

Centralized Treatment and Decentralized Treatment Systems

To efficiently promote countermeasures for domestic wastewater, several kinds of domestic wastewater treatment facilities have been constructed in accordance with regional characteristics in Japan. In urban areas and villages with high population density, centralized systems such as sewerage systems and rural sewerage systems are planned and constructed; decentralized systems such as johkasou systems are constructed in rural areas with low population density.

Sewerage systems are usually constructed in urban areas, where houses, factories and office buildings are concentrated, collecting wastewater through a piping network system and treating the wastewater in a centralized manner at wastewater treatment plants that are usually located in areas downstream of rivers or near the seacoast. A sewerage system is usually designed to serve tens of thousands to several hundreds of thousands people and includes the treatment of industrial wastewater and rainwater.

A rural sewerage system is introduced primarily in farming villages for domestic wastewater treatment. Under this system, wastewater from each home is collected through a piping system and then delivered to a centralized treatment plant for treatment.

Johkasou systems are generally divided into ‘small-scale johkasou,’ which are designed for treating the domestic wastewater of individual houses, and ‘medium/large-scale johkasou,’ which are designed for treating the domestic wastewater of housing complexes, hospitals and other commercial facilities. However, most of the johkasou installed are small-scale johkasou.

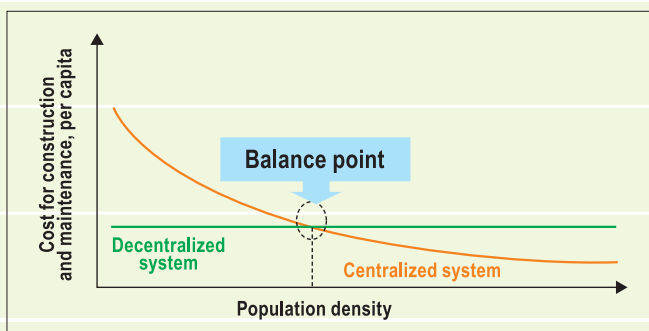


Figure 12 Comparison of decentralized/centralized system costs

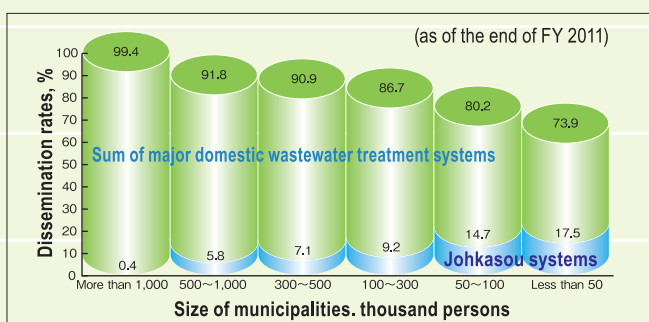


Figure 13 Dissemination rates of domestic wastewater treatment systems

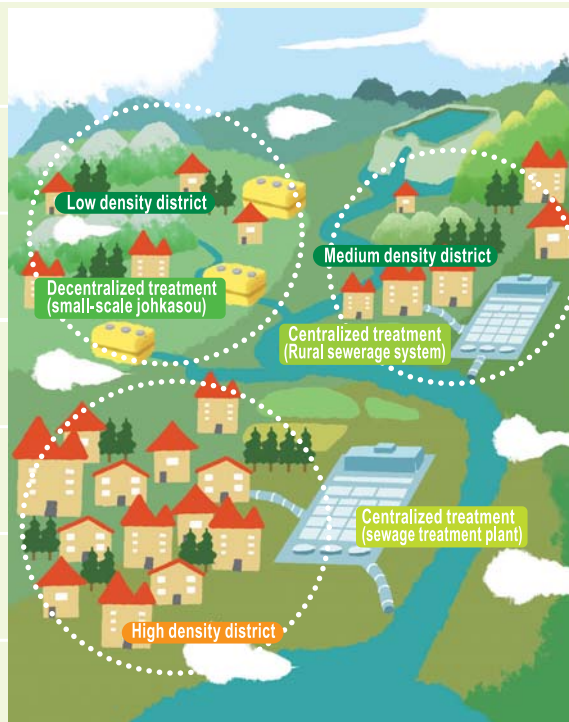


Figure 14 Schematic of decentralized/centralized systems

Table 2 Outline of major domestic wastewater treatment systems

Type of system or facility	Sewerage system	Rural sewerage system	Johkasou system	Night soil treatment facility
Purpose	Maintain the water quality of natural water resources and improve the living environment by collectively treating night soil, miscellaneous domestic wastewater, industrial wastewater and rainwater.	Maintain agricultural water/wastewater clean/safe and improve the living environment by collectively treating night soil, miscellaneous domestic wastewater and rainwater.	Maintain good water quality of public water bodies and a healthy living environment and promote public health by treating night soil and miscellaneous domestic wastewater onsite.	Maintain healthy living environment and promote public health by treating collected night soil and johkasou sludge.
Responsible agency	Municipalities	Municipalities	Individuals, communities and municipalities	Municipalities
Applicable district	Mainly urban areas	Agricultural villages within specified districts where agriculture is being promoted	Districts where johkasou installations are promoted	—
Applicable population	Approx. 10,000 or more	Up to about 1,000	—	—
Applicable wastewater	Night soil (flush toilet wastewater), miscellaneous domestic wastewater, industrial wastewater and rainwater	Night soil (flush toilet wastewater), miscellaneous domestic wastewater and rainwater	Night soil (flush toilet wastewater) and miscellaneous domestic wastewater	Collected night soil and johkasou sludge
Construction period	Approx. 5 years	3~5 years	Approx. 1 week up to 1 year	2~3 years
Competent authority	Ministry of Land, Infrastructure, Transport and Tourism	Ministry of Agriculture, Forestry and Fisheries	Ministry of the Environment	Ministry of the Environment