

# **Addressing problems with the world's water resources using Japanese technology**

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This year, "Team Water Japan" was launched for the express purpose of addressing the various problems surrounding water resources through the collaborative efforts of Japan's industry, government and academia. What are Japan's strengths in terms of water resources? What kinds of international contributions can Japan make to improve water resources around the world in the future? Japan is setting its goals in the global arena from the perspective of both business and its international contributions.

## **"Team Water Japan," a collaborative effort by industry, government and academia**

Increased activity in Japan since last year focusing on overseas water resources resulted in the launch in January 2009 of "Team Water Japan," a collaborative effort by industry, government and academia. This team comprises three major parts: the Water Security Council of Japan, which serves as the core organization, liaison committees made up of various water-related government agencies, and the committees and teams that establish research themes and discuss improvements (Figure). The Water Security Council of Japan has assembled together a collection of former prime ministers, leaders from business and academia, and experts, and is intended to recommend policies that cross sectoral boundaries.

The mechanism of the Council is as follows: When a subject relating to water resources requires discussion, related parties, including private companies, academic institutions and NGOs, gather to form committees/teams. Once the results of discussions that were held by the committees/teams are relayed to the Council, the Council discusses the measures needed to be implemented and advises, proposes, and supports the related government agencies as necessary.

A prime example is the Global Water Recycle System Association (GWRA). This committee was formed in November 2008 for the purpose of promoting Japan's water control technology to the world. Hitachi Plant Technologies, Ltd. serves as the secretariat for the Association, and membership extends to approximately 30 private businesses from various industries, including electronics manufacturers and construction companies. Through collaboration with the government and academia, the Association will aim for the early establishment of the water circulation system business overseas. Its main activities consist of verifying the effectiveness of model businesses in

accumulating management and operational expertise, and conducting market research on the needs of other countries as well as foreign laws/regulations.

Another example is “Team Water Industry Japan.” This team, which is led by the Japan Water Industry Association, explores, together with other member companies, possibilities for overseas expansion. Team Water Industry Japan gives top priority to the utilization of ODA activities when undertaking overseas expansion and intends to approach related government agencies and organizations to promote ODA businesses in the countries concerned. In addition to the two teams mentioned above, new teams are continuously being formed under this scheme.

### **Water businesses around the world expanding**

Water businesses around the world are exhibiting strong tendencies toward expansion. The report, “Toward the International Expansion of Japan’s Water Business and Water-related Technology,” released by the Ministry of Economy, Trade and Industry in 2008, illustrates this trend. According to the forecast by the Council on Competitiveness – Nippon (COCN) mentioned in the report, the scale of the global market encompassing the major fields of management and operations in the water treatment business is expected to expand to 100 trillion yen by 2025 from 60 trillion yen in 2005.

France is famous for having privatized its water services from an early stage. In France, water services have been outsourced to private contractors for over 150 years. Today, French corporations Suez and Veolia are the two majors in the water industry, with strengths in the fields of water management and operations, both of which are slated for further market expansion in the future. Together they control more than two-thirds of the world’s water business market.

### **Japan’s renowned advanced technology**

Then, is it a case where Japan’s technology in terms of water resources has fallen behind that of France and the other foreign countries? Absolutely not.

Historically speaking, Japan’s water services have always been the responsibility of public works agencies and so there has been little accumulation of expertise in this field by the private sector. However, the advanced technology with which the public sector, mostly notably local municipalities, has managed and operated their water supply and sewerage systems has been no less than world-class. For example, while the rate of water leakage in major cities in Europe and the U.S. is generally thought to be 10% to 30%, the rate in Tokyo is an extremely low 3.6%. By improving on

its water leakage rate of 50 years ago (20%), it is estimated that the city of Tokyo has been able to conserve 330 million tons of water per year, which is equivalent to the volume of sewage produced by a city with a population of 2.5 million.

It may be surprising to find that Japan, compared to other countries around the world, has not always enjoyed such abundant water resources. According to “Water Resources in Japan,” a report released by the Ministry of Land, Infrastructure, Transport and Tourism in 2008, although Japan’s annual average rainfall of 1,690 mm is twice that of the world average of 810 mm, the per capita total annual rainfall of approximately 5,000 cu. meters is only about one-third of the world average of approximately 16,800 cu. meters. In spite of this fact, Japan, by utilizing its efficient water recycling and advanced water treatment membrane technology, has been able to ensure abundant water resources for its citizens.

Japan’s private sector, on the other hand, is also renowned for its world-leading technology in the area of water-related devices used in seawater desalination and water supply and sewerage treatment. Japanese businesses have maintained a successful track record in the international market for such devices by utilizing their strengths in the water business market. However, the size of this particular market is estimated to be only about 1 trillion yen, and even when plant construction utilizing this technology is included, the market is expected to increase only to a maximum of 10 trillion yen. Consequently, businesses contemplating entry into the global water business market will, no doubt, find the prospects of capturing the management and operations field, with its 100 trillion yen market, more enticing.

### **International contributions to become other major pillar**

Water resources are not only a major concern in terms of business, they are also a vital issue attracting the attention of the international community from the perspective of security. Making international contributions to resolving the global water problem is also one of the key issues that “Team Water Japan” will tackle in the future.

One of the underlying facts behind Japan’s development is its dependence on overseas water resources. Japan’s food self-sufficiency rate on a caloric basis is low at approximately 40%, illustrating Japan’s dependence on the considerable volume of food imported from overseas. Needless to say, such food was grown using the water resources of the exporting countries. Items of apparel and lumber imported into Japan are also products of the exporting countries’ water resources. According to estimates by Taikan Oki, a professor at the University of Tokyo’s Institute of Industrial

Science, if Japan were to domestically produce all the food and apparel it currently imports, it would require 64.0 billion cu. meters of water resources (virtual water) per year. This amount exceeds the 59.0 billion cu. meters of irrigation water used throughout Japan annually.

According to the “2006 Human Development Report” released by the United Nations Development Programme (UNDP) in November 2006, the standard amount of water required for a single person to live a normal life is at least 20 liters per day. There are roughly 1.1 billion yen people around the world who cannot secure this minimum amount of safe water and have access to only five liters of water per day. There seems to be no end to the struggle for water around the world, and thus finding solutions to the water problem is directly linked to ensuring human security.

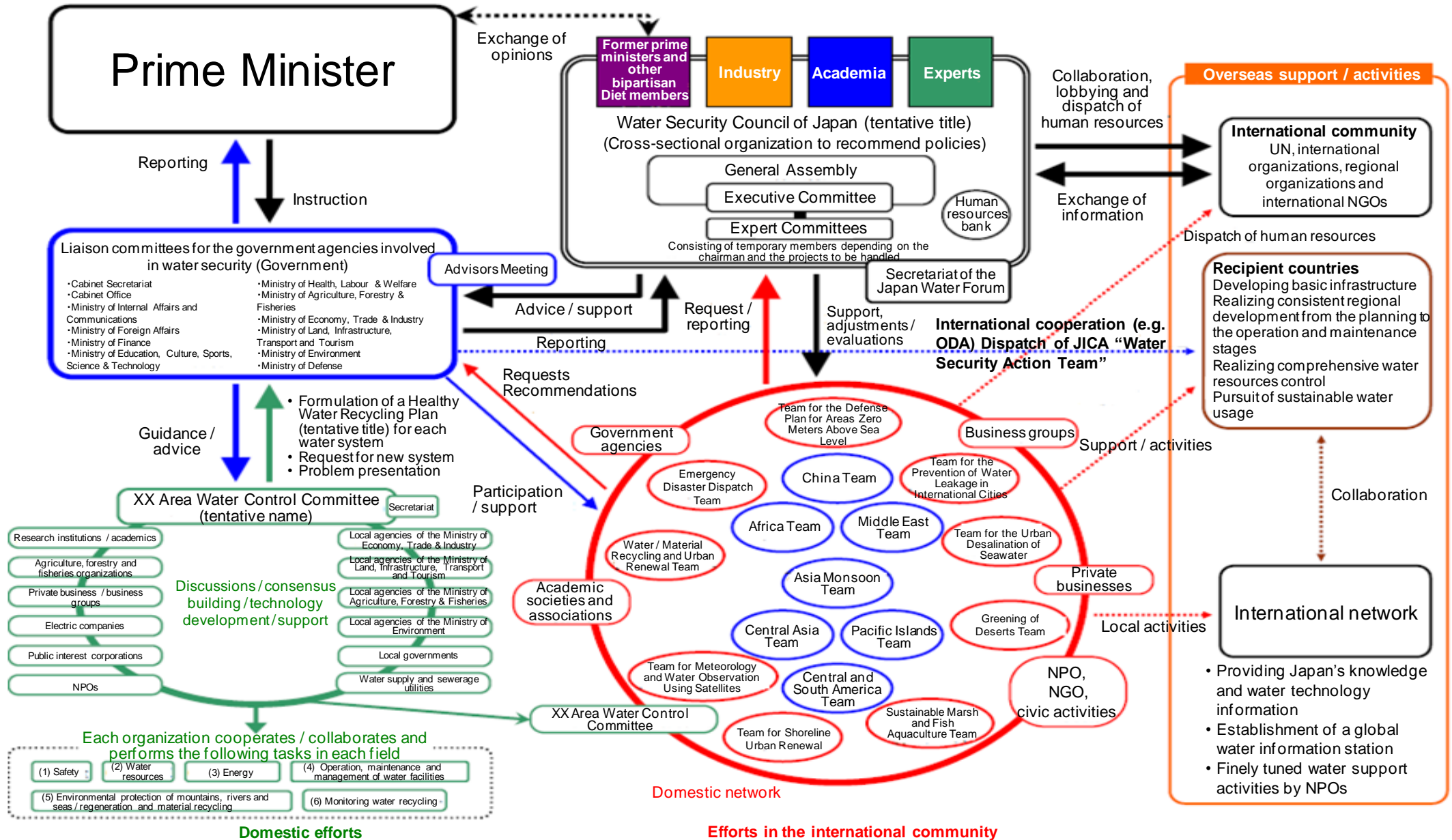
“Team Water Japan” has classified its efforts to ensure water security under the following four categories: (1) Establishing a system, (2) Establishing a collaboration between industry, government and academia, (3) Building a framework for international contributions, and (4) Formulating measures for public participation in international contributions. The first two are intended for the promotion of business, while the latter two concern making international contributions.

Through the launch of “Team Water Japan,” the groundwork has been set for proactively addressing problems facing the world’s water resources, based on the two pillars of business and international contributions. What strategies will the unprecedented framework of “Team Water Japan” develop and implement in the future? The challenge has only just begun.

Toward a sustainable future for Japan and the international community



Overall picture of "Team Water Japan"



Creation of a healthy water recycling area that is internationally competitive

Realization of a sustainable water recycling society