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Thailand's NSTDA-MHESI aligns its 2024 goals with the Bio-Circular-Green economy (BCG) model

12 January 2024 | News

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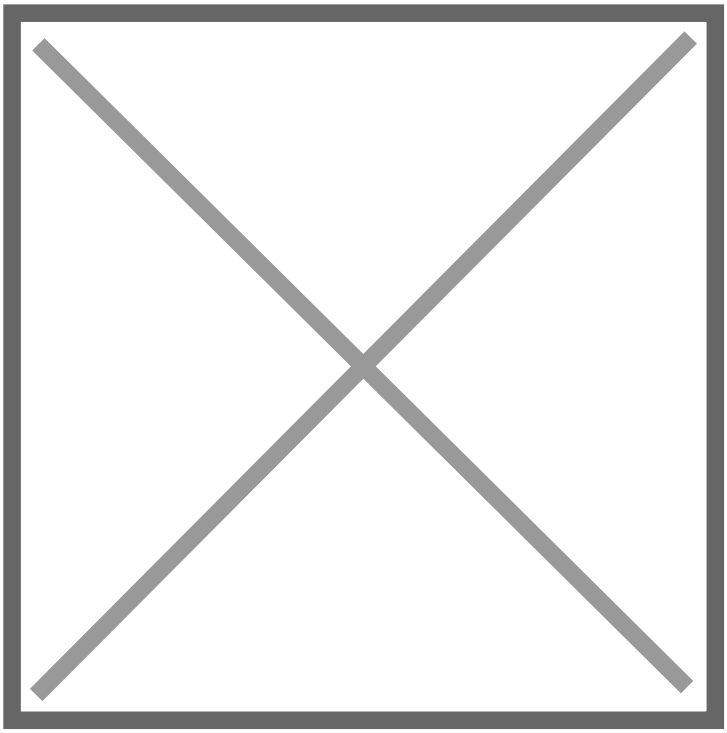
Thailand's Ministry of Higher Education, Science, Research and Innovation (MHESI): Professor Dr. Sukit Limpijumnong, President of the National Science and Technology Development Agency (NSTDA) â?? an agency under the Ministry of Higher Education, Science, Research and Innovation (MHESI) along with a team of executives and researchers unveiled the NSTDAâ??s 2023 performance in driving BCG research to enhance the quality of life of Thai people towards sustainability.

MHESI introduced the â??11 BCG Implementationâ?• policy for 2024, emphasizing NSTDAâ??s commitment to utilize science and technology to support various sectors in the national sustainable development mission, aligning with the Bio-Circular-Green economy (BCG) model.



Prof. Dr. Sukit Limpijumnong, President of NSTDA, said that the NSTDAâ??s 6.0 policy has set the vision for NSTDA to function as the national powerhouse in science, technology, and innovation (STI) to strengthen Thailandâ??s research and innovation ecosystem, aligning with the policy announced by Ms. Supamas Isarabhakdi, MHESI which is â??Private sector leads, state supports.â?•

Under the 6.0 policy, NSTDA has mobilized personnel from its various departments to drive the NSTDA Core Business strategy, creating research power to serve society by becoming more proactive in making research and innovation more accessible and reducing bottlenecks in research. Through this strategy, impacts of our research become more evident in society, with positive feedbacks from millions of real users in various sectors.

2023 Research highlights in agriculture, energy and environment

The press conference also featured exhibitions highlighting outstanding research work from five national centers. Among these displays are biocontrol products (developed by BIOTEC), which include pest control products, plant disease control products, and weed control products. The research team Standard Operating Procedures (SOPs) for integrated pest management for durian and yard long beans. These SOPs help farmers maintain and manage their agricultural plots while promoting the appropriate and effective use of biological products. SOPs are available in an e-book format on the online media channels of the research team and partners. Training workshops have been organized to introduce SOPs to farmers. A total of 150 farmers have attended these workshops.

The HandySense Smart Farm is a precision agriculture system developed by NECTEC. It utilizes sensor technology and an automatic control system to improve plantation management, reduce production costs, and increase the income of farmers by at least 20%. HandySense is an open-source technology and is demonstrated in 200 smart farm learning centers nationwide.

M Sense, developed by NANOTEC, is a test kit for measure the level of heavy metal contaminants in herbs and water. At present, three prototypes have been developed: manganese ions (Mn Sense), fluoride (F Sense), and copper (Cu Sense), for field use. The kit is highly sensitive and specific, easy to use, inexpensive, and can be applied in a variety of industries. The results can be determined qualitatively by comparing with a color chart and quantitatively using a portable device called the DuoEye Reader. The accuracy of the kit is consistent with standard laboratory methods, but it is less expensive compared to imported test kits.

â??EnPATâ?• is a biobased non-flammable transformer oil made from oil palm developed by ENTEC. It helps prevent fires from electrical transformer explosions, ensuring public safety while opening up opportunities for the high-value oleochemical economy. â??Rachelâ?• is a bodysuit designed by MTEC to aid mobility for the elderly. It can be worn all day long, allowing seniors to move freely and reducing the risk of injury from daily activities. This development employed interdisciplinary

knowledge in various fields, including materials science (muscle stimulation), biomechanics and anatomy (musculoskeletal movement), and fashion design (comfortable fit). The product is now advancing to commercial production by leading clothing manufacturers in Thailand.

In addition, NSTDA is also involved in driving the National Artificial Intelligence Strategy and Action Plan. Thailandâ??s Government AI Readiness Index ranking improved from 59th to 31st after the launch of the National AI Action Plan. NSTDA is actively engaged in driving the BCG Model at the national level and pilot provinces. Over 600,000 individuals have been trained in BCG skills development program during 2021-2022. Increased proportion of BCG economy has been witnessed in pilot provinces such as Chanthaburi and Ratchaburi.

2024 Goal, driving BCG research, innovation and sustainability

In 2024, NSTDA is applying research knowledge and expertise to benefit the country and apply research results to various sectors in accordance with the policy set by MHESI Minister Ms. Supamas Issaraphakdi that emphasized application to benefit the public and private sectors. NSTDA aims to drive 11 BCG Implementation projects with the â??**1 reduction â?? 2 additions â?? 1 creation**â?• strategy to improve the quality of life of Thai people.

â??**1 Reduction**â?• means reducing social disparities. This issue is addressed in three research projects:

1) â??Thung Kula Rong Haiâ?• focuses on transferring technologies to farmers and low-income families in Thung Kula Rong Hai area to improve their agricultural products

2) â??Traffy Fondueâ?• is a platform application for managing urban problems by connecting citizens with responsible agencies to increase the work efficiency of staff,

3) â??Accessibility Information and Communication Platformâ?• provides senior persons and persons with disabilities with access to communication, information and digital services.

â??**2 Additions**â?• means increasing Thai economic growth and improving self-reliance capacity. Two projects aim to boost the economic growth are:

1) â??High-value herbal extracts from basil, black ginger, and centellaâ?• focuses on the development of an industrial production process for standardized extract to support the food and dietary supplements industry

2) â??Functional food and functional ingredients production platformâ?• aims to drive the growth of food industry, focusing on functional food, specialized food, and future food. The project will also enhance an ecosystem to promote functional ingredients industry and improve the competitiveness of the countryâ??s food and cosmeceutical industries.

Four research projects aims to support self-reliance, among which, â??Animal Vaccineâ?• focuses on testing the efficacy of inactivated ASFV autogenous vaccines prototype and developing the ASFV vaccine production process for domestic production

Lastly, â??**1 creation**â?• means creating sustainability of nature and environment with two research projects: 1) developing indicators and database of CO2, CE, SDG, national life cycle assessment database, and indicators related to sustainable production and consumption and the circular economy; and 2) â??Industry 4.0 Platformâ?• focuses on enabling industries to increase production efficiency, reduce resource use, minimize waste, and transition to green manufacturing.