



MEDIA RELEASE

MINISTRY OF SCIENCE, TECHNOLOGY AND INNOVATION

QUADRILATERAL PACT TO TURN AGRICULTURAL WASTE INTO SUSTAINABLE NANOFIBER

PUTRAJAYA, 1 August 2025 - NMB (NanoMalaysia Berhad), an agency under the Ministry of Science, Technology and Innovation (MOSTI), together with SEED Tech Sdn Bhd (STSB), XMU Jiageng Education Development Sdn Bhd (XMU), and Henan Yujian Building Renovation Technology Co. Ltd. (YJ), officially exchanged a Memorandum of Understanding (MoU) today to explore the use of agricultural waste to produce cellulose nanofibers for advanced engineering applications towards industrial and end-user market deployment.

This quadrilateral collaboration marks a significant step in promoting sustainable material innovation and joint technology commercialisation, aligned with Malaysia's National Science, Technology, and Innovation Policy (DSTIN), the 10-10 Malaysian Science, Technology, Innovation, and Economy (MySTIE) Framework, and the National Advanced Materials Technology Roadmap with further support under the National Industrial Master Plan 2030 (NIMP) for eventual sectoral off-take.

The MoU outlines a shared commitment to transform agricultural waste into high-value cellulose nanofibers, with a focus on scaling up from lab to market for use in construction, automotive, and other engineering sectors. The use of nanofibers as additives, such as reinforcing binders for polymer composites, rubber and others, can provide interlaminar fracture resistance of between 1-10%. Meanwhile, the use of nanofibers as binders can provide structural strength of 30% and provide savings of up to 50%.

The project aims to leverage the respective strengths of all four parties, including R&D capabilities and industry expertise, to drive high-impact outcomes for Malaysia and the region.

The ceremony was witnessed by the Minister of Science, Technology and Innovation (MOSTI), YB Chang Lih Kang. In attendance were NMB's Chief Operating Officer,

Mohamad Hafiz Zolkipli, STSB's Director, Zhang Liang, Xiamen University Malaysia's Vice President, Prof Zhang Ying, and YJ's General Manager, Sun Lili.

Minister of Science, Technology and Innovation, YB Chang Lih Kang said: "This Memorandum of Understanding (MoU) reflects a shared commitment to sustainable innovation and cross-border collaboration in high-impact technologies. It also paves the way for scaling up from lab to market and broader cooperation in technology development, intellectual property licensing, knowledge exchange, and market penetration across Malaysia, China, and the Asia Pacific region."

NMB's Chief Operating Officer, Mohamad Hafiz, said: "This partnership reflects a collective ambition to develop locally sourced biomass solutions that serve both environmental and economic goals. By applying nanotechnology to agricultural by-products into high-value offerings, we are demonstrating how innovation can power Malaysia's circular economy."

Xiamen University Malaysia's Vice President, Prof Zhang Ying, also emphasised: "We commit to advancing environmentally responsible innovation. Cellulose nanofiber represents exactly the kind of breakthrough that aligns with this vision: lightweight, biodegradable, and incredibly versatile across multiple industries. By bridging research with real-world application, we can accelerate the development of sustainable technologies and ensure our scientific advancements have a meaningful impact. Together, we're not only shaping the future of materials science, but also reinforcing our shared responsibility to the planet."

STSB, which focuses on translating nanotechnology research into real-world applications across multiple sectors, brings strong commercialisation capabilities to the collaboration. XMU, which manages Xiamen University Malaysia, contributes academic and R&D strength, while YJ adds expertise in construction innovation and infrastructure solutions.

The partnership aims to drive joint technology development and IP licensing across Malaysia, China, and Asia-Pacific, while promoting knowledge exchange, forming strategic industry and research alliances, and securing funding to advance the development and commercialisation of innovative technologies. This MoU sets a strong foundation for future cooperation that accelerates innovation in nanotechnology and strengthens cross-border industrial ties.

This MoU reflects the value of Kemampanan (Sustainability), which is a core pillar of the Malaysia MADANI concept. By innovatively utilising agricultural waste to produce cellulose nanofibers, it supports efforts towards sustainable development that balance economic progress with environmental preservation. This approach underscores the importance of conserving natural resources for the well-being of

future generations, while strengthening the nation's efforts to build an inclusive and environmentally responsible society.

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ABOUT NMB

NMB (NanoMalaysia Berhad) was incorporated in 2011 as a company limited by guarantee (CLBG) under the Ministry of Science, Technology and Innovation (MOSTI) to act as a business entity entrusted with nanotechnology commercialisation and industrialisation activities through the NanoMalaysia Venture Builder model. NMB is currently the leading agency for nanotechnology, energy storage, electric vehicle (EV) technology and hydrogen technology development under MOSTI.

ABOUT SEED TECH SDN BHD

Seed Tech Sdn Bhd focuses on transforming nanotechnology research into practical and high-impact solutions by developing and commercialising advanced products that address critical needs across various industries, including agriculture, healthcare, automotive, energy, and materials science.

ABOUT XMU JIAGENG EDUCATION DEVELOPMENT SDN BHD

XMU Jiageng Education Development Sdn. Bhd. was incorporated to manage Xiamen University Malaysia, a private higher learning institution established under the Private Higher Education Institutions Act 1996.

ABOUT HENAN YUJIAN BUILDING RENOVATION TECHNOLOGY CO.

Henan Yujian Building Renovation Technology Co. is a company devoted to providing high-quality construction solutions for modern society, covering design, planning, execution, and maintenance of infrastructure and projects.

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