

Domestic Wastewater Treatment

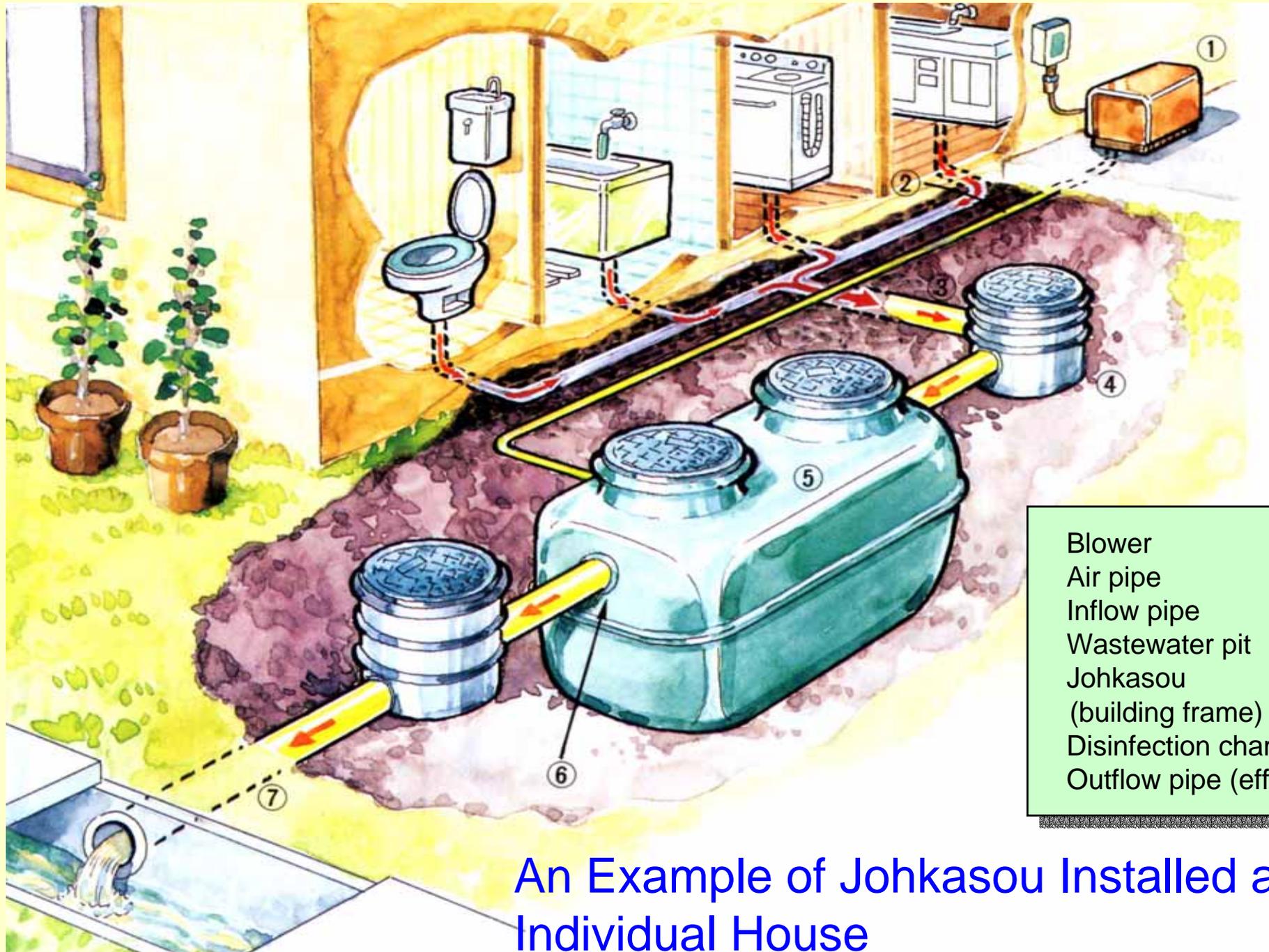
by Johkasou Systems in Japan



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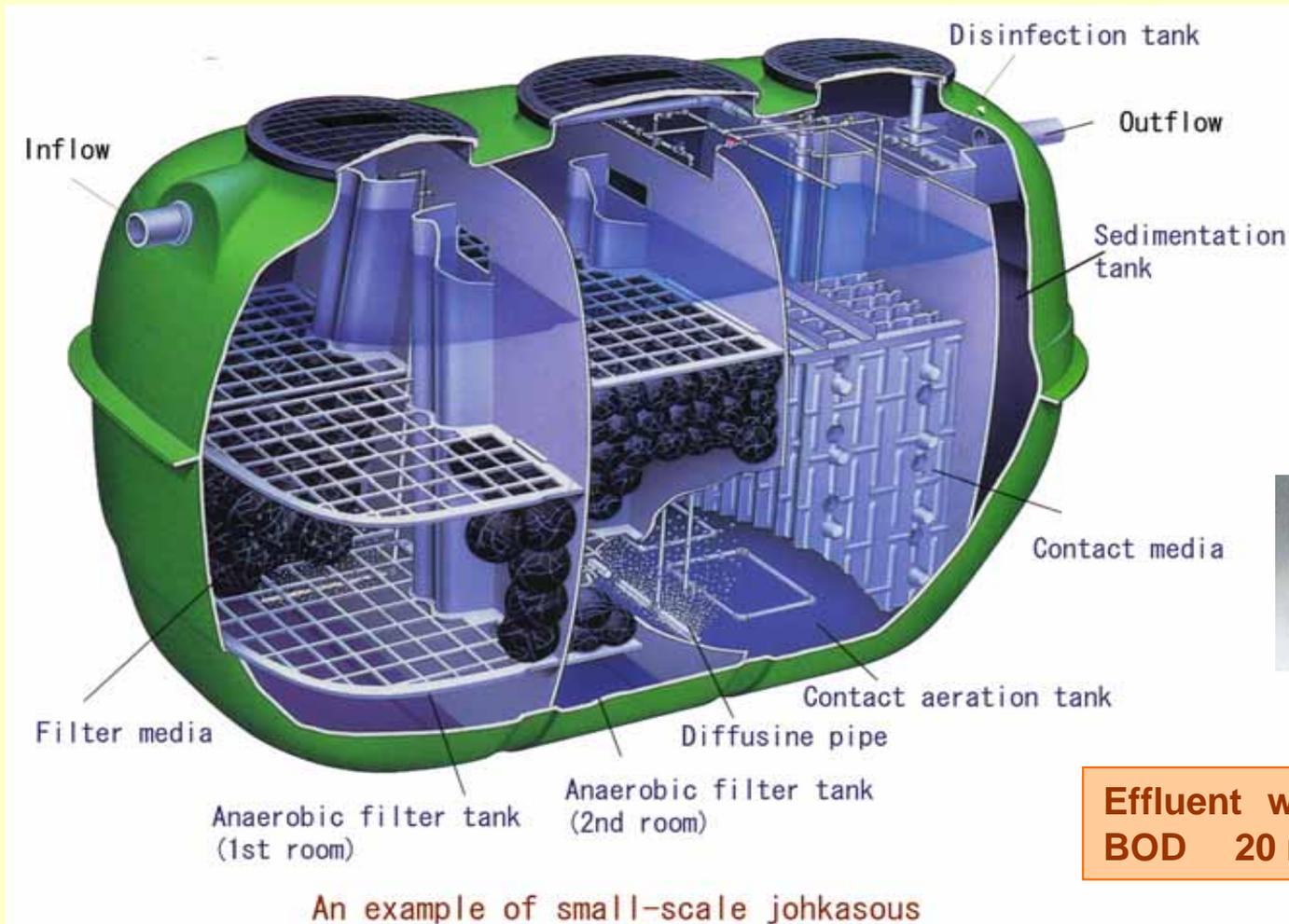
What is Johkasou?



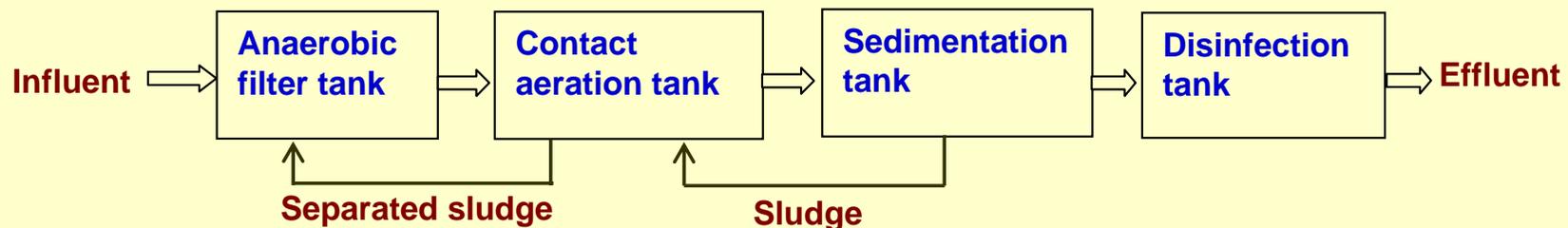
- Blower
- Air pipe
- Inflow pipe
- Wastewater pit
- Johkasou
- (building frame)
- Disinfection chamber
- Outflow pipe (effluent)

An Example of Johkasou Installed at Individual House

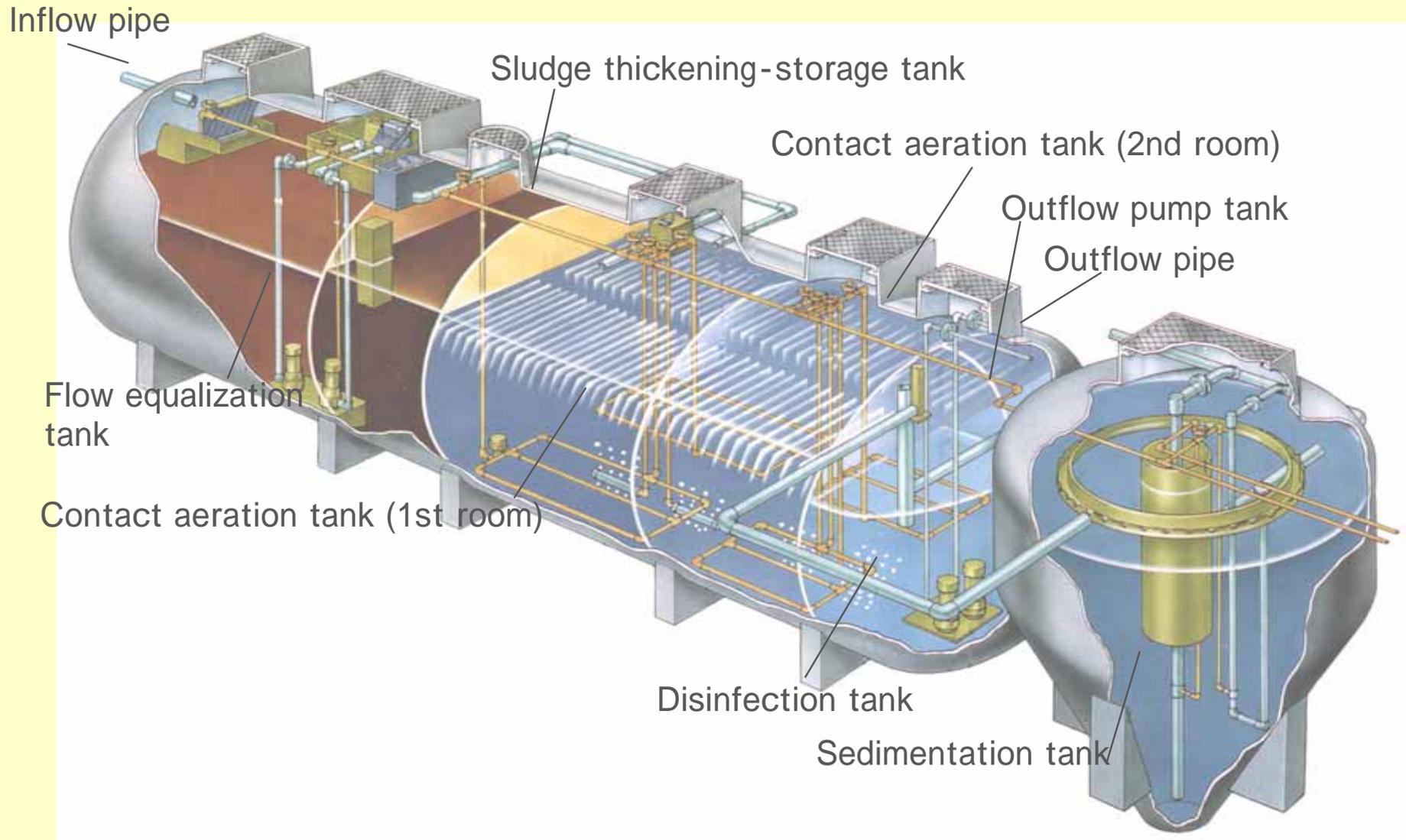
A small-scale Johkasou (FRP)



Effluent water quality
BOD 20 mg/l



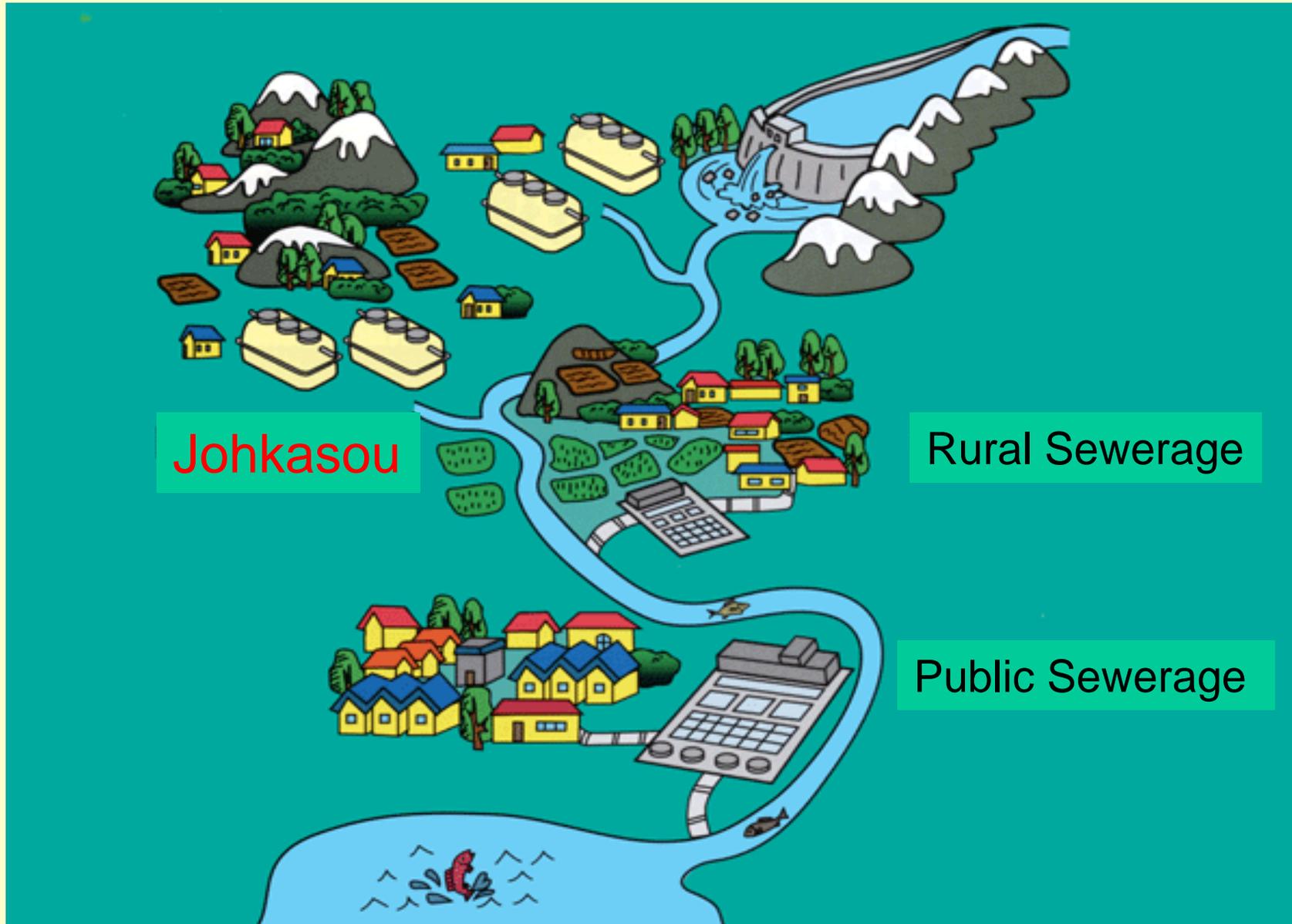
A Middle-scale Johkasou (FRP)



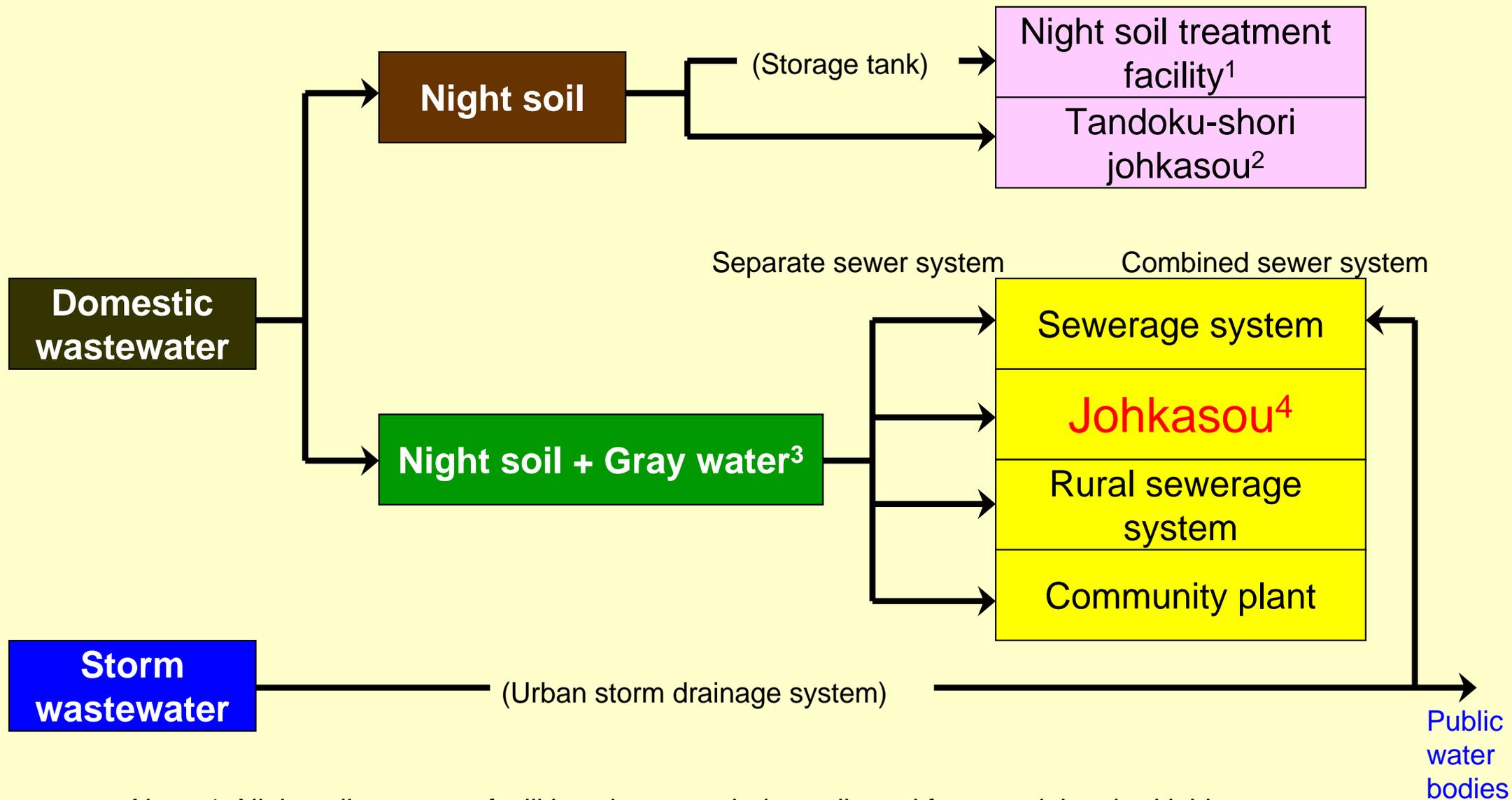
A Middle-scale Johkasou (RC)



Main Systems for Domestic Wastewater Treatment

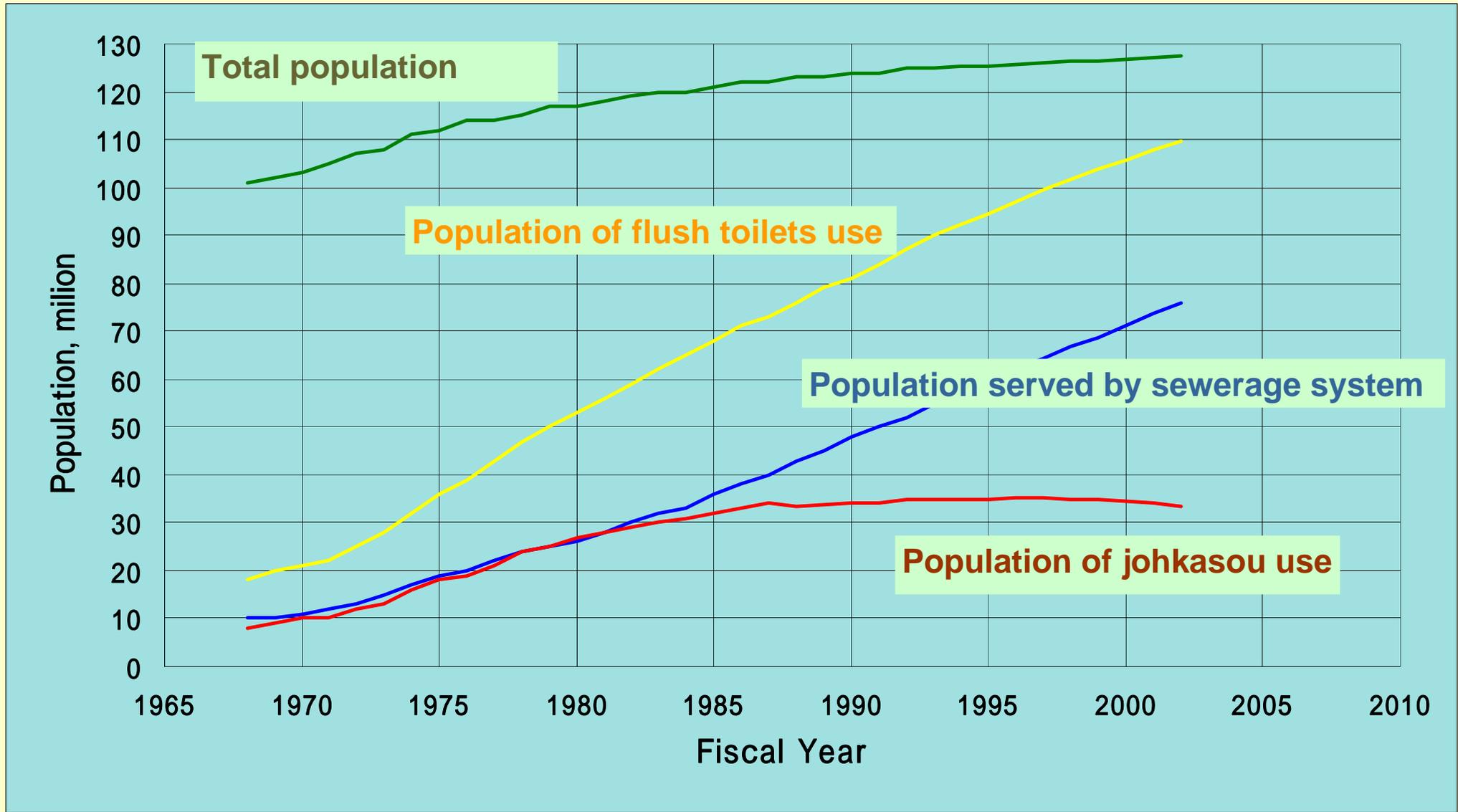


Various Systems for Treatment of Night Soil, Sewage and Wastewater in Japan



- Note: 1. Night soil treatment facilities also treat sludge collected from tandoku-shori johkasous, community plants, gappei-shori johkasous and sewerage system in rural area.
 2. The many are installed in individual houses.
 3. Gray water is miscellaneous domestic wastewater except night soil.
 4. Though not many facilities are installed in individual houses, the number is increasing.

Trends of Populations Served by Johkasou, etc.



Advantages of Johkasou System

Flush toilets can be used in unsewered districts.

Miscellaneous domestic wastewater can be treated, contributing to prevention of water pollution.

Conserving water in small rivers, a human-closely water environment will be formed.

A small-scale johkasou can be installed at a low cost and in short time.

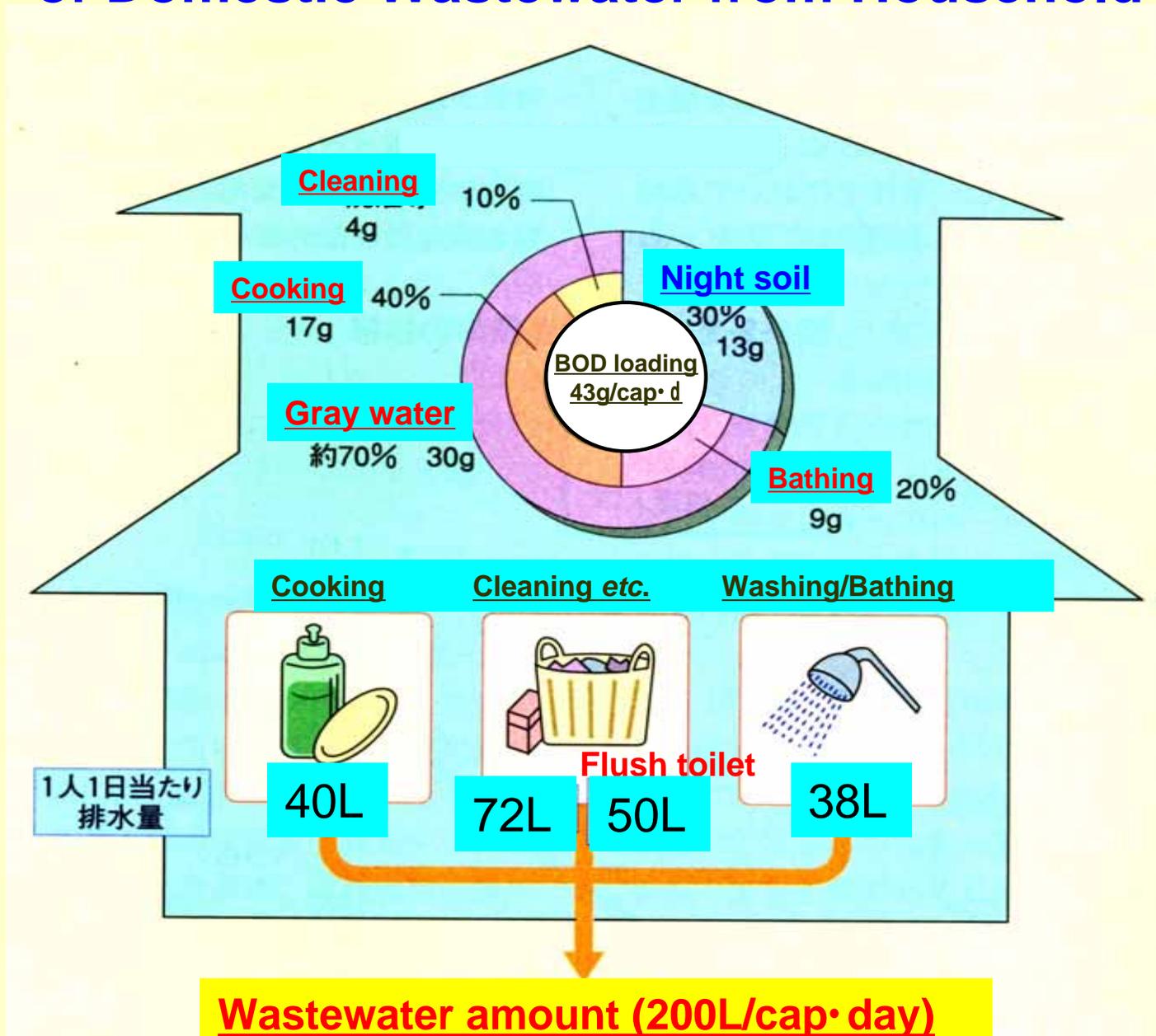
Wastewater collection and johkasou installation receive less influence of topographic conditions at the site.

Treated water can easily be reused for various purposes as a reliable water resource.

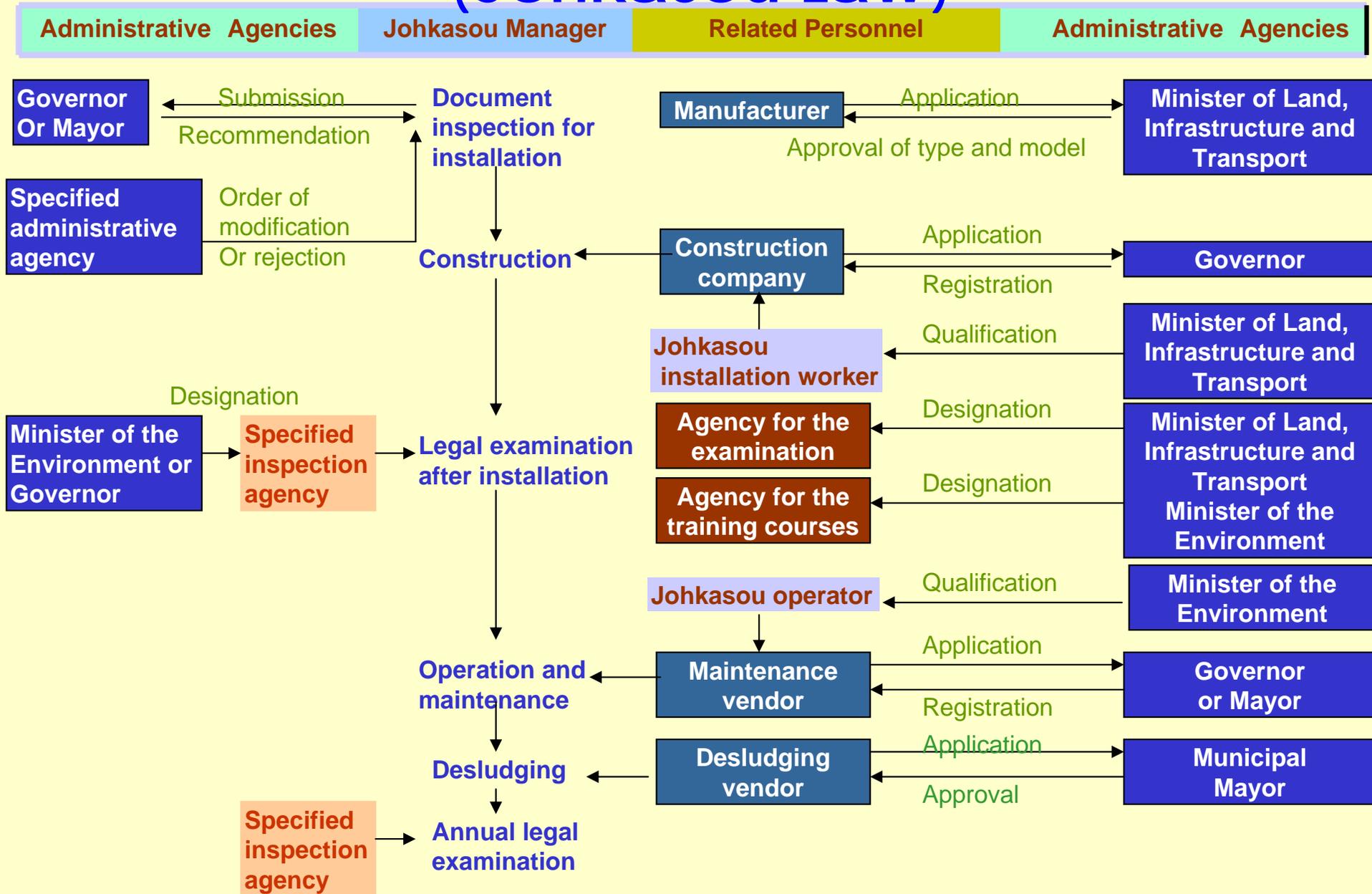
Sludge from johkasous can be used as fertilizer or for biomass production.

Johkasous have high resistance against earthquake and other disasters.

BOD Loading per capita per day of Domestic Wastewater from Household



Legal Systems of Johkasou Systems (Johkasou Law)

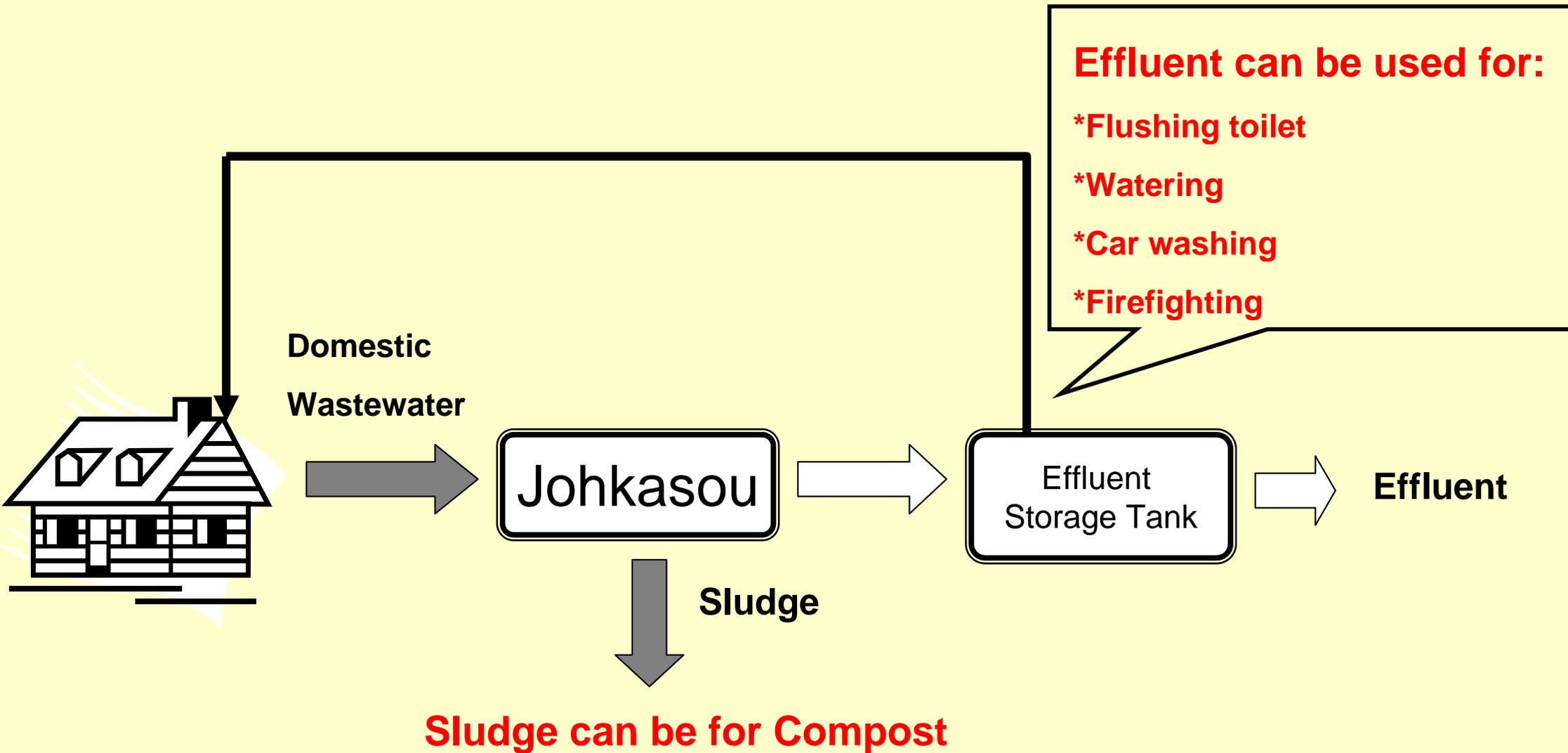


Johkasou Technicians and Vendors on Johkasou Business

| Classification | Number of person/vendor |
|--------------------------------|-------------------------|
| Johkasou operator | 63,104 |
| Johkasou installation worker | 77,728 |
| Johkasou inspector | 2,533 |
| Johkasou desludging technician | 14,205 |
| Vendor for johkasou O&M | 9,087 |
| Vendor for johkasou desludging | 4,806 |
| Specified examination agency | 65 |
| Johkasou manufacturer | 38 |

(By the end of Mar. 2005)

Reuse of Effluent and Sludge



Comparison of Different Subsidy Programs

(For installing a johkasou of 5 NUD, which will cost ¥860,000 if it is not subsidized)

In the case of Johkasou Installation Promotion Program:

| | |
|--|---|
| Amount subsidized by municipalities and the government(¥ 340,000) | Amount borne by the house owner (¥ 520,000) |
|--|---|

In the case of Johkasou Installation Program in Specified Areas:

| | | |
|--|---|--|
| Sewerage works construction bond (¥ 480,000) | Amount subsidized by government funding (¥ 290,000) | Amount borne by the house owner(¥ 90,000) |
|--|---|--|

**Toward the Water Quality Protection
in Public Water Bodies and the Creation
of Desirable Water , Reuse of Effluent and
Sludge**



The End