

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

ENVIRONMENTAL AND SOCIO-ECONOMIC CONSIDERATIONS

Understand the environmental and socio-economic impacts of using water hyacinth for biogas production and human factors determining the success of bio-energy projects.

WP5 The environmental and social considerations will consider:

- Community surveys
- Environmental Impact Assessment
- Socioeconomic impacts
- Community engagement and training

This activity will be led by the University of Leeds (Geography) and involve Visva Bharati University and CREEC



COMMUNITY SURVEYS

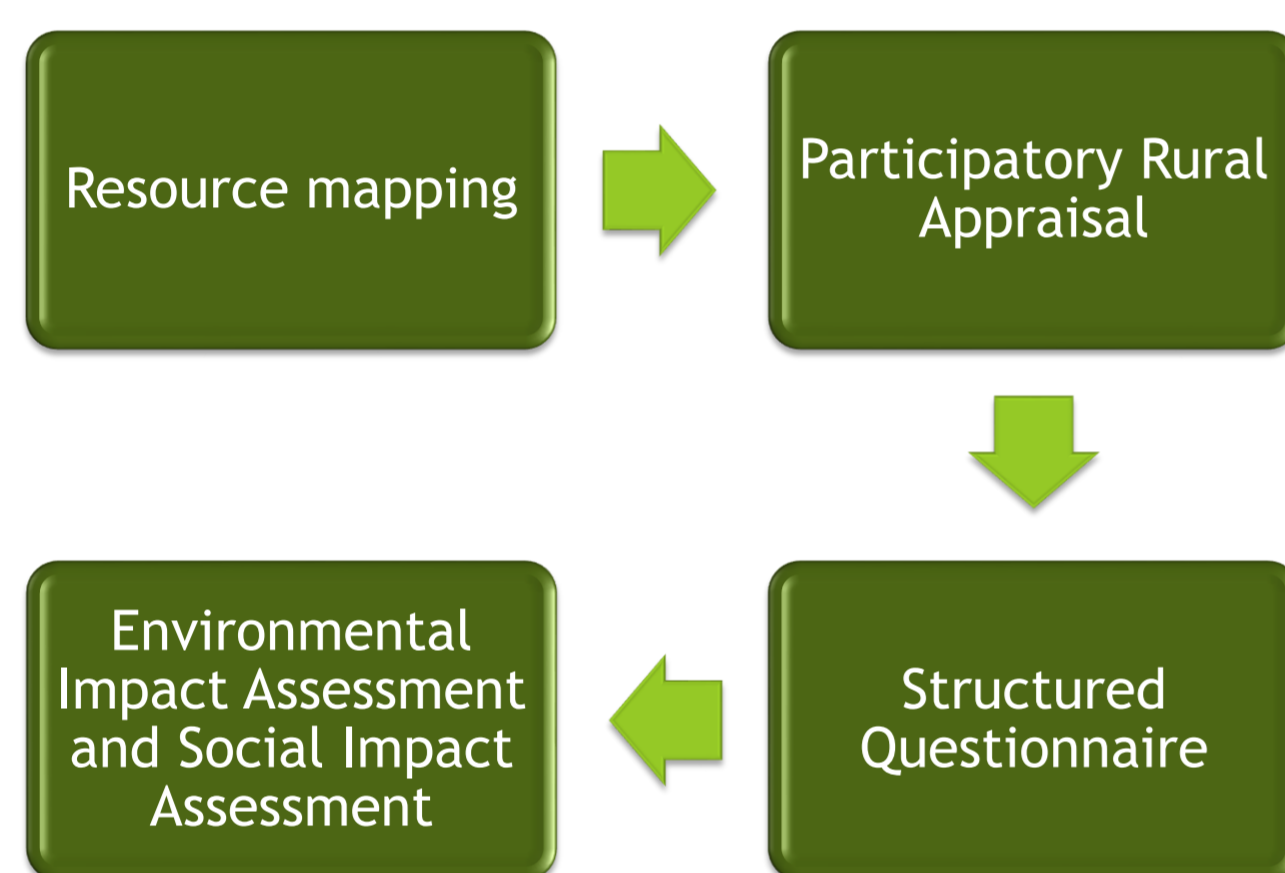
WP5 will undertake household surveys, focus groups and key informant interviews to analyse livelihoods of communities where the macrophytes will be harvested.

The analysis will use established tools for gender analysis and will develop:

Knowledge and perception of environmental problems related to water hyacinth;

Willingness to participate in water hyacinth harvest;

Methods: household survey, focus groups, key information interviews, stated preference valuation (choice modelling).

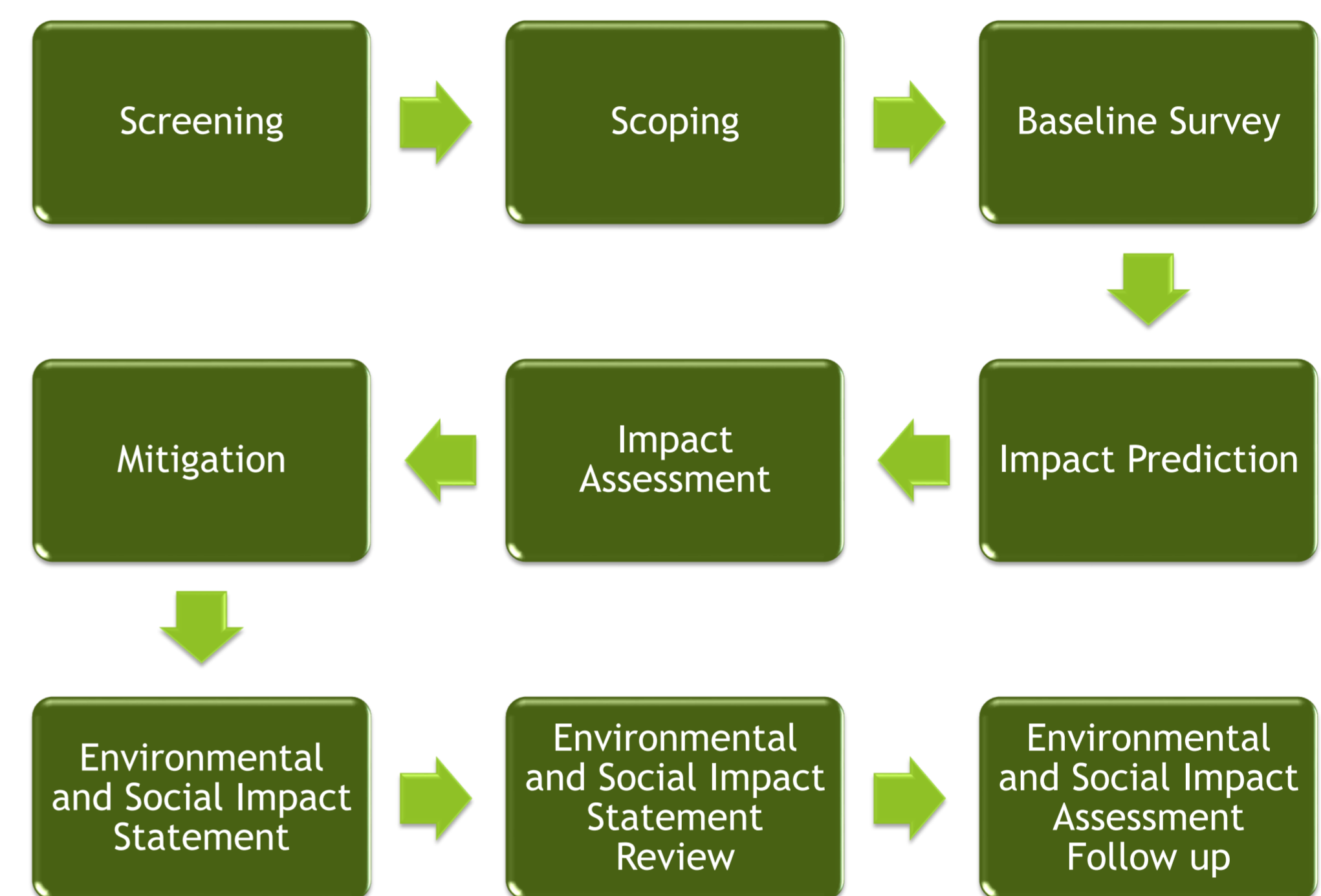


Along with structured questionnaire a survey of the affected households need to be conducted for livelihood analysis

ENVIRONMENTAL IMPACT ASSESSMENT

An assessment of the environmental impact of the different scenarios of macrophyte removal will be conducted through engagement with stakeholders and review of the extensive literature on the topic.

Key factors will include the ecological impacts of water hyacinth on fisheries and biodiversity, how these impacts relate to livelihoods, health impacts and potential poverty and gender implications.



Two scenarios: large scale utilisation of water hyacinth in natural water bodies and small scale utilisation in artificial lagoons;

Methods: the ecosystem services framework, life cycle assessment (mass and energy data needed from WP1), literature review and focus groups.

BEST PRACTICE

An assessment of the socio-economic causes of macrophyte invasion, particularly related to poor sanitation and excessive nutrient run-off.

Development of recommendations for 'upstream' control through improvement in the nutrient balance and improvements in sanitation.

WP5 will also consider alternative bioenergy feedstocks if the invasive macrophytes are brought under control by improved nutrient management - e.g. improved sanitation will create a source of organic waste in the form of faecal sludge

Upstream control measures of invasive aquatic macrophyte (sanitation, nutrient run-off);

Choice and configuration of large or small scale AD facilities, plants (local material and human resources);

New supply chain of biomass (harvesting and transportation)



Source: <https://indianexpress.com/article/cities/pune/pune-pcmc-launches-all-out-bid-to-clear-city-rivers-of-hyacinth/>

Alternative bioenergy feedstocks when invasive macrophytes are under control (e.g. faecal sludge by improved sanitation) or artificial cultivation.

Methods: cost benefit analysis (in conjunction with WP4), spatial analysis, focus groups

TRAINING AND STAKEHOLDER ENGAGEMENT



A demonstration AD facility will be used in Visva Bharati University, India for training purposes using water hyacinth as an alternative feedstock.

Training workshops will be organised by VBU and CREEC in India and Uganda.

Exchange of academics and researchers will allow engagement in workshops.

Stakeholder workshops will be organised in India and Uganda to involve end users in design of macrophyte utilisation projects, analyse the dependency of the people of the surrounding area and observe the problems faced by the community due to the invasive macrophytes

Engagement will include gender considerations e.g. Establishment of 'Women's Self Help Groups' for providing self- independence in areas of income, education and health.

