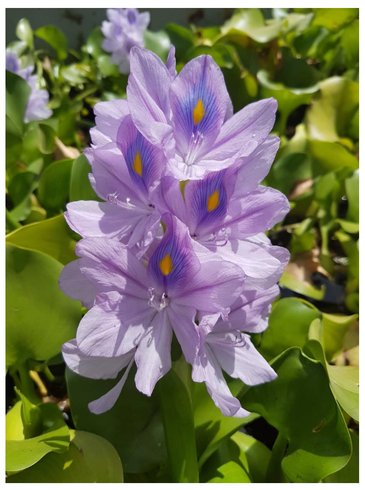
BEFWAM

Bioenergy, Fertilizer and Clean Water from Invasive Aquatic Macrophytes



BEFWAM: Bioenergy, Fertiliser and Clean Water from Invasive Aquatic Macrophytes

University of Leeds, UK; ICT-Mumbai, India; Visva Bharati University, India;
Defiant Renewables, India, CREEC, Uganda

PROJECT DETAILS

BEFWAM was funded through a call on Biotechnology and Bioenergy in the Developing World funded by the Global Challenges Research fund (GCRF).

The Global Challenges Research Fund (GCRF) is a £1.5 billion fund announced by the UK government in late 2015 to support cutting-edge research that addresses the challenges faced by developing countries.

The project will use industrial biotechnologies to allow the extraction of multiple products from invasive biomass, delivering sustainable economic and welfare benefits across Asia and Africa

Principle Investigator: Dr Andrew Ross, School of Chemical and Process Engineering, University of Leeds, UK

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Funded Value: £1,708,769

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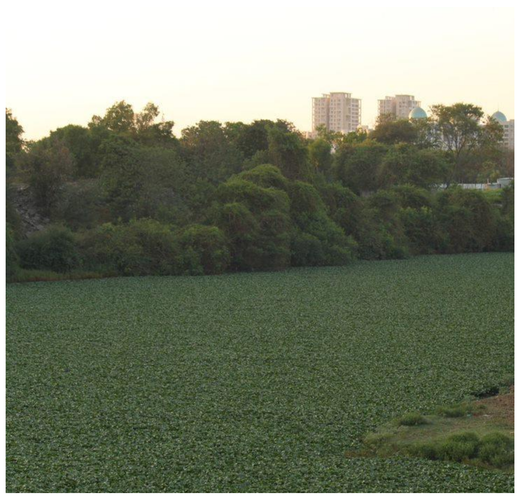
INTRODUCTION AND RATIONALE

Water Hyacinth (*Eichhornia crassipes*) is an invasive free-floating fresh-water plant native to South America but now prevalent across Asia and Africa.

It can form impenetrable mats, boost mosquito numbers, and deplete the water of dissolved oxygen effectively suffocating fish.

Water bodies filled with sewage and fertilizer via eutrophication, create an ideal habitat for water hyacinth



Cooking with wood

Health implications
Supply chain/sustainability issues
Simple and Accepted

Cooking with Biogas

Cleaner but more complex
Alternative feedstocks
Improved operation/integration

The project will demonstrate a range of integration strategies for the utilisation of water hyacinth in India and Uganda.

One of key objectives of the project is to produce biogas for cooking to replace the use of fuel wood.

PROJECT WORKPLAN

The aim of BEFWAM is to utilise the invasive aquatic biomass, water hyacinth, for the production of biogas, the cleaning of water and the recovery and production of fertilisers. The key objectives include:

1. The use of water hyacinth in combination with nutrient rich wastes to produce biogas by anaerobic digestion.
2. The development of simple upgrading strategies for improving biogas quality.
3. The artificial cultivation of water hyacinth for cleaning water and recovering nutrients for production of fertiliser.

The project is structured into 5 technical work Packages (WPs)

1. Anaerobic conversion of invasive macrophytes;
2. Routes to enhance methane yields and biogas quality;
3. Development of immobilized bioreactors systems;
4. Integrated approaches using invasive aquatic macrophytes;
5. Environmental and social considerations.

INVESTIGATORS AND PARTNERS

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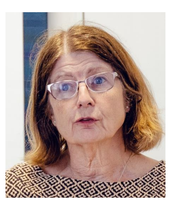

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