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THE FIRST SATELLITES OF NEPAL, SRI LANKA (BIRDS-3); PARAGUAY (BIRDS-4); AND  
ZIMBABWE, UGANDA (BIRDS-5)

**Abstract**

In 2015, Kyushu Institute of Technology (Kyutech) initiated a paradigm-shifting capacity building program called “BIRDS”. First in 2015 was the BIRDS-1 Project, consisting of Ghana\*, Nigeria, Bangladesh\*, Mongolia\*, and Japan; second in 2016 was the BIRDS-2 Project, consisting of Bhutan\*, Malaysia, and the Philippines. (Note: \* denotes that BIRDS was the nation’s first satellite.) The primary goal of BIRDS is capacity building. For any nation seeking a long-term, sustainable space program, it is sine qua non to have capable scientists and engineers. To promote space development, Kyutech identified “the first national satellite” as a means to capture the imagination and public support of non-space-faring nations. However, the first satellite is a means to an end – it is not the end. As the title of this paper indicates, Kyutech has progressed to BIRDS-3 (2017), BIRDS-4 (2018), and BIRDS-5 (2020), and has thus assisted more non-space-faring nations in building, launching, and operating, their first satellites. In this paper, we examine the impact of these CubeSat projects on each respective country. In each case, the goal is to kick off a sustainable national space program. Are these goals being achieved?