



Escola Tècnica Superior d'Enginyers  
de Camins, Canals i Ports de Barcelona

UNIVERSITAT POLITÈCNICA DE CATALUNYA



UNIVERSITAT POLITÈCNICA DE CATALUNYA  
BARCELONATECH

Group of Environmental Engineering  
and Microbiology



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Centre de Cooperació per al Desenvolupament

# Projects for water treatment and reuse in India

Enrica Uggetti

Group of Environmental Engineering  
and Microbiology (GEMMA)

**16** NOVEMBRE

12:00h

II JORNADA DE  
COOPERACIÓ  
DE L'ESCOLA  
DE CAMINS

2022



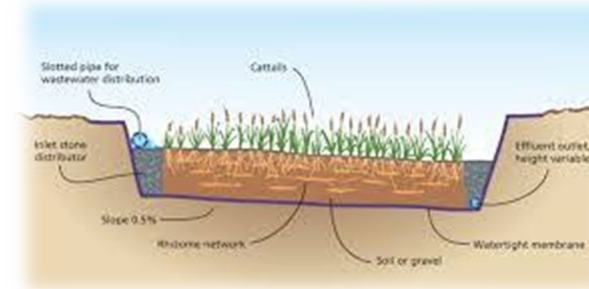
SALA D'ACTES  
DE L'ESCOLA

Delegació d'Alumnes de  
l'Escola de Camins

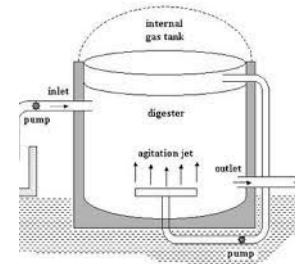


# GEMMA Research Group

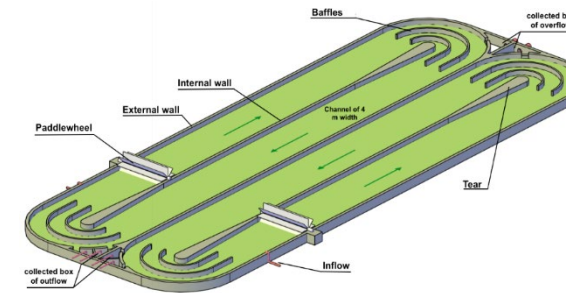
- **Nature-based solutions** for the treatment of waste streams, bioelectrochemical systems



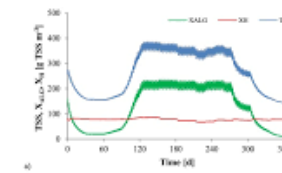
- **Biogas production** from residual biomass



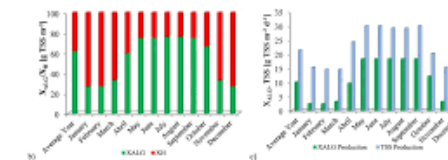
- **Resource recovery** from waste streams using **microalgae biomass** to generate **BIOPRODUCTS** (natural pigments, bioplastics, biofertilisers) and **BIOENERGY** (biogas)



- Mathematical modelling of bioprocesses → **BIO\_ALGAE MODEL**



- **Life Cycle Assessment (LCA)**



# PAVITR PROJECT



PAVITR is a cooperation project between Europe and India, it is funded by European Commission and Indian Government

The project aims at developing **cost-effective & sustainable solutions** to provide **safe water reuse** and **restore degraded ecosystems** in India

15 sites in which different technologies for rainwater and wastewater treatment and reuse



# PAVITR PROJECT



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## Start-up and operation of high rate algae pond for wastewater treatment and biofertilizers production

- ▶ Funded by: Centre de Cooperació per el Desenvolupament
- ▶ Duration: May 2022 - May 2023
- ▶ Leading Researcher: Enrica Uggetti

## Low cost wastewater treatment based on microalgae: application in urban Indian areas

- ▶ Funded by: Centre de Cooperació per el Desenvolupament
- ▶ Duration: 2020 - 2021
- ▶ Leading Researcher: Enrica Uggetti

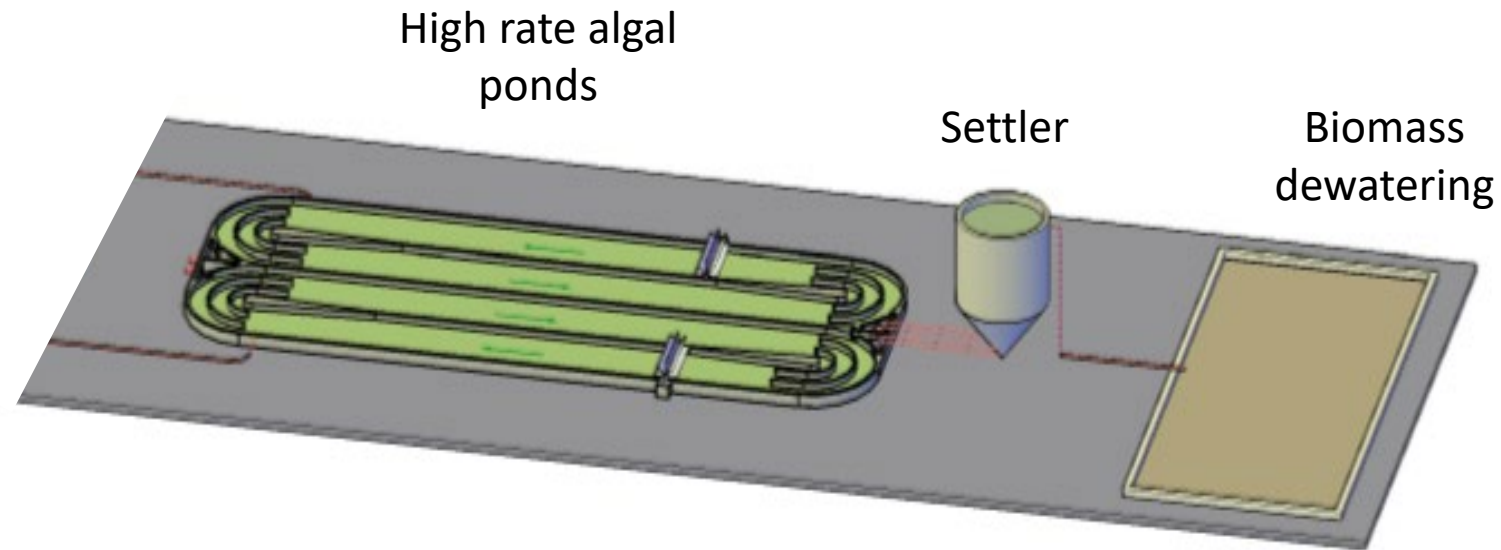
## Sistemas naturales sostenibles y de bajo coste para el tratamiento de agua residual en zonas urbanas densamente pobladas y en expansión de la India

- ▶ Funded by: UPC Centre of Cooperation and Development
- ▶ Duration: February 2019 - May 2020.
- ▶ Leading Researcher: Maria Jesús Garcia

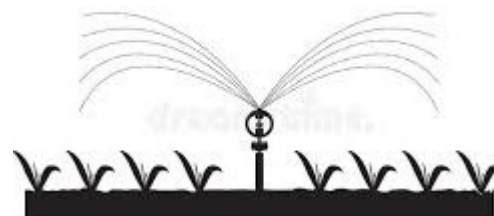
1 collaboration grant for UPC students in each project



UPC -> constructive project of a High Rate Algae Pond

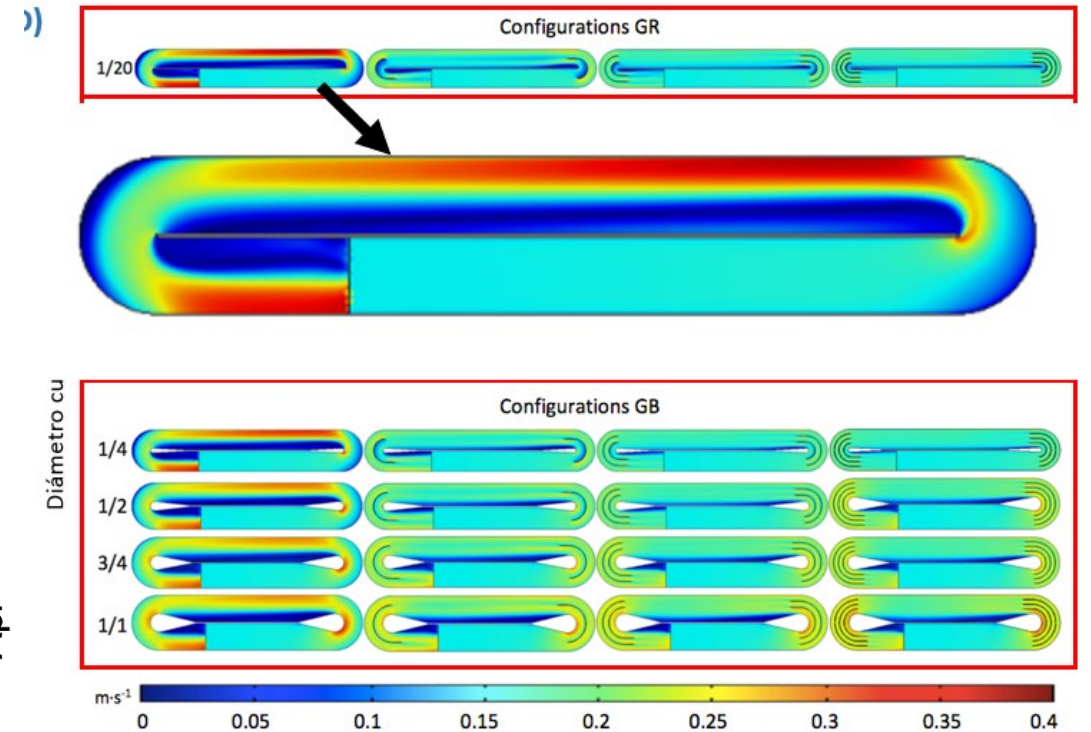
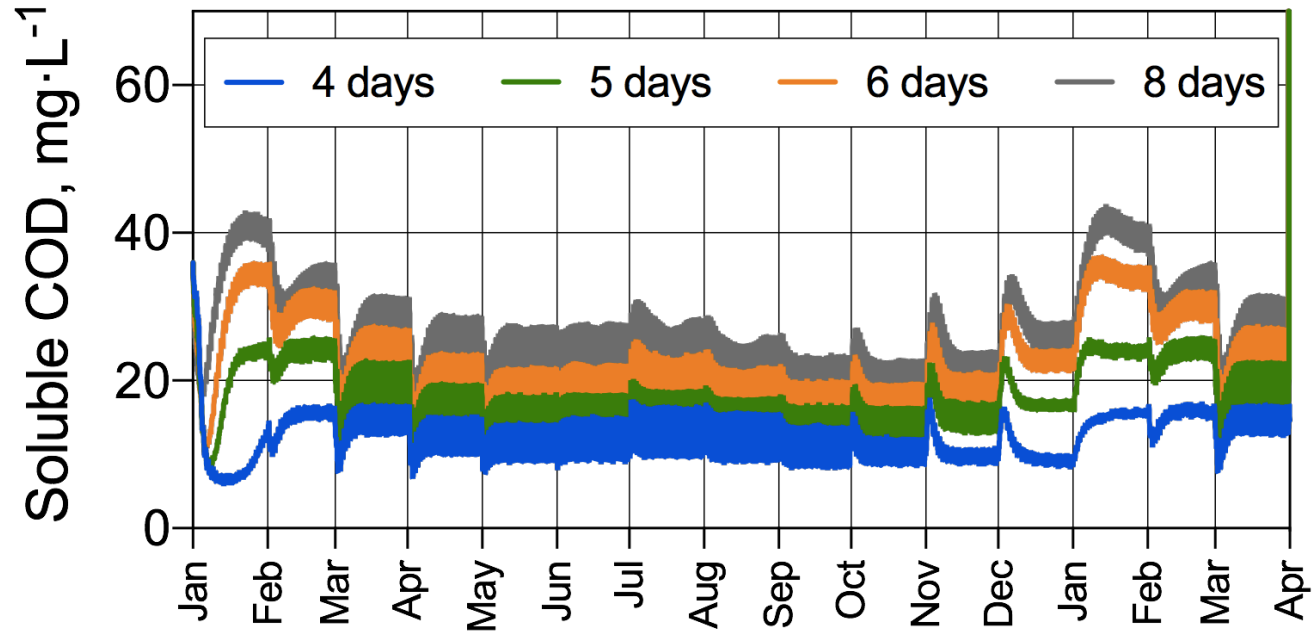


Biofertilizers



Water for  
irrigation

# PAVITR PROJECT



# PAVITR PROJECT



# PAVITR PROJECT





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The project has received funding  
from the European Union's  
Horizon 2020 research and  
innovation programme under  
grant agreement No. 821410

# PAVITR PROJECT



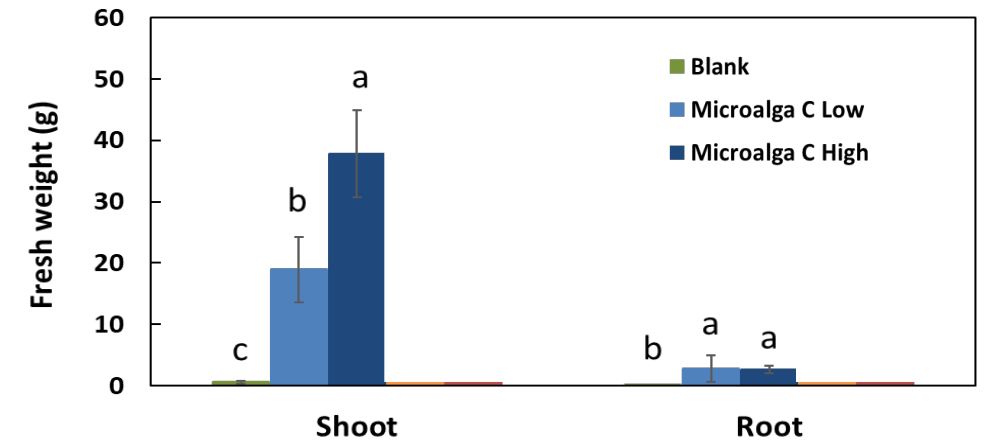
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# PAVITR PROJECT



Doctoral stay Aryan Upadhyay

You also can join a cooperation project!!!!

