

**UN/NIGERIA WORKSHOP ON SPACE LAW**  
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**SPACE-RELATED ACTIVITIES, EDUCATION AND INSTITUTIONS IN GHANA**

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**Introductory Remarks:**

I wish to thank the Organizers, especially UN Office for Outer Space in Vienna and the Government of Nigeria for inviting and sponsoring me to attend this very important International Workshop on Space Law and Policy. The topics discussed are be relevant as Ghana intends to deepen her space-related activities.

**Presentation Outline:**

- I. State of Affairs of Space Science and Technology in Ghana
- II. National Policy on Space Science, Technology and Law
- III. Strategies for Space Applications
- IV. Institutional Arrangements for Coordinating Space-related Programmes
- V. Proposed Implementation Schedule of Action Plans
- VI. Conclusions

**I. STATE OF AFFAIRS OF SPACE SCIENCE AND TECHNOLOGY IN GHANA**

The current Science and Technology Policy of Ghana has been framed to exploit all the “Sciences” for the benefit of Society, and Space Science and Technology (SST) is considered necessary and relevant for ensuring sustainable development of the country.

In the past, SST has not been mainstreamed into the National Development Agenda, until the recent worldwide occurrences of natural disasters dawned on us of the need for establishing earth observation and early warning systems for:

- Effective and efficient management of natural resources; especially, control of deforestation, desertification, soil erosion, protection of watershed and bio-diversity, etc;
- Disaster responsiveness in case of floods, hurricanes, earthquakes, landslides, bush fires, etc; and
- Mitigating climate change, global warming and drought.

To realize above strategies, CSIR-INSS and PPME of MES have initiated discussions to develop a national policy on SST application. The SST Policy Document would serve as framework for coordinating and harmonizing nationwide the programmes and activities by all Government Ministries, Departments and Agencies (MDAS), Non-Governmental Organizations (NGOs), Private Sector and other Businesses, Individuals and Civil Society to bring the benefits of Space Technology to bear on national development.

## 1.1. International Obligations

For meeting *International obligations*, Ghana has endorsed the agenda and goals of COPUOS and UNISPACE III and is a state party to the following treaties governing peaceful activities in outer space by signature only:

- ❖ Outer Space Treaty of 1967;
- ❖ Rescue Agreement of 1968;
- ❖ Liability Convention of 1972.

However, Ghana has not acceded to or is not party to

- ❖ Registration Convention and
- ❖ Moon Agreement.

Ghana has also ratified four of the eleven UN Agreements, namely:

- Treaty banning nuclear weapon tests in the atmosphere, in outer space and under water;
- Agreement relating to the International Telecommunications Satellite Organization;
- Convention on the International Mobile satellite Organization; and
- International Telecommunication Constitution and convention

From the presentations and discussions at the workshop, there were misgivings about countries which have not ratified the treaties and other agreements, and in the case of Ghana efforts will be made by the Ministry of Environment and Science to present the necessary documents to Parliament to ratify the conventions.

## 1.2. Domestic needs

In addressing *Domestic Needs* in Ghana, there are ongoing programmes on Space Applications, Research and Education.

(a). The three (3) crucial areas of space applications in Ghana are:

- ❖ Remote Sensing and Earth Observation for monitoring agriculture/crop production, forest and bio-resources, water resources, environmental pollution, human settlement, climate change, etc;
- ❖ Telecommunication and Broadcasting; and
- ❖ Meteorology and Weather Forecasting.

(b). Research in Space Science & Technology is limited in scope, but significant initiatives involve:

- Ghana Atomic Energy Commission with capacity for multi-elemental analysis of unidentified falling objects from space, such as meteorites and lighting rocks, by using Instrumental Nuclear Activated Analysis. The methodology had been applied to analyze two space debris;
- Remote Sensing and Geographical Information Systems for monitoring the ecology and hydrology of the Volta Basin (which is main national energy source) and coastal pollution (such as oil spills) by CERSGIS and CSIR. The ownership and control of primary data remains problematic; and
- Tracking of Low Earth Orbit Satellites (LEOSATs) under the TRINET Project by CSIR and Partners in Ireland for data transfer and information retrieval for rural development, especially in remote communities.

(c). Education and Training at Universities are modest, except some few basic space science courses at undergraduate levels, where:

- University of Cape Coast offers courses in Atmospheric Physics, Meteorology, and is a partner in African Virtual University Satellite-based distance education;
- University of Ghana runs programmes in Remote Sensing and geographical information for spatial data;
- Kwame Nkrumah University of Science and Technology offers undergraduate degree programme in Aerospace Engineering.

There is the need to upgrade programme to graduate level to train critical manpower for technology transfer and adaptation. Additional resources required are laboratory facilities, in particular an observatory to generate interest in space activities. In consultation with the legal reforms Committee, initiatives will be undertaken to incorporate Air and Space law into the curricula of the Ghana Law School.

### **1.3. Regional Cooperation**

On *Regional Cooperation*, Ghana will collaborate with the African Regional Centre for Space Science and Technology Education (ARCSST) at Ile-Ife on capacity development, and with the National Space Research and Development Agency (NASRDA) in Abuja on capacity utilization. The influence of the two organizations should be felt more in the sub-region. At the first African Leadership conference on Space Science and Technology for sustainable development (with the theme: Space – an indispensable tool for Africa’s development and growth) discussions were held with the Director of ARCSST and the Director-General of NASRDA agreed to recognize MES and CSIR as focal points on SST programmes in Ghana and to pay official visit to Ghana to arrange for collaboration, disseminate information on the two institutions and the lessons to be learnt by Ghana

### **1.4. Public awareness**

Unfortunately, the public awareness of space activities appears non-existence and perception is suspicious because of apparent contradiction with religious beliefs that “space is the abode of the deities”. There are on-going national programmes of science acculturation to overcome such misconceptions.

## **II. NATIONAL POLICY ON SPACE SCIENCE, TECHNOLOGY AND LAWS**

A National Space Science and Technology Policy is being developed to ensure coordination and harmonization of all space-related activities nationwide.

1. The objective is that the policy guideline will serve as a “roadmap” for promoting research, development and training in applications of space technologies. Additionally, the policy will also serve to incorporate space laws into the national legislation.
2. The goal will be to establish Ghana Space Agency (GhSA) to coordinate nationwide programmes of all implementing groups, and setup the framework for Ghana to undertake space-related activities under the agenda of UNISPACE III and COPUOS.

3. The Policy Thrust will be to use Space Technology to promote economic growth in specific areas of:
  - ❖ Sustainable development (capacity building and utilization in water resources, land use, mapping, etc.);
  - ❖ Earth observation, early warning systems and disaster management;
  - ❖ Tele-Medicine and Health (surveillance of endemic diseases such as guinea worm, cholera and meningitis);
  - ❖ Satellite communication and broadcasting;
  - ❖ Distance education and learning; and
  - ❖ International Collaboration.
4. For the Legal Framework, Parliamentary Act on Space Policy will incorporate Space Laws in the National Legislation.

### **III. INSTITUTIONAL ARRANGEMENTS FOR COORDINATING SPACE-RELATED ACTIVITIES**

For the establishment of the Ghana Space Agency (GhSA), the implementing Ministry shall be the Ministry of Environment and Science (MES), while the Coordinating Agency will be the Council for Scientific and Industrial Research (CSIR). The Agency will be hosted by CSIR.

The collaborating ministries, Departments and Agencies (MDAs) will consist of:

- ❖ Ministry of Justice (Laws Reforms Committee)
- ❖ Ministry of Communication
- ❖ Ministry of Defence
- ❖ Ministry of Agriculture
- ❖ Ministry of Education
- ❖ Ministry of Rural Development
- ❖ Ministry of Finance and Economic Planning
- ❖ Universities and Research Institutions (R&D)
- ❖ National Communication Board
- ❖ Civil Aviation (traffic Control)
- ❖ Metrological Services (weather forecast)
- ❖ Survey Department (Cartography mapping)
- ❖ CERSGIS – Remote sensing and GIS
- ❖ CSIR – Spatial Data

Other private individuals and business engaged in space-related industries shall be co-opted.

### **III. PRIORITY ACTION PLANS ON SPACE APPLICATIONS**

Priority setting in SST Programmes in Ghana will be based on socio-economic development through:

- ❖ SST Infrastructure development for Education and training
- ❖ Commercialization and applications of Space technologies (based on trend analysis)

- ❖ National Space Legislation (Policy changes will lead to new legislation and regulations).

The plans envisage:

- ❖ Monitoring and Management of environment and natural resources;
- ❖ Human Resources development and training;
- ❖ Awareness among citizens, decision makers and politicians of the relevance of space science and technology; and
- ❖ Sourcing funding from local and donor sources.

## **V. PROPOSED IMPLEMENTATION SCHEDULE OF THE POLICY PLANS.**

1. January – March 2006:  
Draft Policy submitted to the Ministry of Environment and Science for consideration and approval;
2. April 2006 – June 2006:  
Stakeholders Forum to vet policy document;
3. June - September 2006:  
Policy document submitted to Parliament for consideration by Select committee on Science for enactment;
4. September – December 2006:
  - ❖ SST Capacity and Infrastructure assessment and links with industry undertaken;
  - ❖ National Workshop on Space Applications in Ghana to be held;
  - ❖ Development of curricula and educational programmes in Space Sciences and Space Laws;
  - ❖ Public awareness and sensitization programmes (Radio, TV, Print Media).
5. January 2007 – December 2007:  
In conjunction with the Ministry of Justice, MES will prepare national space laws.
6. Budget allocation has been made by government to implement the activities listed above and additional funding will be sought from bilateral and multilateral sources.

## **VI. CONCLUSIONS**

Ghana is keen to adopt and apply Space Science and Technology for socio-economic development, environmental and resources management and communication, but will need International assistance and other donor support, especially in education and training, establishment of an observatory and incorporation of Air and Space Laws in to the National Legislation.

The forthcoming incident of eclipse of the Sun in March 2006 will serve as opportunity to create awareness of Space science in Ghana, and the UN Office of Outer Space must assist CSIR to undertake public education on the phenomena.