



IEIF ASEAN Research Collaboration Project:

Get to know: Dr Khamtan Phonetip

Round 1 Early Career Researcher from Laos

- **Host Organisation:** The University of Melbourne
- **Project title:** Developing a Hybrid Solar-Kiln Drying System for Agricultural Food and Timber
- **Project outline:** This project aims to develop a hybrid solar-kiln drying system for agricultural food and timber products, integrating solar energy with supplementary heating to enhance drying efficiency and product quality. It focuses on optimising airflow, temperature control, and energy use through simulation and field testing. The hybrid design ensures consistent drying performance by maintaining energy input during cloudy or rainy days, making it a reliable and climate resilient solution for tropical regions like Laos.
- **Contact:** k.phonetip@nuol.edu.la

What motivated you to apply?

To accelerate practical, data-driven hybrid solar-kiln solutions that improve the quality of agricultural and timber products across ASEAN. The Australia–ASEAN collaboration model mentoring and access to facilities at Australian universities aligned perfectly with my goal to translate research into industry and policy impact in the region.

How would you describe your experience?

Intense, collaborative, and very well supported. Interdisciplinary work (wood processing, mechanical engineering, and energy systems) moved quickly from concept to prototype and analysis, with strong mentoring and administration. We produced tangible outputs: predictive models, training materials, and a draft manuscript.



Highlight or most valuable aspect?

Co-designing and validating a scalable hybrid solar-kiln approach tailored to ASEAN climates grounded in real data and clear adoption pathways. Equally valuable were the relationships with Australian mentors and ASEAN partners that will sustain future trials, training, and policy translation. Currently, I am drafting a concept for new project proposal to collaborate between Australia, Laos and other ASEAN partners to improve agricultural/timber products through enhanced by hybrid solar kiln method.