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Status Paper on Water Resources in Japan
- The Japanese efforts on International water-related issues -

Yoshio Tokunaga

Water Resources Planning Division

Water Resources Department, Land and Water Bureau

Ministry of Land, Infrastructure and Transport

Japan

1. Organization and Legislation Related to Water Resources Policy

In Japan, measures concerning water resources are implemented by a number of government ministries and agencies based on numerous laws and ordinances. The Water Resources Department of the Ministry of Land, Infrastructure and Transport (MLIT) acts as the overall coordinator in adjusting measures for water supply and demand and reservoir area development by related ministries and agencies.

2. Water Balance

2.1 Available Amount of Water

Annual precipitation in Japan is approximately 650 billion m3 (average figure over the 30-year period from 1971 to 2000), of which approximately 230 billion m3 (35%) is lost through evaporation. The remaining 420 billion m3 is theoretically the maximum amount that can be used by humans and is referred to as the inventory of water resources.

The amount of water actually used (intake amount in 1999) is approximately 87.7 billion m3, which is equivalent to roughly 21% of the mean inventory of water resources. This ratio is referred to as the water resources utilization rate.

2.2 Water Use by Purpose

The situation regarding water use (1999) breaks down as approximately 57.9 billion m3 (66% of total usage) for agriculture, 13.5 billion m3 (approximately 15%) for industry, and 16.4 billion m3 (19%) for domestic purposes. In terms of regional distribution, the water resources utilization rate is highest in the densely urbanized regions of Kanto and Kinki.

2.3 Use of River Water and Groundwater

Of the 87.7 billion m3 that is used, around 76.7 billion m3 (approximately 87%) is obtained from rivers, lakes and marshes, and around 11.1 billion m3 (approximately 13%) is obtained from groundwater.

3. History of Water Use

3.1 Ancient times to the 19th Century : Development of water use agriculture

Water use in Japan was developed in close association with the production of paddy rice. After paddy rice cultivation was introduced, water use was developed firstly through the construction of small irrigation ponds and then by diversion of water from small and medium rivers. In the Edo Era(early 1600s-mid 1800s) flood control works on major rivers such as the Tone River was enhanced and paddy fields were newly developed, which resulted in the rapid development of paddy fields in alluvial plains. Meanwhile, the first construction of water supply systems were started in Edo(old Tokyo) and other major cities.

3.2. 19th Century through to the start of the 20th Century : Modernization and formation of the base for socioeconomic development

The demand for industrial water increased in line with the drastic growth of heavy and chemical industries. Modern water supply systems had been enhanced in urban areas in response to the increase in population and the need for prevention of infectious diseases. Moreover, in line with increased demand for electricity, major advances were made in the hydroelectric power generation sector.

3.3 World War II to the Present : A vital role in socioeconomic development

Since the demand for domestic, industrial and irrigation water use grew rapidly due to rapid economic growth and population increase, comprehensive development of water resources based on construction of multipurpose dams, etc. was implemented in order to secure stable water use.

Moreover, concerning legislative systems, legislations concerning water resources development and each purpose of water use were established by the 1960s, while legislation concerning development of reservoir areas, water quality and environmental preservation, etc. was put into place since 1970.

4. State of Water Use

4.1 Water for Domestic Use

The daily per capita amount of domestic water use roughly doubled in the period between 1965 and 1999 due to changes in lifestyle (e.g. spread of flush toilets). Combined with population increase and expansion of economic activities over the same period, domestic water use increased by roughly three times, although it has remained static in recent years.

A large proportion of households water is consumed in baths (approximately 26% of all household water), toilets (approximately 24%), cooking (approximately 22%) and laundry (approximately 20%).

4.2 Water for Industrial Use

Industrial water use increased roughly three times between 1965 and 2000, however, due to advances in water recycling, the amount of water actually taken from rivers, etc. (replenishment) has been gradually decreasing after its peak of 1973.

5. Water Resources Development

5.1 Needs

Japan has relatively high precipitation, however, the river flow greatly fluctuates in high flow in the spring thaw, the rainy season from June to July, and the typhoon season throughout the year.

In order to achieve stable water use, it is necessary to obtain stable intake of river water all year round irrespective of fluctuations in river flow. For this reason, water resources development facilities such as dams and weirs, etc. are being constructed.

5.2 Water Resources Development Facilities

- Dams and barrages
- Lake and marsh development facilities

  Control water level facilities on lakes and marshes for water supply like dams.
- Water transfer canal
- Connection facilities with two or more rivers of different fluctuation of flow, for additional flow from other rivers.

5.3 Importance of Water Resources Development Facilities

So far in Japan, approximately 600 multi-purpose dams and 1,600 single-purpose dams for agricultural, domestic and industrial water supply have been constructed, and a steady water supply (approximately 16.6 billion m3 per year) for domestic and industrial use have been secured.

Currently, 70% of domestic and industrial water supply in Japan is taken from rivers, 77% of which (55% of overall water consumption) is from such development facilities.

In the Kanto coastal region, where population and economic activity is highly concentrated, 90% of the water supply from rivers is newly secured by water resource development facilities.

5.4 Scale of Water Resources Development Facilities in Japan

The total storage capacity of dams in Japan, including all capacity used for power generation and flood control, amounts to approximately 24 billion m3.

Owing to small land area and short rivers with steep gradients, therefore construction of giant reservoirs is difficult, the storage capacity of all dams in Japan is less than that of the Hoover Dam in the United States and less than 20% of that of the Aswan High Dam in Egypt.

6. Water Shortage

6.1 Occurrence of Water Shortage

Japan experienced major water shortages in 1939, 1964, 1967, 1973 and 1978. In the water shortage covered almost all over Japan in 1994, approximately 16 million people were affected and agriculture suffered losses amounting to some 140 billion yen.

6.2 Effects of Water Shortage

Modern society secures comfortable lifestyles and high quality services based on the assumption that there will be stable water supply. Therefore, water supply shortages adversely affect everyday life by preventing the use of toilets and so forth.

Moreover, when shortages of agricultural water occur, farmers save water by means of "water-sharing", however, this requires a lot of efforts and expenditures. Moreover, when the absolute amount of water becomes insufficient, crop growth is hindered or completely prevented.(Moreover, without having sufficient amount of water, cultivation of crops will be hindered.)

7. National Comprehensive Water Resources Plan (Water Plan)

7.1 National Comprehensive Water Resources Plan

It is essential that policies concerning water resources are implemented in a planned manner based on a long-term and comprehensive viewpoint. Therefore, in order to demonstrate long-term prospects of water supply and demand and clarify the basic direction of water resources development, preservation

and utilization, the Water Resources Department of MLIT has compiled the National Comprehensive Water Resources Plan.

Water plans were compiled in 1978 and 1987, while the New National Comprehensive Water Resources Plan (Water Plan 21), which has adopted 2010 and 2015 as rough target years, was compiled in June 1999.

7.2 Features of Water Plan 21<Basic Targets>

In Water Plan 21, the following three basic targets have been raised to establish a Healthy hydrological cycle.

1) Establishment of a sustainable water system use.
2) Conservation of and improvement in the water environment.
3) Water-related culture restoration and nurturing of water culture.

In Water Plan 21, conditions of rainfall are divided into three scenarios, i.e. normal year, year of water shortage, and the driest year in the post-World War II period in each scenario, and the prospects for water supply and demand for the year of 2010 to 2015 are assessed.

Since no more sudden increases in water demand will be expected, providing that construction of facilities will be advanced according to the schedule, it is expected that the stable water supply will be possible in the normal year and the year of water shortage.

8 Water Resources Development Basic Plan (Full Plan)

8.1 Water Resources Development Promotion Law and River Systems of Water Resources Development

Based on the Water Resources Development Promotion Law, the seven river systems (The Tone River, the Arakawa River, the Toyokawa River, the Kiso River, the Yodogawa River, the Yoshino River, and the Chikugo River), where wide area water supply measures have become necessary in response to the development of industries and the increase of urban population, have been designated as water resources development river systems At each designated river systems, the basic plan (Full water

resources development Plan) was created, and comprehensive developments and rational use of water resources are advanced accordingly.

Districts receiving water from the designated river systems (Full Plan areas) only account for 17% of the national land area, however, 50% of population and industrial activity in Japan are concentrated in these areas.

8.2 Water Resources Development Basic Plan

The following contents are incorporated with the Full Plan. These contents are determined by the Cabinet decision based on the consultation with the opinions hearing from the related ministries and related prefectural governors, and with the studies done by the National Land Development Council.

1) Forecasts water demand and supply targets according to use of purpose.
2) Basic items relating to construction of facilities required in order to attain the supply targets
3) Other important factors

As a result of constructing facilities based on the Full Plan, approximately 325 m3/s, equivalent to roughly 50% of all developed domestic and industrial water in the country, was developed. These facilities are important lifeline for major urban areas where population and industry are concentrated.

9 Water Resources Development Public Corporation

9.1 Role and Activity

The Japan Water Agency (JWA), which was changed it name from Water Resources Development Public Corporation (WARDEC) in 2003, was established in 1962 with the aim to achieve the goal of implementing water resources development projects based on the Full Plan.

JWA is constructing large-scale dams, estuary barrage and water channels to help promote water utilization (securing of water supply for domestic, industrial and agricultural use) and flood control on the seven designated river systems for water resources development, In addition JWA is operating completed facilities.

Since the projects of JWA have diverse objectives, four competent ministers, who are. the Minister of Land, Infrastructure and Transport, the Minister of Health, Labor and Welfare, the Minister of Agriculture, Forestry and Fisheries, and the Minister of Economy, Trade and Industry, are responsible for supervising the activity of JWA.

9.2 Features

1) JWA implements large-area, multipurpose and large-scale projects (from water resources development to water conveyance. And JWA has been involved in the construction and operation of various facilities up to the year 2001, *JWA has developed approximately 86% of all developed water for domestic and industrial use in the said seven river systems (approximately 46% of the national* total).

2) JWA is the only comprehensive organization dealing with water in Japan, implementing projects by coordinating among various parties such as related ministries and agencies, prefectural governments and water users, etc.

3) Projects of JWA are financed by loans such as the Government Investment and Loan Program and the construction cost is redeemed by beneficiaries (water users) after the completion.This scheme enable JWA to secure stable funding and smooth execution of projects.

4) JWA has accumulated a lot of advanced technologies for constructing and operating dams and water channels.

10 Securing Stable Water Supply

10.1 Climate Change

As the long-term trend of temperature change in Japan, the annual average temperature has increased by approximately 1 over the past 100 years. Concerning precipitation, there have been numerous low rainfall years since 1970 and precipitation was well below average in 1973, 1978, 1984, 1994 and 1996, when water shortage brought damage. Recently a trend of fluctuation between extremely low rainfall and extremely high rainfall has been observed.

10.2 Unstable Water Supply

In Japan, dams are designed on the storage level of, a relatively low rainfall year (base year for water use) to supply the water requirement in most cases(see in the diagram1).

When river flow falls below level of base year for water use and dam capacity remains unchanged, the amount of water that can be obtained throughout the year, even with dam replenishment included, will fall below the level of base year for water use (see in the diagram2).

Due to decline in rainfall in recent years, securing stable water supply throughout the country has been focused.

11 Securing Safe and Good Water

11.1 Growing Interest in Safe and Good Water

Since water is essential to humans, pollution of water damages our health.

In Japan, water supply system dissemination rate is more than 96%, means that Japan has a cheap supply of safe and immediately drinkable water. In recent years, increased consumption of mineral water and dissemination of water filter for domestic use reflects a growing social interest and demand for safe and good water.

11.2 Preservation of Water Quality at Sources

Approximately 70% of drinking water supply is from rivers, lakes and marshes. Water quality deterioration in these water bodies leads to odorous and bad-taste tap water.

For instance water supply utility operators introducing advanced water purification techniques have reduced problems of smelling and bad-taste tap water in recent years.

The quality of river water has improved in recent years, the same cannot be said for lakes and marshes, where the attainment rate of environmental standards is just 40%.

In order to secure safe and good water, it is important to improve water quality in the main sources of rivers, lakes and marshes, etc.

12 Establishment of Healthy Hydrological Cycle

12.1 What are Hydrological Cycles?

The hydrological cycles refers to the overall flow of water consisting of 1) the natural hydrological cycle of evaporation, precipitation, percolation and runoff, and 2) water flow in artificial courses such as water supply systems and sewerage systems. The hydrological cycle also incorporates domestic, industrial and agricultural water use, etc.

The concept of hydrological cycle ranges from the global scale to basin-wide scale. It is important, to understand hydrological cycle in terms of river basin units close to daily life.

12.2 The Significance of Healthy Hydrological Cycle

As can be seen in the deterioration of water quality reduce river flow at ordinary times, negative impacts on ecosystems, flood damage and the heat island phenomenon, etc., various problems related to water are now occurring mainly in cities. These problems are the result of human activities working through and having an impact on the hydrological cycle, for example, covering of land surfaces, increase in water use, and increase in pollutant load resulting from urbanization. Accordingly, in order to overcome these problems, it will be important to carefully evaluate the overall hydrological cycle, identify the factors that cause these problems, and then deal with them.

12.3 Establishment of Sound Hydrological Cycles

To adopt a comprehensive approach to establish healthy hydrological cycle via various fields such as forests, agricultural land, rivers, water-supply and sewerage systems, etc., five ministries (Ministry of Health, Labor and Welfare; Ministry of Agriculture, Forestry and Fisheries; Ministry of Economy, Trade and Industry; Ministry of Land, Infrastructure and Transport, and Ministry of the Environment) has been engaging consultative meetings in order to share related information and promote deliberation on comprehensive measures, etc.

13 Measures Aimed at the Establishment of Healthy Hydrological Cycle

13.1 Preservation, restoration and enhancement of basin storage, percolation and recharge capacity

Proper management of forests, preservation and utilization of agricultural land, greenification of urban land, construction of rain water storage and percolation facilities.

13.2 Wise water use

Water-saving, recycling, diversion between uses, proper use of groundwater.

13.3 Preservation and improvement of water quality

Reduction of pollutant load, high level treatment, reorganization of water intake and drainage points。

13.4 Improvement of waterside environments

Securing water surfaces, increase in flows for environment, waterside preservation.

13.5 Promotion of community building, citizen participation

Community building, upstream and downstream correspondence, preservation and regeneration of water culture.

14 Groundwater Use and Ground Subsidence Prevention

14.1 Current State of Groundwater Use

Approximately 13.1 billion m3 of groundwater is used in Japan every year, and this accounts for roughly 13% of domestic, industrial and agricultural water use.

14.2 Problems Concerning Groundwater

Due to the sudden increase in groundwater intake during the era of rapid economic growth, groundwater disorders, such as ground subsidence and salty water arose, developed into major problems. Currently in Japan, where groundwater disorders have become conspicuous, groundwater preservation measures such as intake restrictions and conversion to river water intake are being introduced based on law and ordinances as a result ground subsidence has settled down in recent times.

14.3 Groundwater Conservation Measures

"The Industrial Water Law and "the Law concerning the Regulation of Pumping-up of Groundwater for Use in Building" prescribe restrictions on groundwater intake in designated areas of groundwater disorder occurrence. Moreover, control of pumping-up groundwater has been exercised by ordinances of local government. Northern Kanto Plain, Nobi Plain and Chikugo-Saga Plain, where widespread and extreme subsidence has been seen, comprehensive measures have been based on "Land Subsidence Prevention Rules"established by the various Minister's Meetings.

14.4 Quality of Groundwater and New Problems

From the viewpoint of conserving water quality, prefectures started constant monitoring of groundwater pollution based on the Water Pollution Control Law from 1989. Moreover, in 1996, amendment to the law was made and institutional steps were taken for executing measures to purify contaminated groundwater.

15 Miscellaneous Water Use

15.1 What is Miscellaneous Water Use?

Miscellaneous water use is the generic term used to describe toilet flush water, cooling water, air conditioning water and sprinkling water obtained from recycled sewage water, industrial wastewater and rainwater, etc. Miscellaneous water is used as domestic use but it has lower quality than tap water.

15.2 Effect

Making use of miscellaneous water can be expected to reduce the amount of water use, raise awareness of water-saving and contribute to the wise use of limited water resources, and an effect can also be anticipated in terms of reducing sanitary sewage and improving the environment of the river, lake and sea.

15.3 Types of Miscellaneous Water Use

Uses of miscellaneous water can broadly be divided into two types: 1) wastewater recycling and 2) rain

use.

1) Wastewater recycling

Wastewater recycling systems can be classified as follows:

a) Individual circulation systems, where wastewater is purified and recycled in a single building (for example, Saitama Stadium 2002);

b) District circulation systems, where buildings in designated districts jointly operate miscellaneous water supply systems (for example, Tokyo Disneyland & Disney Sea); and

c) Wide-area circulation systems, where effluents from sewage treatment plants and industrial water are supplied over large areas (for example, Makuhari new city center district in Chiba).

2) Rainwater use

Rainwater is used as miscellaneous water, sometimes combined with wastewater recycling systems. you can see both large-scale systems such as Tokyo Dome, and rain water barrels that are installed in individual households in Sumida Ward in Tokyo.

15.4 Promotion of Miscellaneous Water Use

There are approximately 2,500 large-scale systems of miscellaneous water use in Japan, and the total amount of miscellaneous water use is approximately 170 million m3 per year. To promote Miscellaneous Water use, projects for recycling sewerage water are being promoted, and measures for reducing corporate tax and income tax, providing low-interest loans and offering subsidies, etc. to facilities installed by the government and local authorities are being implemented.

16 Wise Use of Existing Facilities, etc.

16.1 Reconstruction and Renewal of Facilities

In order to secure stable water supply, it is important to carry out the timely reconstruction and renewal of existing facilities so as to prevent deterioration and resulting water leaks and ruptures.

16.2 Conversion to other sectors of water use

Water uses have been converted to other sectors in line with changes in the socioeconomic

environment in recent years.

In the country's Class A rivers, approximately 60 m3/s of water has been converted from agricultural and industrial uses to domestic use, etc. between 1965 and 2001. This has resulted in the additional intake of approximately 50 m3/s of water for domestic use.

16.3 Wise Use of Facilities

Various measures are adopted in order to use existing facilities more wisely.

a) Integrated operation

The stored water of numerous dams in the same river basin can be in integrated consolidated operation to achieve more effective water supply.

b) Dam redevelopment

Increasing the capacity of reservoirs through raising dams and removing sediment, or changing modes of operation etc. enhances the functions of dams.

c) Linking dams with channels

The capacity of existing dams can be use more effectively by linking dams with channels to store dead discharge in different dams.

d) Reorganization of dam groups

The effect for flood control and river environment improvement can be improved by redistributing the storage capacity of dam groups in the same river system to optimize the total function of dams.

16.4 Water Saving

It is important for individual persons to take interest in the importance of water. Awareness of water-saving has been deepened in recent years.

17 Restoration and Nurturing of Water-Related Culture

17.1 Water Day and Water Week

In order to raise public awareness and deepen understanding of the preciousness and the importance of water resources development, August 1 of every year has been declared Water Day, and the week

starting from this day has been designated as Water Week. During this time, various events are staged in joint efforts between the government, and local authorities and related groups.

17.2 United Nations Water Day

The 47th General Assembly of the United Nations held on December 2, 1992 declared March 22 of every year to be United Nations Water Day. It is proposed that PR activities about development and conservation of water resources be carried out on this day.

17.3 100 Selected Water Spots

In order to form a pleasant society and national land of beautiful water and green, it is necessary to reassess distinctive relationships between water and people founded on local features.

107 areas, which have been particularly successful in sustaining and developing local history and culture based around water and advancing local development while preserving and making use of water environments, have been designated as 100 Selected Water Spots. These water spots are effective in spreading information on water to a section of the population.

Saijo has traditionally been called the City of Water for it's Uchinuki artesian wells dotted around the city.

Based around these artesian wells, local development has been advanced in the Aquato Pier Scheme that has seen, among other initiatives, development of a water park that makes use of local water and historical assets.

Moreover, in order to enhance the environment of these water facilities, civic cleaning activities by local citizens are implemented on a continuing basis.

18 Reservoir Area Development Measures

18.1 Reservoir Area Development Measures

Since dam construction often entails submergence of wide areas and consequent loss of not only land and houses but also whole communities, a major impact is imparted on both residents of submerged land and citizens in surrounding areas.

In order to smoothly advance dam construction works, it is important to alleviate local unease by helping residents of submerged areas restart their lives, mitigating impact and vitalizing reservoir areas. For this purpose, the following measures are adopted in reservoir areas:

1) Compensation offered by dam owners,

2) Measures based on the Special Measures Law for Reservoir Area Development, and

3) Lifestyle reconstruction measures based on reservoir area development funds

18.2 Visions of Reservoir Areas

From the viewpoint of building sound hydrological systems, it is necessary for reservoir areas, which are the sources of river basins overall, to be sustained as attractive areas.

Visions of reservoir areas are compiled for each dam as action plans for realizing the autonomous and sustained vitalization of reservoir areas assuming dams to be the core facilities of local vitalization.

19 Responding to International Water Resource Problems

19.1 The Worsening of Global Water Problems

As a result of rapidly increasing population and growing social development, water shortages are arising in many countries. In addition to shortages in the domestic supply of water, various problems such as chronic food shortages, adverse impact on ecological systems, water pollution, and flooding among other problems are occurring. There is great concern that these problems will be intensified as the world's population continues to grow in the future.

19.2 Major International Issues Concerning Water

In international terms, discussion is currently underway concerning the following issues, regarded as the major problems of water: 1) securing safe drinking water and sanitation facilities, 2) securing water for food production, 3) preservation of river ecosystems, 4) risk management regarding flooding and other disasters 5) efficient utilization and effective distribution of water resources, and so forth.

19.3 Japan's Consumption of Water

It is estimated that tens of billions of cubic meters of water are used to produce the food that is imported to Japan every year. Therefore the world's water problems are of great concern to Japan as well.

Japan's experiences and technology in the water sector gained it through social development is utilized through numerous technical and financial assistance projects carried out in developing countries. It is necessary for Japan to take an interest in and play an active role in the world's water problems.

20 World Water Forum

20.1 Outline of the World Water Forum

In order to resolve the world's water problems, it is necessary not only for governments and international agencies but people from a variety of backgrounds to make a concerted effort.

For this purpose, the governments, international agencies, academic representatives, corporations and NGOs established the World Water Council as an integrated think tank on water issues. The World Water Council stages the World Water Forum once every three years to provide a forum for debate by all stakeholders.

20.2 Past Developments

The First and Second World Water Forum were hosted in Morocco in 1997 and the Netherlands in 2000. At the Second Forum, the World Water Vision was drafted and published to outlined directions for resolving the world's water problems in the 21st Century and Ministerial Declaration of the Hague on Water Security in the 21st Century, indicating seven major issues in world water, was adopted.

20.3 Third World Water Forum

The Third World Water Forum was staged at the Lake Biwa and Yodogawa River basin in the Japanese cities of Shiga, Kyoto and Osaka in March 2003. The Government of Japan supported the Forum and also held the Ministerial Confirmed to coincide with the event.

In principle, the Third World Water Forum was 1) an open conference, 2) active individual participation, and 3) a conference that translates debate into concrete actions. At the end of the Conference, the World Water Action Report will be prepared so that governments, NGOs and various stakeholders can share and take part in developing an approach to resolving the world's water problems.

Moreover, at the Ministerial Conference, a Ministerial Declaration will be drafted to realize a specific

course of action.

The Third World Water Forum was held in Kyoto, Shiga, and Osaka, three prefectures in the Lake Biwa and the Yodo River basin, the central part of Japan, from the 16th to the 23rd of March this year. Over 24,000 people from 182 countries and territories participated.

Participants in the Forum discussed aspects of the water issue in about 350 sessions. 33 thematic and 5 regional statements and recommendations were forwarded to the Ministerial Conference.

20.4 Ministerial Conference

The Ministerial Conference, hosted by the Government of Japan, was held on the 22nd and the 23rd of March, toward the end of the Forum period. Representatives from 170 countries and regions and 43 intergovernmental and other organizations, with more than 100 representatives at the ministerial level, attended the Conference.

Through the preparatory process, the following five main themes were selected to discuss at the Ministerial Conference: these five are safe drinking water and sanitation, water for food and rural development, prevention of water pollution and the conservation of ecosystem, mitigation of disaster and risk management, and finally water resources management and benefit sharing. These themes were discussed in the five sub-groups respectively. At the conference, the completion of a Portfolio of Water Actions was announced. This is a compilation of a total of 501 documents on water related actions, planed or undertaken by 43 governments and 18 international organizations. And as a culmination of a three-month process of extensive consultations with all delegations, the Ministerial Declaration entitled “Message from the Lake Biwa and Yodo River Basin,” with a preamble and 29 paragraphs, was adopted.

20.5 Portfolio of Water Actions

While believing the importance of taking concrete step on water issues, the Japanese government invited governmental participantsand international organizations to submit information on the

water-related actions. As a result, we were able to compile the 501 specific action plans concerning on water-related issues as I had mentioned earlier.

Furthermore, in order to promote steady implementation of the plans included in the Portfolio and also to add new plans, it was agreed to establish a new network of websites to publicize water actions planned and taken (Please refer to para. 9 of the Declaration). I would like to add that as the chair country of this conference, Japan intends to assume the responsibility for establishing and managing this network at the initial stage in cooperation with the relevant international organizations.

21 Conclusion

After the 3rd World Water Forum, International society welcomes the promotion of the PWA activity. At the G8 Evian summit held in last June, each leader has recognized the necessity of the follow up of the PWA in their final paper titled Water Action Program. And the Dushanbe Freshwater Forum, co-hosted by Tajikistan and United Nations last October, also showed us that they will endorse to make better use of the PWA website network on the final paper entitled "Dushanbe Water Apeal".

The Japanese government had been providing website, and recently it has renewed its system which is now easy to modify, update current water actions and monitor the state of progress.

This system also allows everyone to access to the latest progress of all of the water actions, enables us to exchange our own ideas and have consultations with other parties, and eventually leads to the promotion of new water actions.

Regarding future planning for the PWA, the Government of Japan is now planning to hold an event at the UN-CSD12 in April this year to discuss the encouragement of the PWA activity and introduce some remarkable activities from the actions already submitted.

We are eager that all of you who are presented here today will send out our wish to each official who is in charge of PWA, and to inform this to the related people. We are also very happy if you would give us good idea to encourage the PWA activity to the secretariat via the e-mail (tokunaga-y2ag@mlit.go.jp).

<Attachment>

PWA 91 Water Actions of Japan

- Planning on Water Resources Development and Management and Capacity Building of Implementing Agencies
- Water Resource Management and Conservation through Afforestation, Anti-desertification, and watershed management
- UN Decade of Education for Sustainable Development
- Surveys Related to the Feasibility of Applying Energy-saving Sludge Reduction Technologies in Southeast Asia
- Monitoring water quality by advanced ion chromatography
- Watershed/Urban Regeneration in Accord with Nature
- Integrated River Basin Management
- Restoration by Eco-Compatible and Adaptive Management in River Basin
- Twinning Agreement in Integrated Water Resources Management
- NETWORK OF ASIAN RIVER BASIN ORGANIZATIONS
- International Conference on Inland Waterway Transport
- Research on Development Status and Assistance Strategy in International River Basin (The Mekong River)
- Socio-Economic research on long-term trends seen in the waterside environments of the world, through studies of their changes in scenery
- Promotion of Effective Use and Capacity Building of Management for Existing Infrastructure and strengthening of Operation & Maintenance capacity
- Advanced Prediction System and Counter Measures of Regional- and Meso-scale Water Cycle
- Research Cooperation Project on Seawater Desalination and Public Water Demand in Oman
- Cooperative Research on Hybrid Seawater Desalination for Middle East Countries
- Cooperative Research on Technology to Increase the Utilization of Recycled Industrial Water for Environmental Applications
- Development of Energy-Saving Waste Water Treatment Technology
- Technology development on the Multiple-purpose use system of Deep Ocean Water
- Initiative for Research Activities on Global Water Cycle Variation

- The sustainable ARGO Project
- Global Precipitation Measurement (GPM)
- The Integrated Global Observing Strategy (IGOS) Partnership
- Monitoring and modeling of balance, circulation, and utilization of groundwater in the Yellow River basin
- Global Mapping
- Strengthening Water Supply System and Operation/Maintenance through Groundwater Development in Africa
- Strengthening the Development and Operation/Maintenance on Water Supply System and Sewerage System in Asia
- Stable Water Supply and Water Governance in Middle East and Near East
- Water supply and/or sewerage treatment project in regional cities in Latin American Region
- Water supply and/or sewerage treatment project mainly in Pacific Island Region
- Strengthening Control of Water-related Diseases, including Arsenic Poisoning and the Guinea-worm Disease in Asia and Africa
- US-Japan Water Partnership: the "Clean Water for People" initiative
- Japan-France Water Sector Cooperation
- Partnership with NGOs
- Integrated Study on Restructuring Water-use System for Sound Water Cycle
- Studies for Plan to Maintain the Global Environment Protected the Widely Arsenic-Affected Groundwater
- Research and Development of environmental sanitation technologies suitable for developing countries
- Technology transfer of the on-site treatment system of domestic waste water
- To share knowledge, experience and information on operation and maintenance of water supply and sanitation
- Reinforcement of Government Policy and Implementing Capacity to Improve Water Productivity in Developing Countries
- Increase of Agricultural Productivity by Improving Irrigation System and Technique
- Construction of irrigation facilities and enforcement of local community organizations through Participatory Development of Water Resources
- Recycle and Reuse of Water Resources
- Development and Dissemination of NERICA (New Rice for Africa)
- Sustainable rural modernization based on neighborhood communities
- International cooperation for improving the efficiency of agricultural water use
- Food for Work
- Sustainable Agriculture in the Arid Areas
- Increasing Economic Options of Rain-fed Agriculture in Indochina through the Efficient Use of

Water Resources

- Combining advanced weather modeling and farmer knowledge to reduce risk in West African cereal-based cropping systems
- Water Resource Development Strategy-Building Survey (Asia)
- Effect evaluation of global water circulation changes on food production with consideration of potential countermeasures
- Modeling and economic evaluation of the multi-functionality of paddy fields
- Development of water use estimation models related to agriculture and irrigation for the Asia Monsoon region
- Promotion of agricultural water-related projects, taking into account ecosystem conservation and water quality improvement as well as enhancing multi-functionality
- Promotion of Rural Community Sewerage Improvement Projects
- Legal Reforms to Achieve Harmony with the Environment on Agricultural Infrastructure and Rural Development Projects
- Development of Eco-friendly Management Technology of Water and Agro-Forested-Aqua-Ecosystem (AFA-Ecosystem) in Watershed and Estuary (W&E) areas
- Promotion of Participatory Irrigation Management (PIM)
- Water Use and Management System of the Mekong River
- Creative actions for Land Improvement Districts (LIDs) (a new action taken by the MIDORI Network initiatives)
- Irrigation and drainage project to re-allocate agricultural water use to meet urban water demands
- Enhancement of Water Quality Conservation, Industrial Waste Water Control and Domestic Waste Water Management
- Package cooperation on institutional measures and cleaner production technology to prevent industrial pollution in Vietnam, the Philippines, Indonesia, Thailand, India, Jordan
- The establishment of the total system regarding to the clarification of wastewater due to food processing
- Research and Development of monitoring methods of toxic substances and pathogenic microorganisms
- Water Environmental Partnership in Asia (WEPA)
- Study on development of assessment methods for water pollution and monitoring methods for toxic cyanobacteria in water resource regions in Asia
- Water Quality Improvement to conserve environment and aqua-ecology
- Development and establishment of a network for exchanging information on water and forests
- Appropriate Forest Management According to Forest Planning System
- Sustainable watershed management in developing countries through international cooperation to promote sustainable forest management
- Development and implementation of criteria and indicators for the sustainable forest management

(the Montreal Process)

- The research regarding to the phenomenal analysis of the organic, the nutrient salts, and the biocoenosis in lakes and marshes, and the investigation of the achievements by the recovery efforts
- Development and dissemination of the water purification measures utilizing the self-purification function of rivers
- Asia-Pacific Environmental Innovation Strategy Project (APEIS)
- Cooperative program on conservation of waterbirds and their habitats in Asia-Pacific region
- Evaluation of Vulnerability of Natural Ecosystems to Global Warming
- Disaster Preparedness due to the Development and Rehabilitation of the Flood Forecasting and Warning System
- Comprehensive Development Plan, Equipment and Technology for Flood Control
- Flood Control Works utilizing the Local and Natural Materials
- Flood Control and Sanitation Improvement in the Urban Areas
- Highly Accurate Rainfall Estimation by Multi-parameter Radar and Information Providing System for Storm and Flood
- Flood mitigation distributing information technology
- Improvement of the system with information technology to monitor the occurrence of sediment-related disasters and to distribute them
- Comprehensive approach to mitigation and prevention of sediment-related disasters
- National Land with Water Information Standardized whole river basin dataset & consolidated applications for Integrated Watershed Management
- Development of IT technologies to mitigate flood damages
- International Flood Network (IFNet)
- Soda Mattress System as a mean of Riverbank Erosion Protection
- International Sabo Information Network

PWA

(Portfolio of Water Actions)

Website Network

What is PWA ?

The Ministerial Conference held on the 3rd World Water Forum announced the Portfolio of Water Actions (PWA), a compilation of concrete actions submitted voluntarily by governments and international organizations either individually or collectively with their partners. A total of 501 actions were presented by 43 countries and 18 international organizations so far.

PWA Web site Network

The PWA entries and list of actions was made available on the provisional website (http://www.mlit.go.jp/tochimizushigen/mizsei/wwf3/mc/pwa_info.html) from May 2003. The new website system will allow the addition of new actions, the modification and updating of current entries, and monitoring progress. A major characteristic is that each participating body will be able to publish and manage water actions on their own actions. The new website will include a list of participating countries and international organizations, lists by category or country, water action entries, the registration form and other features.

PWA Contributors

Governments and International organizations

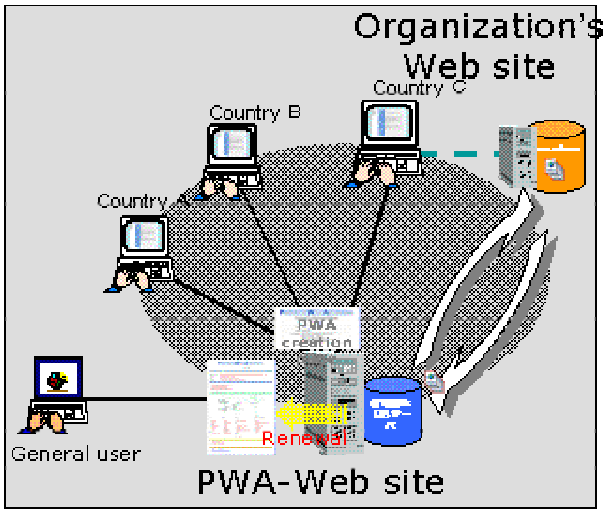
Registration Method

Registration details will be made available at the PWA Website Network address below when it is initially made available from November 17.

3rd WWF Ministerial Conference

Information in the PWA

- Sectorial Topic
- Actor(s)
- Partner(s) if any
- Title
- Objective
- Contents
- Means of Implementation
- Target Year
- Expected Outcome(s)
- Relevance to the Plan of Implementation of WSSD
- Other Information
- State of Progress
- Links of Related Information
- Official in charge /email



http://www.pwa-web.org/

For inquiries contact: