

# Supporting Southeast Asia with R&D in waste management and valorization by providing specialist training on 'Biorefinery enzymes for renewable chemicals: from discovery to industrial applications'



- Southeast Asia (SEA) is a big producer of agricultural and wood products which, when processed in industries, produces large amounts of biomass residues.
- SEA represents a biodiversity hotspot for enzymes and microbes that could potentially be useful to capture, recycle and upcycle which could be exploited into a circular economic utilization of agro-industrial waste (e.g., sugarcane bagasse, palm wastes etc.).
- Specialist training was realised in form of biennial skill schools with practical experiments and e-learning platforms by partners at the University of Sheffield and the National Centre for Genetic Engineering and Biotechnology (BIOTEC) in Bangkok.

- Early career researchers from Thailand attended the training covering the use of native or engineered enzymes for processes such as biomass saccharification', fermentation, biocatalysis and biotransformation.
- This project feeds into the expansion of further skill schools to other SEA countries such as Malaysia, Indonesia and Vietnam and develop relationships with local industries



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*“Not only did the skill school provide a specialist training in biorefinery enzymes, it brought together participants from regional universities, research institutions and industries. It was a fun learning week for both the participants and the instructors. We plan to move our next skill school to Chiang Mai to widen participation and benefit early career researchers from the northern part of Thailand and other SEA countries.”*

*Dr Tuck Seng Wong, University of Sheffield*

- The GCRF STARS funding helped BIOTEC to secure an industrial project, funded by PTTEP, Thailand’s largest oil and gas company
- Dr Wong continues collaborations with BIOTEC and Dr. Kang Lan Tee, one of the skill school organisers, established another partnership with BIOTEC supported by a GCRF fellowship
- Future skill schools are planned in collaboration with the University Putra Malaysia and the Airlangga University, Indonesia who attended a previous skill school

