



REPUBLIC OF KENYA

MINISTRY OF DEFENCE

KENYA SPACE POLICY 2015



# THE KENYA SPACE POLICY 2015

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## Foreword

Over the last five decades space exploration has pushed the frontiers of science and technology in many countries. Space science has proved repeatedly that it has the advantage of driving the growth of science and technology in nations that apply themselves to it, and in ways that have had a significant and positive impact on other industries and sectors of the economy.

Investment in Space science and in the growth of an indigenous space industry is expected to feed back into many areas of research, technology development, innovation, and manufacturing capacities, which will in turn contribute to national development. This will contribute to the technology and research based growth strategy, a central tenet of the Vision 2030 production oriented growth that is expected to underpin Kenya's entry into a medium income economy.

Space technologies and applications are also areas of investment in themselves, able to contribute directly to the development of everyday services such as navigation and positioning, communication, disaster management, resource management, agriculture, understanding our climate, weather management, surveying, among others. Kenya also has a unique set of resources on space, based on its geographic location at the equator, which it intends to utilize for its own development, and also to share with the world.

This policy is aimed at guiding Kenya's entry into the space industry as an active contributor to the development of space and space-based technologies. It is primarily in the process of development of an indigenous capacity and capability in space and space related technologies that many of the space faring nations have benefited.

Kenya's entry into the space industry requires new ways of doing business, especially commitment at a national level to building centres of excellence in science, technology and skills development that form the infrastructure, which is critical to a sound scientific and technological base.

This policy has been developed to structure the process of transitioning Kenya from a passive user of space and space technologies into a contributor to the development of space technology. This is a process of development of the science and technology base necessary to utilize space for national development. It is a journey that Kenya must urgently make, taking advantage of an already trodden path to reap maximum benefit from what other nations have already done. Towards this, Kenya will work through mutually beneficial partnerships with other like-minded nations.

Kenya recognizes that it is in the application of the Nation's scientists to the problems and challenges posed by the space frontier that will contribute to the technology leap that Kenya so much needs for its own development. It is in the process of finding solutions to technological challenges in space that we will push the frontiers of science in Kenya.

The Kenya Space Strategy will guide the development of Kenya's indigenous space industry, working in synergy with all sectors to ensure that the economy benefits from the technology and space services.

Space science is anticipated to stir up the imagination of the youth, inspire and motivate them to engage in disciplines that will form capabilities which will contribute to the nation's future social and economic development.

April 2016



Amb. Raychelle Omamo, SC, EGH

Cabinet Secretary for Defence

## Executive Summary

Kenya has in the last 50 years participated in various space initiatives by subscribing to the United Nations Conventions and Treaties on the peaceful use of outer space as well as through a number of bilateral and multilateral agreements that have enabled Kenya to set up national, regional and international initiatives on utilization of outer space resources.

This policy will guide the Government of Kenya in the strategic exploitation, use and management of its resources with respect to outer space. Kenya has a unique set of resources due to its geographic location at the equator and its border with the Indian Ocean to its East that facilitates ease of launching and tracking of space crafts.

As it develops its space programme Kenya will be guided by the international Conventions and Treaties to which it's a State Party and national principles that promote the peaceful use of outer space for humanity.

Kenya aims to apply the technological development that will result from its participation in space initiatives for its own benefit as well as the region's economic, social and political development.

Space programmes are multi-sectoral in nature and an apex body, the proposed Kenya Space Agency, will coordinate the various sectors and the strategy and its translation into programmes will ensure a balanced allocation of benefits to all sectors.

This document includes the guiding principles, goals, objectives and the implementation guidelines for sustainable use and development of space science and technology in Kenya. It will also integrate the strategy which will guide the development and implementation of the strategic plan.

## Definition of Terms

Earth Observations	Gathering of data and information about Earth's physical, chemical, meteorological and biological systems using in-situ, aerial and space-borne platforms to monitor and assess the status of, and changes in, the natural and built environment.
Global Navigation Satellite System	Constellations of Earth-orbiting satellites that broadcast their locations in space and time, of networks of ground control stations, and of receivers that calculate ground positions by triangulation
Navigation and positioning	Skill or study involving the determination of position and direction
Remote sensing	Acquisition of information about an object or phenomenon without making physical contact with the object
Satellite communications	Artificial satellites placed in space for the purpose of telecommunications
Satellite systems	Artificial objects comprising computer-controlled systems that attend to many tasks, such as power generation, telemetry, altitude control and orbit control
Space Weather	Conditions in the space environment that affect reliability and integrity of technological systems located in space or on earth.

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## A. Introduction

Kenya, through its blue-print Vision 2030, aspires to be a middle income economy by the year 2030. The Vision is anchored on Social, Economic and Political pillars. Science, Technology and Innovation (under the social pillar) is projected to play a critical role in improving the quality of life and the creation of wealth for Kenyan citizens, through knowledge generation and exploitation; and the subsequent development of congruent economic activities. Based on experiences from other parts of the world, space science and technology provides an ideal platform to support the development of a knowledge-based economy. Space science and technology has many practical benefits that can be derived from its utilisation, and these include inter-alia:

- (i) monitoring and management of natural resources and the environment e.g. forests; wildlife; marine ecosystem; oil, gas and mineral exploration; and mining;
- (ii) security surveillance, peace keeping and conflict monitoring and resolution using satellite derived information e.g. the United Nations Security Council decisions on several conflicts around the world are based on such information;
- (iii) natural hazards and disasters: monitoring, forecasting, management, evacuation and relief support services;
- (iv) weather forecasting, climate change mitigation and adaptation;
- (v) precision agriculture and food security: using Global Navigation Satellite Systems (GNSS).
- (vi) telemedicine – using space technology to take health services to remote parts of the country;
- (vii) education- using space technology to enhance distance learning and take education to the people, especially in remote parts of the country;
- (viii) land use planning; surveying and mapping; urban and rural planning;
- (ix) communications: navigation and positioning i.e. in the aviation and maritime sectors as well as location of objects on the surface of the earth;



- (x) space weather monitoring: monitoring of the space environment for conditions that may affect communications, navigation, positioning, oil and gas pipelines and orbiting satellites in space.

Kenya, in its peaceful use of outer space, shall be guided by existing international Conventions and Treaties on outer space and national laws on space affairs.

Kenya's aspiration is to utilize outer space for national development, benefiting from the process of development of indigenous space technology and applications.

Kenya is an active user of Space technologies, with a growing community of practitioners engaged in research and utilization of space technology, albeit uncoordinated, in sectors such as telecommunications, security, defence, agriculture, environment and natural resource management, mapping, land use planning, navigation, positioning, space weather, weather forecasting, among others. Due to existence of such fragmented multi-sectored initiatives in Space science and technology, there is urgent need to consolidate all these efforts in order to create programmatic synergies and complementarities.

Investment in the space sector is critical to the development of the science, technology and innovation that will play a critical role in achieving Kenya's aspirations to be a middle income economy as detailed in Vision 2030.

## **B. Brief Historical Context**

Over the last fifty years Kenya has had a number of initiatives in space, such as the San Marco satellite launching and tracking station in Ngomeni, Kilifi County; and satellite communication through the Longonot and Kericho Earth stations.

Kenya subscribes to the international Conventions and Treaties on peaceful uses of outer space and actively participates in the African Resource and environmental Management satellite Constellation (ARMC) initiative, the African Leadership Conference on Space Science Technology for Sustainable Development (ALC) and the Square Kilometer Array (SKA) programme. Kenya hosts the Regional Center for Mapping of Resources for Development in Nairobi a consortium of 22 member states. Kenya signed the 1976 Bogota Declaration with other equatorial nations on management of the equator and geostationary orbit as national resources.

Kenya's space activities are sectorally placed in a number of Government agencies and institutions that play a key role in the utilization of space applications, these include: Department of Resource Surveys and Remote Sensing (DRSRS); Kenya Meteorological Department (KMD); Kenya Civil Aviation Authority (KCAA), Survey of Kenya (SoK); Ministry of Defence (MoD) and security agencies, Communications Commission of Kenya (CCK); Ministry of Education Science and Technology (MoEST); National

Commission for Science, Technology and Innovation (NACOSTI); Ministry of Mining; and institutions of higher learning, among others.

There is therefore an urgent need to develop a framework to provide a clear direction for Kenya's space industry. The framework will provide a roadmap that firmly anchors space technology and related applications as key drivers for development in tandem with the national aspirations, political, social and economic goals.

## C. Guiding Principles

In pursuit of space activities, Kenya shall be informed by the principle that the pursuit of space science and technology shall contribute to the country's economic growth and socio-economic transformation in addition to service to all humankind, which shall include:

1. use of space for social economic benefits;
2. commercial and civil use of space;
3. enhance capability of national security and defence;
4. enhancement of national and international cooperation on space activities;
5. promotion of research, development and innovation;
6. sustainable use of outer space; and
7. access to space technology by all.

## D. Policy Goal and Objectives

### D.1 Policy Goal

The main goal of this space policy is to promote and enhance social and economic development through the utilization of space technology in order to uplift the standard of life for all citizens.

### D.2 Policy Objectives

This policy will focus on the following objectives:

1. to enhance coordination of space related activities by establishing linkages among government agencies and institutions, industry and researchers;
2. to establish a viable space programme that promotes a vibrant indigenous space industry that responds to the needs of the Country;
3. to institute sustainable capacity building and outreach programmes in the space sector;
4. to develop infrastructure for access to space and for provision of space derived services;
5. to enhance national security and defence through space technology;
6. to promote national and international cooperation through mutually beneficial collaborations, partnerships and linkages; and
7. to promote research and development in space science and technology.

## E. Policy Implementation Guidelines

### E.1 Institutional Framework

The lead Agency for the implementation of this policy will work closely with the relevant institutions and government agencies in a coordinated and structured manner in the execution of its mandate.

Towards this end the government will maintain a central body for coordination of space activities, a role that is currently played by the National Space Secretariat (NSS). The NSS will be succeeded by the proposed Kenya Space Agency.

In order to facilitate effective coordination, it is anticipated that the proposed Agency will have a board and relevant advisory committees with representation from key users and stakeholders.

The mandate of the proposed Kenya Space Agency will be to provide leadership in space related activities, in particular the Agency will:

1. coordinate and regulate all space activities;
2. implement the space policy;

3. oversee and facilitate capacity and capability building in space science, technology and innovation;
4. facilitate resource mobilization to support space initiatives;
5. facilitate development and implementation of space programmes in Kenya;
6. to promote the establishment of the relevant centers of excellence; and
7. promote national and international cooperation in the space industry.

## E.2 Policy Statements

The space policy will be implemented as follows:

- **Coordination of space activities:** The government will maintain a central body for coordination and regulation of space activities through the proposed Kenya Space Agency.
- **Development of an indigenous space programme:** The Government will develop a national space programme as a foundation for scientific and technological advancement in economic and social sectors.
- **Development of capacity and outreach in the space sector:** The Government will facilitate the development of core competences and capabilities in various fields of the space industry.
- **Communication and public participation:** The Government will enhance public participation and understanding of the benefits and impact of investing in space activities.
- **Development of Space Industry:** The government will nurture and facilitate the robust development of space based industries for accelerated economic growth.
- **Enhancement of National security and defence:** The government will enhance the capabilities of conventional security and defence with space derived technology and services.
- **Promotion of Intra-national and International Cooperation:** The government will promote national and international cooperation in peaceful uses of outer space through mutually beneficial collaborations, partnerships and linkages

- Promotion of research and development in space science and technology: The government will promote research and development in space science and technology.

## F. Conclusion

This Policy document identifies the key policy goals that will drive the space agenda in Kenya. Its objectives and principles will form the basis of all decisions and actions in developing and managing Kenya space programme. The policy is a guiding framework that is complemented by Kenya Space Strategy and a governance framework.

