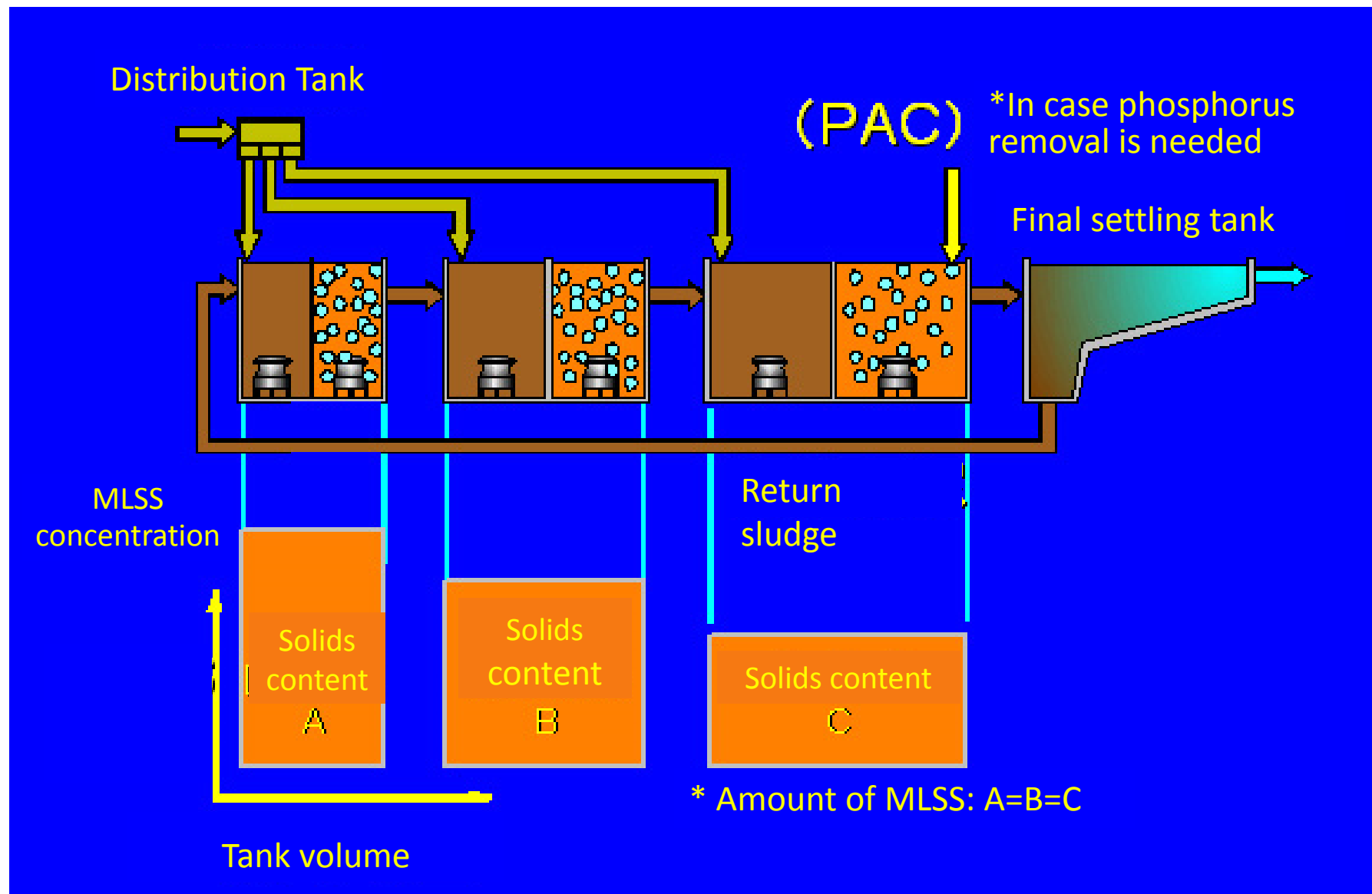


# Step-feed Multistage Nitrification/Denitrification

- Step-feed multistage nitrification/denitrification process was developed for the *efficient nitrogen removal*.
- The Process is a series system of plural (usually two or three) units.
- Each unit that consists of an anoxic and aerobic tank has *equal inflow and amount of MLSS*.
- This mechanism enables the equalization of organic matter loads and nitrogen loads. It also improves the efficiency of nitrogen removal.
- As of March 2013 in Japan, 42 municipal WWTPs adopt step-feed multistage nitrification/denitrification Process for their new constructions or retrofits. As nutrients removal is more considered, step-feed multistage nitrification/denitrification process will be one of the most preferable wastewater treatment processes.

# The process configuration



# Characteristics of Step-feed Multistage Nitrification/Denitrification Process

- Nitrogen removal rates are approx. 75 to 80%.
- The reactors of the process require smaller footprints than conventional nitrogen removal processes such as modified Ludzack-Ettinger process. As the figure shows, the tank volume of the Process is three fourth of Ludzack-Ettinger when it has three units.

