European countries, East Europe (Poland, Czech Republic, etc.), Russian Federation, CIS, Central Asia & Caucasias	
	3	Arab States	Middle and Near East, North Africa, (Morocco, Algeria, Tunisia, Libya, Egypt)	
	4	Latin America & the Caribbean	Latin America, Some Caribbean countries (Cuba, Jamaica, Dominica, Haiti, Trinidad and Tobago)	
	5	Asia & the Pacific	Japan, Asia, (include Iran, Afghanistan), Oceania, (exclude Australia, New Zealand)	
UNICEF http://www.unicef.org/infobycountry/	1	CEE/CIS and Baltic States	Russian Federation, CIS, Central Asia & Caucasias, Countries surrounding Black Sea	<ul style="list-style-type: none"> • Differences between indicators within a single region are small, so it is suitable for supplementing (our subjective judgment). • African countries are finely categorized.
	2	East Asia and the Pacific	East Asia (East from Myanmar, Exclude Japan, Korea, Singapore) The Pacific Islands (exclude Australia, New Zealand)	
	3	Eastern and Southern Africa	Southeast Africa (South Africa, Botswana, Zambia, Rwanda, etc.)	
	4	Industrialized countries	Industrialized countries, Japan	
	5	Latin America and Caribbean	Latin America, Caribbean	
	6	Middle East and North Africa	North Africa (Sudan, Egypt, Libya, Tunisia, Algeria, Morocco), Middle and Near East (Iran is the end of east, exclude Israel)	
	7	South Asia	South Asia (Afghanistan, Pakistan, India, Nepal, Bhutan, Bangladesh, etc.)	
	8	West and Central Africa	West and Central Africa (rest of African Countries)	
World Bank http://web.worldbank.org/WBSITE/EXTERNAL/COUNTRIES/0,,pagePK:180619-theSitePK:136917,0.html	1	Africa-Sub-Saharan	Africa * exclude North Africa (Morocco, Algeria, Tunisia, Libya, Egypt)	<ul style="list-style-type: none"> • It is analogous to the UNICEF categorization. • But industrialized countries (Japan, North America, Europe, Australia, New Zealand) are not categorized.
	2	East Asia & the Pacific	Mongolia, China, Korea, Myanmar, Thailand, Laos, Cambodia, Vietnam, Malaysia, Philippines, Indonesia, East Timor, Papua New Guinea, The Pacific Islands	
	3	Europe & Central Asia	Russian Federation, CIS, Central Asia & Caucasias (until Poland, Czech Republic, Slovenia)	
	4	Latin America & Caribbean	Latin America, Caribbean	
	5	Middle East & North Africa	Middle and Near East (include Iran, Israel), North Africa	
	6	South Asia	South Asia (Afghanistan, Pakistan, India, Nepal, Bhutan, Bangladesh, etc.)	

* The basic concept of performing the categorization is not clearly expressed for any of the categorizations. It seems that except for the Economic and Social Council of the UN, the categorization is represented only by region.

Table 1.6 Grouping Based on the UNICEF Categorization

Groupings		Country
CIS	CEE/CIS and Baltic States	Albania, Armenia, Azerbaijan, Belarus, Bosnia and Herzegovina, Croatia, Georgia, Kazakhstan, Kyrgyzstan, Latvia, Lithuania, Rep. of Moldova, Romania, Russian Federation, Serbia and Montenegro, Tajikistan, Macedonia, TFYR, Turkmenistan, Ukraine, Uzbekistan
EAP	East Asia and the Pacific	Brunei Darussalam, Cambodia, China, Dem. People's Rep. of Korea, Fiji, Indonesia, Kiribati, Lao People's Dem. Rep., Malaysia, Marshall Islands, Micronesia, Fed. States of Mongolia, Myanmar, Nauru, Palau, Papua New Guinea, Philippines, Samoa, Solomon Islands, Thailand, Dem. Rep. of Timor-Leste, Tonga, Tuvalu, Vanuatu, Viet Nam
ESA	Eastern and Southern Africa	Angola, Botswana, Burundi, Comoros, Eritrea, Ethiopia, Kenya, Lesotho, Madagascar, Malawi, Mauritius, Mozambique, Namibia, Rwanda, Seychelles, Somalia, South Africa, Swaziland, Uganda, United Republic of Tanzania, Zambia, Zimbabwe
I	Industrialized countries	Andorra, Australia, Austria, Belgium, Bulgaria, Canada, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Israel, Italy, Japan, Liechtenstein, Luxembourg, Malta, Monaco, Netherlands, New Zealand, Norway, Poland, Portugal, Rep. of Korea, San Marino, Singapore, Slovakia, Slovenia, Spain, Sweden, Switzerland, United Kingdom of Great Britain and Northern Ireland, United States of America
LAC	Latin America and Caribbean	Antigua and Barbuda, Argentina, Bahamas, Barbados, Belize, Bolivia, Brazil, Chile, Colombia, Costa Rica, Cuba, Dominica, Dominican Republic, Ecuador, El Salvador, Grenada, Guatemala, Guyana, Haiti, Honduras, Jamaica, Mexico, Nicaragua, Panama, Paraguay, Peru, Saint Kitts and Nevis, Saint Lucia, St Vincent and the Grenadines, Suriname, Trinidad and Tobago, Uruguay, Venezuela
MENA	Middle East and North Africa	Algeria, Bahrain, Cyprus, Djibouti, Egypt, Iraq, Jordan, Iran Islamic Rep. Of, Kuwait, Lebanon, Morocco, Oman, Qatar, Libyan Arab Jamahiriya, Saudi Arabia, Tunisia, Sudan, Syrian Arab Republic, United Arab Emirates, Yemen
SA	South Asia	Afghanistan, Bangladesh, Bhutan, India, Maldives, Nepal, Pakistan, Sri Lanka
WCA	West and Central Africa	Benin, Burkina Faso, Cameroon, Cape Verde, Central African Republic, Chad, Congo, Côte d'Ivoire, Dem. Rep. of the Congo, Equatorial Guinea, Gabon, Gambia, Ghana, Guinea, Guinea-Bissau, Liberia, Mali, Mauritania, Niger, Nigeria, São Tomé and Príncipe, Senegal, Sierra Leone, Togo

There are countries whose group is not clear in the UNICEF grouping but these countries will be included in the same group as that of a topographically similar country.

2. State of progress towards IWRM

2.1 Method of evaluation of progress towards IWRM

2.1.1 Procedure of evaluation

The evaluation of progress towards IWRM ranking is determined according to the results of the clarification of the state of water resources management of countries and on the results of quantitative evaluations based on an indicator evaluation survey.

Specifically, first the points for each item are calculated based on the results of the clarification of the state of water resources management of countries, then the points are calculated for each indicator in the indicators evaluation survey. Next, the results of the PWA Follow-up Survey and the points based on the indicator evaluation survey are weighted and the overall IWRM points are calculated based on this weighting.

Figure 2.1 is a flow chart of the above evaluation procedure.

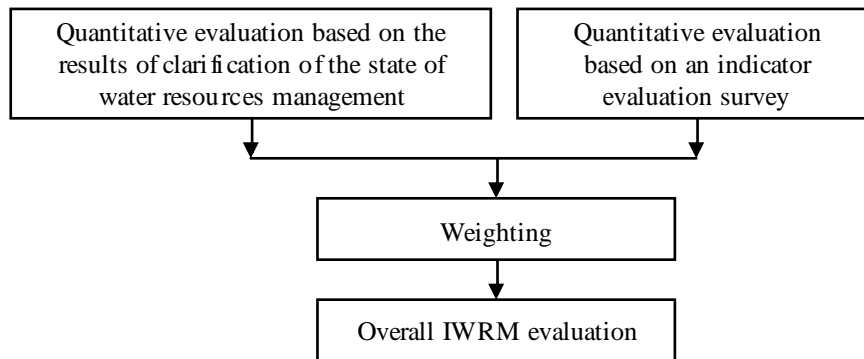


Figure 2.1 Overall IWRM Evaluation Implementation Procedure

2.1.2 Quantitative evaluation method based on the clarification of the state of water resources management of countries

Based on the clarification of the state of water resources management, a number of items are set, and within these, detailed items are established. To perform a quantitative evaluation based on these, it is necessary to reorganize the evaluation items according to the IWRM perspective and assign points to each one.

So items that make important contributions to the realization of the concept of IWRM were evaluated individually and somewhat less relevant items were evaluated in bloc, then five point scores were allotted to each item to establish the evaluation standards, and the quantification was performed according to these standards.

2.1.3 Quantitative evaluation method based on the indicator evaluation survey

The indicator evaluation survey quantifies indicators for 2 items for which lacking data was supplemented for each country.

The evaluation is done by converting the points by the following procedure based on each indicator value.

<Point conversion method>

- Points are independently calculated for each evaluation indicator.
- The perfect score is set as 10 (points) for each evaluation item.
- A perfect score (10 points) is given to the country with the best evaluation.
- A score of 0 (points) is given to the country with the worst evaluation.
- For other countries, the calculation is done based on the linear interpolation of the indicator values of the best country and the worst country according to the indicator value of the country.
- The evaluation points calculated for each one of the two items are totaled to assign evaluation points to the country.

As an example of the calculation of specific evaluation points, the point evaluation method is explained taking Japan's position in "Population with sustainable access to an improved water source".

- a) A perfect score for percentage of population with sustainable access to an improved water is 10 points.
- b) The maximum percentage of population with sustainable access to an improved water was Australia (No. 9) 100.0% (= I_{max}), and so Austria's points are 10 points.
- c) Inversely the lowest percentages were Rwanda (No. 141) at 8.0% (= I_{min}), and the points assigned to Rwanda is 0.
- d) The percentage of population with sustainable access to an improved water in Japan (No. 85) is 97.0% (= I_{Japan}). Therefore, the points for Japan (= P_{Japan}) are calculated by the interpolation method shown below.

$$\begin{aligned} P_{\text{Japan}} &= (I_{\text{Japan}} - I_{\text{min}}) / (I_{\text{max}} - I_{\text{min}}) \times 10 \text{ (Pnt)} \\ &= (97.0 - 8.0) / (100.0 - 8.0) \times 10 \text{ (Pnt)} \\ &= 9.7 \text{ (Pnt)} \end{aligned}$$

The each country's point is calculated with the method above, this calculation is conducted for the indicators of 2 items.

2.1.4 Weighting for the overall evaluation

To perform the overall evaluation, both the quantitative evaluation results based on the PWA survey and the quantitative evaluation results based on the indicator evaluation survey are considered, but it is necessary to establish weighting for both.

Weighting can be varied by considering differences in the importance of the two surveys and the values of the perfect scores of each survey, but in both cases, it is not easy to give solid reasons.

< So it is done by performing weighting as explained below.>

- Results of quantitative evaluations based on results of clarification of state of water resources management (Total Score is 100): weighting 1
- Results of quantitative evaluations based on indicator evaluation survey (Total Score is 20): weighting 1

2.1.5 Overall IWRM evaluation method

Table 2.1 shows the results of organizing the scoring of points by the results of each quantitative evaluation to perform the overall IWRM evaluation.

Table 2.1 Scoring by Items Evaluated to Perform the Overall IWRM Evaluation

	Evaluation item		Score			
		Sub-evaluation item	Score	Sub-total	Weighting	Total
Quantitative evaluation based on the results of clarifying the state of water resources management	Water resources management organizations	Management organization established/not established	10	100	1	120
		Legal framework established/not established	10			
		Management plans established/not established	10			
		Government spending made/not made	5			
	Water resources management measures	Basin level management performed/not performed	10			
		Environmental conservation measures taken/not taken	10			
		Stakeholders participation system established/not established	10			
		Citizens' groups support provided/not provided	10			
		Education and training provided/not provided	10			
	Basic data	State of clarification of land use information	5			
		State of hydrological observation systems	5			
		State of clarification of water use	5			
		State of hydrological prediction systems	5			
Quantitative evaluation based on indicator evaluation survey	Population with sustainable access to improved sanitation	10	20	1		
	Population with sustainable access to an improved water source	10				

2.2 Results of evaluation of progress towards IWRM

2.2.1 Quantitative evaluation based on the clarification of the state of water resources management of countries

The results of clarification of the degree of progress towards IWRM which had been calculated by the quantitative evaluation based on the method shown in 2.1.2 are shown in Table 2.2.

The clarification of the degree of progress is followed by the rules shown in below.

A : Point is 80 points or more

B : Point is under 80 point of 40 points or more

C : Point is under 40 point

Table 2.2 Results of Quantitative Evaluation Based on Clarification of State of Water Resources Management of countries

Responses	No	Country	Score RANK	State of responses
1	3	Algeria	A	Effective
2	7	Argentina	B	Effective
3	9	Australia	B	Effective
4	10	Austria	A	Effective
5	11	Azerbaijan	B	Effective
6	14	Bangladesh	A	Effective
7	16	Belarus	A	Effective
8	21	Bolivia	B	Effective
9	22	Bosnia and Herzegovina	A	Effective
10	24	Brazil	B	Effective
11	25	Brunei Darussalam	B	Effective
12	26	Bulgaria	A	Effective
13	27	Burkina Faso	A	Effective
14	29	Cambodia	C	Effective
15	31	Canada		Not Available
16	35	Chile	A	Effective
17	36	China		Not Available
18	37	Colombia	B	Effective
19	39	Congo	B	Effective
20	40	Costa Rica	C	Effective
21	41	Cote d'Ivoire	B	Effective
22	42	Croatia	A	Effective
23	43	Cuba	A	Effective
24	45	Czech Republic	B	Effective
25	48	Denmark		Not Available
26	50	Dominica	B	Effective
27	52	Ecuador	B	Effective
28	54	El Salvador	B	Effective
29	57	Estonia	B	Effective
30	58	Ethiopia	A	Effective

Responses	No	Country	Score RANK	State of responses
31	61	France		Not Available
32	65	Germany	A	Effective
33	67	Greece	A	Effective
34	69	Guatemala	B	Effective
35	73	Haiti	C	Effective
36	74	Honduras	B	Effective
37	75	Hungary	A	Effective
38	76	Iceland	B	Effective
39	78	Indonesia	B	Effective
40	79	Iran. Islamic Rep. of	A	Effective
41	81	Ireland	A	Effective
42	83	Italy	C	Effective
43	84	Jamaica	B	Effective
44	88	Kenya	A	Effective
45	89	Kiribati	C	Effective
46	91	Kyrgyzstan	B	Effective
47	92	Lao People's Dem. Rep.	B	Effective
48	100	Luxembourg		Not Available
49	103	Malaysia	A	Effective
50	107	Marshall Islands	C	Effective
51	109	Mauritius	B	Effective
52	110	Mexico	B	Effective
53	113	Mongolia	B	Effective
54	115	Mozambique	A	Effective
55	116	Myanmar	B	Effective
56	118	Nauru	C	Effective
57	119	Nepal	A	Effective
58	121	New Zealand	A	Effective
59	122	Nicaragua	C	Effective
60	126	Oman	B	Effective
61	128	Palau	B	Effective
62	132	Peru	B	Effective
63	133	Philippines	B	Effective
64	134	Poland	A	Effective
65	137	Rep. of Korea	A	Effective
66	145	Samoa		Not Available
67	147	Sao Tome and Principe	C	Effective
68	148	Saudi Arabia	C	Effective
69	150	Serbia and Montenegro	B	Effective
70	153	Singapore		Not Available

Responses	No	Country	Score RANK	State of responses
71	154	Slovakia	A	Effective
72	155	Slovenia		Not Available
73	156	Solomon Islands	C	Effective
74	158	South Africa		Not Available
75	160	Sri Lanka	B	Effective
76	162	Suriname	C	Effective
77	163	Swaziland	B	Effective
78	164	Sweden	B	Effective
79	166	Syrian Arab Republic	B	Effective
80	167	Tajikistan	A	Effective
81	168	Thailand	B	Effective
82	169	Macedonia,TFYR	B	Effective
83	170	Dem. Rep. of Timor-Leste	C	Effective
84	172	Tonga	C	Effective
85	173	Trinidad and Tobago	A	Effective
86	177	Tuvalu	C	Effective
87	178	Uganda	A	Effective
88	180	United Arab Emirates	C	Effective
89	181	United Kingdom of Great Britain and Northern Ireland		Not Available
90	182	United Republic of Tanzania		Not Available
91	184	Uruguay		Not Available
92	187	Venezuela	B	Effective
93	188	Viet Nam	B	Effective
94	189	Yemen	A	Effective

Number of effective responses	82
Not Available*	12
Total number of responses	94

- * Not Available includes :
- Responses of questionnaire were not completed
 - Response of questionnaire was refused

2.2.2 Quantitative evaluation based on the indicator evaluation survey

The results of clarification of the degree of progress towards IWRM which had been calculated by the quantitative evaluation based on the method shown in 2.1.3 are shown in Table 2.3.

The clarification of the degree of progress is followed by the rules shown in below.

A : Point is 16 points or more

B : Point is under 16 point of 8 points or more

C : Point is under 8 point

Table 2.3 (1) Results of Qualitative Evaluation Based on Indicator Evaluation Survey

COUNTRY	REGION	1	2	Score RANK
		Population with sustainable access to improved sanitation	Population with sustainable access to an improved water source	
		(%)	(%)	
		(Units)	(Units)	
Year		2000	2000	
% of data obtained		70.2	78.5	
1 Afghanistan	SA	55.1	13.0	C
2 Albania	CIS	91.0	97.0	A
3 Algeria	MENA	92.0	89.0	A
4 Andora	I	97.0	100.0	A
5 Angola	ESA	44.0	38.0	C
6 Antigua and Barbuda	LAC	95.0	91.0	A
7 Argentina	LAC	84.4	88.3	A
8 Armenia	CIS	90.1	85.5	A
9 Australia	I	100.0	100.0	A
10 Austria	I	100.0	100.0	A
11 Azerbaijan	CIS	81.0	78.0	B
12 Bahamas	LAC	100.0	97.0	A
13 Bahrain	MENA	86.2	84.3	A
14 Bangladesh	SA	48.0	97.0	B
15 Barbados	LAC	100.0	100.0	A
16 Belarus	CIS	90.1	100.0	A
17 Belgium	I	97.0	98.7	A
18 Belize	LAC	50.0	92.0	B
19 Benin	WCA	23.0	63.0	B
20 Bhutan	SA	70.0	62.0	B
21 Bolivia	LAC	70.0	83.0	B
22 Bosnia and Herzegovina	CIS	90.1	85.5	A
23 Botswana	ESA	66.0	95.0	B
24 Brazil	LAC	76.0	87.0	B
25 Brunei Darussalam	EAP	58.6	72.3	B
26 Bulgaria	I	100.0	100.0	A
27 Burkina Faso	WCA	29.0	42.0	C
28 Burundi	ESA	88.0	78.0	A
29 Cambodia	EAP	17.0	30.0	C
30 Cameroon	WCA	79.0	58.0	B
31 Canada	I	100.0	100.0	A
32 Cape Verde	WCA	71.0	74.0	B
33 Central African Republic	WCA	25.0	70.0	B
34 Chad	WCA	29.0	27.0	C
35 Chile	LAC	96.0	93.0	A
36 China	EAP	40.0	75.0	B
37 Colombia	LAC	86.0	91.0	A
38 Comoros	ESA	98.0	96.0	A
39 Congo	WCA	47.8	51.0	B
40 Costa Rica	LAC	93.0	95.0	A
41 Côte d'Ivoire	WCA	52.0	81.0	B
42 Croatia	CIS	90.1	85.5	A
43 Cuba	LAC	98.0	91.0	A
44 Cyprus	MENA	100.0	100.0	A
45 Czech Republic	I	97.0	98.7	A
46 Dem. People's Rep. of Korea	EAP	58.6	100.0	B
47 Dem. Rep. of the Congo	WCA	21.0	45.0	C
48 Denmark	I	97.0	100.0	A
49 Djibouti	MENA	91.0	100.0	A
50 Dominica	LAC	83.0	97.0	A
51 Dominican Republic	LAC	67.0	86.0	B
52 Ecuador	LAC	86.0	85.0	A
53 Egypt	MENA	98.0	97.0	A
54 El Salvador	LAC	82.0	77.0	B
55 Equatorial Guinea	WCA	53.0	44.0	B
56 Eritrea	ESA	13.0	46.0	C
57 Estonia	I	97.0	98.7	A
58 Ethiopia	ESA	12.0	24.0	C
59 Fiji	EAP	43.0	47.0	B
60 Finland	I	100.0	100.0	A
61 France	I	97.0	98.7	A
62 Gabon	WCA	53.0	86.0	B
63 Gambia	WCA	37.0	62.0	B
64 Georgia	CIS	100.0	79.0	A
65 Germany	I	97.0	98.7	A
66 Ghana	WCA	72.0	73.0	B
67 Greece	I	97.0	98.7	A
68 Grenada	LAC	97.0	95.0	A
69 Guatemala	LAC	81.0	92.0	A
70 Guinea	WCA	58.0	48.0	B
71 Guinea-Bissau	WCA	56.0	56.0	B
72 Guyana	LAC	87.0	94.0	A
73 Haiti	LAC	28.0	46.0	C
74 Honduras	LAC	75.0	88.0	B
75 Hungary	I	99.0	99.0	A
76 Iceland	I	97.0	98.7	A
77 India	SA	28.0	84.0	B
78 Indonesia	EAP	55.0	78.0	B
79 Iran, Islamic Rep. of	MENA	83.0	92.0	A
80 Iraq	MENA	86.2	85.0	A
81 Ireland	I	97.0	98.7	A
82 Israel	I	97.0	98.7	A
83 Italy	I	97.0	98.7	A
84 Jamaica	LAC	99.0	92.0	A
85 Japan	I	97.0	98.7	A
86 Jordan	MENA	99.0	96.0	A
87 Kazakhstan	CIS	99.0	91.0	A
88 Kenya	ESA	87.0	57.0	B
89 Kiribati	EAP	58.6	48.0	B
90 Kuwait	MENA	86.2	84.3	A
91 Kyrgyzstan	CIS	100.0	77.0	A
92 Lao People's Dem. Rep.	EAP	30.0	37.0	C
93 Latvia	CIS	90.1	85.5	A
94 Lebanon	MENA	99.0	100.0	A
95 Lesotho	ESA	49.0	78.0	B
96 Liberia	WCA	47.8	58.7	B
97 Libyan Arab Jamahiriya	MENA	97.0	72.0	A
98 Liechtenstein	I	97.0	98.7	A
99 Lithuania	CIS	90.1	85.5	A
100 Luxembourg	I	97.0	98.7	A
101 Madagascar	ESA	42.0	47.0	B
102 Malawi	ESA	76.0	57.0	B
103 Malaysia	EAP	58.6	72.3	B
104 Maldives	SA	56.0	100.0	B
105 Mali	WCA	69.0	65.0	B
106 Malta	I	100.0	100.0	A
107 Marshall Islands	EAP	58.6	72.3	B
108 Mauritania	WCA	33.0	37.0	C
109 Mauritius	ESA	99.0	100.0	A
110 Mexico	LAC	74.0	88.0	B
111 Micronesia, Fed. States of	EAP	58.6	72.3	B
112 Monaco	I	97.0	100.0	A
113 Mongolia	EAP	30.0	60.0	B
114 Morocco	MENA	68.0	80.0	B
115 Mozambique	ESA	43.0	57.0	B
116 Myanmar	EAP	64.0	72.0	B
117 Namibia	ESA	41.0	77.0	B
118 Nauru	EAP	58.6	72.3	B
119 Nepal	SA	28.0	88.0	B
120 Netherlands	I	100.0	100.0	A
121 New Zealand	I	97.0	98.7	A
122 Nicaragua	LAC	85.0	77.0	B
123 Niger	WCA	20.0	59.0	C
124 Nigeria	WCA	54.0	62.0	B
125 Norway	I	97.0	100.0	A
126 Oman	MENA	92.0	39.0	B
127 Pakistan	SA	62.0	90.0	B
128 Palau	EAP	58.6	79.0	B
129 Panama	LAC	92.0	90.0	A
130 Papua New Guinea	EAP	82.0	42.0	B

Table 2.3 (2) Results of Qualitative Evaluation Based on Indicator Evaluation Survey

COUNTRY	REGION	1	2	Score RANK	
		Population with sustainable access to improved sanitation	Population with sustainable access to an improved water source		
(Units)		(%)	(%)		
Year		2000	2000		
% of data obtained		70.2	78.5		
131	Paraguay	LAC	94.0	78.0	A
132	Peru	LAC	71.0	80.0	B
133	Philippines	EAP	83.0	86.0	A
134	Poland	I	97.0	98.7	A
135	Portugal	I	97.0	98.7	A
136	Qatar	MENA	86.2	84.3	A
137	Rep. of Korea	I	63.0	92.0	B
138	Rep. of Moldova	CIS	99.0	92.0	A
139	Romania	CIS	53.0	58.0	B
140	Russian Federation	CIS	90.1	99.0	A
141	Rwanda	ESA	8.0	41.0	C
142	Saint Kitts and Nevis	LAC	96.0	98.0	A
143	Saint Lucia	LAC	89.0	98.0	A
144	Saint Vincent and the Grenadines	LAC	96.0	93.0	A
145	Samoa	EAP	99.0	99.0	A
146	San Marino	I	97.0	98.7	A
147	São Tomé and Príncipe	WCA	47.8	58.7	B
148	Saudi Arabia	MENA	100.0	95.0	A
149	Senegal	WCA	70.0	78.0	B
150	Serbia and Montenegro	CIS	90.1	98.0	A
151	Seychelles	ESA	61.2	65.5	B
152	Sierra Leone	WCA	66.0	57.0	B
153	Singapore	I	100.0	100.0	A
154	Slovakia	I	100.0	100.0	A
155	Slovenia	I	97.0	100.0	A
156	Solomon Islands	EAP	34.0	71.0	B
157	Somalia	ESA	61.2	65.5	B
158	South Africa	ESA	87.0	86.0	A
159	Spain	I	97.0	98.7	A
160	Sri Lanka	SA	94.0	77.0	A
161	Sudan	MENA	62.0	75.0	B
162	Suriname	LAC	93.0	82.0	A
163	Swaziland	ESA	61.2	65.5	B
164	Sweden	I	100.0	100.0	A
165	Switzerland	I	100.0	100.0	A
166	Syrian Arab Republic	MENA	90.0	80.0	A
167	Tajikistan	CIS	90.0	60.0	B
168	Thailand	EAP	96.0	84.0	A
169	Macedonia, TFYR	CIS	90.1	85.5	A
170	Dem. Rep. of Timor-Leste	EAP	58.6	72.3	B
171	Togo	WCA	34.0	54.0	B
172	Tonga	EAP	58.6	100.0	B
173	Trinidad and Tobago	LAC	99.0	90.0	A
174	Tunisia	MENA	84.0	80.0	B
175	Turkey	I	90.0	82.0	A
176	Turkmenistan	CIS	90.1	85.5	A
177	Tuvalu	EAP	58.6	100.0	B
178	Uganda	ESA	79.0	52.0	B
179	Ukraine	CIS	99.0	98.0	A
180	United Arab Emirates	MENA	86.2	84.3	A
181	United Kingdom of Great Britain and Northern Ireland	I	100.0	100.0	A
182	United Republic of Tanzania	ESA	90.0	68.0	B
183	United States of America	I	100.0	100.0	A
184	Uruguay	LAC	94.0	98.0	A
185	Uzbekistan	CIS	89.0	85.0	A
186	Vanuatu	EAP	100.0	88.0	A
187	Venezuela	LAC	68.0	83.0	B
188	Viet Nam	EAP	47.0	77.0	B
189	Yemen	MENA	38.0	69.0	B
190	Zambia	ESA	78.0	64.0	B
191	Zimbabwe	ESA	62.0	83.0	B

:Countries with data for all MDG indices 1 to 10

:Data supplemented based on regional characteristics

:Judgment made by JWF because it is not categorized by UNCEF

:Missing data supplemented by regional average

Region Legend: by UNESCO

CIS CEE/CIS and Baltic States
EAP East Asia and the Pacific
ESA Eastern and Southern Africa
I Industrialized countries
LAC Latin America and Caribbean
MENA Middle East and North Africa
SA South Asia
WCA West and Central Africa

2.2.3 Overall evaluation

The results of clarification of the overall IWRM evaluation based on the documents organized as explained above is shown in Table 2.4. And Figure 2.2~2.4 shows these clarification on a world map.

The clarification of the overall IWRM evaluation is followed by the rules shown in below.

- Point is 100 points or more : Good progress towards IWRM approaches
- Point is under 100 point of 50 points or more : Some steps towards IWRM approaches
- Point is under 50 point : Remains at the initial stages of the process leading IWRM

Table 2.4(1) Results of evaluation of progress towards IWRM

COUNTRY	The overall IWRM evaluation
CEE /CIS and Baltic States	
2 Albania	
8 Armenia	
11 Azerbaijan	Some Steps
16 Belarus	Good Progress
22 Bosnia and Herzegovina	Good Progress
42 Croatia	Good Progress
64 Georgia	
87 Kazakhstan	
91 Kyrgyzstan	Some Steps
93 Latvia	
99 Lithuania	
169 Macedonia, TFYR	Some Steps
138 Rep. of Moldova	
139 Romania	
140 Russian Federation	
150 Serbia and Montenegro	Some Steps
167 Tajikistan	Good Progress
176 Turkmenistan	
179 Ukraine	
185 Uzbekistan	
East Asia and the Pacific	
25 Brunei Darussalam	Some Steps
29 Cambodia	Initial Stages
36 China	
46 Dem. People's Rep. of Korea	
170 Dem. Rep. of Timor-Leste	Initial Stages
59 Fiji	
78 Indonesia	Some Steps
89 Kiribati	Initial Stages
92 Lao People's Dem. Rep.	Initial Stages
103 Malaysia	Good Progress
107 Marshall Islands	Initial Stages
111 Micronesia, Fed. States of	
113 Mongolia	Some Steps
116 Myanmar	Some Steps
118 Nauru	Some Steps
128 Palau	Some Steps
130 Papua New Guinea	
133 Philippines	Some Steps
145 Samoa	
156 Solomon Islands	Initial Stages
168 Thailand	Some Steps
172 Tonga	Initial Stages
177 Tuvalu	Initial Stages
186 Vanuatu	
188 Viet Nam	Some Steps

Table 2.4(2) Results of evaluation of progress towards IWRM

COUNTRY	The overall IWRM evaluation
Eastern and Southern Africa	
5 Angola	
23 Botswana	
28 Burundi	
38 Comoros	
56 Eritrea	
58 Ethiopia	Some Steps
88 Kenya	Good Progress
95 Lesotho	
101 Madagascar	
102 Malawi	
109 Mauritius	Some Steps
115 Mozambique	Some Steps
117 Namibia	
141 Rwanda	
151 Seychelles	
157 Somalia	
158 South Africa	
163 Swaziland	Some Steps
178 Uganda	Some Steps
182 United Republic of Tanzania	
190 Zambia	
191 Zimbabwe	
Industrialized countries	
4 Andorra	
9 Australia	Some Steps
10 Austria	Good Progress
17 Belgium	
26 Bulgaria	Good Progress
31 Canada	
45 Czech Republic	Some Steps
48 Denmark	
57 Estonia	Some Steps
60 Finland	
61 France	
65 Germany	Good Progress
67 Greece	Good Progress
75 Hungary	Good Progress
76 Iceland	Some Steps
81 Ireland	Good Progress
82 Israel	
83 Italy	Some Steps
85 Japan	
98 Liechtenstein	
100 Luxembourg	
106 Malta	
112 Monaco	
120 Netherlands	
121 New Zealand	Good Progress
125 Norway	
134 Poland	Good Progress
135 Portugal	
137 Rep. of Korea	Good Progress
146 San Marino	
153 Singapore	
154 Slovakia	Good Progress
155 Slovenia	
159 Spain	
164 Sweden	Some Steps
165 Switzerland	
175 Turkey	
181 United Kingdom of Great Britain and Northern Ireland	
183 United States of America	

Table 2.4(3) Results of evaluation of progress towards IWRM

COUNTRY	The overall WRM evaluation
Latin America and Caribbean	
6 Antigua and Barbuda	
7 Argentina	Some Steps
12 Bahamas	
15 Barbados	
18 Belize	
21 Bolivia	Some Steps
24 Brazil	Some Steps
35 Chile	Good Progress
37 Colombia	Some Steps
40 Costa Rica	Some Steps
43 Cuba	Good Progress
50 Dominica	Some Steps
51 Dominican Republic	
52 Ecuador	Some Steps
54 El Salvador	Some Steps
68 Grenada	
69 Guatemala	Some Steps
72 Guyana	
73 Haiti	Initial Stages
74 Honduras	Some Steps
84 Jamaica	Some Steps
110 Mexico	Some Steps
122 Nicaragua	Some Steps
129 Panama	
131 Paraguay	
132 Peru	Some Steps
142 Saint Kitts and Nevis	
143 Saint Lucia	
144 St Vincent and the Grenadines	
162 Suriname	Initial Stages
173 Trinidad and Tobago	Good Progress
184 Uruguay	
187 Venezuela	Some Steps
Middle East and North Africa	
3 Algeria	Good Progress
13 Bahrain	
44 Cyprus	
49 Djibouti	
53 Egypt	
79 Iran, Islamic Rep. of	Good Progress
80 Iraq	
86 Jordan	
90 Kuwait	
94 Lebanon	
97 Libyan Arab Jamahiriya	
114 Morocco	
126 Oman	Some Steps
136 Qatar	
148 Saudi Arabia	Some Steps
161 Sudan	
166 Syrian Arab Republic	Some Steps
174 Tunisia	
180 United Arab Emirates	Initial Stages
189 Yemen	Some Steps

Table 2.4(4) Results of evaluation of progress towards IWRM

COUNTRY	The overall IWRM evaluation
South Asia	
1 Afghanistan	
14 Bangladesh	Good Progress
20 Bhutan	
77 India	
104 Maldives	
119 Nepal	Good Progress
127 Pakistan	
160 Sri Lanka	Some Steps
West and Central Africa	
19 Benin	
27 Burkina Faso	Some Steps
30 Cameroon	
32 Cape Verde	
33 Central African Republic	
34 Chad	
39 Congo	Some Steps
41 Côte d'Ivoire	Some Steps
47 Dem. Rep. of the Congo	
55 Equatorial Guinea	
62 Gabon	
63 Gambia	
66 Ghana	
70 Guinea	
71 Guinea-Bissau	
96 Liberia	
105 Mali	
108 Mauritania	
123 Niger	
124 Nigeria	
147 São Tomé and Príncipe	Initial Stages
149 Senegal	
152 Sierra Leone	
171 Togo	

State of progress towards IWRM :

Good Progress : 23 countries (28%)

Some Steps : 47 countries (57%)

Initial Stages : 12 countries (15%)

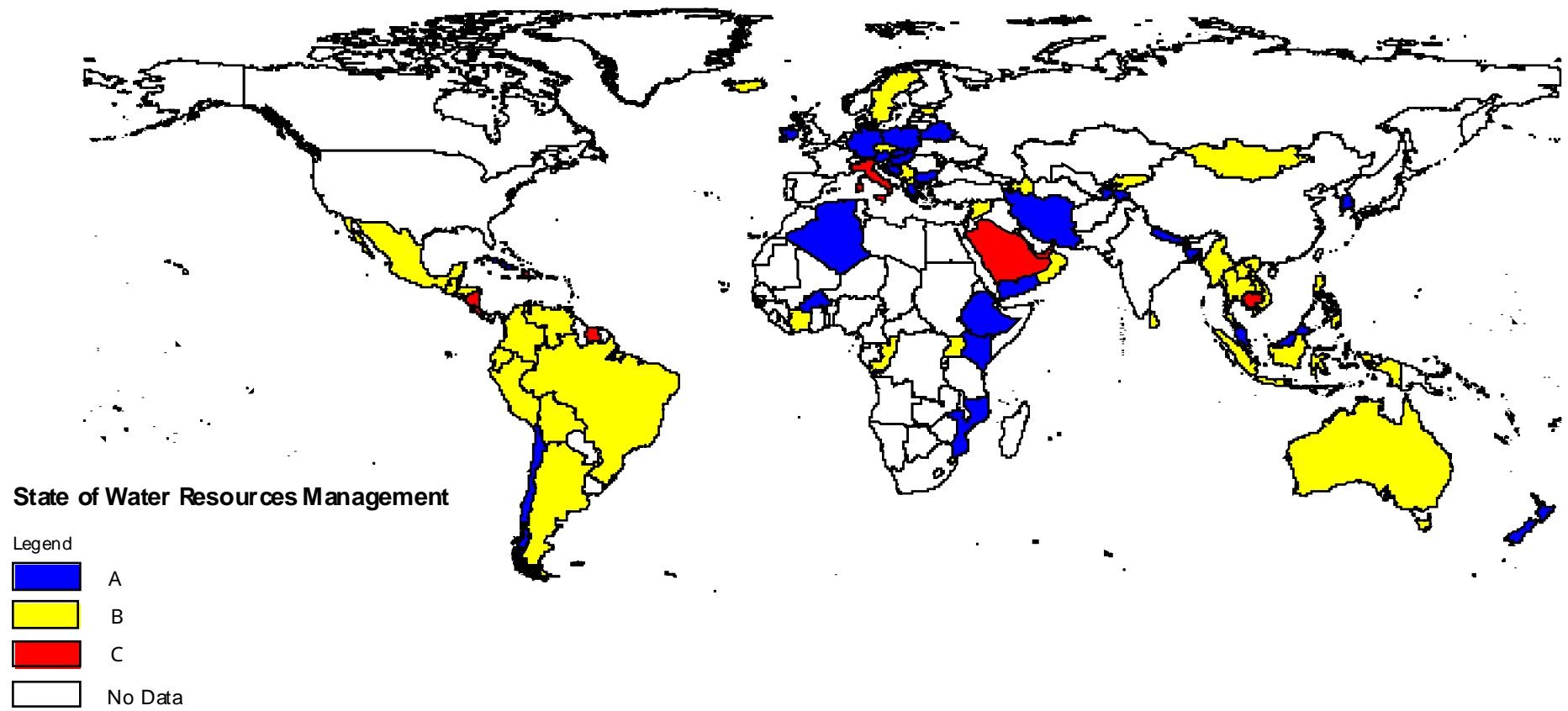


Figure 2.2 Distribution Map of the State of Water Resources Management

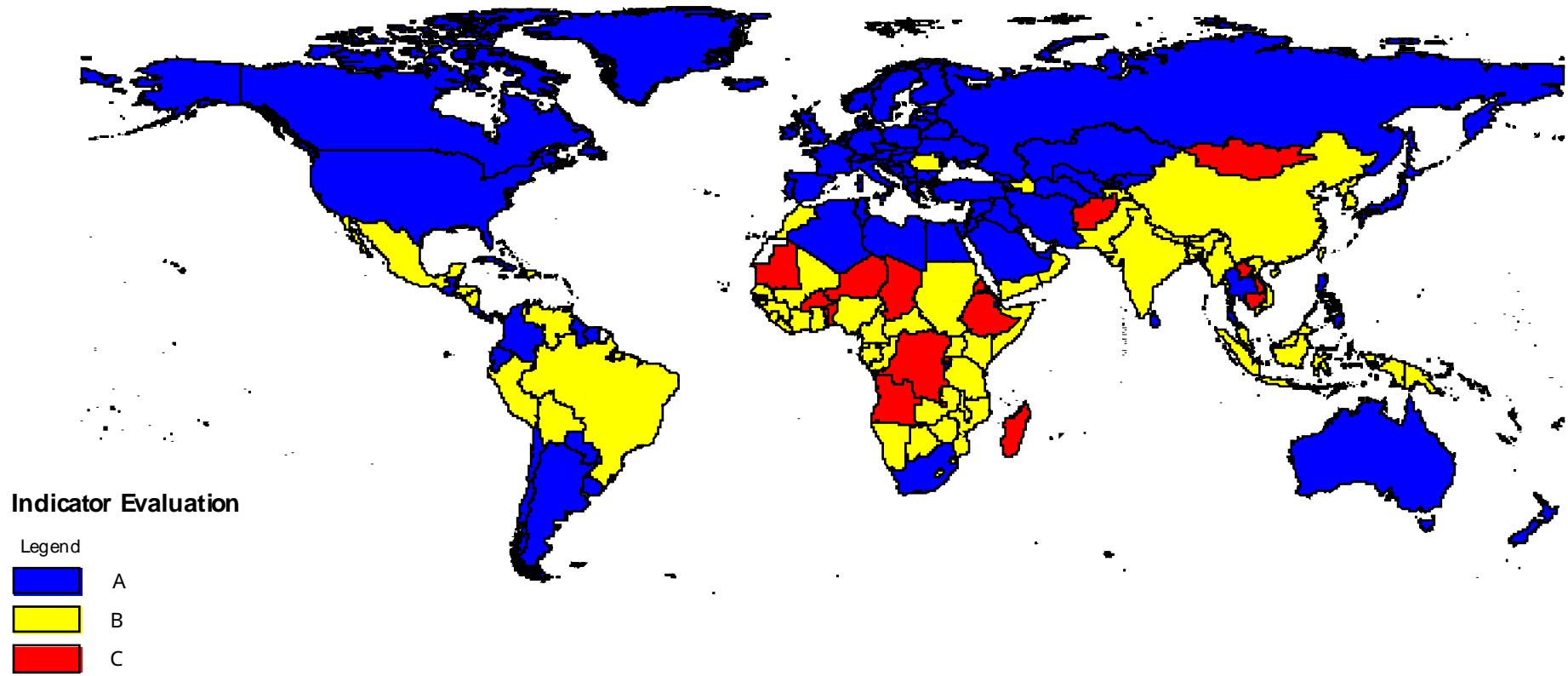


Figure 2.3 Distribution Map of Indicator Evaluation

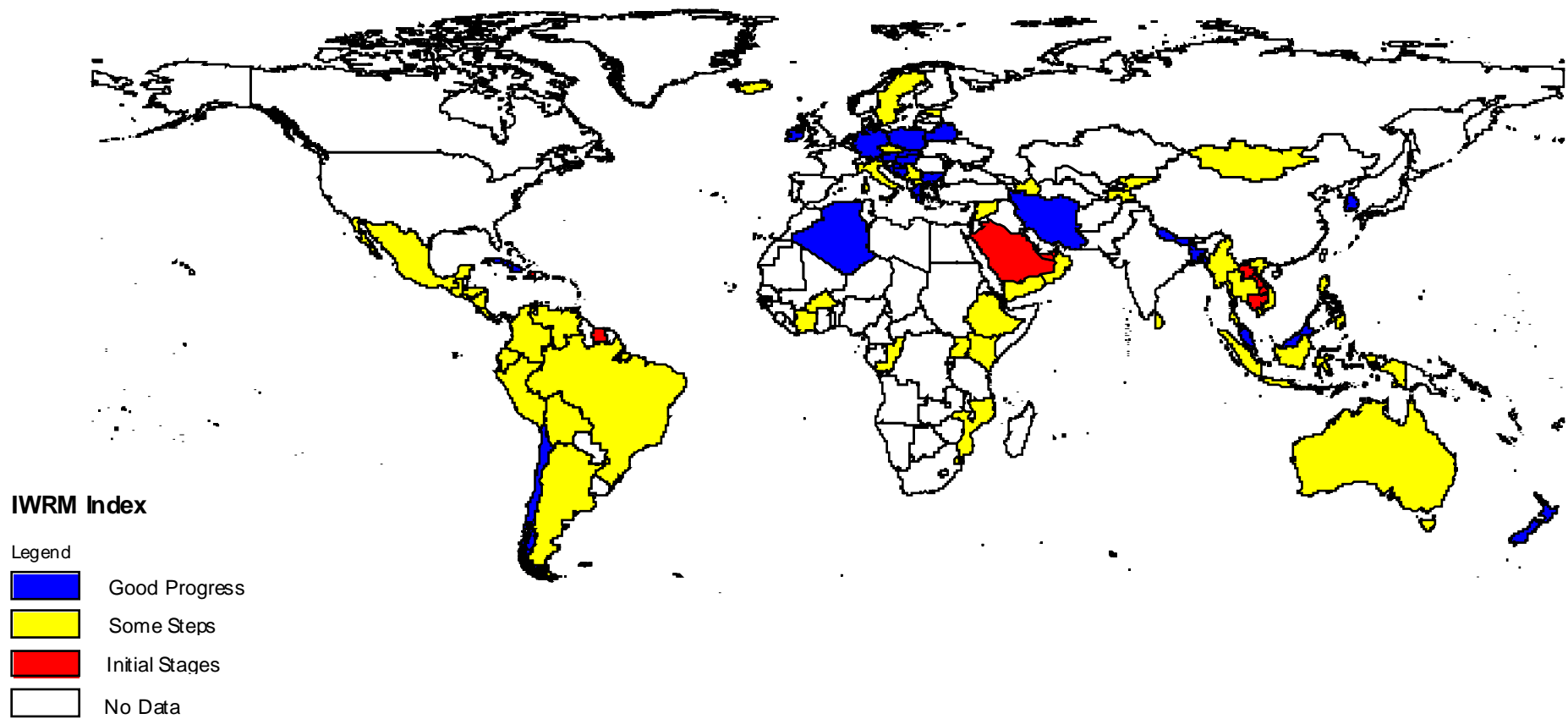


Figure 2.4 Distribution Map of Clarification of the Overall IWRM Evaluation

APPENDIX

APPENDIX 1 : Questionnaire of PWA Follow-up Survey

APPENDIX 2 : Recommendation on IWRM and Water Efficiency Plans

APPENDIX 3 : Result of PWA Follow-up Survey

Follow Up Survey of the PWA · Questionnaire

Preface

Objective:

This letter cordially asks your government to provide us with information about the progress of the Portfolio of Water Actions (PWA), as well as about the management systems of water resources in your country.

In consideration of the fact that water is the font of life and essential for social and economic activities as well as for the conservation of a healthy environment, Japan has made various efforts to realize sustainable development through the resolution of water issues. The Ministerial Declaration issued on the occasion of the 3rd World Water Forum said, "We welcome the proposal to establish a new network of website to follow up the Portfolio of Water Actions (PWA) that will publicize actions planned and taken on water-related issues by countries and international organizations in order to share information and promote cooperation. (Clause 9)" Based on the international agreement, Japan launched a new network of websites. We are determined to assume the responsibility for the management of this network until it becomes firmly established.

In the preparations for the 4th World Water forum, Japan, host nation for the 3rd World Water Forum, decided to enhance the PWA to contribute to the accomplishment of Agenda 21 and the Millennium Development Goals through the resolution of water issues. We shall be grateful if your government gives us information about the PWA and the management systems of water resources in your country. The collected information will be published on the PWA website. (<http://www.pwa.irq/>)

We truly appreciate your government's assistance and cooperation.

Follow Up Survey of the PWA · Questionnaire : Country Information

Respondent's Data:

Please give us information about the PWA contact in your country.

Country : _____

Name of the Respondent : _____

Position (department/agency) : _____

- (Category)
- | | | |
|-------------|------------|----------------------------|
| Diplomacy | Finance | Infrastructure Development |
| Agriculture | Industry | Environment |
| Education | Sanitation | Defense |
| Others | | |

Respondent's Field of Study: _____

- (Category)
- | | |
|----------------------|--------------------|
| Flood & Drought | Food & Agriculture |
| Nature & Environment | Energy & Industry |
| Water & Sanitation | Others |

Years of Experience (in relevant field): _____ year(s)

Phone (+ country code) : _____

Fax : _____

E-mail : _____

URL : _____

Follow Up Survey of the PWA · Questionnaire : Country Information

Please bear in mind the following points when you answer these questions:

- Choose one from among the choices, except when multiple answers are allowed.
- Check the box on the form. (✓)
- Please write concrete instances and reasons in the space provided.
- Please refer to the attached "FAQs", if necessary.

If you have any plans of action to be listed in the PWA regarding questionnaire, please fill in the attached registration form or register them through the PWA website. (<http://www.pwa-web.org>)

Q1. What kinds of water resources do you have in your country? (multiple answers allowed)

Rivers
Lakes
Groundwater
Coastal Water¹

Q2. What organizations do you have for the management of water resources in your country? Please answer the following questions based on the current state of major river basins or major districts in your country.

Q2-1 What organizations are mainly responsible for the management of water resources in your country? (Check all that apply for each of the following water resources.) Please write the name of major organization(s) and also write about the concrete contents of the management of water resources which the organization takes responsibility for in the parentheses.

Water Resources	Organization
Rivers	Central Government [_____] Local Governments [_____] Others [_____] None
Lakes	Central Government [_____] Local Governments [_____] Others [_____] None

¹ The term "coastal water" means seawater that exists in a coastal zone.

Follow Up Survey of the PWA · Questionnaire : Country Information

Groundwater	Central Government [] Local Governments [] Others [] None
Coastal Water	Central Government [] Local Governments [] Others [] None

Q2-2 If you have country-level organization(s) for the management of all water resources, please write the name(s) of the organization(s). Please also write about the concrete contents of the management of water resources which the organization takes responsibility for in the parentheses.

<u>Name of the organization</u>	(Concrete contents of the management of water resources)
_____	()
_____	()
_____	()

Follow Up Survey of the PWA · Questionnaire : Country Information

Q2-3 If you have country-level organization(s) for the management of multiple water resources, please write the name(s) of the organization(s). Please also write about the concrete contents of the management of water resources which the organization takes responsibility for in the parentheses.

<u>Name of the organization</u>	(Concrete contents of the management of water resources)
_____	()
_____	()
_____	()

**Follow Up Survey of the PWA · Questionnaire
· Questions about your country's efforts toward the PWA**

I. Questions about your country's efforts toward the PWA

Q3. How well does your agency (department) know your country's plans of action registered in the PWA?

Q3-1 Have your country registered any plans of action in the PWA?

(Regarding plans of action presented by your country, please visit the PWA website.
<http://www.pwa-web.org>)

Yes, there are some plans of action registered in the PWA.

No, there are no plans of action registered in the PWA.

Q3-2 Did your agency (department) know that your country had registered plans of action in the PWA?

Yes

No

Q4. Do your country intend to register new plans of action in the PWA, or update existing data?

Q4-1 Does your country intend to do so?

Yes

No

Q4-2 Does your country have a concrete plan to do so?

Yes, we have already done so.

Yes, we are planning to do so.

No, we have no concrete plan to do so.

Q5. Is it possible for your country to make a presentation about the progress of the plans of action in your country at the 4th World Water Forum to be held in March, 2006?

Q5-1 Are there any plans of action currently in progress?

Yes, there are.

No, there are not.

Q5-2 Is it possible for your country to make a presentation about the progress of the plans of action in your country at the 4th World Water Forum?

Yes.

We are able to do so, if requested.

No.

**Follow Up Survey of the PWA · Questionnaire
· Questions about your country's efforts toward the PWA**

Q6. There is a space for writing your contact person (organization) in the PWA registration form, but many are left blank. Let us know your country's contact person (organization) for the PWA.

Q6-1 Is your agency (department) contact organization?

Yes. No.

Q6-2 If your agency (department) is not a contact, could you introduce contact organization?

- Name :
- Position (agency/department) :
- E-mail :
- Tel :
- Fax :

Q7. The PWA website was created to follow up the PWA, and to monitor and publish the progress of the plans of action in the world. (<http://www.pwa-web.org/>)

Please write your comments or opinions about the PWA-WEB and matters relating to the PWA in the space below.

Free Answer :

**Follow Up Survey of the PWA · Questionnaire
 . Questions about the management systems of water resources**

II. Questions about the management systems of water resources

Q8. Do you have legal framework(s) for managing water resources in your country? If your answer is "yes", please write the name of the legal framework. Please also write in the parentheses about the concrete contents of the management of water resources stipulated in the legal framework

Q8-1 Do you have legal framework(s) for managing rivers?

Yes	No	
Name of the legal framework (Concrete contents of the management of water resources)		
_____		()
_____		()

Q8-2 Do you have legal framework(s) for managing lakes?

Yes	No	
_____		()
_____		()

Q8-3 Do you have legal framework(s) for managing groundwater?

Yes	No	
_____		()
_____		()

Q8-4 Do you have legal framework(s) for managing coastal water?

Yes	No	
_____		()
_____		()

**Follow Up Survey of the PWA · Questionnaire
 . Questions about the management systems of water resources**

Q8-5 Do you have comprehensive legal framework(s), which manages all water resources in a single legal framework?

Yes	No
_____	()
_____	()

Q8-6 Do you have comprehensive legal framework(s), which manages multiple water resources in a single legal framework?

Yes	No
_____	()
_____	()

Q9. Do you have any plans for managing the following water resources in your country? If your answer is “yes”, please write the name(s) of the plan(s). Please also write in the parentheses about the contents of the management of water resources included in the plan.

Q9-1 Do you have any plans for managing rivers?

Yes	No
Name of the plan _____	(Concrete contents of the management of water resources)
_____	()
_____	()

Q9-2 Do you have any plans for managing lakes?

Yes	No
_____	()
_____	()

Q9-3 Do you have any plans for managing groundwater?

Yes	No
_____	()
_____	()

**Follow Up Survey of the PWA · Questionnaire
 . Questions about the management systems of water resources**

Q9-4 Do you have any plans for managing coastal water?

Yes	No
()
()

Q9-5 Do you have comprehensive plan(s), which is designed to manage all water resources in a single plan?

Yes	No
()
()

Q9-6 Do you have comprehensive plan(s), which is designed to manage multiple water resources in a single plan?

Yes	No
()
()

Q10. Is a certain amount of government spending continuously allocated for the management of water resources in your country? If your answer is "yes", please write about the contents of the government spending in the parentheses.

Q10-1 Is a certain amount of government spending continuously allocated for the management of rivers?

Yes	No
()

Q10-2 Is a certain amount of government spending continuously allocated for the management of lakes?

Yes	No
()

**Follow Up Survey of the PWA · Questionnaire
 . Questions about the management systems of water resources**

Q12. Do you have any mechanisms to conserve a healthy natural environment in your country, when you conduct a water resources management project in your country?

Q12-1 Do you have any legal frameworks for environmental conservation? If your answer is “yes”, please write the name(s) of the legal framework(s). Please also write in the parentheses about the concrete contents in as much details as possible.

Yes	No	
<u>Name of the legal framework</u>		(Concrete contents of the management of water resources)
		()
		()

Q12-2 Is a certain amount of government spending continuously allocated for environmental conservation? If your answer is “yes“, please write about the contents of the government spending in the parentheses.

Yes	No	
		()

Q13. Do you have any mechanisms for promoting participation of various stakeholders, when you conduct a water resource management project in your country?

Q13-1 Do you have any legal frameworks for promoting participation of various stakeholders? If your answer is “yes”, please write the name(s) of the legal framework(s). Please also write in the parentheses about the concrete contents in as much details as possible.

Yes	No	
<u>Name of the legal framework</u>		(Concrete contents of the management of water resources)
		()
		()

Q13-2 Is a certain amount of government spending continuously allocated for promoting participation of various stakeholders? If your answer is “yes“, please write about the contents of the government spending in the parentheses.

Yes	No	
		()

**Follow Up Survey of the PWA · Questionnaire
 . Questions about the management systems of water resources**

Q14. Do you have any support systems for citizens' groups engaged in activities for the management of water resources in your country?

Q14-1 Do you have any legal frameworks for supporting citizens' groups? If your answer is "yes", please write the name(s) of the legal framework(s). Please also write in the parentheses about the concrete contents in as much details as possible.

Yes	No	
<u>Name of the legal framework</u>		(Concrete contents of the management of water resources)
		()
		()

Q14-2 Is a certain amount of government spending continuously allocated for supporting citizens' groups? If your answer is "yes", please write about the contents of the government spending in the parentheses.

Yes	No	
		()

Q15. Do you provide education and training programs for the personnel engaged in the management of water resources in your country?

Q15-1 Do you have any legal frameworks for the education and training of the personnel? If your answer is "yes", please write the name(s) of the legal framework(s). Please also write in the parentheses about the concrete contents in as much details as possible.

Yes	No	
<u>Name of the legal framework</u>		(Concrete contents of the management of water resources)
		()
		()

Q15-2 Is a certain amount of government spending continuously allocated for the education and training of the personnel? If your answer is "yes", please write about the contents of the government spending in the parentheses.

Yes	No	
		()

**Follow Up Survey of the PWA · Questionnaire
· Questions about the management systems of water resources**

Q16. Do you produce maps or charts, and make observations or predictions about data related to water resources in your country?

Q16-1 Do you have topographical maps?

of All Major River Basin	of Some River Basins	None
--------------------------	----------------------	------

Q16-2 Do you have geological maps?

of All Major River Basin	of Some River Basins	None
--------------------------	----------------------	------

Q16-3 Do you have vegetation maps?

of All Major River Basin	of Some River Basins	None
--------------------------	----------------------	------

Q16-4 Do you have land-use maps?

of All Major River Basin	of Some River Basins	None
--------------------------	----------------------	------

Q16-5 Do you make observations on the precipitation?

in All Major River Basin	in Some River Basins	No
--------------------------	----------------------	----

Q16-6 Do you make observations on the river level?

in All Major River Basin	in Some River Basins	No
--------------------------	----------------------	----

Q16-7 Do you make observations on the river discharge?

in All Major River Basin	in Some River Basins	No
--------------------------	----------------------	----

Q16-8 Do you make observations on the water table level?

in All Major River Basin	in Some River Basins	No
--------------------------	----------------------	----

Q16-9 Do you make observations on the amount of intake water from rivers, lakes, ground, and coastal zone?

in All Major River Basin	in Some River Basins	No
--------------------------	----------------------	----

Q16-10 Do you make observations on the amount of drainage discharge into rivers, lakes, ground, and coastal zone?

in All Major River Basin	in Some River Basins	No
--------------------------	----------------------	----

Q16-11 Do you make meteorological predictions?

in All Major River Basin	in Some River Basins	No
--------------------------	----------------------	----

Q16-12 Do you make hydrological predictions?

in All Major River Basin	in Some River Basins	No
--------------------------	----------------------	----

**Follow Up Survey of the PWA · Questionnaire
· Questions about the management systems of water resources**

Q17. Please let us know the investment amount for water resources development in your country.

Q17-1 Please write the national budget in your country. (the annual average for the past three years from 2001 to 2003)

_____ USD

Q17-2 Please write the total amount of government spending on water resources development in the national budget in your country (the annual average for the past three years from 2001 to 2003, if possible)

_____ USD

Thank you very much for your cooperation.

[End]

International Conference on IWRM, Tokyo, Japan Dec 6 – 8, 2004

Recommendation on Integrated Water Resources Management and Water Efficiency Plans

1. All countries should prepare integrated water resources management and water efficiency plans (IWRM Plans¹) as committed in the Johannesburg Plan of Implementation²
2. Plans should be completed by 2005 focusing on the following:
 - A. The ways in which the country will change water development and management
 - B. The first-step actions that the country will take towards their version of IWRM
3. Emphasis should be put on strategic planning, financial mobilization and capacity building, and ensuring the participation of various stakeholders

Introduction

Water is essential to human development. The entire food production chain depends on water. Water resources support economic growth through, industrial processing, energy, transportation and tourism. Clean water sustains a healthy population and contributes to the quality of life of households by meeting the basic needs for drinking water and sanitation. Water can also cause social and economic damages through water related disasters such as floods, droughts and epidemics. The relevance of the Millennium Development Goals impels us to consider that water resources play an important role in meeting these poverty related goals and achieving sustainable development.

Water is a finite resource vital for sustaining life on Earth. Fragmented water use and bad management are the causes for conflicts among users and uses, development and environmental goals. Integrated and coordinated management of water and other related resources provides the answers.

¹In this document, integrated water resources management and water efficiency plans is being referred to as IWRM Plan for the reason provided in paragraph 3 of Section I.

²This target was again confirmed during the Ministerial Conference of the 3rd World Water Forum in Kyoto in 2003.

I. Integrated Water Resources Management and IWRM Plans

All countries should prepare integrated water resources management and water efficiency plans (IWRM Plans) as committed in the Johannesburg Plan of Implementation

Integrated Water Resources Management is a conceptual framework and an implementation process that coordinate management of water and other related natural resources with the objective of promoting economic and social development and enhancing the environment.

Progress towards achieving the IWRM target is at its initial stage. Because IWRM can take many forms depending on factors such as social and cultural backgrounds and the economic situations in each country, there is no universal strategy.

The development, use and management of water resources must be harmonized in order to ensure that human activities and the environment can effectively benefit from the precious water resources. Water efficiency, including demand management and conservation, is important in achieving integrated water resources management, thus should be integral part of IWRM Plan.

Overall IWRM plans should be conceptualized around the water basin, whether national or transboundary, but adopted at the national level. While the responsibility of preparing such plans resides with the national government, the process should also include sub-national bodies responsible for water service delivery and other stakeholders, including farmers, women, youth, children, and indigenous peoples.

Water management is complex and multi-dimensional, and plans must be tailored to the specific geographical, environmental, social, cultural, political and economic conditions of each country. Such a process is lengthy and strenuous. Water resources development and management should be addressed based on the holistic natural water cycle, accounting for water movement within river basins or catchment from uplands to estuaries; surface water, groundwater, and soil moisture; quantity and quality. For example, strategies aimed at increasing the resilience of water management systems to adapt to climate variability and change should be considered in the plans. There is no universal standard for what the IWRM plan should look like. What is of importance is how each country plans to change their ways of developing and managing water resources so that they can take concrete steps they consider appropriate for their country. “Catalyzing Change”, the report prepared by Global Water Partnership, can be used as a good reference for preparing national plans.

II. Content of the 2005 Plan

Plans should be completed by 2005 focusing on the following:

- A. The ways in which the country will change water development and management
- B. The first-step actions that the country will take towards their version of IWRM

The plan to be prepared by 2005 describes the ways how country will change water management in the context of IWRM they envisage. The plan should articulate the first steps that the country intends to take to improve water management. Future approaches may become obvious by reviewing the current status of water management from the perspective of coordinated water management and sustainable development.

The 2005 plans should be considered as the first step towards achieving full scale sustainable water resources development and management, and should be reviewed and revised in an iterative and consultative way as implementation proceeds. This calls for strong political will. Much of the actions will be undertaken at the local/basin level, which must devolve from the plan prepared by Government. The plan should be endorsed and adopted at the highest political level to ensure its commitment and visibility. Stakeholder involvement is important for the preparation of the plan to ensure ownership, transparency and accountability.

III. IWRM Processes

Emphasis should be put on strategic planning, financial mobilization and capacity building, and ensuring the participation of various stakeholders

IWRM is a process rather than a goal. Emphasis should be put on the strategic process of IWRM and on ensuring participation of various stakeholders. Data availability is critical for making sound management decisions, and governments must support measures to gather and disseminate relevant information.

Water resources development and improved management cannot be achieved without investment. Innovative financial techniques will be needed as well as increases in external financial support and direct investments by governments. Many countries will require strengthening of their technical and institutional capacity in order to implement the plans.

APPENDIX 2 : Recommendation on IWRM and Water Efficiency Plans

To ensure an integrated approach and stakeholder involvement in water resources management, the national government should encourage the establishment of national water forums or partnerships that gather various water stakeholders in the country with specific steps taken to account for gender perspectives. Furthermore, an exchange mechanism for experience and knowledge among countries play an important role in facilitating better water management worldwide. Such partnerships are effective not only among countries in the South, but also among countries in the North and between developing and developed countries.

International society, including multilateral organizations such as United Nations, regional development banks and inter-governmental organizations, should assume a firm role in monitoring and supporting full-scale IWRM implementation in each country. The international community should support governments in their preparation of IWRM planning while ensuring the governments' ownerships of their plans.

Next Steps

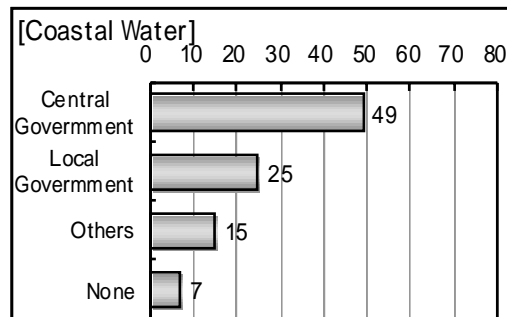
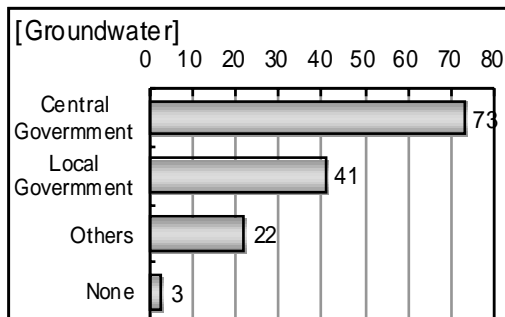
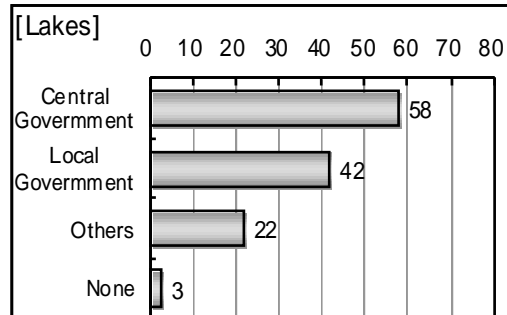
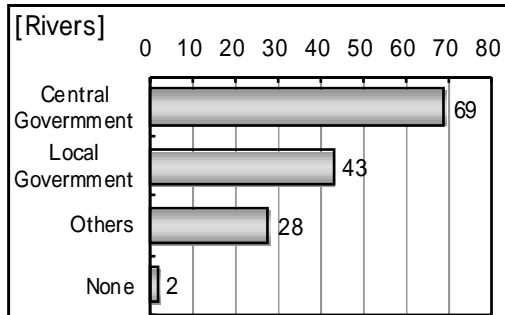
The plans prepared by countries need to be put into action on the ground, and the international society should take a firm role in ensuring this. At CSD 13 in April 2005 governments should agree on the contents as well as the next steps in IWRM planning as recommended herein. IWRM is essential in achieving the MDGs and therefore should be addressed along with them at the MDG Review Meeting to be held in September 2005. Furthermore, the 4th World Water Forum to be held in Mexico City in March 2006 should be recognized as the place for each country to report on their progress, to share and learn from their experiences, and to further refine their implementation strategies.

This recommendation should be incorporated into the international process towards the preparation of IWRM plans. This recommendation should be submitted to the UN Secretary General's advisory board on Water and Sanitation, which will be holding its second meeting on December 9th and 10th, 2004 in Tokyo, with a view of submitting their discussions on IWRM at CSD 13.

Result of PWA Follow-up Survey

Q2. What organizations do you have for the management of water resources in your country?

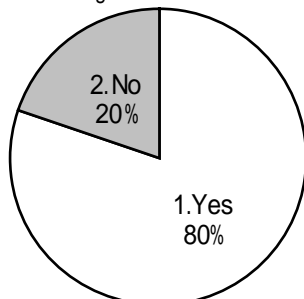
Q2-1 What organizations are mainly responsible for the management of water resources in your country?



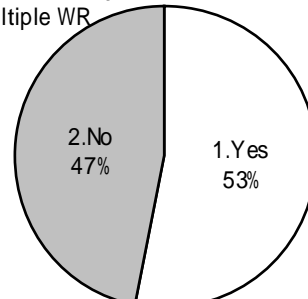
Q2-2 If you have country -level organization(s) for the management of all water resources, please write the name(s) about the concrete contents of the organization(s).

Q2-3 If you have country -level organization(s) for the management of multiple water resources, please write the name(s) about the concrete contents of the organization(s).

Q2-2
Country-level organization
for the management of all WR



Q2-3
Country-level organization
for the management of
multiple WR

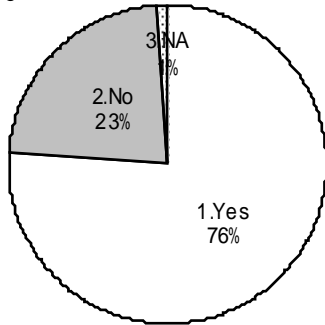


(Number of effective responses : 82)

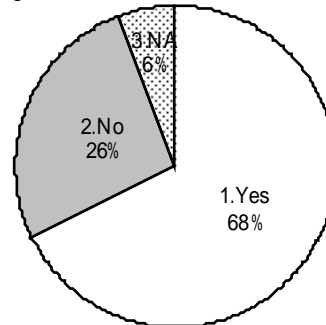
APPENDIX 3 : Result of PWA Follow-up Survey

Q8. Do you have legal framework(s) for managing water resources in your country?	
Q8-1	Do you have legal framework(s) for managing rivers?
Q8-2	Do you have legal framework(s) for managing lakes?
Q8-3	Do you have legal framework(s) for managing groundwater?
Q8-4	Do you have legal framework(s) for managing coastal water?

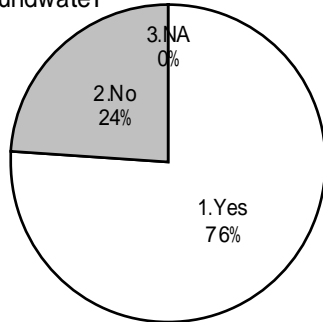
Q8-1
Legal framework for rivers



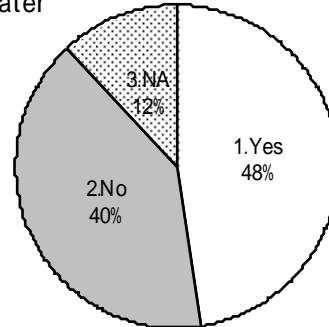
Q8-2
Legal framework for lakes



Q8-3
Legal framework for groundwater



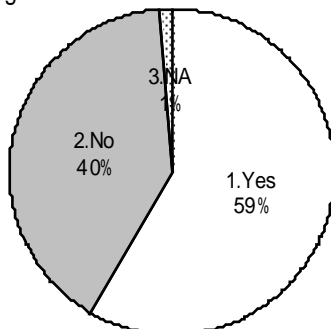
Q8-4
Legal framework for coastal water



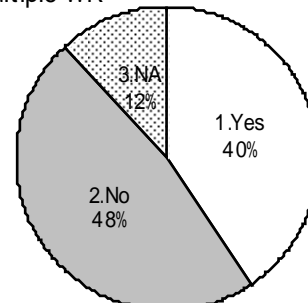
Q8-5 Do you have comprehensive legal framework(s), which manages all water resources in a single legal framework?

Q8-6 Do you have comprehensive legal framework(s), which manages multiple water resources in a single legal framework?

Q8-5
Legal framework for all WR



Q8-6
Legal framework for multiple WR

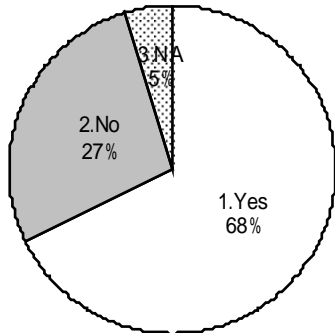


(Number of effective responses : 82)

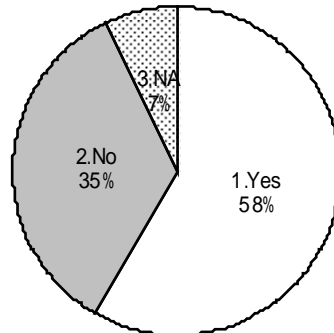
APPENDIX 3 : Result of PWA Follow-up Survey

Q9. Do you have any plans for managing the following water resources in your country?	
Q9-1	Do you have any plans for managing rivers?
Q9-2	Do you have any plans for managing lakes?
Q9-3	Do you have any plans for managing groundwater?
Q9-4	Do you have any plans for managing coastal water?

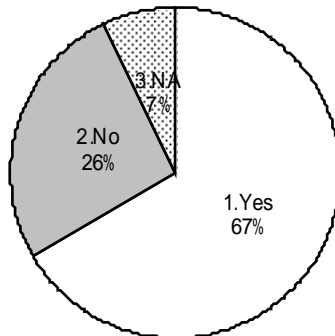
Q9-1
Plans for rivers



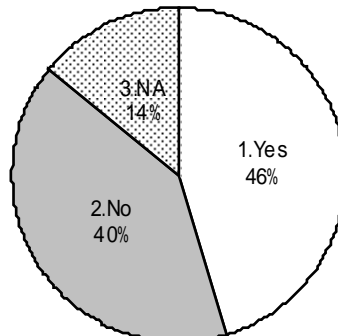
Q9-2
Plans for lakes



Q9-3
Plans for groundwater

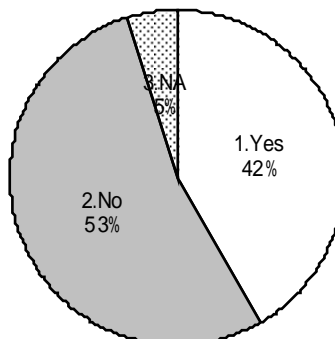


Q9-4
Plans for coastal water

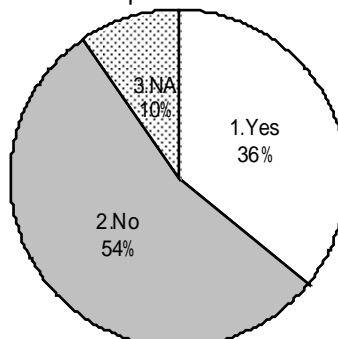


Q9-5	Do you have comprehensive plan(s), which is designed to manage all water resources in a single plan?
Q9-6	Do you have comprehensive plan(s), which is designed to manage multiple water resources in a single plan?

Q9-5
Plan for all WR



Q9-6
Plan for multiple WR



(Number of effective responses : 82)

APPENDIX 3 : Result of PWA Follow-up Survey

Q10. Is a certain amount of government spending continuously allocated for the management of water resources in your country?

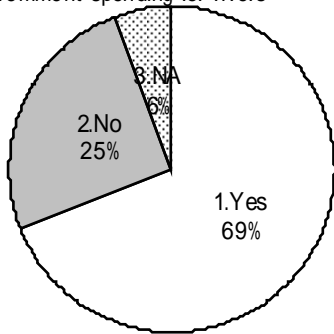
Q10-1 Is a certain amount of government spending continuously allocated for the management of rivers?

Q10-2 Is a certain amount of government spending continuously allocated for the management of lakes?

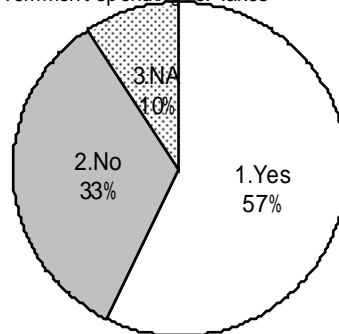
Q10-3 Is a certain amount of government spending continuously allocated for the management of groundwater?

Q10-4 Is a certain amount of government spending continuously allocated for the management of coastal water?

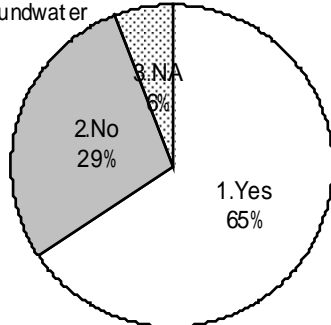
Q10-1
Government spending for rivers



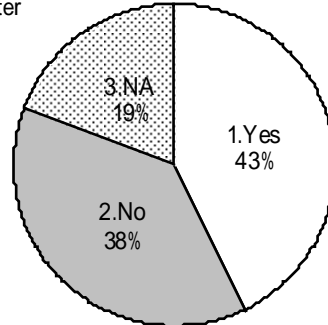
Q10-2
Government spending for lakes



Q10-3
Government spending for groundwater



Q10-4
Government spending for coastal water



(Number of effective responses : 82)

APPENDIX 3 : Result of PWA Follow-up Survey

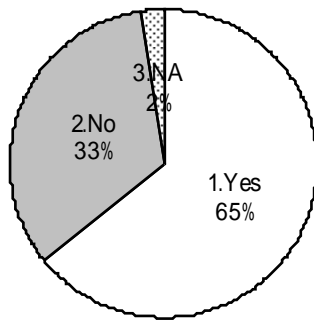
Q11. Do you make joint efforts for the management of water resources in each basin in your country?

Q11-1 Do you have any basin-level organizations or plans in each river basin?

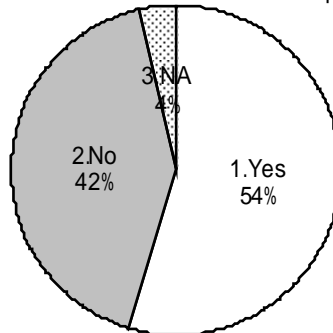
Q11-2 Do you have any legal frameworks for promoting joint efforts of basin-level organization(s) or for developing basin-level plan(s) in each river basin?

Q11-3 Is a certain amount of government spending continuously allocated for promoting joint efforts of basin-level organization(s) or for developing basin-level plan(s) in each river basin?

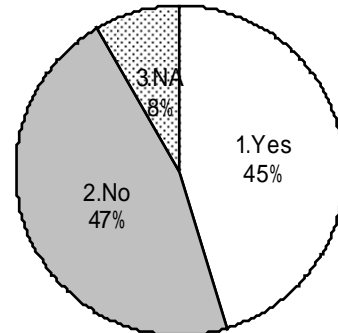
Q11-1
basin-level organizations or plans



Q11-2
Legal frameworks to promote basin level actions



Q11-3
Government spending to promote basin level actions

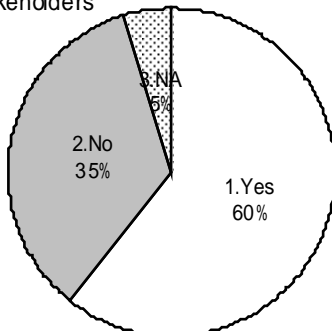


Q13. Do you have any mechanisms for promoting participation of various stakeholders, when you conduct a water resources management project in your country?

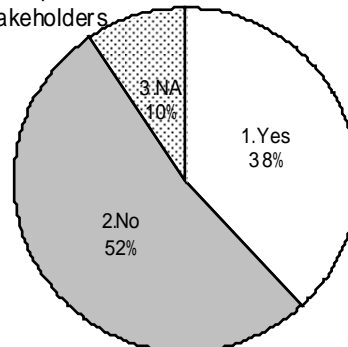
Q13-1 Do you have any legal frameworks for promoting participation of various stakeholders?

Q13-2 Is a certain amount of government spending continuously allocated for promoting participation of various stakeholders?

Q13-1
Legal frameworks for participation of various stakeholders



Q13-2
Government spending for participation of various stakeholders



(Number of effective responses : 82)

This report was written by Japan Water Forum Technical Team.
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