

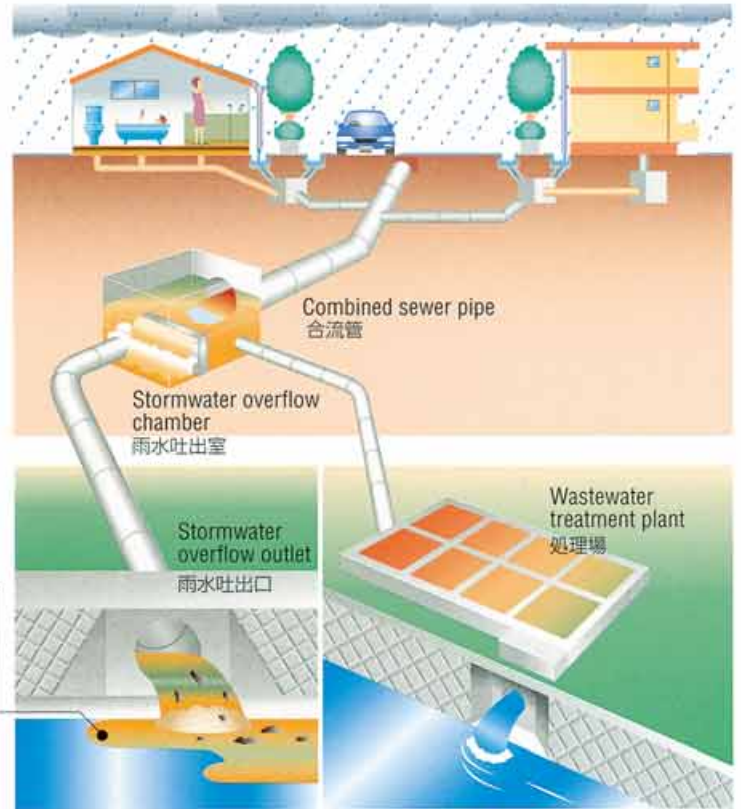


Improvement in the Combined Sewer Overflow Control 合流式下水道の改善

In Japan, the combined sewer system that drains stormwater and wastewater in the same pipes to treat, are being used especially in large cities. Although this system allows for the rapid promotion of flush toilets and flood control measures simultaneously, it sometimes permits untreated wastewater to be discharged into public water bodies along with stormwater when it rains. To prevent this problem from happening, comprehensive measures to improve the combined sewer system have been made.

日本では、汚水と雨水を同一の管きよで排除し処理する合流式下水道が大都市を中心に整備されてきました。合流式下水道は、水洗化の促進と浸水対策を同時に進めることができる一方、雨天時には未処理の汚水が雨水とともに公共用水域に排出されることがあります。このため、合流式下水道の改善を図る総合的な取り組みが行われています。

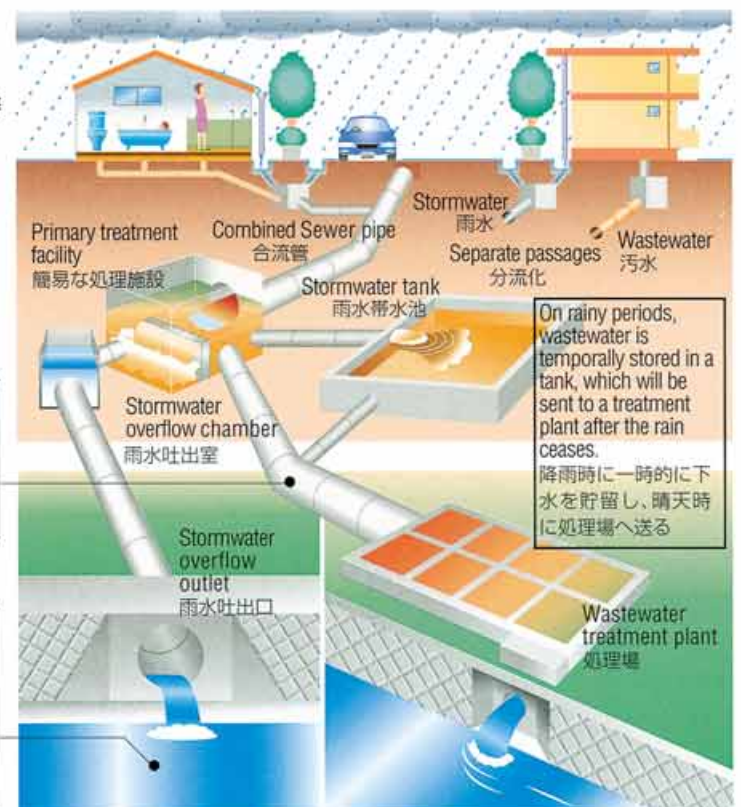
Problems of the Combined Sewer System
合流式下水道の問題点



Excess wastewater will be discharged into a river instead of being sent to a treatment plant during a rainy period.
雨天時に処理場へ送り切れない下水が河川へ流出する

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Combined Sewer System after Improvement
合流式下水道の改善



Increase the amount to be sent to treatment plants by means of interception
遮集して、処理場へ送る量を増やす

The amount of wastewater to be discharged into rivers and other water bodies during a rainy period will be controlled.
雨天時に河川等に流出する汚れが抑制される

On rainy periods, wastewater is temporarily stored in a tank, which will be sent to a treatment plant after the rain ceases.
降雨時に一時的に下水を貯留し、晴天時に処理場へ送る

High-Rate Coagulating Sedimentation Process 高速凝集沈澱処理法



High-Rate filtration facility at the Shibaura Treatment Plant in Tokyo
高速ろ過処理施設（東京都芝浦下水処理場）

One of the measures for the improvement of combined sewer overflow control is an upgrade in the efficiency of primary treatment at plants, using high-rate coagulating sedimentation process and high-rate filtration process etc. In the high-rate coagulating sedimentation process, microsand acts as a nucleus for the suspended solids in the wastewater, which are coagulated with a flocculant, thus increasing the gravity of the flock and enabling rapid coagulation. The process is useful for wastewater treatment when there is heavy rainfall over a short time span.

合流式下水道の改善対策の一つに、高速凝集沈澱法や高速ろ過法等を用いた処理場における簡易処理の処理効率の高度化があります。高速凝集沈澱法は、マイクロサンド（微粒砂）を核として下水中のSSを凝集剤により凝集させてフロックの比重を大きくし、短時間での凝集沈澱を可能とした技術です。このため、短時間で多量に発生する雨天時の下水処理に有効です。

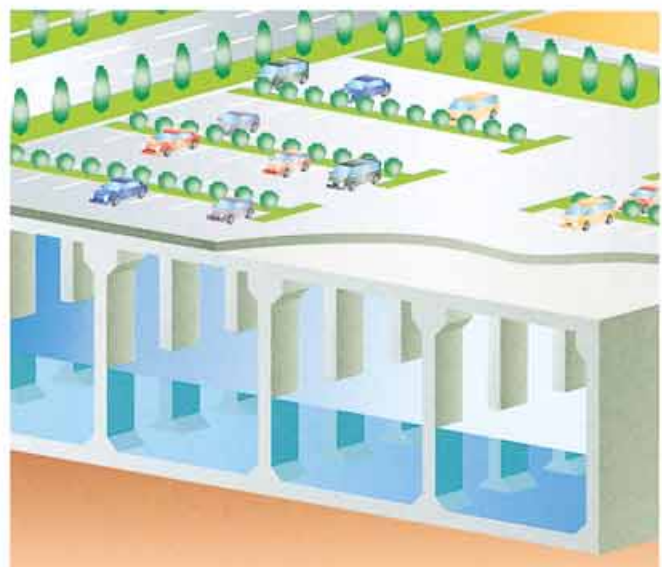
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Trunk Stormwater Pipe/Reservoir Pipes 雨水幹線／貯留管



The first flush is temporarily diverted to reservoir pipes due to substantial pollutant load when it begins to rain. With this reduction in initial load, pollution of public water bodies is decreased during rainy weather. Shield tunneling method is an excellent way to build large tunnels and stormwater pipes, and various shield tunneling methods suited to the topology and geology of Japan are under development. 降りはじめた初期の雨水は、汚濁負荷が大きい一時的に貯留管へ送られます。初期負荷の軽減により雨天時における公共用水域の汚濁を軽減することができます。シールド工法は、地中に大断面のトンネルや雨水貯留管を造るのに優れ、日本の地質や地形に適合するさまざまな工法が開発されています。

Stormwater Reservoir 雨水滞水池



Stormwater reservoir function both to improve the combined sewer system and control flooding. Adopting the use of precast concrete products can save time and cost in construction while building sturdier structures. 合流改善と浸水対策の機能を併せ持つ雨水滞水池です。プレキャストコンクリート製品を採用することにより、滞水池の建設が早くなり低コストで、しかも安定した構造体になります。