Annual Report Of Japan Water Agency (JWA) 2005 (Japan)





Foreword

Looking back on 2005

As I look back on 2005, it was the milestone in terms of construction, maintenance and operation of water resources development facilities and also reorganization.

JWA has been constructing, maintaining and operating water resources development facilities with fully taking cost reduction, innovative technologies, environment and upstream-downstream exchange into consideration.

Firstly, for dam construction, JWA started the test filling of Takizawa Dam from October 1 last year and JWA finished embankment of Tokuyama Dam body on December 2 after 44 months long construction work.

Secondly, for maintenance and operation of facilities, in 2005, because of little rainfall and a series of dry spells from April to June, Shikoku Region was hit by the very serious drought. And the Sameura Dam, the most important water source for those who live in this area, was dried up twice. Luckily, they could get over this crisis thanks to the heavy rain by the typhoon 14th. On the other hand, JWA did sixteen times flood control altogether and alleviated flood damages considerably. These two extreme phenomena show that Japan is still susceptible to natural disasters.

Thirdly, for the organizational reform, Water Resources Technology Department was established in last April aiming at making profits by contracting businesses not only inside JWA but also from outside JWA.

Finally, for international cooperation, JWA has been acting as NARBO secretariat and doing a lot of activities as the secretariat and one of the NARBO members. Other than NARBO activities, JWA also conducted three JICA training courses and accepted many JICA trainees as the form of partial training course.

Things I touched on here are described in detail in this report and I hope all of you read this report from cover to cover.

JWA will make every effort to promote IWRM practices in monsoon Asia through NARBO with keeping close relationships with you and looks for becoming the first-class practical think tank organization in the field of water.

March, 2006

Hiroyuki Shindo Director International Affairs Division Japan Water Agency NARBO Secretariat

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1. Summary

1.1. Organization

Water Resources Development Public Corporation (WRDEC) was transformed into Japan Water Agency (JWA), Incorporated Administrative Agency in October 2003.

Incorporated administrative agencies are established and given objectives and missions by the national government to carry out "administrative tasks and projects, where implementation should ensure public benefits such as stable public life and social and economic activities". The objective and the mission of JWA are as follows.

Objective: To ensure stable supply of water to areas that need to use water because of industrial development and population concentration.

Mission: Construction (Projects for increasing water supply are limited to the ongoing projects.), reconstruction and operation of completed facilities based on the Basic Plan for Water Resources Development.

1.2. NARBO Activities

JWA did or involved in a series of activities as NARBO Secretariat and also as one of NARBO members (as an RBO), the name of activities and date are summarized below.

- (1) Activities as NARBO Secretariat
 - 1) The Second training course on IWRM
 - The training course was held from April 25 to 29 at Negombo, Sri Lanka.
- 2) Electrical newsletter

JWA secretariat issued NARBO newsletter two times, namely issue No.5 and No.6 according to the work plan.

3) NARBO web site

JWA secretariat opened database in May 2005, and has been operating and maintaining it on regular basis.

4) NARBO Annual Report

JWA secretariat compiled members' annual report and prepared NARBO Annual Report 2004. 5) The Second Southeast Asia Water Forum.

The forum was held from August 29 to September 3 in Bali, Indonesia. In the forum, the RBO session was held on August 31.

6) The Third training course on IWRM

The training course was held from November 14 to 18 in Daejeon, Korea.

7) The First Thematic Workshop on Water Allocation and Water Right

The workshop was held from December 5 to 9 in Hanoi, Viet Nam.

- (2) Activities as one of NARBO members
 - 1) The annual report

JWA prepared the annual report and it was stored in database on NARBO website.

2) Twinning Program

JWA dispatched two staff to Indonesia for three months from April to July based on the agreement between Indonesian NARBO and JWA>

3) Mekong River Committee's 10th Anniversary

It was held from November 27 to 30 in Chiang Rai, Thailand. JWA dispatched one staff to MRC

1.3. Topics

Topics in 2005 are summarized below.

(1) Flood

Due to series of concentrated heavy rain during the rainy season in June and three typhoons, eight JWA dams did eighteen times flood control altogether.

(2) Drought

Because of a little rainfall from April to June, Chubu and Sikoku regions were hit sever drought. Especially, the drought in Shikoku was very sever.

(3) The Second JICA Group Training Course on Integrated Water Resources Management (IWRM)

JWA had the second course on IWRM from October 17 to November 7 with six participants from nine countries.

(4) The First JICA Country Focused Training Course on Integrated Water Resources Management (IWRM)

JWA had the first course from November 14 to December 9. Nine participants came from Iran.

(5) The First JICA Country Focused Training Course on Dam Management and Safety JWA had the first course from November 21 to December 13. Seven participants came from Syria.

(6) The 29th "Water Week"

JWA joined a various "Water Week" related events.

2. Organization

2.1. Objectives

The objective of JWA is to ensure stable supply of water to areas that need to use water because of industrial development and population concentration. To fulfill this object, JWA has been implementing construction (projects for increasing water supply are limited to the ongoing projects.), reconstruction and operation of completed facilities based on the Basic Plan for Water Resources Development.

(1) Water use

Securing and supplying domestic, industrial and irrigation water.

(2) Flood control

1) Alleviating flood damage

2) Maintaining of normal function of river water

(3) Entrusted activities

1) Construction, reconstruction and operation of structures related to power generation

2) Studies, surveys, tests and researches for water resources development



2.2. History

Water Resources Development Public Corporation (WRDEC) was transformed into Japan Water Agency (JWA), Incorporated Administrative Agency in October 2003. WRDEC was established in 1962 based on two laws, "Water Resources Development Promotion Law" and "Water Resources Development Public Corporation Law".

Water Resources Development Public Corporation (WARDEC), the former body of JWA, produced numerous achievements including the conveyance of water of the Tone River to the Tokyo metropolitan area that was dried up due to what is known as the "Tokyo Olympics drought" and was referred to as the "Tokyo Desert" a few years after the commencement of operations. WRDEC constructed multi-purpose dams such as Yagisawa Dam and Sameura Dam, canals such as Aich Canal and Ryochiku-heiya Canal and developed lakes including Lake Biwa and Lake Kasumigaura. The number of facilities under the control of JWA accounts for 90% of all water resources in seven river systems (Tone, Ara, Toyo, Kiso, Yodo, Yoshino and Chikugo River Systems). These facilities have been playing vital role as lifeline systems in large metropolitan areas.

2.3. Organizational Structure

About the organization, JWA consists of the headquarters, four regional bureaus and 36 site offices. Number of staff is 1,694 including President, Executive Vice-President, five Executive Directors as of April 2005. There are twelve departments and the headquarters has six construction offices and operation and maintenance offices. Four regional bureaus are Chubu, Kansani, Yoshino and Chikugo. Chubu has three construction offices and six operation and maintenance offices, Kansai has two construction offices and four operation and maintenance offices, Yoshino has one construction office and two operation and maintenance offices and Chikugo has two construction offices and maintenance offices.



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2.4. Financial

JWA projects are funded using government grants and subsidies, as well as payments from beneficiary charges and loans.

(1) Governments grants

The government provides grants for controlling floods, preventing high tides or maintaining normal function of the river water from the special account for flood control under the supervision of the Ministry of Land, Infrastructure and Transport.

(2) Subsidies

Government Ministries (Ministries of Agriculture, Forestry and Fisheries; Health and Welfare; and Economy, Trade and Industry) grant subsidies to reduce the financial burden of beneficiaries such as land improvement districts, and domestic and industrial water supplies.

(3) Charges (Beneficiary shares)

Beneficiaries make payments during water project construction or make installments after the completion of the facility and also make payments for facilities management.

(4) Loans (Beneficiary shares)

JWA receives long-term government loans based on the government financing program to enable beneficiaries to make installments to pay for construction after the completion of the facilities, and also issues water resources bonds.

JWA also lends funds from the private sector to promote project implementation, to pay for the costs of advance land acquisition (from Japanese fiscal year 1984) and of dam construction (from Japanese fiscal year 1985).

(5) Trust Funds and Trust Revenues

JWA obtains trust funding from respective implementation organizations for construction, surveys, and other projects related to hydropower plants and roads etc.

The budget scale for Japanese fiscal year 2005 (from April 2005 to March 2006) was about 291 billions yen. Almost 52 billions yen was national expenditure and 25 billions yen came from government investment and loan program.



2.5. Projects

2.5.1. Activities

JWA, based on the Basic Plan for Water Resources Development (Full Plan) for each of seven river system (Tone, Ara, Toyo, Kiso, Yodo, Yoshino and Chikugo River Systems) designated for water resources development, is constructing dams, estuary barrages, facilities for lake and marsh development, and canals. (Projects for increasing water supply are limited to those ongoing at the time of transition from WARDEC to JWA). These seven river systems are Class A river systems and there are one hundred nine Class A river systems in Japan as of the end 1997. In addition, JWA is operating, managing and reconstructing completed facilities.

JWA activities range widely from securing water for domestic, industrial and agricultural use to controlling floods, and maintaining and improving normal functions of the river water (e.g. securing vested water and conserving the river environment). The matters related to personnel and financial accounting of JWA are placed under the supervision of the Minister of Land, Infrastructure and Transport. The Minister of Health, Labor and Welfare, Minister of Agriculture, Forestry and Fisheries, Minister of Economy, Trade and Industry or Minister of Land, Infrastructure and Transport are held responsible for project implementation according to the objective of the projects.

JWA has already completed fifty-five projects and still been implementing sixteen projects. Also JWA has been operating and maintaining forty-nine facilities in already completed projects as of April 2005.



Project implementation



2.5.2. Current status of water resources development

The seven rivers systems designated for water resources development (Tone, Ara, Toyo, Kiso, Yodo, Yoshino and Chikugo River Systems) where the Basic Plan for Water Resources Development (Full Plan) is applied cover major areas in Japan approximately 16% of natural land. The population and industrial shipments in value in the covered areas account for approximately 51% and 47% of national totals, respectively.

The volume of water resources developed in JWA projects based on the Full Plan for each of the seven river systems amounted to approximately $336m^3/s$, which represents approximately 88% of a total volume of 380 m $^3/s$ in all water resources developments, including those implemented by other organizations than JWA.

Of the water resources developed by JWA, municipal water is approximately $315m^3/s$ (294 m³/s completed) and irrigation water is approximately $69m^3/s$ while conveyance volume of municipal water is approximately $133m^3/s$ (123 m³/s completed) and that of irrigation water is approximately $259m^3/s$.



Ratio of population in the Full-Plan areas to total population (2002)





Source: Water Resources in Japan, Ministry of Land, Infrastructure and Transport, 2003

2.5.3. Project implementation in seven river systems

2.5.3.1 Tone River System and Ara River System

The Tone River, one of Japan's major large rivers that is also known as Bando Taro, originates in Mt. Ohminakami on the border between Gumma and Niigata Prefectures. It encompasses most of the Kanto Plains, collecting the waters of numerous tributaries such as the katashina, Agatsuma, Karasu, Kanna, Watarase and Kinu Rivers, and empties into the Pacific Ocean with part of the flow diverted at Sekiyado by the Edo River that enters Tokyo Bay. The Tone River basin is 16,840 km², the largest in Japan, and covers Ibaraki, Tochigi, Gumma, Saitama and Chiba Prefectures as well as the metropolis of Tokyo. The mean annual precipitation in the basin upstream of Kurihashi is 1,360 mm.

The large river has long been providing abundant water resources and enriching the soils, but has also been causing floods and other great disasters. Between 1961 and 1964, serious drought generally referred to as the "Tokyo Olympics drought" occurred, which had a great influence on subsequent water resources development policies in Japan.

The Ara River with headwaters in Mt. Kobushigatake at the borders of Saitama, Yamanashi, and Nagano Prefectures runs through a group of major cities in Saitama and Tokyo in the south of the Kanto Plains, and reaches Tokyo Bay. The basin occupies 2,940 km² and has a mean annual precipitation of 1,358 mm upstream of the Akigase Barrage.

The combined river basin of the Tone and Ara River Systems covers an area of 19,780 km², which represents 66% of five prefectures and a metropolis. The basin of both river systems is at the center of Japan's political, economic and cultural activities. Water use and flood control in the basin is therefore of great significance.

Japan Water Agency has completed and is managing 19 projects in both river systems. At present, JWA is implementing 6 projects including the Tokizawa Dam and the Boso Canal.



2.5.3.2 Kiso River System and Toyo River System

The Kiso, Nagara and Ibi Rivers, flowing from their headwaters far apart from one another, run through the Nobi Plain and meet at the confluence situated at the mouth before ending in Ise Bay. They are therefore collectively referred to as the Kiso-Sansen (three rivers in Kiso area) River.

The Kiso-Sansen River once caused great damage to people's life as a single turbulent flow in the lower reach. Improvement work in the Meiji Era (1868-1912) divided the flow into the present three rivers. The river basin occupies 9,100 km², which represents 26% of the four prefectures. The mean annual precipitation varies regionally from 2,132 mm at the Makio Dam in the upper Kiso River to 2,005 mm at Chusetsu in the Nagara River basin and 3,049 mm at Fujihashi in the upper Ibi River.

The Tokyo River runs through the Higashi-Mikawa area and empties into Mikawa Bay. The river has a basin area of 724 km^2 and a mean annual precipitation of 2,400 mm at Kawai.

JWA completed 10 projects and is now managing 12 projects including the Aichi Canal and Toyogawa Canal in both river basin. JWA is also implementing the Tokuyama Dam project, the stage II of the Aichi Canal project and the stage II of Toyogawa Cana project.



2.5.3.3. Yodo River System

Running from Lake Biwa, Japan's largest lake, the Yodo River draws numerous tributaries including the Uji, Katsura and Kizu Rivers and ends in Osaka Bay. The Yodo River encompasses six prefectures, Mie, Shiga, Kyoto, Osaka, Hyogo and Nara, and occupies the basin of 8,240 km², which represents 29% of the six prefectures. Kyoto, Osaka and other cities have developed in the basin. The mean annual precipitation in the Yodo River basin is 1,806 mm.

JWA completed and is managing 11 projects in the Yodo River System. Among the projects, Lake Biwa development project is the largest project of its kind in Japan. It was implemented as part of the Lake Biwa Comprehensive Development Project which aimed at the development around the lake and conservation of the environment at the headwaters. JWA is also constructing the Kawakami and Niu Dams.



2.5.3.4. Yoshino River System

The Yoshino River flows through the center of the island of Shikoku from west to east and ends in the Kii Channel. The river, commonly known as Shikoku Saburo, is counted the as a major river along with Bando Taro or the Tone River in the Kanto area and Tsukushi Jiro, the Chikugo River, in the Kyushu. The Yoshino basin is 3,750 km² wide, occupying 20% of Shikoku. The mean annual precipitation at the Sameura Dam is 2,641 mm.

JWA has completed 7 projects in the Yoshino River System. JWA comprehensively and efficiently manages the Sameura Dam and other facilities to control floods occurring year after year and supplies newly developed water for agricultural and municipal uses in Tokushima, Kagawa, Ehime and Kochi Prefectures. Thus, JWA is making contributions for the enhancement of industrial and social infrastructure. JWA is also reconstructing Kagawa Canal facilities to repair facilities and build regulating ponds exclusively for water supply.



2.5.3.5. Chikugo River System

The Chikugo River flows west through the middle of northern Kyushu and empties into the Ariake Sea. The largest river in Kyushu has long been known as Tsukushi Jiro. The basin occupies 2,860 km², which represents 14% of the four prefectures. The mean annual precipitation in the Chikugo River basin is approximately 2,100 mm.

JWA completed and is managing 4 projects in the Chikugo River System. The facilities completed in the projects meet the needs for various water uses in and outside the basin, and help mitigate drought damage. JWA is also constructing the Ohyama and Koishiwaragawa Dams to ensure stable supply of water in the region.



2.6. Installing Law (Supporting Law)

Japan Water Agency (JWA) was based on two laws, namely "Law concerning the general rules on Incorporated Administrative Agencies" and "Japan Water Agency Law".

2.7. Related legal system

Besides "Law concerning the general rules on Incorporated Administrative Agencies" and "Japan Water Agency Law", for implementation of the projects, There is "Water Resources Development Promotion Law".

JWA has been doing inter-ministerial projects, so the ministry in charge is different from the project to the project. Namely, the Ministry of Land, Infrastructure and Transport, the Ministry of Health, Labor and Welfare, the Ministry of Agriculture, Forestry and Fisheries, the Ministry of Economy, Trade and Industry. These ministries have their laws, so JWA is implementing projects within these laws.

Please refer to Annex 1 for detailed information

2.8. Others

(1) The mid-term project master plan

JWA has been carrying out the projects based on the first five-year project master plan and it lasts to March 2008. After this, JWA will have to draw up the second one by taking into evaluation from four related ministries' consideration.

(2) The challenges for implementation of projects

Surroundings on JWA projects changed a lot and it is getting more and more important to meet users' needs. Completion of projects effectively, cheaper but reliably.

3. NARBO activities

3.1. The Second training course on IWRM

The training course on "River Basin Management and Organizations" was held from April 25 to 29 at Negombo, in Sri Lanka with 27 participants from Afghanistan, Bangladesh, India, Nepal, Pakistan and Sri Lanka.

3.2. NARBO website and newsletter

JWA secretariat opened database in May 2005, and has operating and maintaining it on regular basis.

JWA secretariat issued NARBO newsletter two times, namely issue No.5 and No.6 according to the work plan.

To enrich the contents of website and newsletter, the secretariat has called for members' cooperation at every opportunity.

3.3. NARBO Annual Report

JWA secretariat compiled members' annual report and prepared NARBO Annual Report 2004 and uploaded it on website in June.

The secretariat made it into reports and CDs and distributed them through activities. They are distributed upon-request basis.

3.4. The Second Southeast Asia Water Forum

The forum was held from August 29 to September 3 in Bali, Indonesia. In the forum, the RBO session was held on August 31 in the morning by Indonesian NARBO as the convener.

3.5. The Third training course on IWRM

The training course was held from November 14 to 18 in Daejeon, Korea.

3.6. The First Thematic Workshop on Water Allocation and Water Right

The workshop was held from December 5 to 9 in Hanoi, Viet Nam with 24 participants from Viet Nam, Indonesia, Philippines, Thailand, Laos and Japan. Hanoi TV broadcast this course on December 9.

3.7. JWA Annual Report

JWA prepared its annual report 2004 and stored it in database on website in June.

3.8. Twinning Program

Based on the agreement between JWA and Indonesian NARBO, JWA dispatched two staff to Indonesia for three months from early April to early July, and Indonesian NARBO dispatched three staff to JWA for two months from mid July to mid September.

3.9. Others

(1) Mekong River Committee's 10th Anniversary

It was held from November 27 to 30 in Chiang Rai, Thailand. JWA dispatched one staff to MRC. (2) Benchmarking Workshop

The workshop was held on September 3 after the Second Southeast Asia Water Forum. At the workshop, they demonstrated the prototype system.

4. Topics

4.1. Floods

In 2005, due to series of concentrated heavy rain during the rainy season in June and three typhoons, eight JWA dams did eighteen times flood control altogether.

Especially in Sameura Dam catchment area in Shikoku region, the total amount of rainfall by the typhoon 14th that hit this area from September 5 to 7 was over 700mm and they observed about 5,600m3/sec inflow that was over its design flood discharge 4,700m3/sec. This was the second largest inflow since they started dam operation and maintenance in 1975.

At that time, Sameura Dam storage volume for domestic water supply was zero due to the series of dry spells, they stored the most part of inflow volume (93%), so the stored volume amounted 248 million m3.

The flood control by the Sameura Dam evaded the flooding in the downstream area and serious flood damage.

Citecol ds of hood control by 5 0011 5 duins in 20052				
Name of the river	Cause of flood control	Name of the dam	Times of flood control	
system				
	Rain Front	Yagisawa	Six	
Tone and Ara	Low Pressure	Yagisawa	Once	
	Typhoon	Yagisawa	Once	
		Urayama	Twice	
Kiso and Toyo	Rain Front	Agigawa	Three times	
		Iwaya	Once	
	Typhoon	Ikeda	Once	
Yoshino		Sameura	Once	
	Typhoon	Tomisato	Once	
Chikugo	Rain Front	Terauchi	Once	

<Records of flood control by JWA's dams in 2005>



4.2. Droughts

Because of little rainfall and dry spells from April to June, Chubu and Sikoku region were hit by sever drought. Especially in Yoshino River System in Shikoku region, the Sameura Dam's storage volume for domestic water supply had been empty twice in August and September in spite of their efforts of water saving activities, such as water ration and public relations. The Sameura Dam is the most important water supply source for people those who live in that region and to evade the serious damage to the city life,

they decided to discharge water by using the storage volume for power generation in cooperation with the electric power companies.

After all, this water crisis was saved by the huge amount of rainfall by the typhoon 14th that hit this region from September 5 to 7.



Sameura Dam Reservoir before flooding

After flooding at Sameura Dam Reservoir



4.3. The Second JICA Training Course on Integrated Water Resources Management (IWRM)

JWA had the Second JICA training course on Integrated Water Resources Management (IWRM) from October 17 to November 7 with six participants from Bangladesh, India, Laos, Pakistan, Philippines and Vietnam.

4.4. The First JICA Country Focused Training Course on Integrated Water Resources Management (IWRM)

JWA had the first course from November 14 to December 9. Nine participants came from Iran to learn the IWRM experiences and practices in Japan.

4.5. The First JICA Country Focused Training Course on Dam Management and Safety

JWA had the first course from November 21 to December 13. Seven participants came from Syria to learn how dams being operated and maintained in Japan, especially JWA dams.

4.6. Activities for Water Week

"Water Day" was established on May 31 1977 by Cabinet Meeting Decision to raise the awareness among general public concerning finiteness, preciousness of water resources and importance of water resources development, and to get deep understanding about foregoing matters. It was decided that "Water Day" is August 1 and one week from August 1 to 7 is "Water Week". Putting up posters, having a various events such as lecture meetings nationwide etc. during "Water Week" was also decided. At the same time, the executive committee was set up to take care of events.

JWA (from the day of WRDEC) has been involving in Water Week from the beginning and the president of JWA has served as chairperson of executive committee. The 28th "Water Week" was held this year from July 28 to August 2 excluding the regatta in Sumida River that was held on August 7.

Name of the event	Program / Contents		
Water Fair 2005 in Tokyo	1.Opening ceremony etc.		
	2.Exhibition (the theme is "Century for water)		
	3.Special exhibition		
Ceremony for giving citations	3 individuals and 7 groups who/which contributed to		
	promotion of water resources administration were		
	given citations by the Minister of Land,		
	Infrastructure and Transport		
The 27th composition contest	Contest by junior high school students. The theme		
	was "Thinking about water".		
The 20th photo contest	Photo contest on water		
The 25th regatta in Sumida River	Boat race in Sumida River in center of metropolitan		
	Tokyo		
Exchange program between	1.Tone River System exchange program		
upstream area and down stream area	2.Exchange program at Kusaki Dam		
Visiting water resources	Visit water resources development facilities such as		
development facilities	dams, water treatment plants etc.		
Others	1. Broad public relations on "Water Week"		
	2. Distributing posters on "Water Week"		
	3. Distributing pamphlets on water to junior high		
	schools		

<The outline of the events on the 29th Water Week>













1.Water Resources Management

1.1.Legal Framework for Water Resources Management and River

1.1.1. Legal Framework for Water Resources Management

(1) Water Resources Management

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

The rough idea of role for related ministries and agencies is as follows

1) The Ministry of Land, Infrastructure and Transport

- Overall Coordination, Water Supply and Demand Planning, Reservoir Area Development
- Flood Control, River Water Utilization, and Improvement in and Conservation of River Environment
- Sewerage
- 2) The Ministry of Health, Labor and Welfare
- Water Supply for Domestic Use
- 3) The Ministry of Agriculture, Forestry and Fisheries

-Water Supply for Agricultural Use, Development of Forest for Water Headwaters Conservation

- 4) The Ministry of Economy, Trade and Industry
- -Water Supply for Industrial Use; Hydroelectric Power Generation
- 5) The Ministry of Environment

-Water Quality, Environmental Preservation

(2) National Comprehensive Water Resources Plan (Water Plan)

It is essential that policies concerning water resources is 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 (The Ministry of Land, Infrastructure and Transport) has compiled the National Comprehensive Water Resources Plan. In the past, Long-Term Water Supply and Demand Plan was compiled in 1978 and National Comprehensive Water Resources Plan (water plan 2000) which adopted 2000 as the target year, was formulated in 1987. And 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.



Demand and Supply of Water for Urban Use (National Total)

(3) Prospects for the Supply and demand of Water

Conditions of rainfall are divided into three assumed scenarios, i.e. "normal year", "year of water shortage", and "driest year in the post-World War II period", and the prospects for water supply and demand from 2010 to 2015 are assessed.

Since no more sudden increase in water demand are now expected, providing that construction of all facilities, projected to be completed by 2015, will advance according to schedule, it is expected that stable water supply will still be possible in the normal year and year of water shortage.

(4) Water Resources Development Promotion Law and River Systems of Water Resources Development

Based on the Water Resources Development Promotion Law, the seven river systems (Tone River, Arakawa River, Toyokawa River, Kiso River, Yoshino River, Chikugo River), where wide area water supply measures have become necessary in response to the development of industry, increase in urban population and so on, have been designated as water resources development river systems. Concurrently, this law has the objectives that, at each designated river system, water resources development basic plan is created and comprehensive development and rational use of water resources are advanced to contribute to the improvement in the life of citizens and so forth.

Districts receiving water from the designated river systems only account for about 16% of the national land area, although about 50% of population and industrial activity in Japan are concentrated in these areas.

(5) Water Resources Development Basic Plan (Full Plan)

- The following contents are incorporated into the Full Plan.
 - 1) Water demand forecasts and supply targets according to purpose of use
 - 2) Basic items relating to construction of facilities required in order to achieve the supply targets.
 - 3) Other important items related to the comprehensive development of water resources and rationalization of water utilization.

The contents of the Full Plan are determined or revised by Cabinet decision based on consultation and coordination with related ministries, hearing opinions of related prefectural governors and studies by the National Land development Council.

Besides, as a result of construction of water resources development facilities by the government, Japan Water Agency (former Water Resources Development Public Corporation), based on the Full Plan, approximately 379m3/s of water is newly available for use. In particular, approximately 311m3/s, equivalent to roughly 50% of all developed urban water consisting of combined domestic and industrial water in the country, was developed in the facilities based on the Full Plan. These facilities form a part of important lifeline for major urban areas where population and industry are concentrated.



1.1.2. Water Rights

In Japan, water rights have being given by the Ministry Land, Infrastructure and Transport (MLIT) based on River Law.

Water rights are allocated to not irrigation water supply but also domestic water supply, power generation water supply, industrial water supply etc.

Water rights which are established before River Law was enacted are called "Customary Water Rights", so new water rights which are given by MLIT must not violate these customary water rights.

Since water use for agriculture has long history and accounts for almost 64% in total water consumption in Japan, so most of the customary water rights are for irrigation.



Organization and Legislation Related to Water Resources Policy

1.1.3. Legal Framework for River Management

In Japan, rivers have being managed by the Ministry of Land, Infrastructure and Transport (MLIT) based on "River Law". River Law was enacted in 1894 for the purpose of flood control and revised in 1964 to add the purpose of water use, then revised again in 1997 to deal with the environment.

It is defined that to contribute to land conservation and the development of the country, and thereby maintain public security and promote public welfare, by administering rivers comprehensively to prevent occurrence of damage due to floods, high tides etc., utilize rivers properly, maintain the normal functions of the river water by maintaining and conserving the fluvial environment.

Under the River Law, all rivers are classified into three categories depending on their importance. Namely Class A rivers, Class B rivers and other rivers. Basically, Class A rivers have being managed by the Minister of Land, Infrastructure and Transport, but within the designated sections, rivers have being managed by Prefectural Governors. Class B rivers have being managed by Prefectural Governors in principle and other rivers have being managed by head of municipality.

Furthermore, Class A rivers constitute Class A river systems and Class B rivers constitute Class B river systems. As of the end of 1997, there are one hundred nine Class A river systems and two thousands six hundred ninety one Class B river systems in Japan.

River Law is the core law for river and water resources management in Japan and there are many laws concerning River Law. For water use, there are

- (1) Water Resources Development Promotion Law
- (2) Specified Multipurpose Dam Law
- (3) Japan Water Agency Law
- (4) Electric Power Development Promotion Law
- (5) Electric Utility Industry Law
- (6) Water Supply Law
- (7) Industrial Water Supply Law
- (8) Land Improvement Law
- (9) Navigation Canal Law etc.





Classification and Administration of Rivers