

The Activities of the Association

The establishment and practical use of technical standards

1. Guide to rainwater storage and infiltration technology.
2. Guide for planning rainwater storage and infiltration facilities.
3. Rainwater storage and infiltration facilities design guide • Construction guide • Structural standards • Cost estimation standards
4. Guide to maintenance and management of rainwater storage and infiltration.
5. Guide to multipurpose usage of rainwater storage and infiltration facilities.

Investigation, Research, Development

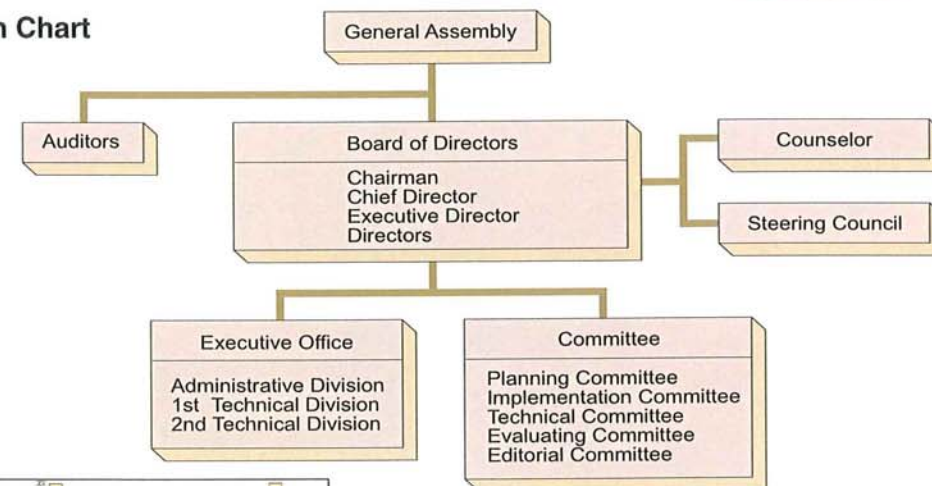
Activities to enlighten the public and promote wider usage

1. Promotion of rainwater storage and infiltration facilities use at offices and houses.
2. Publication of bulletins and technical reports.
3. Holding short courses on rainwater storage and infiltration technology.
4. Promotion of financial aid system and funding system supported by the government.

Evaluation and official approval

1. Evaluation of the design procedure
2. Evaluation and official approval of the construction method and technology.
3. Evaluation and official approval of the products.

Organization Chart



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Rainwater Storage and Infiltration

—Towards Advancement and Promotion of the Technology—



Association for Rainwater Storage and Infiltration Technology

To develop “a city with aquatic amenity”, we need rainwater storage and infiltration technology.

Rapid urbanization has led to clearing of woodlands and paving of the earth. As a result, rainwater now flows directly to the receiving waters such as rivers, instead of seeping down to the earth.

This leads to serious problems such as floods in cities, decrease of river low flows, deteriorating water quality and depletion of ground water resources.

Rainwater storage and Infiltration technology provides a highly effective means for solving such problems, not only for preventing flood damages but also for improving living environment.

In the past, Japanese government has implemented comprehensive flood mitigation measures mainly with conventional river improvements and additional improvements through retarding basins and regulating reservoirs. However, in recent times, a movement to emphasize on rainwater storage and infiltration as an alternative technology is gaining more and more support.

The technology draws considerable attention as measures to protect cities from floods and provide “the aquatic amenity” to urban inhabitants. We are doing our best to establish and promote the technology in order to contribute towards the improvement of national life.



The Articles of Association (Extract)

Purpose

Article 3 The association executes investigation, research and development related to the technology to store and infiltrate rainwater (hereafter referred to as “Rainwater Storage and Infiltration Technology”).

By means of disseminating its findings, the association contributes the implementation of comprehensive mitigation measures against flood damage and accordingly serves for the territorial integrity and the improvement of national life.

Enterprise

Article 4 The association executes the following in order to accomplish the purpose stated in the previous article.

- 1 Investigation, research and development related to Rainwater Storage and Infiltration Technology
- 2 The Establishment of technical standards related to Rainwater Storage and Infiltration facilities
- 3 Evaluation of Rainwater Storage and Infiltration Technology
- 4 Business related to the previous three items
- 5 Education of engineers concerned in operation, maintenance and management of Rainwater Storage and Infiltration facilities
- 6 Activity for enlightenment and promotion, such as the publication of bulletins and the collection and distribution of technical information
- 7 Holding research meetings and technical courses on Rainwater Storage and Infiltration Technology
- 8 Cooperation and suggestions to institutions related to Rainwater Storage and Infiltration Technology
- 9 Enterprises necessary for the association to accomplish its purpose.

History

Apr. 3, 1991 “Association for Rainwater Storage and Infiltration Technology” was established in accordance with the official permission by the Ministry of Construction.

Technology for Rainwater Storage and Infiltration

Technology for rainwater storage and infiltration is used to store rainwater temporarily or to infiltrate it into the earth in order to control the outflow into receiving waters.

Storing rainwater could be accomplished either by on-site measures or off-site measures. On-site type measures store rainwater at each location where the rainfall occur, whereas the off-site storing takes place at a site certain distance away from the location of the rainfall. On-site facilities store a small amount of water and thus its effect increases greatly when the number of installations are increased and distributed. This type is implemented between apartment buildings, in parking lots, residential gardens and at public facilities such as parks, schools, etc. On the other hand off-site facilities are used to store a large amount of water in the form of storage located under streets, retarding basins, regulating reservoirs, etc.

In order to infiltrate rainwater into the earth, permeable underground trenches, permeable connecting boxes, infiltrating artesian wells and infiltrating ponds are used in unpaved areas. Permeable

pavements are used along roads and car parks. Rainwater infiltration facilities are also used to increase the ground water recharge.

Thus, rainwater storage and infiltration technology contribute not only towards the prevention of floods but also to the enhancement of amenity.

The roles of the rainwater storage and infiltration

Prevents river floods in cities.

The decreased outflow of rainwater into the river
The constant outflow of rainwater into the river

The facilities of rainwater storage and Regulating Reservoir around residential areas control the outflow of rainwater into the river at the time of a flood. Consequently, the houses in the lower reaches of the river are protected from inundation.



Creates "a city with the aquatic amenity" and a beautiful landscape of the waterside.

The increase of river low flows
The return of springs and clear streams
The creation of the waterside environment

The living environment with springs and streams gives the amenity and comfort to a city life. The return of rainwater to the earth creates this environment.



Returns rainwater to the earth.

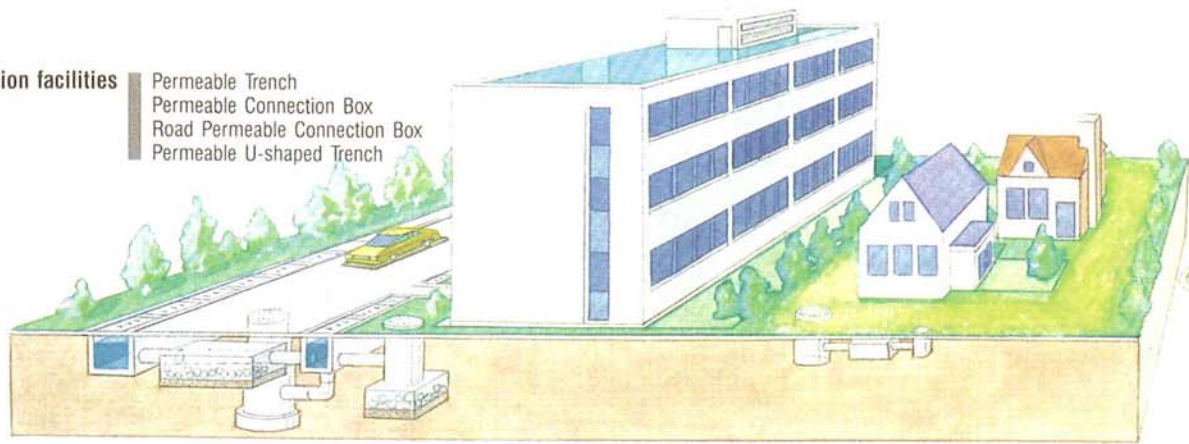
Recharge of the ground water
The prevention of ground shrinkage and soil decay

Infiltration of rainwater into the ground controls the outflow of the river, recharges the ground water, and prevents the ground shrinkage.
Infiltration is effective in both flood control and environmental conservation.



Rainwater storage and infiltration facilities are now in active use in the river basin.

Infiltration facilities
 Permeable Trench
 Permeable Connection Box
 Road Permeable Connection Box
 Permeable U-shaped Trench



● **Rainwater storage and infiltration in the golf course**
 The rainwater is stored and infiltrated in the area of the golf course in order to control the increased outflow due to the development.

● **Regulating Reservoir in the river basin**
 Regulating Reservoir is set up to control the increased outflow due to the development of the river basin.

● **Storage and infiltration for each house**
 The rainwater is stored and infiltrated at each house so that the outflow is controlled.



● **Multipurpose Retarding Basin**
 This Retarding Basin temporarily stores the flood water. When the flood water is not stored, it is used as a sports field, a tennis court and a parking lot.



● **Storage and infiltration between the apartment buildings**
 The rainwater is stored and infiltrated between the apartment buildings.

● **Storage and infiltration in the school grounds**
 The rainwater is stored and infiltrated in the school grounds.

● **Paving technique with high permeability**
 Permeability is maintained by paving the streets with permeable gravel.



● **Underground storage facilities**
 Rainwater storage facilities are set up under the ground where the upper ground is utilized for buildings, parking lots and parks. The stored rainwater is sometimes reused.

