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NATIONAL SPACE EXPLORATION STRATEGY AND THE FIRST SPACE EXPERIMENT OF  
THAILAND

**Abstract**

In the future, Thai people are closely related to the earth's environmental problems such as climate changes, drought, toxic air pollution, coastal erosion, wildfire or virus pandemic, etc. Those are trending increasingly as exponential curves and pointing to the coming to the end of humankind. At the same time, the world resources are being depleted as the needs of the growing world population. Therefore, "Space" is the infinitely last frontier people will go there when the earth may not be able to live on.

National Space Exploration (NSE) is the first official space project focusing on frontier research of the space experiment and exploration for the country led by the Geo-Informatics and Space Technology Development Agency (GISTDA) under the Ministry of Higher Education, Science, Research and Innovation (MHESI) of the Royal Thai Government. NSE aims to grow and upgrade the country to the international space exploration cooperation that targets to operate the frontier research on the Moon/Mars and develop the related space technologies for the well-being of Thai people and for all humankind in the future. The initial implementation of the NSE is to encourage and support Thai people comprising the state agencies, educational institutions, and private sectors to motivate and alert in space science and scientific experiment in the space. For a concrete example, NSE has collaboratively sent the first Thai research to the International Space Station (ISS) in 2019 and will send the second scientific payload in 2022 described in this paper.

The heart of the NSE operations is effective management, which requires coordination, contact information, and creating multiple networks of partnerships, including co-creating a collaborative cluster in Thailand. This paper describes how to create a strong linked connection for the Thailand Frontier Research by NSE strategic operations to the Earth Space System (ESS) national roadmap and the international space exploration missions such as Artemis Program, Lunar Gateway, Space Mining, Sub-orbital, and Spaceflight, etc. The strategic operations of NSE do not drive only the space frontier research and innovation forward but also promote and encourage youths in the country by space activities such as the Kibo Robotic Programming Challenge (Kibo-RPC) by the National Science and Technology Development Agency (NSTDA) in cooperative with Japan Aerospace Exploration Agency (JAXA). Moreover, the establishment of the Microgravity Experiment Laboratory (Micro-X) of GISTDA, all of these are described in the paper.