Activities for Environmental Conservation

I. Plan of the action for environmental conservation

1. Relation between projects and environment

When Japan Water Agency (hereafter referred to as "JWA") constructs and manages dams or canals, construction of the dam sites, canals, shifted roads and reservoirs cause impacts on the environment such as changes in or loss of the habitat of animals and plants, changes in the water quality of reservoirs, and changes in the downstream environment.

Prior to the start of each project, JWA conducts environmental research to estimate impacts on the environment, and takes measures to conserve the environment and reduce negative effects on the environment.

2. Basic stance of the action for environmental conservation

Under the management principle to “provide safe, good-quality water stably and reasonably for the people”, JWA is carrying out projects for the development and utilization of water resources with the recognition that the social mission of the action is to contribute to establishing an environment-friendly and sustainable society, and to conserving the global environment. JWA will continue environmental conservation activities based on knowledge, experience and determination.

We promote action in consideration for environmental conservation

- We promote actions to realize design, construction, and management in consideration for environmental conservation based on investigation of environment, prediction and evaluation of the influence on environment, and needs of the water users.
- We make effort for resource saving, energy saving, and recycling to reduce the environmental load.

Each staff works on environmental conservation positively

- Through classes for learning the environment and training on the environment, we improve consciousness and knowledge of the staff for the environment.
- In the classes for learning environment, we call for the participation of the persons concerned of the construction and the investigation, residents in the region, and water users to share consciousness with many people for the conservation of the area environment.

We communicate with the society

- We publish the action for environmental conservation and get understanding from the society for the project activities.
- As a member of the community, we communicate with the society through environmental conservation activities.
3. **Organization of the action for environmental conservation**

JWA is organized by the Headquarters, Water Resources Engineering Department, Regional Bureaus, Basin Bureaus and offices.

Each of the organization is defining the staff corresponding to natural environment, water environment, recycling of construction byproduct, purchase of environmental goods, etc., and is promoting measures for environmental preservation steadily.

4. **Use of the environmental management system**

JWA applies environmental management system to promote action for environmental conservation while improving it continuously, and plans a certain management of the aim and continuous improvement every year by PDCA cycle.
II. Action for environmental conservation

1. Action in consideration for conservation of regional environment
   1) Conservation of the natural environment
      ① Implementation of environmental research and environmental conservation measures
         In order to avoid and reduce the influence on the environment by the projects as much as possible, JWA performs environmental research, predicts the influence on the natural environment by the projects, and performs the environmental conservation measures according to the result.
         Moreover, after performing the environmental preservation measures, monitoring investigation is conducted in order to check the effect.

      【Protection of rare animals】
      Buchi Salamander (larva)
      Protection of Buchi Salamander (larva)

      【Creation of good forest environment】
      Scene immediately after tree thinning (Dec,2009)
      Scene 2 years after tree thinning (Aug,2011)

   ② Environmental inspection for environmental conservation
      In implementation of the dam construction accompanied by geographical change, JWA grasps the present condition of environment by inspection etc., and performs the measures according to the situation.
③ Committees and review conferences related to the environment

In order to suitably grapple environmental conservation, JWA establishes committees and review conferences related to the environment which consists of learned people and experts, and implements the projects under their guidance and advice.

Meeting of committee

2) Preservation of the Water Environment
① Acquisition of Information on Water Quality

Firstly, the water quality conditions should be checked for conservation of the water environment and providing safe and good-quality water. JWA routinely acquires the water quality information by inspection, regular water quality analysis, automatic water-quality observation equipment, and water-quality information obtained from users and other organizations at all of the sites managed by JWA, in order to implement the measure for water quality conservation according to the situation.
② Preventing abnormalities of the water quality

The progress of eutrophication (increase in nutrient salt) in reservoirs may often cause overgrowth of phytoplankton, occurrence of blue-green algae and freshwater red tides, which result in various problems such as mustiness, landscape deterioration, and filtering failures at water purification plants. The environment in downstream areas is also affected by the cold-water phenomenon*1 and long-lasting turbid water phenomenon*2 after floods.

To prevent these problems, JWA has introduced monitoring of water quality, various types of water-quality maintenance equipment such as aeration-circulation equipment and selective in-take equipment. Moreover, JWA has implemented nutrient salt load reduction from the river basin by cooperation with the related organizations to restrict the occurrence of abnormal water quality.

*1: Cold-water phenomenon: Discharging cold water from middle or deeper layer of the reservoir will cause lower temperatures of the river water in the downstream than the upstream area of a dam, which affects the habitat of fish and the growth of rice.

*2: Long-lasting turbid water phenomenon: Floods produces turbid water from the erosion of soil by rain, and the reservoir stores and discharges the turbid water gradually after the flood, so the turbid water remains for a long period in the downstream area of the dam. The long-lasting turbid water affects the landscape in the downstream area, the growth of algae, and the habitat of fish.
③ Countermeasures Against Abnormality of Water Quality

If any abnormality is found in the water quality, JWA will immediately inform the water users and the institutions concerned of the abnormality, while making best efforts to supply water of good quality and reduce the effect by operating the selective in-take equipment.

Furthermore, JWA is conducting measures toward improvement of the water quality through the installation and operation of water-quality maintenance equipment.

Installation of partitioning fence (freshwater red tides)

Odor check (blue-green algae)

④ Action for Improvement of Water Quality

As an activity for the improvement of water quality, JWA is also formulating the structure which shares information about the measure towards water quality situation or water quality improvement and strengthens cooperation with users while developing effective and efficient operational method of water-quality-maintenance facilities, and new water-quality-improvement method.

【Effects of the Aeration circulation equipment】

Before installation of the equipment

After installation of the equipment

3) Action to Promote a Recycling-Oriented Society

① Implementation plan of the Global warming countermeasures

The “Japan Water Agency Implementation plan of the Global warming countermeasures” is formulated and released.
In this implementation plan, the control target of greenhouse gas emissions accompanied with the activities of the projects of JWA and the measure for attaining it are determined.

JWA further promotes the measures towards control of greenhouse gas emissions based on this implementation plan.

② Development and Use of Clean Energy

As global warming countermeasures, it is very important to use renewable energy which does not emit greenhouse gas, such as carbon dioxide. JWA strives for use of clean energy by employing the existing hydraulic power station for facility management use while advancing the measures for new clean energy development.

![Hydraulic Power Station for Facility Management Use](image1)
![Solar Energy Generation Equipment](image2)

③ Recycling and Reuse of Resources

JWA controls construction byproducts such as the earth, chunks of concrete, and cut trees, generated from construction works, and is making an effective use of them by recycling. JWA's management offices are making effective use of driftwood flowing into dam reservoirs and grass cut near their facilities.

![Distribution of Firewood made with Driftwood](image3)
![Distribution of Cut Grass](image4)

2. Enhancing awareness of environmental conservation

1) Holding Classes for Learning the Environment

JWA holds classes for learning the environment. The objectives of these classes are to gain improvement of awareness and knowledge about the environment among its employees and to enhance the awareness of environmental conservation among those who work for the survey and construction work concerned.
JWA encourages the users and local residents to participate in these classes to gain their understanding for its environmental conservation activities.

Hands-on Learning Class

Class held on a requested location

2) Training on environment

JWA provides their employees with two types of training, i.e. general training and specialized training. General training is designed to let them have the basic knowledge. Specialized training is aimed at letting them have the specialized knowledge. Specialized training on environment includes special training in environmental conservation and special training on water quality management. General training includes curriculums on the environment. The employees also receive training on environment given by outside organizations.

Specialized Training on Environmental Conservation

Specialized Training on Water Quality Management

3) Preparation of Environmental Conservation Guidelines

JWA draws up the environmental action guidelines one by one to enhance employees’ awareness of the environmental conservation and to clarify its position to tackle the issue from the organizational and systematic viewpoint.

3. Communication with society

1) Issuing Information on environment

Through its web site, its PR magazines, leaflets, and various events, JWA issues diverse information about various works it is engaged in.

It includes various projects information on its environmental conservation activities.
JWA is endeavoring to gain the understanding from many people on its environmental conservation activities.

2) The facilities and adjacent environment friendly to the locality
Many of JWA facilities are located in the water-source areas or comparatively nature-rich urban districts.
The facilities and adjacent areas are surrounded by well-prepared waterside or green zone and are used by local residents and visitors from urban areas for strolls.
When constructing or reconstructing the facilities, JWA always carries out its work in harmony with local environment and landscaping in the local environment in mind.
3) Engagement in environmental conservation activities and communication with local communities

As people become increasingly conscious of the environment, local residents are conducting energetic activities such as cleanup of their local environments in many parts of the country.

As one of the community members, JWA is actively taking part in activities, such as improving forest, clean-up of, rivers and other areas, as well as education activities on environment in cooperation with municipal governments, and other organizations concerned.