

Water Circulating Town Project

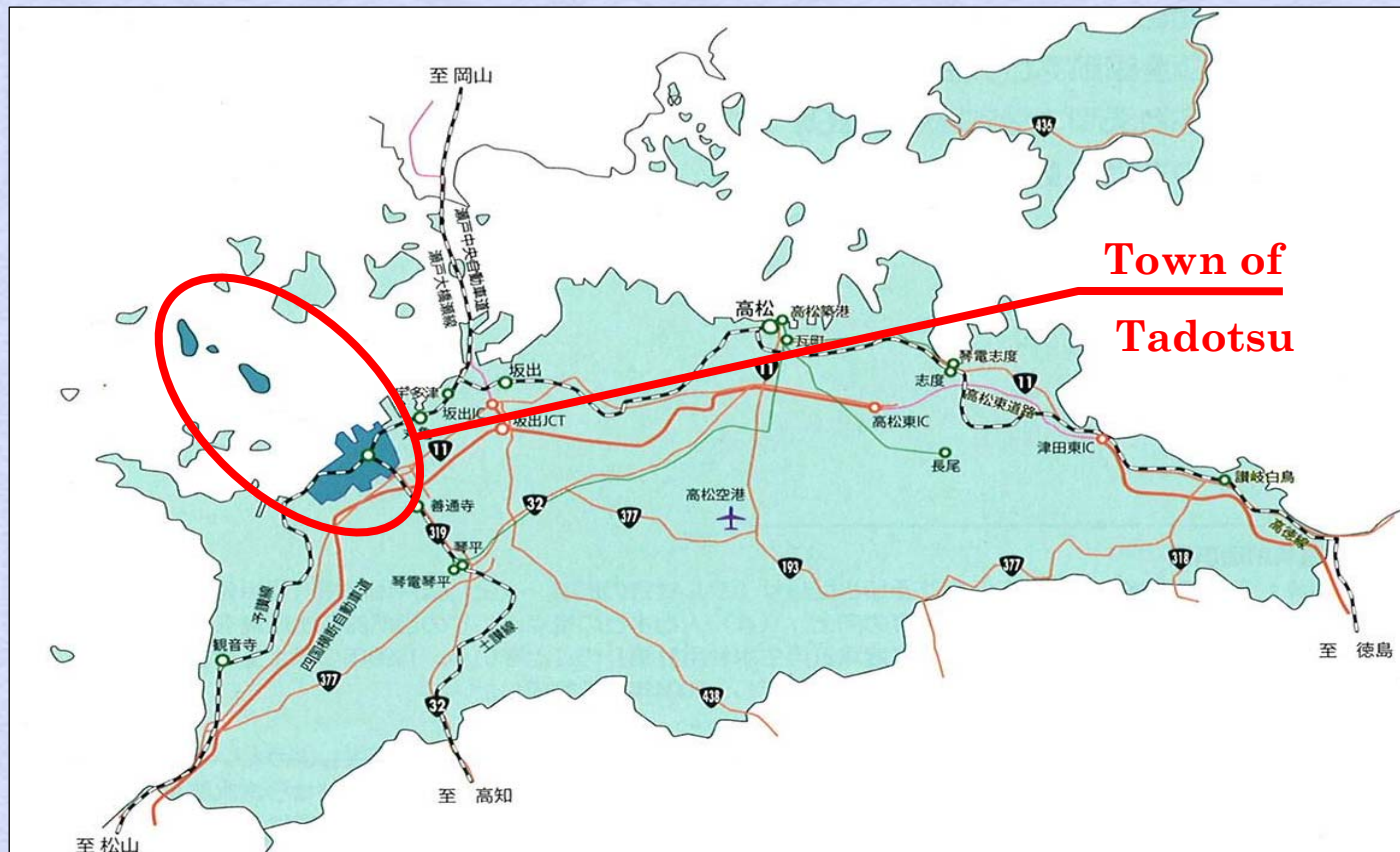
Application of Advanced Water Reuse System



Town of Tadotsu,
Kagawa Pref.

[Location of Tadotsu Town]

Map of Kagawa Pref.



Area	24.34 km ²	(7km east-west direction, 4km south-north direction)
Population	24,000 inhabitants	

the Seto Inland Sea



the Sanuki Plain



Seaside Industrial Complex



Newspaper article
(indicating climate change)

2007年(平成19年)12月2日(日曜日)

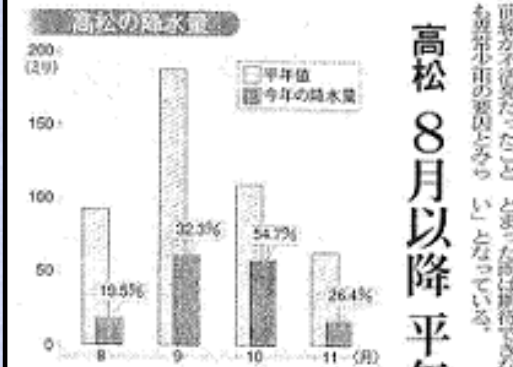
台風四国上陸ゼロ ■秋雨前線不活発

県内では8月以降にまとまった雨がなく、高松では8〜11月の4カ月間の合計降水量が52.5mm(平年値450.1mm)と、平年値の33.9%で観測史上ワースト3位を記録。11月は平年の4分の1にとどまっており、異常な少雨に見舞われている。高松地方気象台は「今年は台風の接近が少なく、秋雨前線も不活発だったため少雨となった。ただ、ここまで降らないのは極めて異例なこと」としている。

県内異常少雨

観測史上ワースト3位

高松の月別降水量をみると、▽8月18.0mm(平年値92.3mm)▽9月6.5mm(同117.7mm)▽10月5.7mm(同108.3mm)▽11月16.5mm(同62.4mm)と、4カ月とも平年値を下回っており、十月以外は平年値の半分も回っていない。気象庁によると、今年はまとまった雨が期待できる台風は発生数は平年並みだったものの、四国への上陸がなく、接近した台風も少なかったという。加えて、太平洋高気圧の勢力が強く、秋雨



高松 8月以降 平年の3割

前線が不活発だったこと、異常な少雨の要因とみられる。一方、早明湖ダム上流の降水量は、九月だけ平年より少なめ、まとまった雨は期待できない」となっている。

一、早明湖ダム上流の降水量は、九月だけ平年より少なめ、まとまった雨は期待できない」となっている。

また、県内土佐市の平均降水量は十一月三十日現在、6.6%、平年値(66%)、主要なため池(日八十一カ所)の平均降水量は十一月一日現在、6.7%(同58%)と、大きく平年値を下回っている。

Scheme of water recycling project

Water Circulating Town – Water Reuse Network for Sustainable Development

up to 10,000m³/day
WWTP effluent can be
pumped for recycle



Kanakuragawa
WWTP

- ① additional treatment
on WWTP effluent,
pumping recycled
water to upstream



small
streams
with
recycled
water

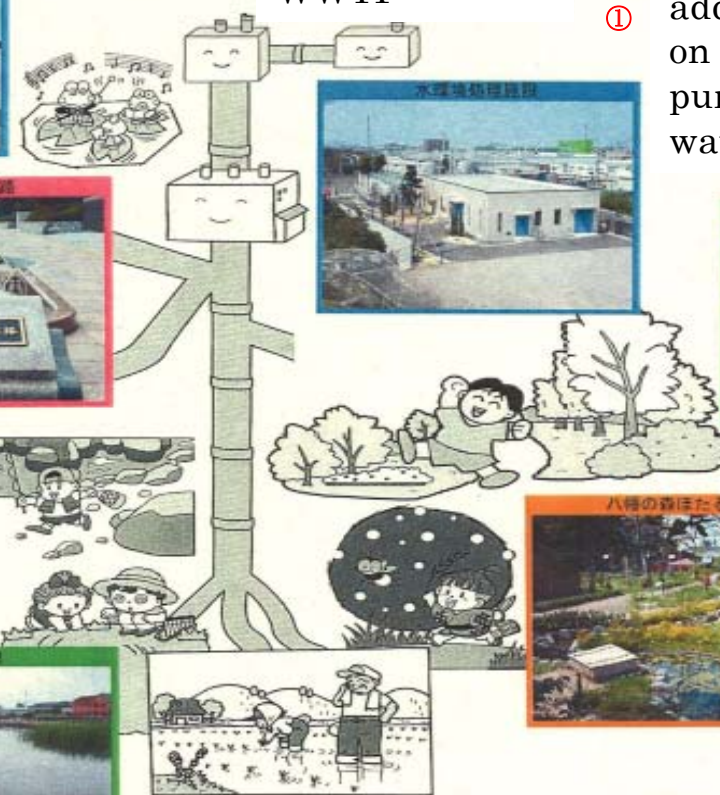


- ④ nature park
with recycled
water stream

- ② reclamation of
urban river
environment by
recycled water

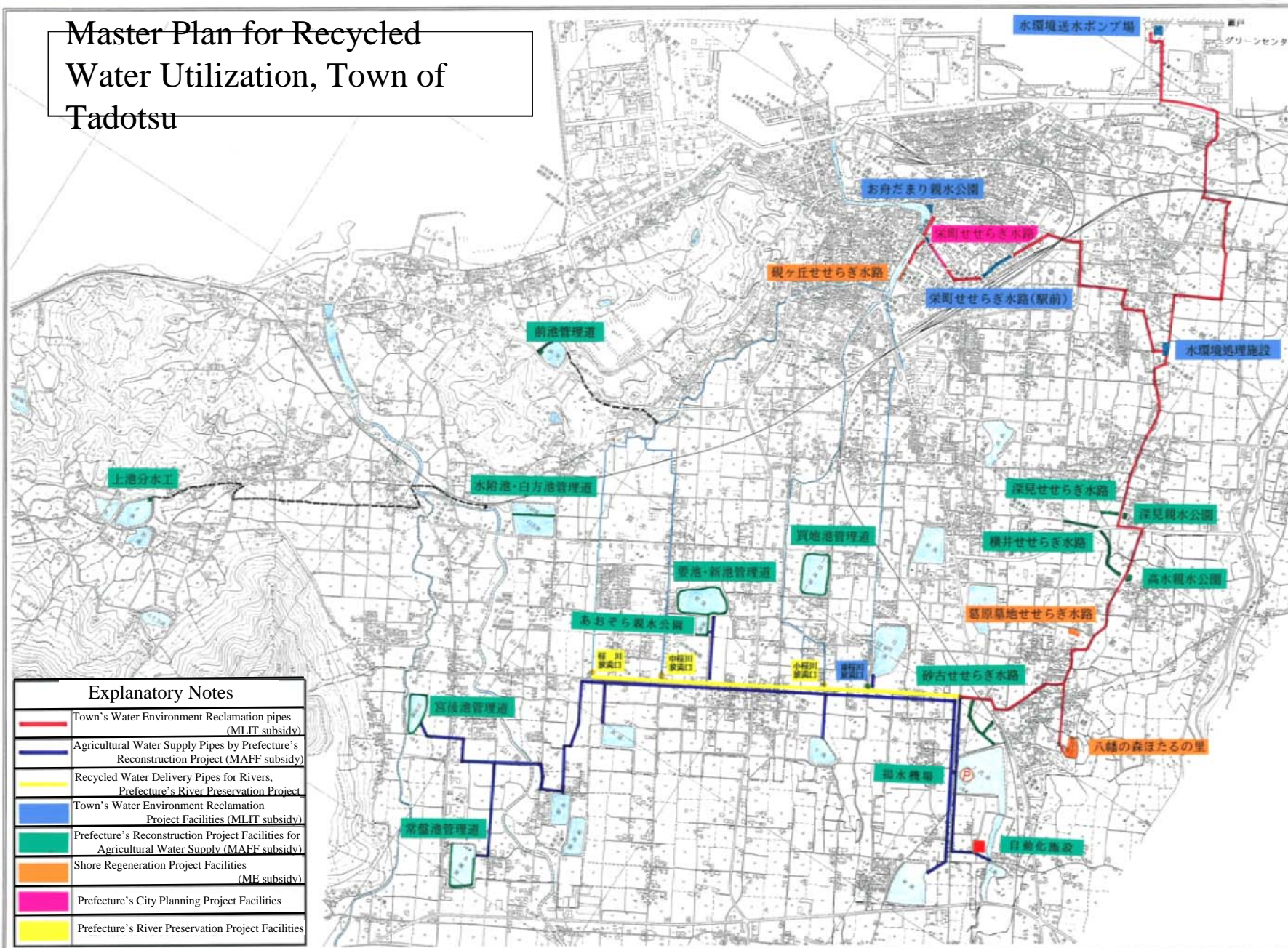


- ③ supply recycled
water for
agricultural use
at the dry season



Ministry of Land, Infrastructure and Transport
Ministry of Environment
Ministry of Agriculture, Forestry and Fisheries
City Planning Section, Kagawa Pref.
River and Erosion Control Section, Kagawa Pref.

Master Plan for Recycled Water Utilization, Town of Tadotsu



Technology Options For Recycling Water

After decreasing BOD level to 15 or less Mg/l through conventional activated sludge process, BOD level is further reduced to 3 or less Mg/l by additional wastewater treatment. There are two technology options of advanced wastewater treatment for recycling water.

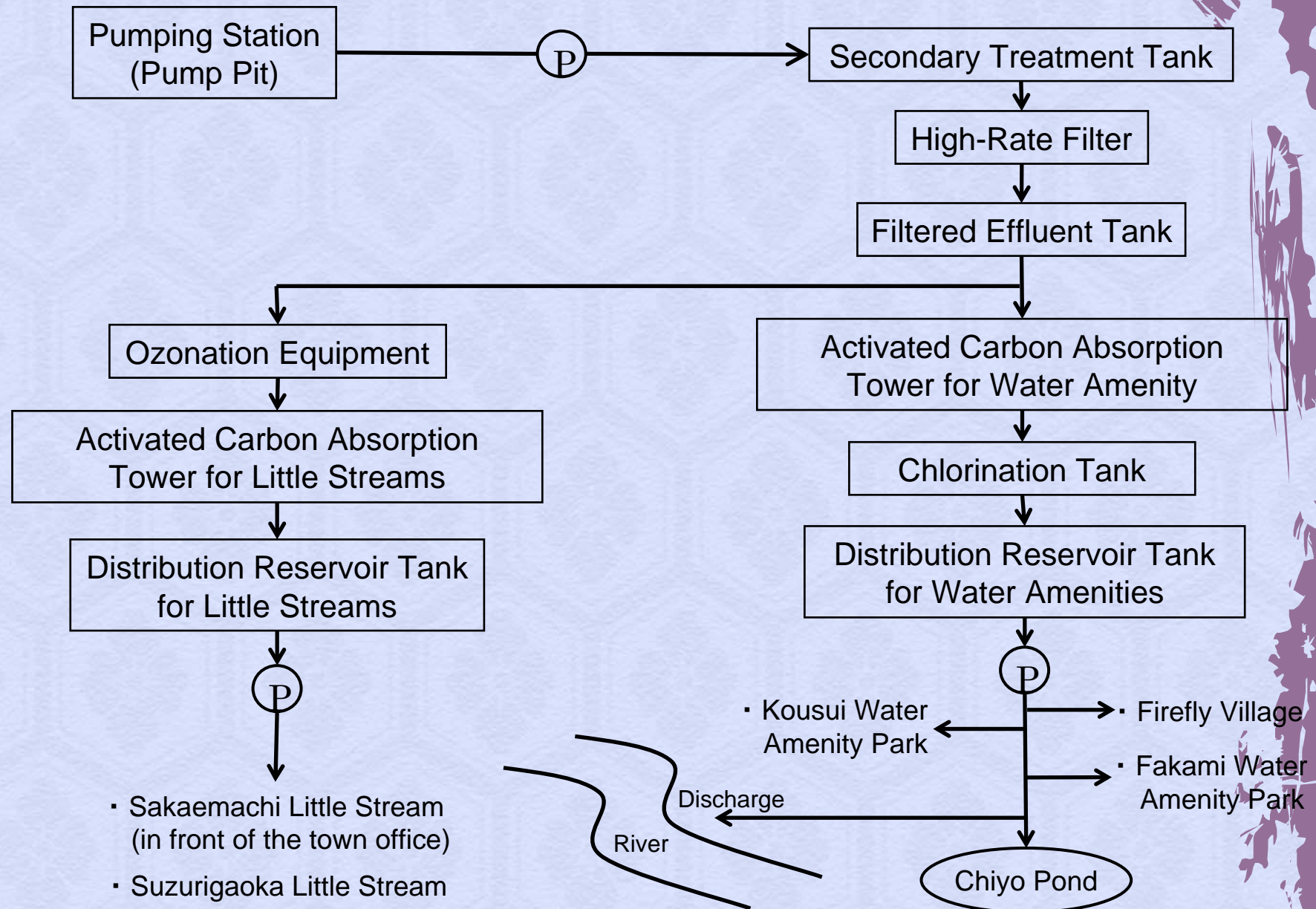
(Treatment process for water used in little streams)
chemical precipitation + ozonation + activated carbon treatment

(Treatment process for water amenity)
chemical precipitation + activated carbon treatment + disinfection by chlorination

BOD 3 Mg/l is Japan's water quality standard for landscapes.

To attain this standard, the most cost effective processes among wastewater treatment technologies are adopted.

Outline Flowchart of Water Recycled Utilization of Tadotsu



[Components of Recycled Water Utilization Project]

①Kanakuragawa WWTP



②the Plant for Additional Treatment



③Kozakuragawa Water Park



④Agricultural Water Cannel



⑤Yahatanomori Firefly Park



⑥Kousui Water Amenity Park



⑦Sakaemachi Water Amenity Channel



⑧Sprinkle with recycled water



〔Additional Facility〕

Submerged mixer for Agricultural Reservoir



〔Public Involvement〕

Project Briefing for Inhabitants



Institution and Management

➤ Institution

At the beginning of the “Master Plan for Recycled Water Utilization, Town of Tadotsu”, the mayor of our town created a project team for “Recycled Water Utilization”.

➤ Operation and maintenance (O&M) after implementation of facilities

- ◆ O&M of the wastewater treatment plant and the equipment for additional wastewater treatment is done by specialized maintenance companies selected through competitive biddings.
- ◆ The maintenance of little streams and water amenity parks is done through the cooperation of the town office and volunteer organizations from our town.

To promote usage or long-term durability of these facilities, the town office conducts regular public campaigns to inform and educate communities.

[Public Involvement in Water Recycle Project]

Volunteer Cleaning Activity – Sakaemachi Water Amenity Channel



Volunteer Cleaning Activities

Water Amenity Park



Yahatanomori Firefly Park



〔Environmental Education through the project〕

lecture by the town staff

(pond in front of the town hall)



Agriculture School with Recycled Water



Financial Sustainability - 1

➤ Subsidy

In compliance with Japan's regulations, **50% of the capital cost** of the project (including the cost for the wastewater treatment plant and other water environmental facilities) was **subsidized by the central government**.

The remaining **50% of the capital cost** was **paid by our town**.

➤ Burden of our town for the capital cost

Our town office created a **bond for the remaining 50% of the capital cost**. 50% of the bond refund expense were covered by a local allocation tax provided by the central government. Consequently, the capital cost burden for our town was only 25%.

This method is the most common financing method in Japan's sewer projects.

Sustainable financial scheme
(Only 25% of the total cost covered by Tadotsu Town)

Financial Sustainability - 2

➤ Sewer user charge

- **O&M cost for WWT facilities is paid by sewer user charge.**
- Sewer users charge is 169.6 yen/m³ (2.05 USD/m³).
- O&M cost is 80.6 yen/m³ (1.00 USD/m³).

The difference between the charge and the cost are appropriately set up to refund the local bond.

➤ O&M cost for water environmental facilities

- O&M cost for water environmental facilities is 38.5 yen/m³ (0.50 USD/m³)
- One third of the cost is the electric cost needed for sending water through pumps to little streams and water amenity parks.
- **O&M cost for water environmental facilities is paid by our town through local taxes** (not from sewer user charges). Such policy has been decided as little streams and water amenity parks are used by all residents.

*Sustainable financial scheme
with effective cost recovery system*

Japan Waterworks Award – the LI&T Minister's Prize



[Accepting Inspection]



The Forum Committee on Water Security



視察する松井国交省下水道部長、小國多度津町長、遠藤委員長、吉村幹事委員、竹村幹事委員、山田幹事委員（左から）



「チーム水・日本」を全国に

香川県多度津町で地域フォーラム

全国民参加の「チーム水・日本」へ——自民党・水の安全保障に関する特命委員会委員長「遠藤武彦元農水相」と水の安全保障戦略機構は2日、1月30日に発進した「チーム水・日本」構想の全国展開をはかる「地域フォーラム」を香川県多度津町を皮切りにスタートさせた。

下水処理水を徹底的に活用したまちづくりをすすめる、いまや世界各国から視察に訪れる「水の国際都市」多度津町。フォーラムにあわせて行われた現地視察では、住民一体となって取り組む再生水ネットワークに遠藤委員長ら水の安全保障戦略機構幹部が感嘆した。

フォーラムは今後も定期的に行っていく予定で、「チーム水・日本」の普及とともに、市民や地方公共団体などから水に対する問題意識を吸い上げる場としても貴重な機会となりそうだ。【関連記事3面】

The slide features a light blue background with decorative floral patterns in the corners. The top-left corner has a small, stylized flower. The top-right corner has a larger, more detailed floral arrangement. The bottom-left corner has a small, stylized flower. The bottom-right corner has a large, detailed floral arrangement.

Thank You for Your Kind Attention

**We hope you to visit our town and
water recycled utilization facilities.**

Town of Tadotsu,
Kagawa Pref.