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IAF SPACE EDUCATION AND OUTREACH SYMPOSIUM (E1)
New Worlds - Non-Traditional Space Education and Outreach (7)

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STUDENT-LED POLICY AND TECHNICAL CAPACITY BUILDING PROGRAM: THE ROAD TO CAMBODIA'S FIRST CUBESAT

Abstract

For two years, students from the University of Tokyo (UTokyo) have collaborated with the Institute of Technology of Cambodia (ITC) to launch the country's first space development initiative. Space capacity building is usually delivered by industry veterans or university professors, and focuses on either policy or technology. However, the present capacity building program is unique in that it: (i) has been initiated and delivered exclusively by postgraduate students from UTokyo, and (ii) provides a platform for learning in both engineering and policy, by jointly targeting undergraduate students at the ITC and government stakeholders.

The program was started in March 2018 at UTokyo by 6 Master's and PhD students (all under 25) as a Student Initiative Project (SIP). UTokyo SIPs provide students with funding to conduct cross-cutting technological and social action projects. Together, the team has several decades of space engineering and policy experience, which includes cansat development training, microsatellite manufacture, and capacity building in developing countries. The goals of the two-year project were to: (i) inspire students at the ITC to begin and continue space engineering (year 1), (ii) return to the ITC to provide students and faculty with the know-how to develop their own CubeSat (year 2), and (iii) promote a supporting policy and funding ecosystem through discussions with Cambodian government stakeholders (years 1 and 2).

The project has combined two field trips to Cambodia with e-mentoring of ITC students from Japan. The field trip in year 1 sowed the seeds of students' interest in space during a two-day intensive course which emphasised hands-on activities, such as a soft-landing challenge and a rocket launch activity. One measure of success was the founding of a propulsion group by ITC students after the field trip, with development of solid propulsion and a basic ion thruster. The field trip in year 2 equipped students with the tacit knowledge to develop and launch their own CubeSat, which would be a first for Cambodia.

The SIP team and faculty at the ITC have also initiated constructive discussions with the Cambodian government, raising the prospect of sustainable support for technical and policy capacity building.

This paper provides an overview of the first two years of the capacity building program. The three major lessons learnt are that: (i) passionate students are redoubtable space capacity builders, (ii) inspiration plus knowledge can get a CubeSat into space, (iii) technical capacity building should be backed up by policy discussions.