

*Programme
WEPA Dialogue in Cambodia
25-26 September 2008*

State of Wastewater Treatment in Cambodia

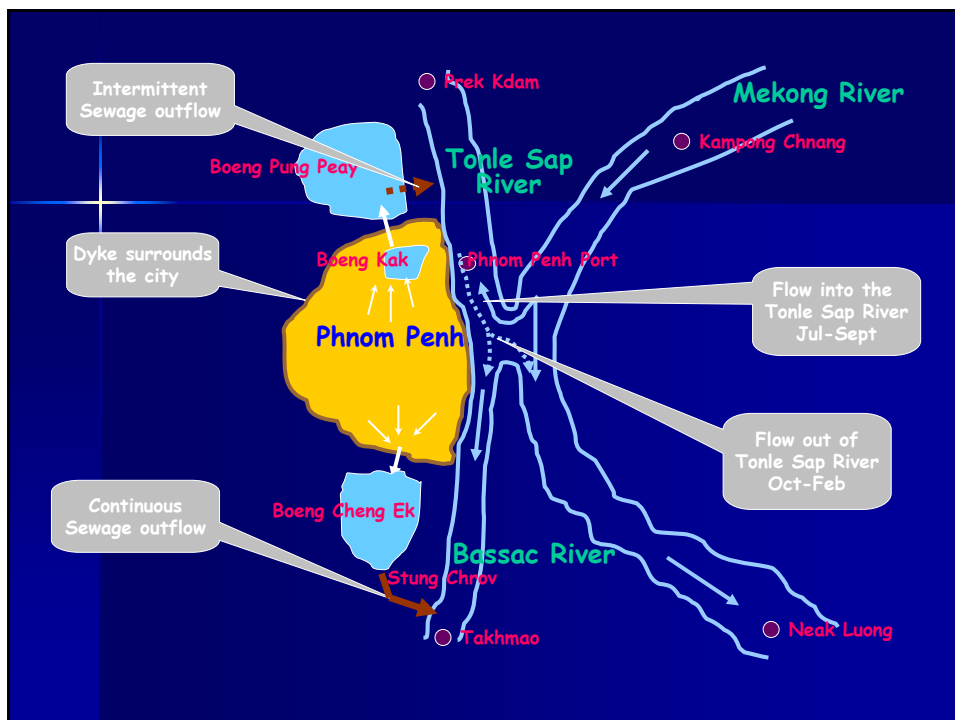
*By Dr. Chrin Sokha
Deputy Director General
Ministry of Environment*

1. Overview

- ☞ Increasing of sectoral development, e.g. industry and enterprise, urbanization, etc., to meet the demands of living style, which caused the increase of waste generation.
- ☞ Cambodia commonly does not have a central wastewater treatment plant.
 - Other than industrial sector, wastewater from other sources are disposed into receiving sources without treatment.
 - Both treated and untreated effluents from industrial sector are being discharged into sewage system and finally to receiving sources.

1. Overview (cont.)

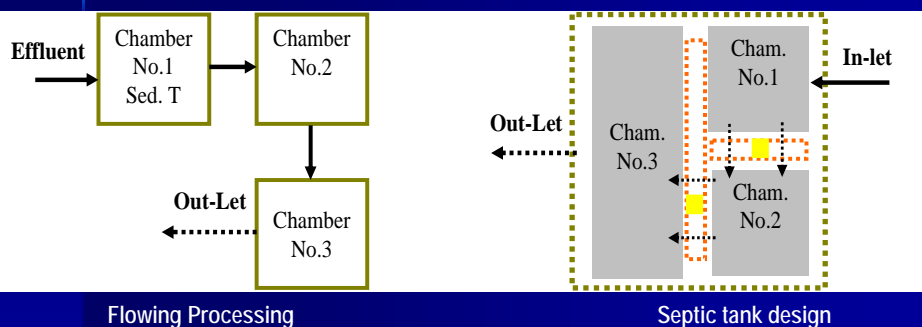
- ☞ At South and Southeaster part of Phnom Penh City, for example, treated and untreated wastewater are run off into combined sewers and retention wetlands including Trabek Lake and Cheng Ek Lake afterward (passing a self purification through natural treatment process), and it finally flows to Bassac River.
- ☞ It should have a central waste- water treatment itself.



2. Wastewater Treatment Basin's Figures

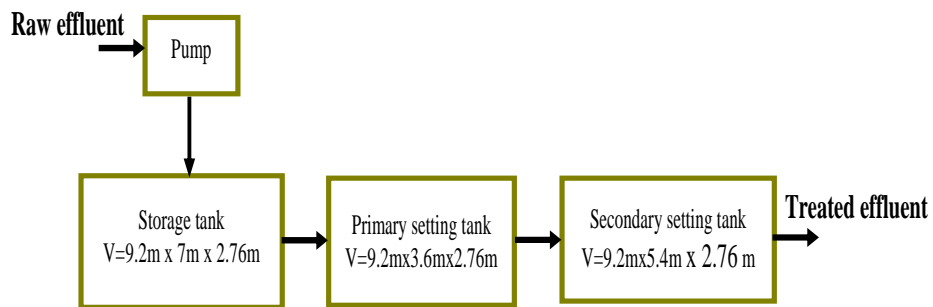
☞ Wastewater treatment basins in Cambodia (at most in industrial sector) are commonly primary and secondary treatment process.

2. Wastewater Treatment Basin's Figures (cont.)



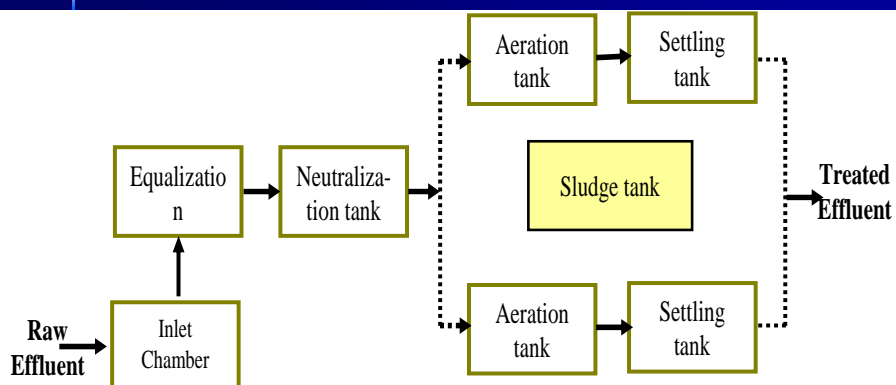
Flowchart of septic tank for domestic wastewater treatment Refer to a Traditional Design

2. Wastewater Treatment Basin's Figures (cont.)



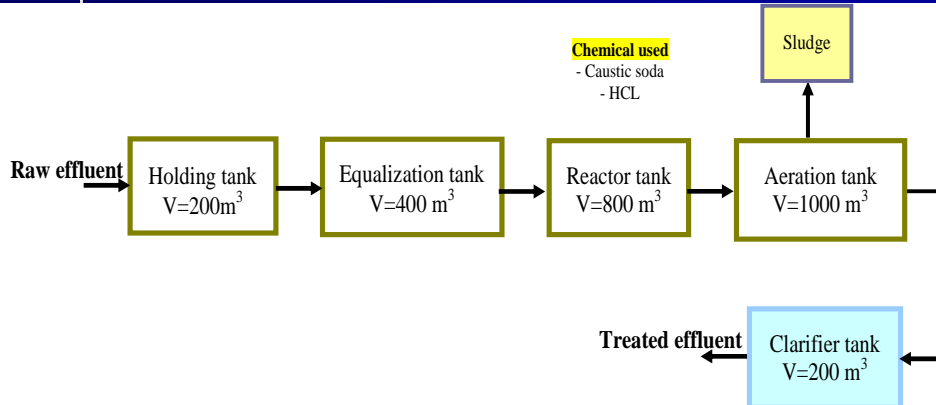
Flowchart of wastewater treatment process in Raffles Grand D' Angkor Hotel
Designed by Archevic 61-A61 SINGAPORE

2. Wastewater Treatment Basin's Figures (cont.)



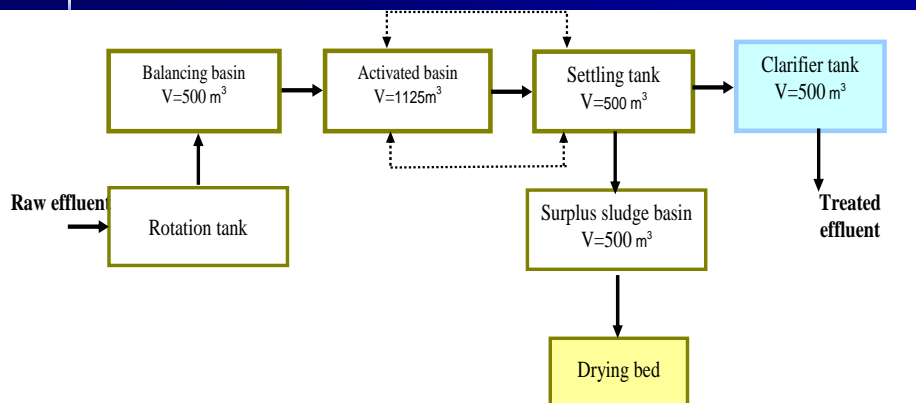
Flowchart of wastewater treatment process in Cambodia Beverage Company
Designed by JACOBSGIBB Asia (Hydrex Asia Ltd.), Singapore 609924

2. Wastewater Treatment Basin's Figures (cont.)



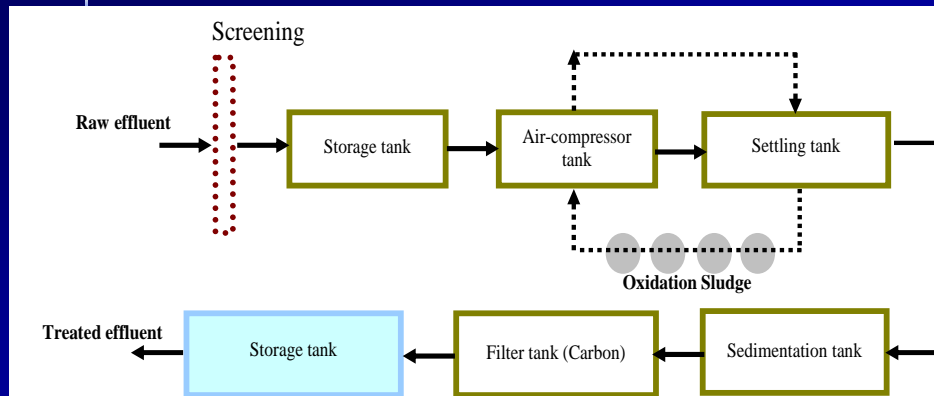
Flowchart of wastewater treatment process in Angkor Brewery Factory
Designed by Green and Smart Company, Malaysia

2. Wastewater Treatment Basin's Figures (cont.)



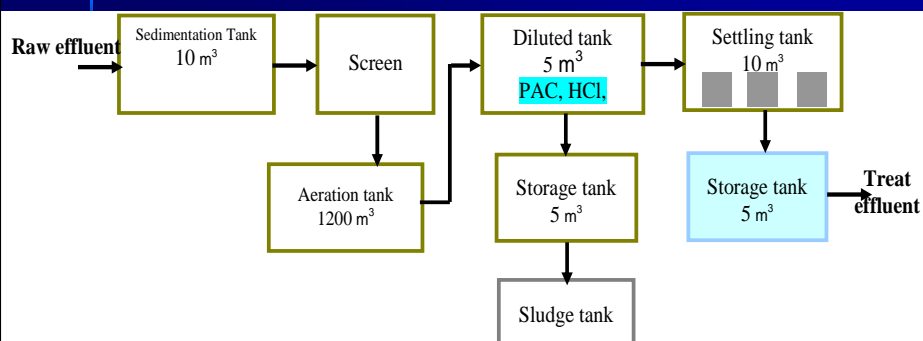
Flowchart of wastewater treatment process in Cambodia Brewery Factory
Designed by Von Nordenskjold, Verfahrenstechnik Gmbf KillistraBe 3, D-85658 Egming/Muster, Germany

2. Wastewater Treatment Basin's Figures (cont.)



Flowchart of wastewater treatment process in *Le Residence d'Angkor Hotel*
Designed by Sacieg Chaser, Malaysia

2. Wastewater Treatment Basin's Figures (cont.)



Flowchart of wastewater treatment process in *Roo Hsing Garment Factory*
Designed by Cambodia Lim Hong Company Co. Ltd.

3. Monitoring Activities to Wastewater Discharge

- ☞ Monitoring wastewater discharging from industrial premises conducting by MoE officials include as follows:
 - Factory that uses chemicals or chemical compounds: interval of monitoring for 45 days.
 - Normal factory: interval of monitoring for 90 days.

3. Monitoring Activities to Wastewater Discharge (cont.)

- ☞ Proposed parameters to check treated wastewater from industrial sector commonly is varied depending on a nature substance in wastewater:
 - pH, conductivity, BOD₅, COD, Oil and Grease, ToP, TSS, and some heavy metal parameters (factories those use chemicals and/or chemical compounds)
 - pH, conductivity, BOD₅, COD, Oil and Grease, ToP, TSS, fecal coliform, NO₂; NO₃ (normal factories)

3. Monitoring Activities to Wastewater Discharge (cont.)

- ☞ In the monitoring activity, wastewater samples were taken and analyzed by the MoE's officers.
- Wastewater is advised/ordered to be treated to abide by the environmental legal instruments before discharging into receiving water, otherwise, a penalty will be done in according to the law.

