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THE ROUTE TO ESTABLISHMENT OF A JORDANIAN ASSOCIATION FOR SPACE SCIENCE
AND TECHNOLOGY APPLICATIONS (JASSTA)

Abstract

The quest for space exploration has been the driver in solving multiple technological problems which in turn spun off many terrestrial applications. A long list of NASA spinoff technologies and resources from space RD has been transferred to private industrial sector. As of 2016, over 2,000 other space technology spinoffs in the fields of computer technology, environment and agriculture, health and medicine, public safety, transportation, recreation, and industrial productivity have been transferred to the industry by NASA [Wikipedia]. Most recently, the spinoffs of space technology have been the focus of the United Nations in their drive for global sustainable development. In 2015, the United Nations have adopted a strong resolution on “Transforming our world: the 2030 Agenda for Sustainable Development” [1]. In connection with this landmark resolution and the resulting ambitious plan, the space science and technology (SST) have become a global and central issue for all nations in their efforts to achieve sustainable development. Orbiting space-based technologies such as earth observation (EO) and geolocation provided by global navigation satellite systems (GNSS) provide tremendous volume of information and services crucial for the achievement of UN Sustainable Development Goals[]. The applications of SST are enormous and form the now known as “The Space Economy” which consists of all space-related industries including mobile phones, communication services, GPS systems, data on climate and agriculture etc. By 2030, the Space Economy will value in trillions of dollars. Thus, all countries, developed or developing, have to collaborate to bring about the benefits of the growing Space Economy. For Jordan, it is important to adopt SST education as an integral part of academic programs to enable the Jordanian youth to contribute to their national economic development. The objective of this paper is to shed light on the ongoing efforts to establish a Jordanian Association for Space Science and Technology Applications (JASSTA) as an academic and public education interface with world organizations dedicated to the cause of outer space use for peaceful applications. JASSTA vision is to be a regionally recognized catalyst in promoting education and capacity building in SST and its mission is create the culture of peaceful uses of outer space science and technology for the benefit of mankind by offering capacity building activities through awareness programs, seminars, competitions at national and international levels, training courses in satellite large data handling and artificial intelligence amongst other activities that support Jordan’ economic development in the current and emerging Space Economy markets. The work plan for JASSTA will be elucidated in this paper and current research works by enthusiasts in SST area from academia and other related fields are highlighted. This includes design and development of hydroponic greenhouse for the Moon and Mars exploration crews, modular settlement units and shelters, temperature control system for maintaining stable temperatures for long-term provision storage on Mars, and meal items options for potential long-term lunar exploration crews.