

Biorefinery and Chemicals UK-India Status

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Existing project areas

- Fuels + anything else
- Biomass to valuable chemicals
 - Agri and forest waste based
 - Industrial waste based
 - Paper and pulp waste
 - Food and beverage industry waste (eg, waste oil/fats)
 - Municipal and domestic waste
 - Solid waste
 - Wastewater/sludge
- Non-fermentative biomass valorisation pathways
 - fast pyrolysis,
 - new catalytic routes
 - Gasification
 - Torrefaction
- High value biorenewable – fermentation section
- Bioengineering of microbes and enzymes – separate topic (AD and fermentation)
- CO₂ to Value – Algal based biorefineries – Separate topic

Feedstock

1. Sugarcane
2. Rice straw
3. Paper mill waste
4. Municipal solid waste
5. Flower waste
6. Coffee waste
7. Oils/fats
8. -----
9. -----

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Gaps in research field from funded projects

- Scalable pre-treatment
 - Waste segregation
 - Choice of pre-treatment
 - Moving up the TRL ladder
 - Advanced/innovative methodologies
 - Cavitation based – non-milled biomass use
- Pre-treatment – yet to scale (novel technologies)
 - Advanced microwaves
 - IL – scale up approaches
- Processing plants for biorefineries – reimagining the design and scale up
- Maximising biomass conversion
 - Lignin valorisation for complete biomass utilisation – eg, vanillin, bioplastics
- AD based biorefineries for fuels, fertiliser and chemicals
- LCA and socio-economic impacts – feasibility and models
- Identifying regional biomass wastes as resources – Resources section

Others?

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Research needs to address gaps

- Current projects and interests of participants (biorefineries)
- Major industrial players (both UK and India)
- Each participant identify 5 areas – in Mural
- Ranking/prioritise the needs based on current gaps and identified areas

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