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HOW SEVEN EMERGING NATIONS ENTERED THE SPACE AGE VIA BIRDS PROJECTS 1  
THROUGH 4

**Abstract**

Operating on the basis that "one cannot learn how to build satellites by reading books", Kyushu Institute of Technology (Kyutech) launched its BIRDS Project in 2015 with Ghana, Bangladesh, Mongolia, Nigeria, and Japan. The main purpose was to help most of them launch their first satellites, and then somehow make satellite development sustainable in their own countries after the return of their students. Subsequently, Kyutech started BIRDS-2 in 2016, BIRDS-3 in 2017, and BIRDS-4 in 2018, involving the nations of Bhutan, Malaysia, Philippines, Nepal, Sri Lanka, and Paraguay. BIRDS-5 will start in October of 2019. In this paper we discuss the various capacity building results in these countries. We believe the seeds have been sown in these countries for sustained national space development via the activities of launching their first satellites – a crucial step. The seven nations who did (or are doing) their first satellites are: (1) Ghana, (2) Bangladesh, (3) Mongolia, (4) Bhutan, (5) Nepal, (6) Sri Lanka, and (7) Paraguay. Every nation participating in BIRDS pays its own way – there are no subsidies from Japan. They end up with their first space borne satellites but much more importantly they have engineers who know how to build a CubeSat.