GPA Global Programme of Action for the Protection of the Marine Environment from Land-based Activities

Water & Energy Nexus:

Policy Components, the GWI

and

UNEP perspectives on Wastewater Reuse for Energy Production

Dr. Birguy Lamizana
UNEP

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Importance of energy management in wastewater treatment

- Two majors energy consumers, that need to be carefully managed:
  - Pumping system
  - Treatment process
- Energy self-sufficient:
  - Minimizing and collecting energy lost
  - Waste heat
  - Biogas from anaerobic digestion

Resource recovery and reuse is key

- if wastewater is seen as a resource :
  - which produces stabilized sludge for agricultural production & construction material
  - As input for biogas production
- This approach has four fold outcome:
  - Reduce the contamination load on water bodies
  - Reduce CO_2 emission
  - Recycle fertilizers in food production
  - Produce renewable energy

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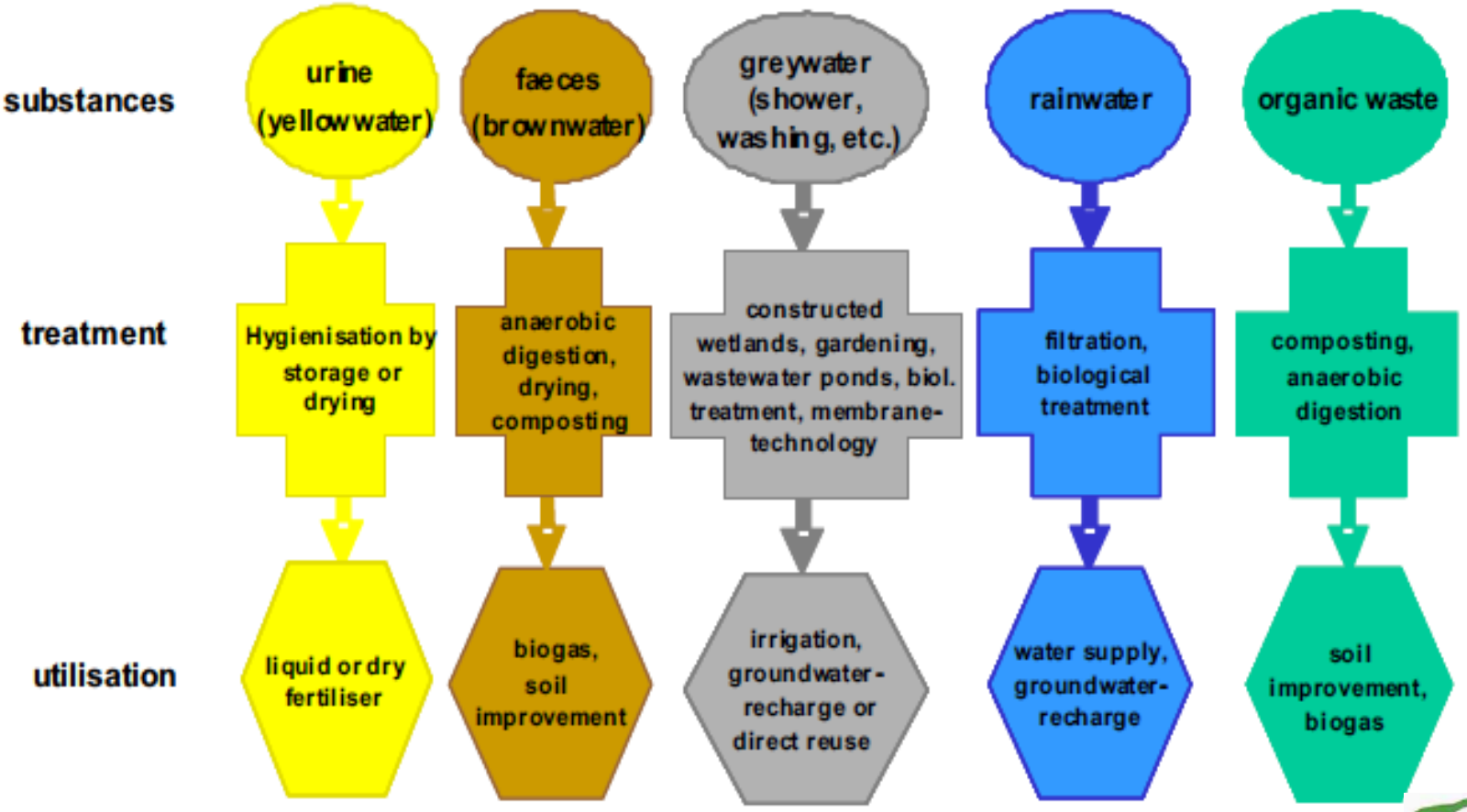
Renewable energy, UNEP's focus

- on aiding governments and regions make this green energy transition,
- offering support and training regarding technical assessments, policies, and finance.
  - *UNEP Handbook for Drafting Laws on Energy Efficiency and Renewable Energy Resources*
- Formal focuses on solar, wind but more and more on renewable energy from recycling and wastewater
- Demonstration projects in Tanzania, India, Egypt, Brazil

(EcoSan) Stages (or Phases) approach



Waste segregation and possible utilization options. (UNESCO/IHP & GTZ, 2006)

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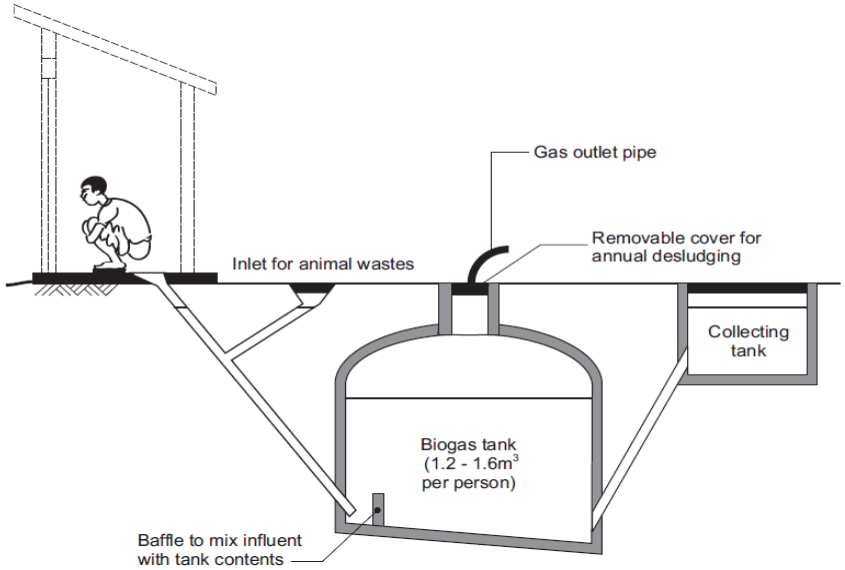
Biogas Digestor

- Biogas latrines and communal biogas plants are, in principle, a more advanced form of the septic tank system.
- When human excreta is combined with animal and agricultural wastes and water, it will give off gas as it decomposes.
- The mix of gases produced is called 'biogas' which can be used for cooking and lighting.

- **Biogas plants typically store the wastes for about 30 days which can remove some of the pathogenic organisms but by no means all.**



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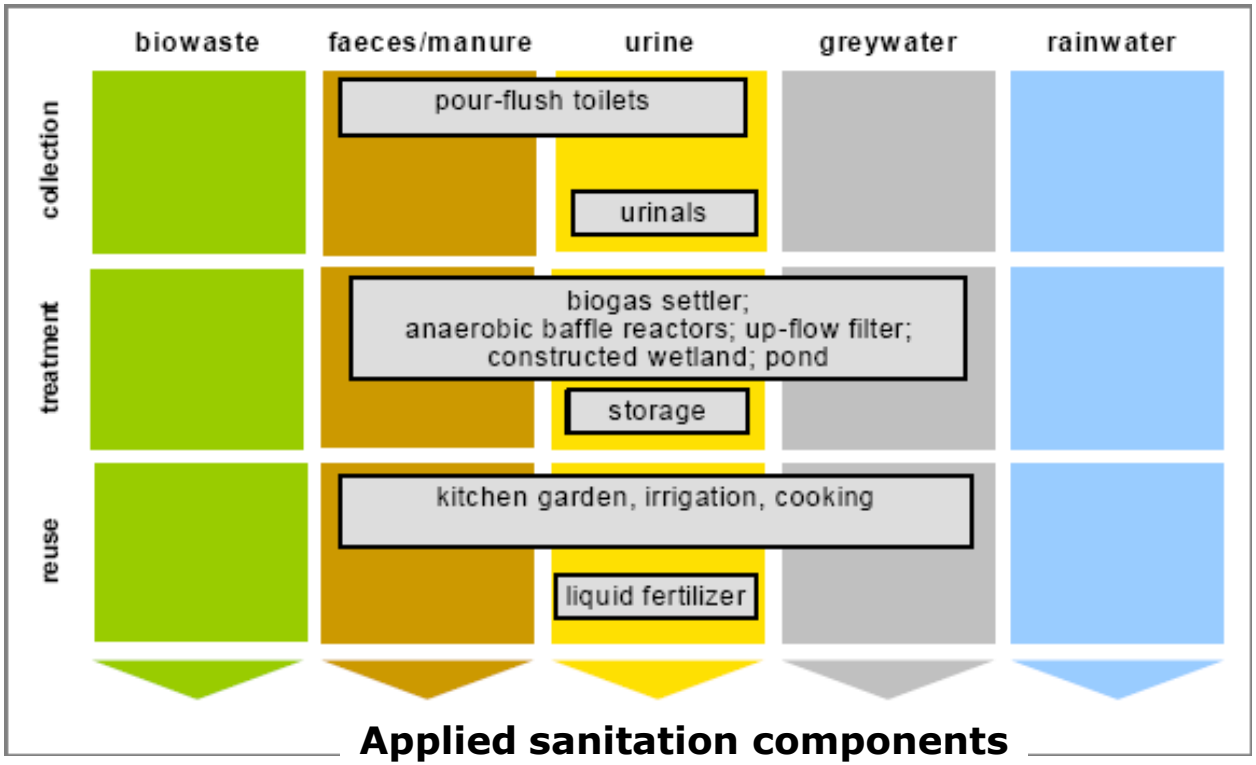
Wastewater Demo Projects

Decentralized Wastewater Management at Adarsh College - India

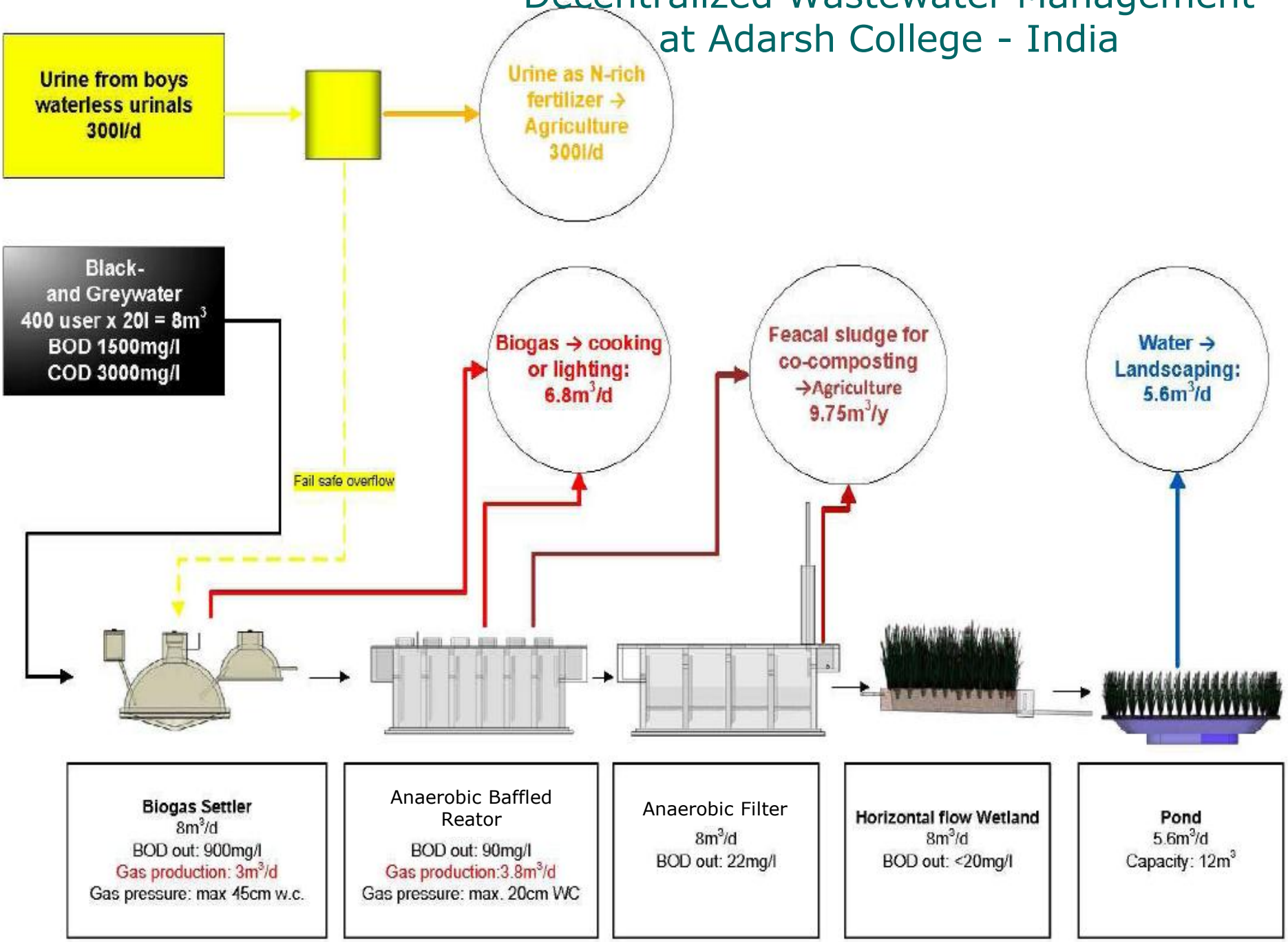
This School Project is a Pilot Project demonstrating alternative decentralized sanitation solutions to the Badlapur Municipality Council. The Council plans to replicate the concept in other areas after evaluating the findings of decentralized reuse-oriented school sanitation project.

The number of students attending Senior and Junior College is about 1,400 and 1,200 per day, respectively.



Applied sanitation components

Decentralized Wastewater Management at Adarsh College - India



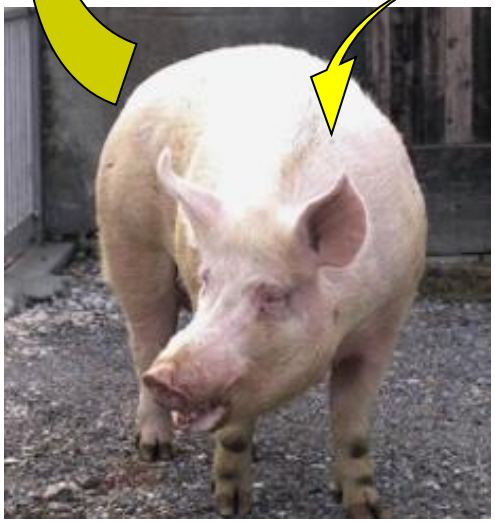
Swineculture and Water – Brazil

Electricity generator by Biogas

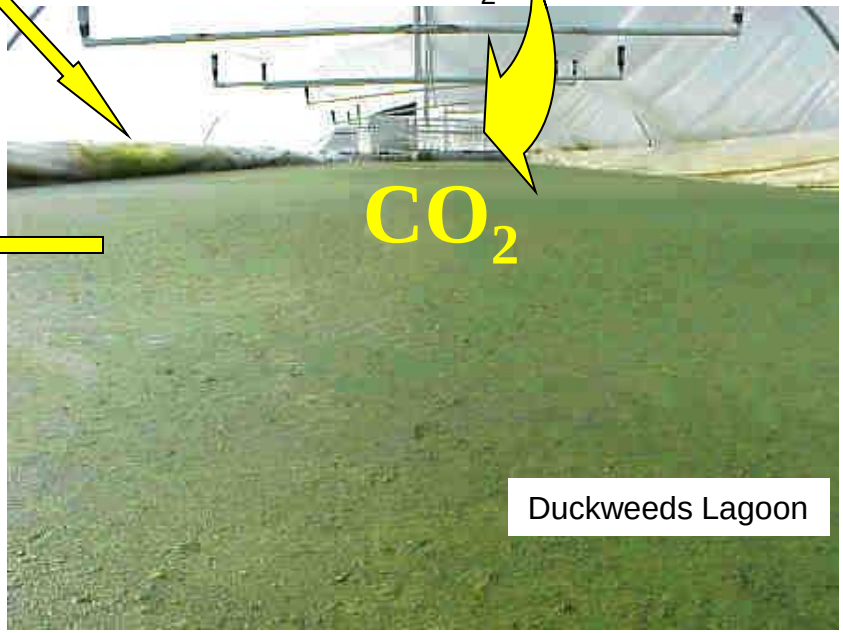
CH_4

Methane Combustion= CO_2

Swine waste



Food



CO_2

Duckweeds Lagoon

GWI- bringing people together for greater impact

33 Partners

Global Wastewater Initiative (2013)

- to bring a paradigm shift in world water politics, prevent further pollution and emphasize that wastewater is a valuable resource for future water security
- Co-Chaired by UN-Habitat
- An International Steering Committee of 15 members

Multi-Stakeholder Partnership:

- **IGOs**: UN-Habitat; FAO; WHO; Ramsar; CBD; UNDP; UNIDO; UNU-INWEH; WSA; IAEA; UEMOA, etc
- **Governments**: e.g. USA; Switzerland; DHI
- **NGOs**: e.g. IWMI; WECF; IWA; ICLEI, Waterlex
- **Development banks**: IDB; AfDB; ADB, etc
- **Private sector**: Jacobs UK; Prana SW; ENT Mexico
- **Academia/ Research** : Cutec Institut, GmbH, STPHI

GWI Focal Areas (*under revision*),

Area 1.	Area 2.	Area 3.	Area 4.	Area 5.
Establishment of the GWI infrastructure	Demonstration & Promotion of WW treatment approaches, technologies, policies & financial instruments (wastewater value on market mechanism, small scale WW treatment & reuse)	Strengthening the normative basis for managing & monitoring the impacts of WW on the coastal & marine env.	Global challenges & debates on WW issues	Communication and outreach (Cross Cutting)

Geographic Repartition per Country

33
Partners

This map shows where the partners of the GWI are located in the world. In the case of IGO's and NGO's, only the country hosting the headquarters is located though the scope of activities might be broader than one country.