

IAF EARTH OBSERVATION SYMPOSIUM (B1)

50 years of Earth observation: The contribution to sustainable development goals and plans for the future
(6)

Author: Mr. Julius Kimani
Kenya

Dr. Geoffrey Okeng'o
Kenya

EARTH OBSERVATION FOR SUSTAINABLE DEVELOPMENT IN AFRICA: THROUGH THE
ADOPTION OF COST-EFFECTIVE SMALL SATELLITE PROGRAMS TO ATTAIN DATA
DEMOCRACY AND ACHIEVE SUSTAINABLE DEVELOPMENT GOALS IN AFRICA

Abstract

On 10th June 2013, the African Union (AU) adopted a grandiose socioeconomic masterplan for Africa for the next 50 years titled Agenda 2063. Its implementation is envisioned to help Africa achieve the sustainable development goals. Since then, Africa's fervent interest in space science for sustainable development has been on an upward trajectory. Compared to its global peers, Africa is light years behind in matters space science for sustainable development. However, in recent times, African governments have embraced a paradigm shift and realized that the adoption of space-based technologies can enable inclusive economic growth and empower social development to their people. In order to promote the use of space science for sustainable development in Africa, the African Union adopted the first African Space Policy on January 31st, 2016. This space policy would in the long-run, guide in the formation of the African Space Agency. Fast forward to 8th February 2019, Egypt won the bid to host the African Space Agency, thereby marking a hallmark to a collaborative space exploration program for the African continent. One of the key areas explicitly emphasized in the African Space Policy is earth observation for sustainable development in Africa. This entails the gathering of valuable data of our planet and this includes land, water bodies and the atmosphere via low-earth orbiting satellites and airborne aerial vehicles and beaming the data back to earth to enable governments, national agencies, non-governmental organizations and policy experts in science, technology and innovation to set national and continental priorities and targets. The Committee on Earth Observation Satellites (CEOS) indicates that its member agencies have more than 300 earth observation satellite missions which are carrying out more than 1000 instrument payloads geared towards addressing sustainable development. This paper seeks to examine how cost-effective, modern and advanced nanosatellites can play a pivotal role in earth observation to achieve sustainable development goals in Africa. It focuses on the economic benefits of earth observation to developing countries in Africa through the use of nanosatellites in monitoring food security, water resources, wind patterns for clean energy generation using wind turbines, human settlements, land use, climate change, blue economy, air quality and the environment. It then highlights a case study of South Africa, a country that has remarkably adopted nanosatellite technology to advance its development agenda. Lastly, it provides a policy framework that is needed to ensure nanosatellite programs for earth observation missions become successful in Africa.