

# Mongolia: Sanitation Situationer in Ulaanbaatar City

# BRIEF INTRODUCTION OF UB CITY

- Ulaanbaatar is the capital of Mongolia.
- Population - 1.15 mln citizens /2010/
- Elevation-1351m above sea level
- Occupies the area of 4704 sq.km
- Lowest temperature -40°C
- Highest temperature +35°C



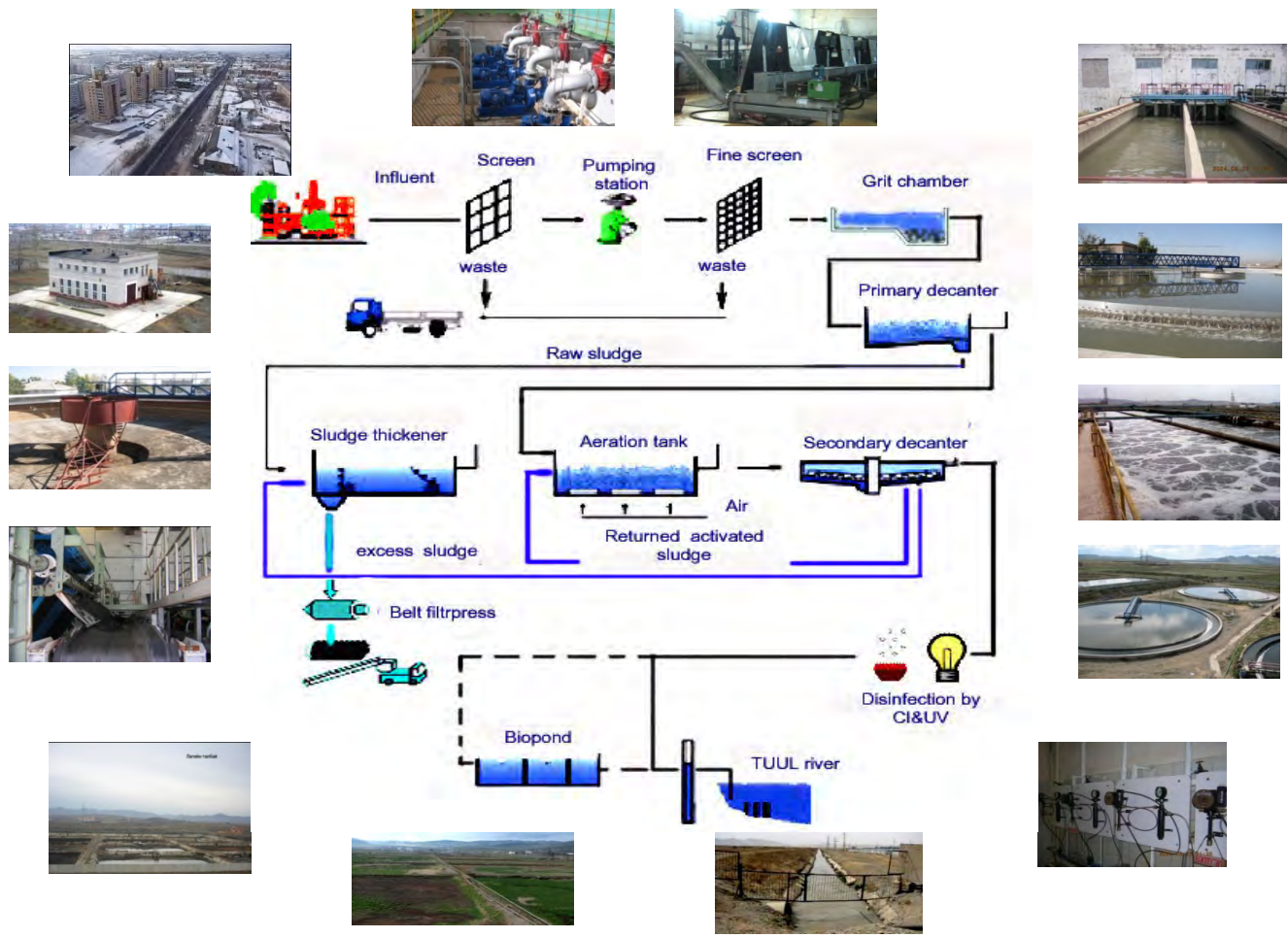
# CURRENT SEWERAGE CONDITION IN ULAANBAATAR

- About 53% of 260,000 households (HH) of Ulaanbaatar are individually connected to the water supply network.
- 147 kms. of existing sewer pipeline in city center collect the sewage of approx. 97, 000 HH (400,000people); material of pipe- ceramic, cast iron, ferroconcrete, and asbestos
- 2 main collectors cross the city from the East; discharge the sewage to the Central WWTP in the West of the city centre
- Collection network is old and in poor condition; rehabilitation of the existing sewers and extension of the network are necessary.
- Majority of the population however, especially in the ger areas disposes the sewage in simple pit latrines; there are 75,000 pit latrines in the ger
- 65% of Ulaanbaatar's population is not served by public sanitation services.

# THE CENTRAL WASTE WATER TREATMENT PLANT

- Constructed in 1964 with capacity of 45000m<sup>3</sup>/day; expanded in 1979-1986 with biological treatment and capacity was increased up to 200000m<sup>3</sup>/day.
- Treats domestic waste water from about 0.6 million inhabitants and waste water from industries; actual flow rate: 150000m<sup>3</sup>/day
- Method of sewage treatment - mechanical and activated sludge process
- Annual operation cost- 5.3 billion MNT /4.3mln\$/
- Total electricity consumption-21mln kWt (1.4mln\$)/year
- Cost for 1m<sup>3</sup> ww-MNT86.09 (0.06USD/m<sup>3</sup>)

# FLOWDIAGRAM OF WASTEWATER TREATMENT PLANT



# PROBLEMS IN CWWTP UB CITY

- Poor influent wastewater quality (uncontrolled amounts of industrial wastewater with high pollution)
- Treatment capacity WWTP insufficient
- Structural violation of water discharge standards (effluent standards are not met because of poor sludge quality and insufficient conversion of COD/BOD and NH<sub>3</sub>)
- Concrete facilities are old
- Sludge treatment technology lacking

# OTHER ISSUES AND CHALLENGES IN SANITATION

- Topography, lay-out of land (irregular streets), distance to the central utility networks make installation of piped services in *ger* areas difficult
- Norms and standards for infra development are geared for the city needs and not the ger areas
- Constructing and operating infrastructure facilities in the Mongolian climate is expensive and requires special measures to operate in winter
- High investment cost

# POTENTIAL AREAS FOR TECHNOLOGY EXCHANGE

- Appropriate sanitation system for *ger* areas
- Over-all sanitation system suitable for local conditions and affordable to the end-users
- Sludge treatment technology



**THANK YOU FOR YOUR  
ATTENTION**