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Seminaário Internacional Tissue Tratamento Primário e Biológico

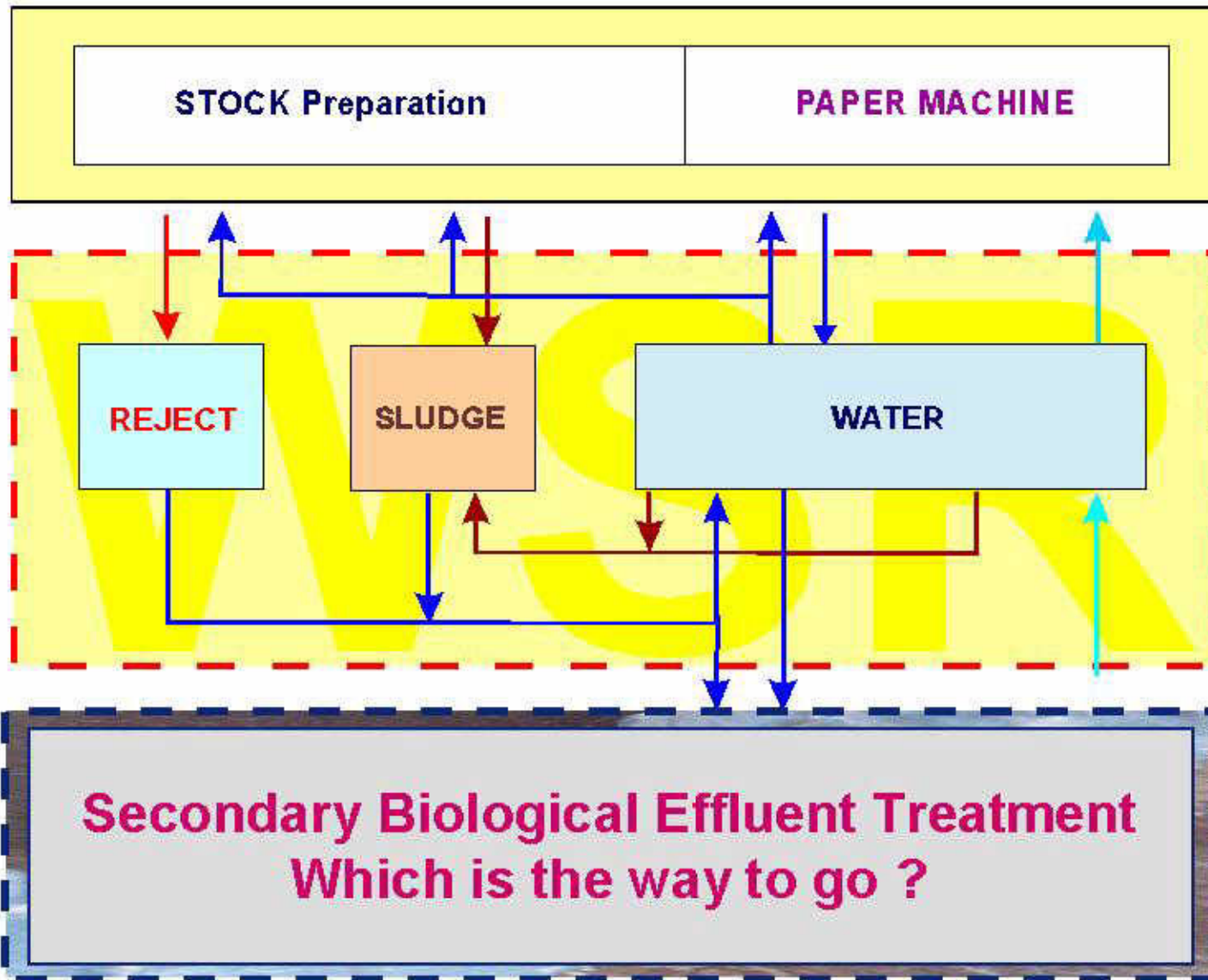
Tecnologia para sua Planta Tissue Tratamento Aerobio x Anaerobico

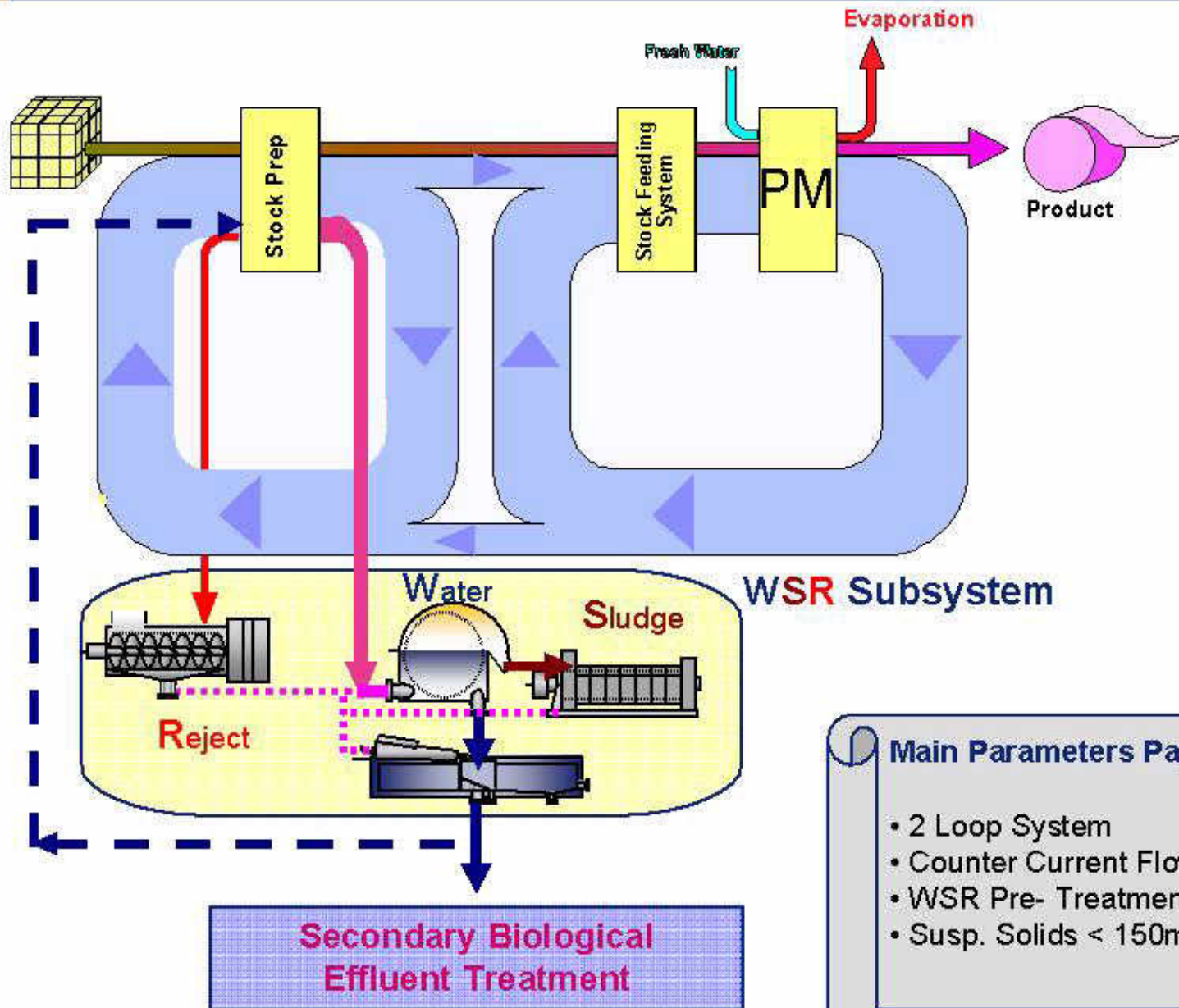
Silvio Romero - MBR

Lucas A. Menke - MET

In association with:







Gain the design criteria for your effluent treatment plant (1)



Group of Companies



- Internal Loop Clarification
- Chemical Cost
- Additional Internal Treatment
- Anti Scaling Calcium Carbonate Removal



Total Cost Water Treatment

Total Cost f. Fresh Water + Internal Clarificat.

Individual Cost for every Mill

VERIFY Your Optimum

Cost for Fresh Water

Cost for Effluent Treatmt.+Discharge
Water Transpo. Cost Pumps, Pipes
Energy Cost, Sludge Disposal
Man Power & Maintenance

Optimum Area
H₂O {l/kg} paper

10 l/kg

20 l/kg

30 l/kg

Specific H₂O {l/kg} paper

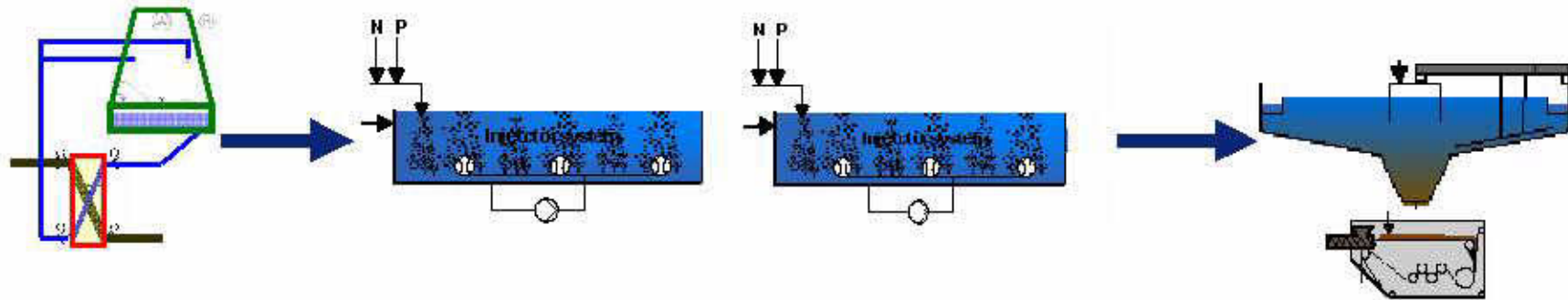


Basic Definition of Effluent Treatment Technologies for Comparison

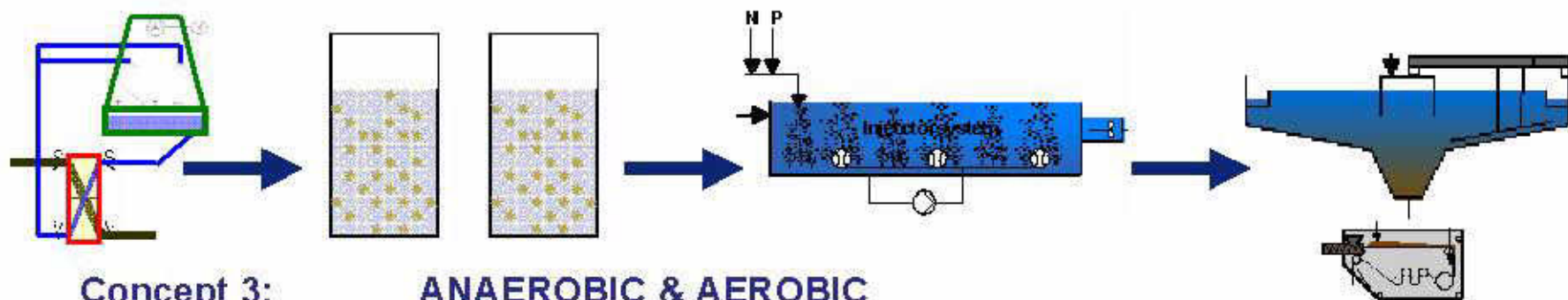
- Aerobic Conventional 2 Stage Cascade
- MBBR Moving Bed Bio Reactor versus
- Anaerobic – Aerobic Treatment



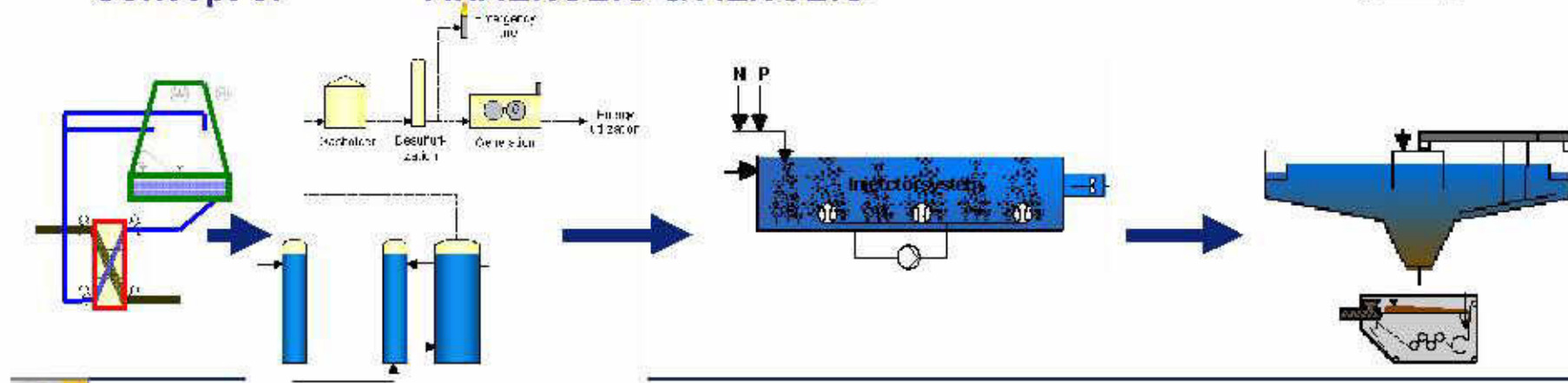
Concept 1: AEROBIC CASCADE



Concept 2: MBBR & AEROBIC



Concept 3: ANAEROBIC & AEROBIC





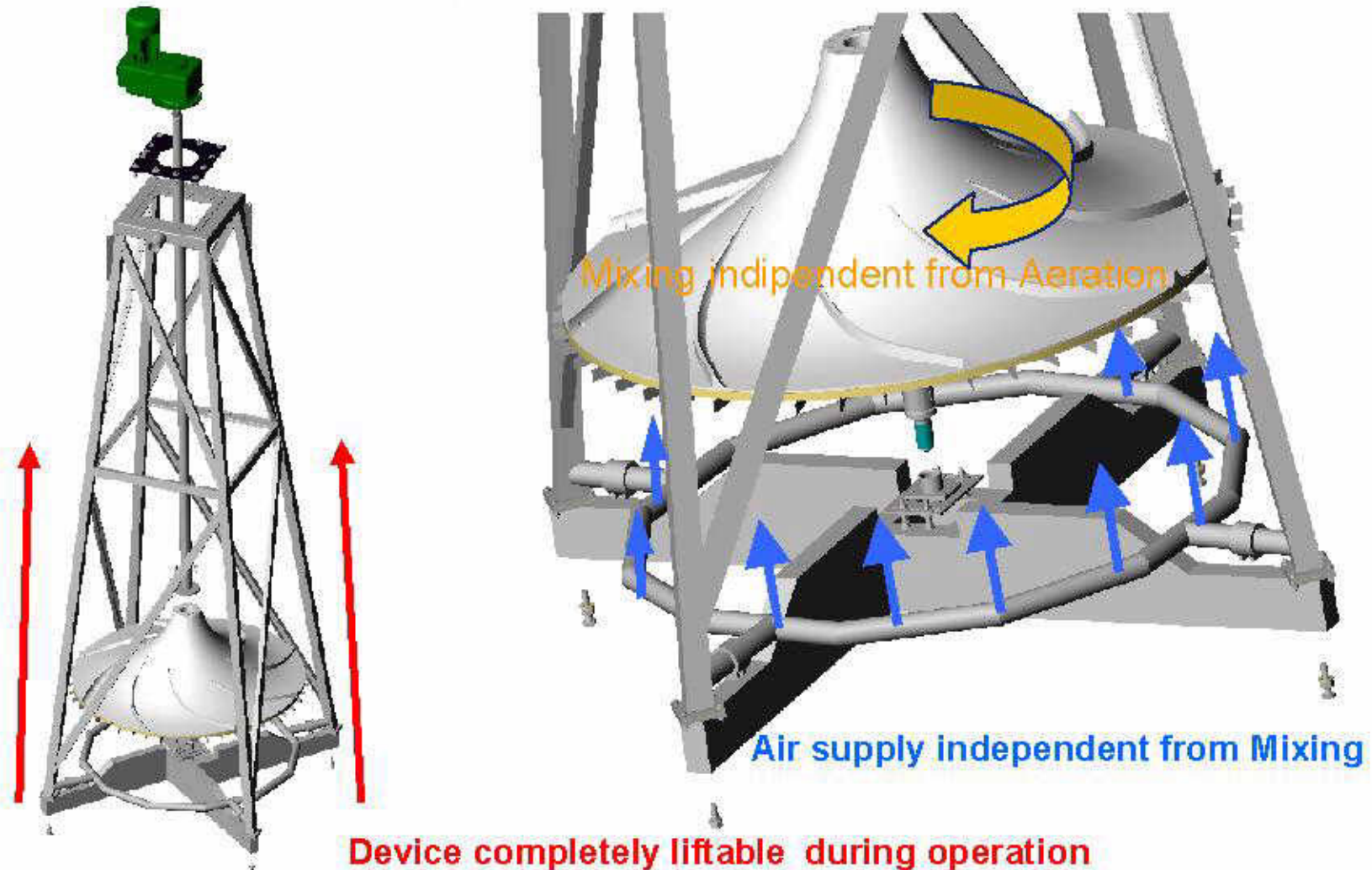
Aerobic Conventional 2 Stage Cascade





Aeration Technology

Important Criteria for Aerators in Paper Mill Applications (Example)







MBBR Moving Bed Bio Reactor



MBBR Moving Bed Bio Reactor

- Bio Film growth on Carriers
- Excellent Technology for Upgrade
- **Respect Limits Susp. Solids < 200mg/l !**
- **Consider Calcium Carbonate Level !**





MBBR Moving Bed Bio Reactor

- Activated Sludge basin filled with carriers
- Bio Film growth on Carriers
- Carrier Circulation via Mammoth pump



Carrier MULTI-Flow 30



Concept 2: MBBR & AEROBIC



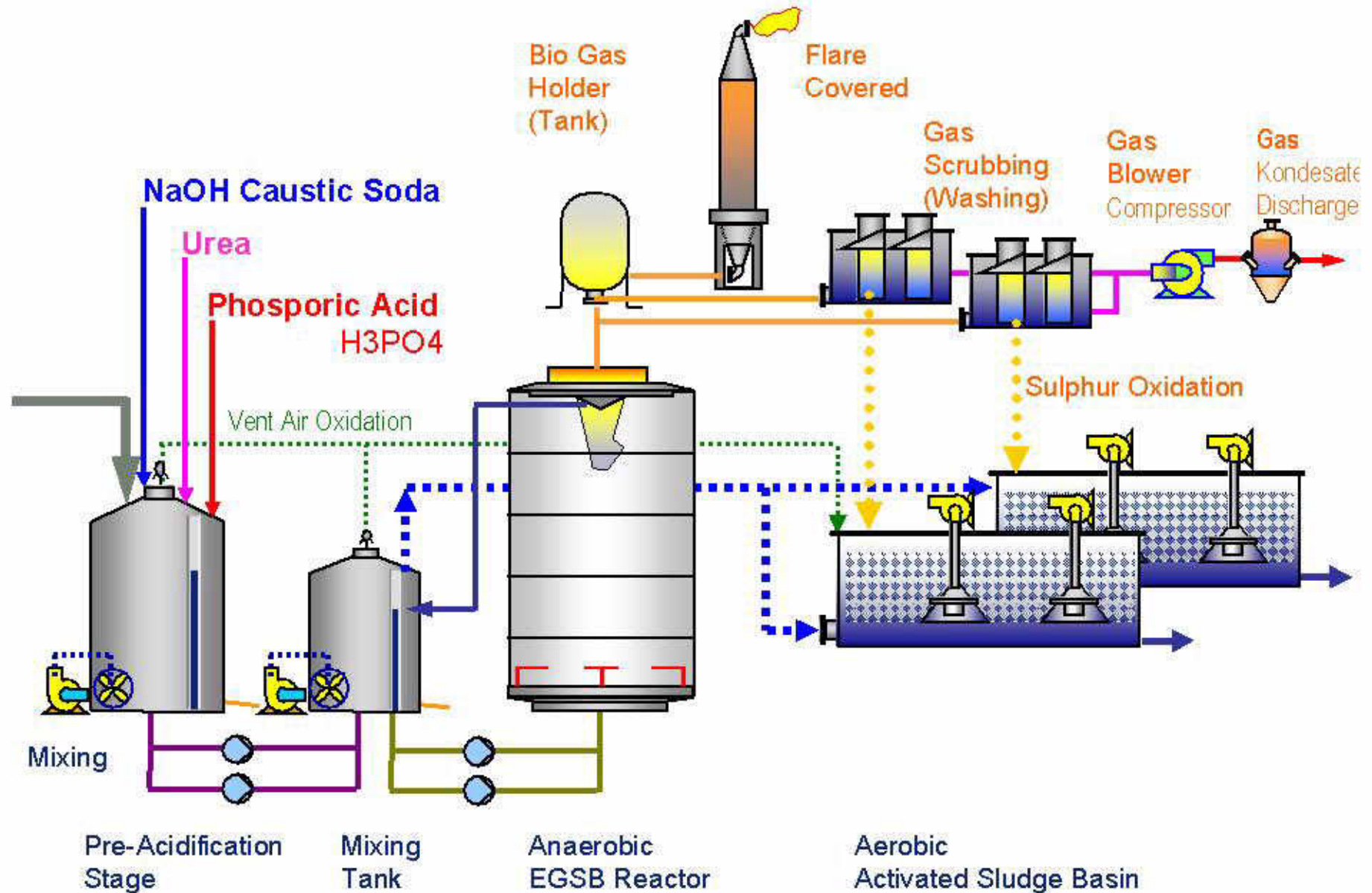


Anaerobic – Aerobic Treatment

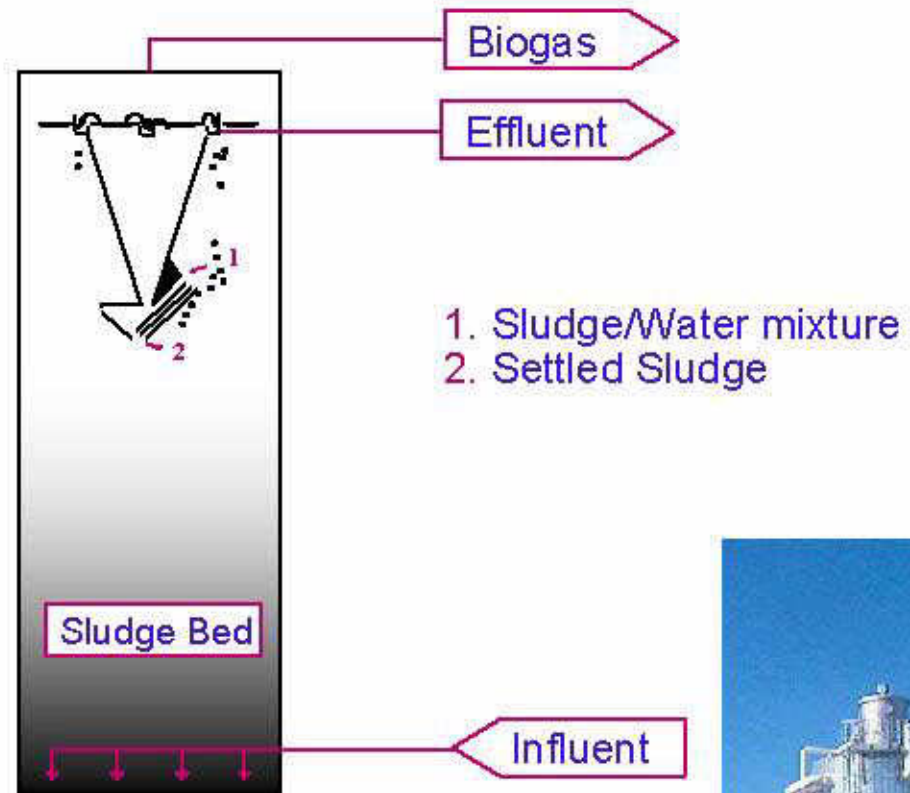


Concept 3:

ANAEROBIC & AEROBIC Process Modules

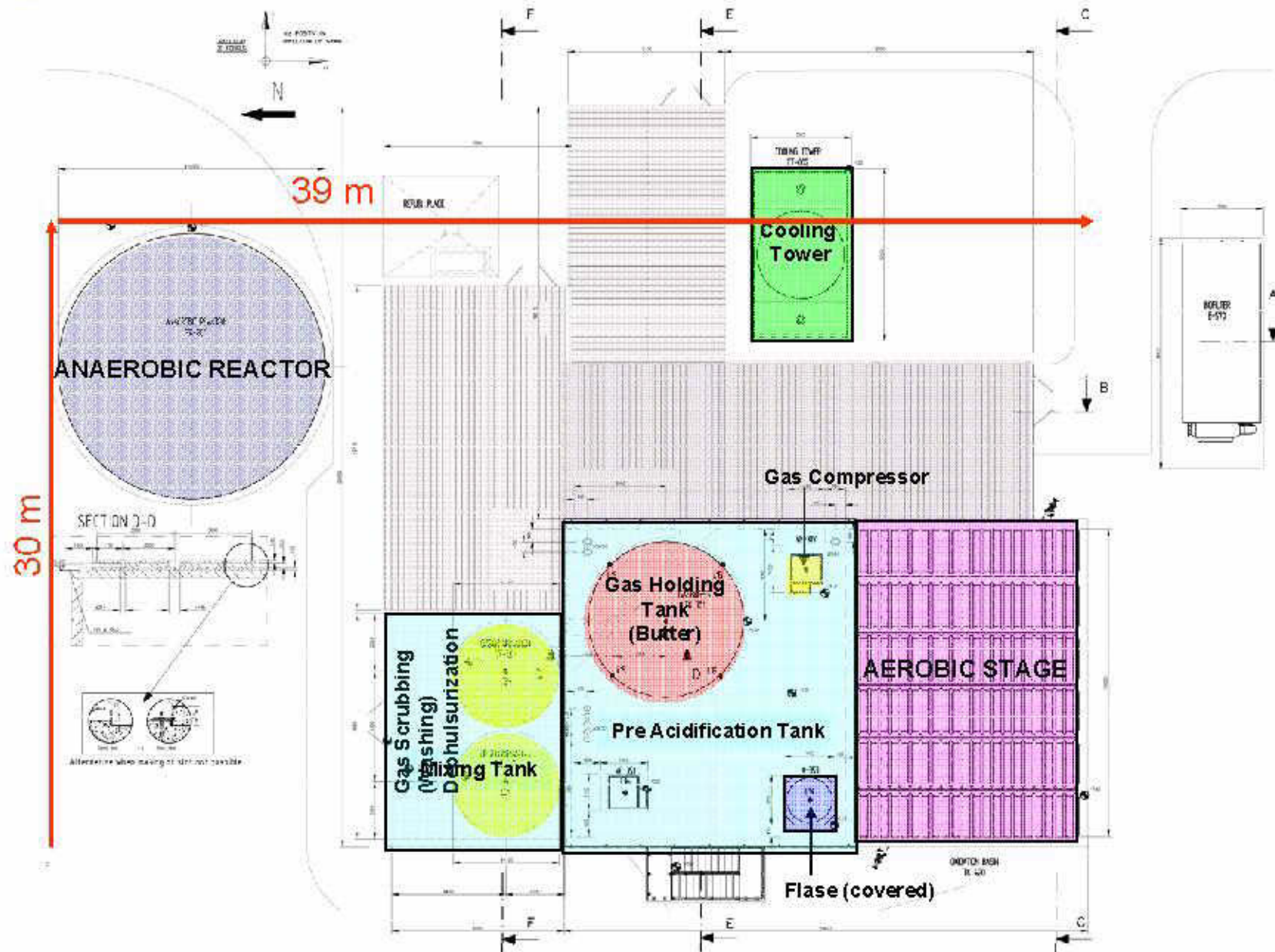


Concept 3: ANAEROBIC EGSB Reactor



Concept 3:

ANAEROBIC & AEROBIC Layout



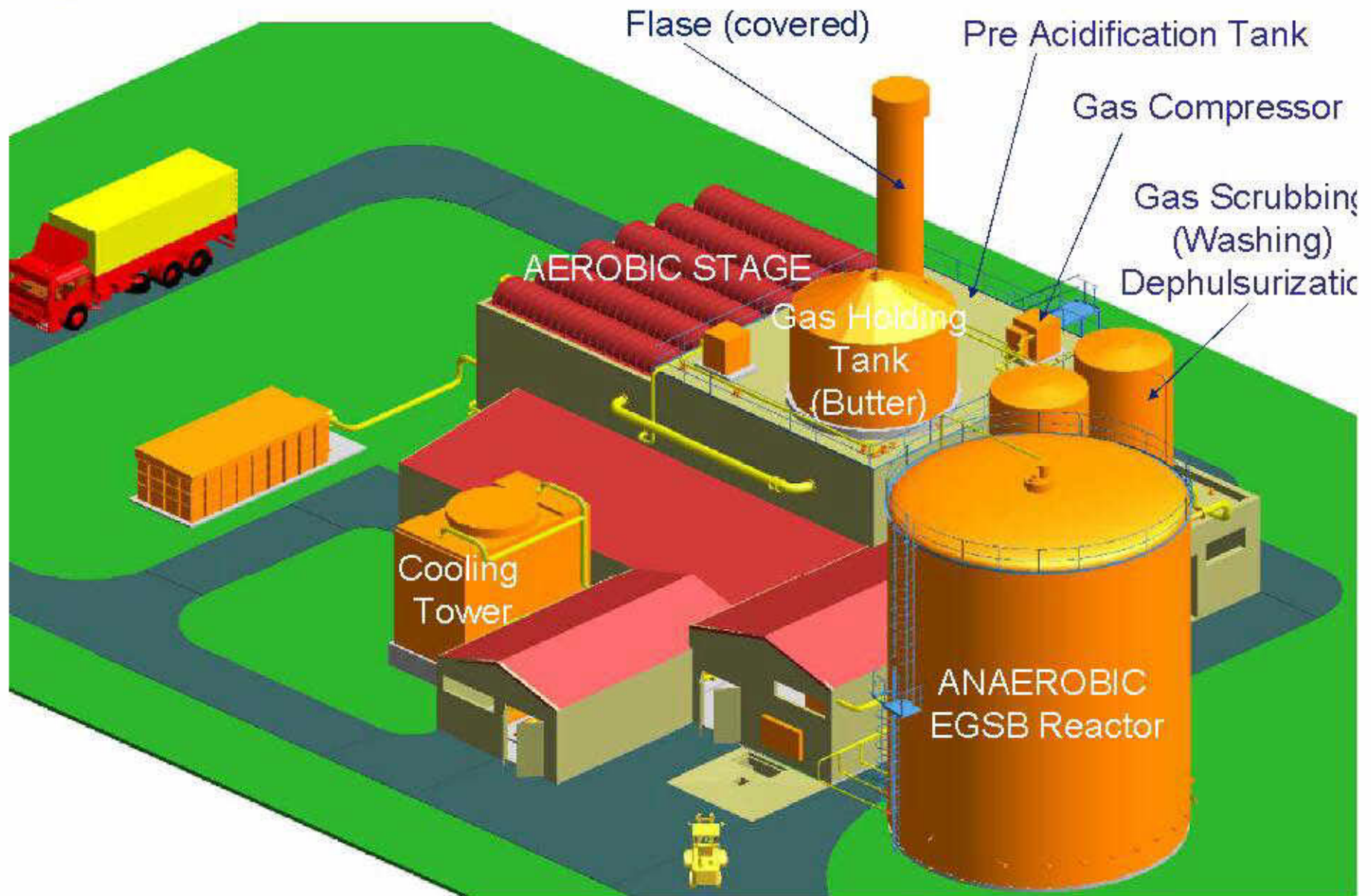


Anaerobic – Aerobic Treatment

Preliminary Design



Example ANAEROBIC & AEROBIC Effluent Treatment Brown Mill

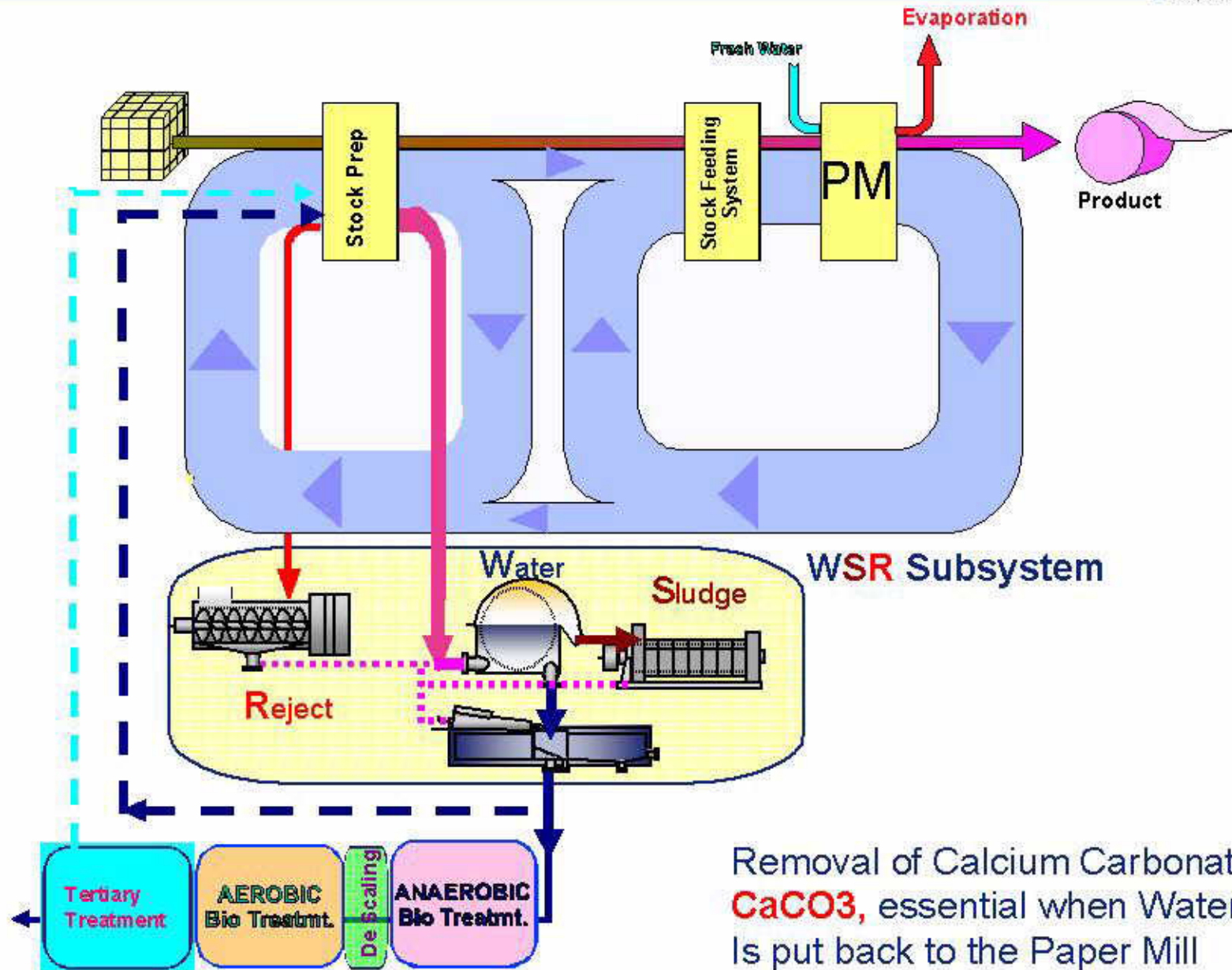


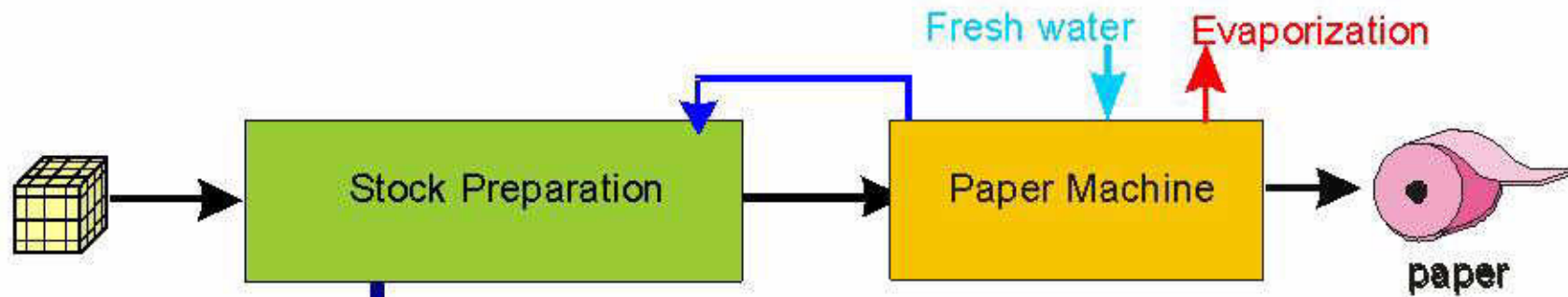


Outlook to the Future :

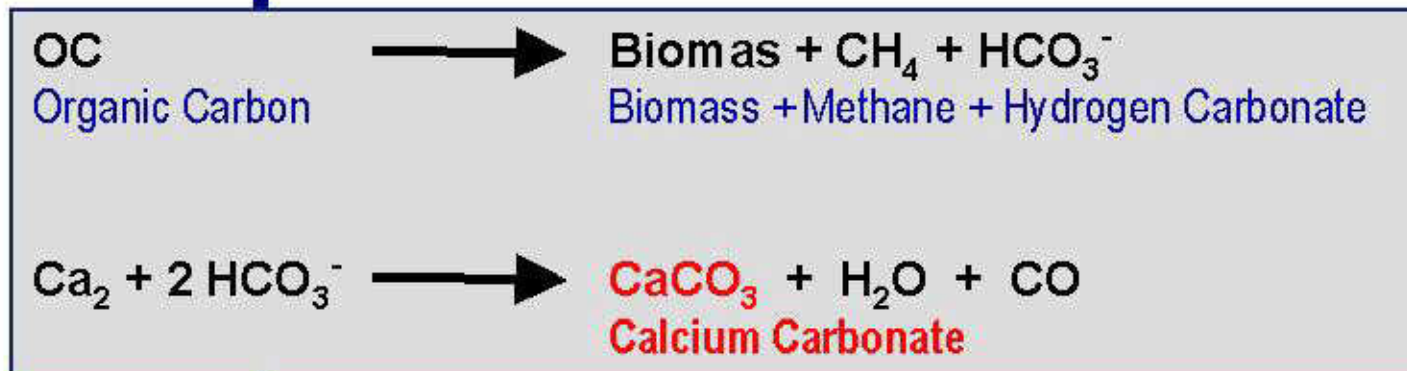
**How to reduce problem with Calcium Carbonate
When you close your Paper Mill further**



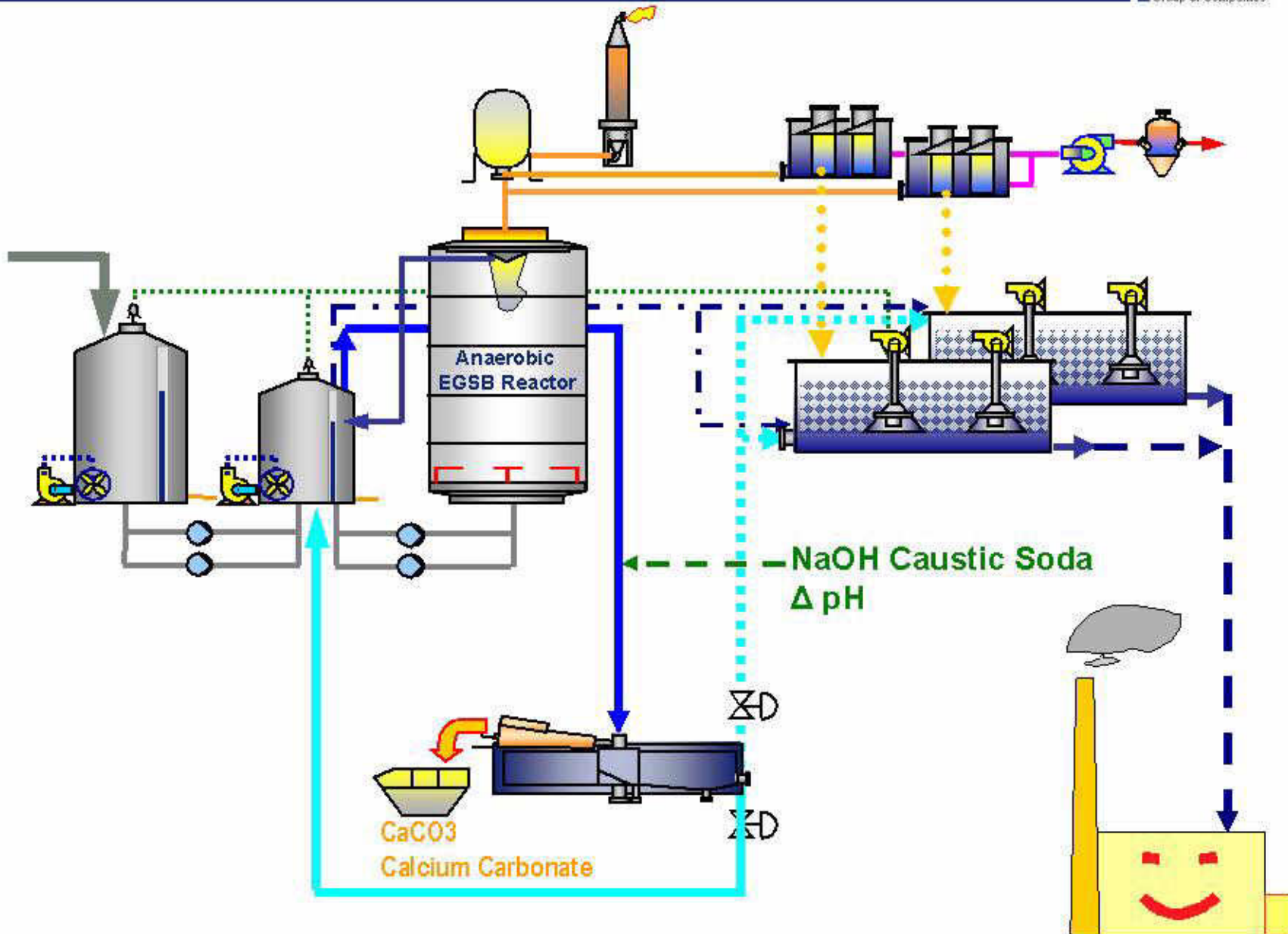




Anaerobic Biological Effluent Treatment Plant



Calcium Carbonate Removal after Biological Plant

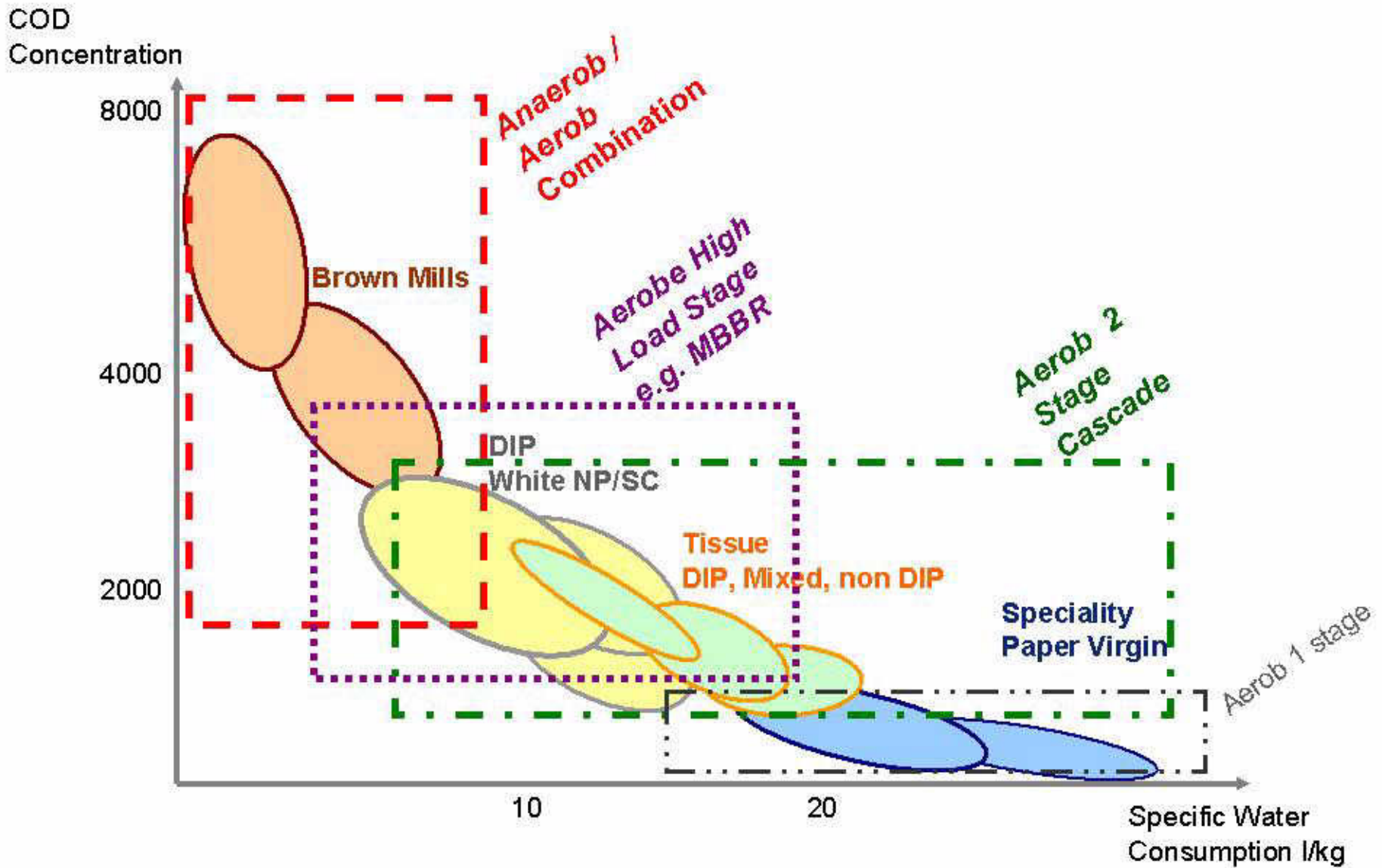




Removal of Calcium Carbonate after Anaerobic Biological Treatment

- NaOH Dosing and Recycling to precipitate Calcium Carbonate
- Special DAF (Dissolved Air Flotation) for Calcium Carbonate Removal by flotation







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**Obrigado por sua
Atenção!!!**

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Intro Slide

Repeats the title (if need be expanded or with subtitle) and contains the name of the presenter and further details, e.g., institution, location and date of the presentation.

volker.rasch; 29/4/2004