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English only

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International cooperation in the peaceful uses of outer space: activities of Member States*

Note by the Secretariat

I. Introduction

1. In the report on its forty-ninth session, the Scientific and Technical Subcommittee of the Committee on the Peaceful Uses of Outer Space recommended that the Secretariat continue to invite Member States to submit annual reports on their space activities (A/AC.105/1001, para. 29).

2. In a note verbale dated 31 July 2012, the Secretary-General invited Governments to submit their reports by 19 October 2012. The present note was prepared by the Secretariat on the basis of a report received from Sudan after 19 October 2012 in response to that invitation.

3. The replies contained in the present document are original documents, as submitted, and were not formally edited.

II. Replies received from Member States

Sudan

Introduction

Sudan as a developing country recognized the importance of space science and applications for the fundamental knowledge of the universe, education, health, environmental monitoring, management of natural resources, disaster management,

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meteorological forecasting and climate modelling, satellite navigation and communications, and the major contribution that space science and technology make to the well-being of humanity and specifically to economic, social and cultural development, Regarding space science and technology, Sudan developed a strategy that focuses on human and institutional capacity building in four major fields within various governmental institutes, those are:

1. Space technology applications for environmental monitoring and natural resources management mainly Remote Sensing and GIS Applications, within Remote Sensing Authority (RSA) — National Center for research (NCR)
2. Meteorological Forecasting, within Meteorological Authority
3. Satellite Communication With the Ministry of Science and Communication
4. Astronomy with University of Khartoum
5. Private sector such as Meirag Corporation involved in image processing, agricultural crop monitoring and yield estimation

Remote Sensing (RS) component of Sudan Space Science and Technology programs plays a vital role in sustainable development of the natural resources and its application started since the establishment of the Remote Sensing Authority, late in the 1970s.

Remote Sensing Authority (main activities)

Remote Sensing Authority of Sudan is mandated to conduct research in the applications of space technology and to assist the government agencies, universities, and research institutes in the field of space technology applications, research, studies, and capacity building. It is involved in programs and activities that include project studies for natural resources management, environmental monitoring and disaster management, human capacity building through education, training, workshops, and awareness programs for professional as well as public awareness.

1. Natural Resource Management Program (RSA)

Sudan, with its diversified natural resources and climate ranging from hyper arid in the north to moist sub humid zone in the south, is one of the largest country in Africa. In such a vast country, it is advantageous to use space technology for sustainable development of natural resources. Remote Sensing, GIS and GPS as advanced technologies are used to enhance the availability, acquisition, analysis and output of environmental data. Also these technologies facilitate data and information accessibility and sharing, and support decision making.

Land Use /Land cover assessment and monitoring is one of the major issues at focus. Information on rate and trend of cover changes are real indicators of development. The role of RSA, in this respect, is to sustain the availability and the accessibility of current information on land under agriculture, range and forest for the whole country.

At a national level, with an involvement of private sectors, some of national projects were implemented recently (2003+) utilizing RS and GIS including:

1. Development projects at national level: Merewei Dam construction
2. Projects for peace consolidation: Rehabilitation of the war affected areas in the south and Darfur states
3. Projects for sustainable development: Water harvesting in west Sudan, Khartoum state, and Gadaref state
4. Projects for management: such as sugar cane schemes

2. Environmental monitoring (RSA)

Monitoring of environmental changes and management of disasters are major challenges to sustainable development. The diversified spectrum of environmental problems ranging from drought and desertification to bushfires and floods, necessitate the need to share information and work as community with a common purpose of improving the environmental management. Space Technology offers the opportunity to generate, analyse, and manage resource information to improve their development.

Three main programs at present utilize remote sensing data to produce quantitative information in format that is easily interpreted and used by decision-maker; These programs are desertification monitoring program, flood assessment, and town environmental degradation assessment. Data availability, analysis and human capacity building are the main common components of these programs.

At a national level, with an involvement of government institutions and United Nations organizations, some national environmental monitoring projects were implemented recently (2003+) utilizing RS and GIS including:

1. Projects for environmental protection: desertification in the affected states, sand encroachment in the River Nile State, flood of Nile and Gash Rivers, and land fire
2. Projects for human health: Malaria control and eradication

3. Human resources development RSA program (education, training, and awareness)

(a) Training

It worth mentioning that the Remote Sensing Authority (RSA) involvement in human resource development is remarkable through its wide spectrum training programs in geo informatics. Six subprograms are currently being implemented by the (RSA):

1. Short training program (basic) targeting professionals working in various fields
2. Short training program tailored for universities
3. Special Training Modules (remote sensing training course) developed specifically for secondary schools teachers

4. Medium training programs

5. An Advanced Training Course designed to suit well-experienced professionals

6. Long- term training program M.Sc. program at the Sudan Academy of Science

More than 1000 trainees enrolled in the above mentioned training programs since 2008. Almost all the 23 Universities of Sudan introduced RS and GIS in their syllabus at under-graduate level as well as at the postgraduate level. Recently RS was introduced in the secondary education.

(b) Awareness

Awareness programs were also conducted, targeting public, decision makers, Education field and professionals. The awareness programs include numbers of local seminars, workshops, besides the international workshops and conferences. In this respect the effort and cooperation of UN Office for Outer Space Affairs (UNOOSA) and the Inter-Islamic Network on Space science and Technology (ISNET) were highly appreciated.

In 2004 UNOOSA organized a workshop jointly with RSA in Sudan under the theme: THE USE OF SPACE TECHNOLOGY FOR NATURAL RESOURCES MANAGEMENT, ENVIRONMENTAL MONITORING AND DISASTER MANAGEMENT. KHARTOUM- SUDAN, APRIL 2004

In 2005 ISNET organized workshops jointly with RSA in Sudan under the theme: INTERNATIONAL WORKSHOP ON SPACE TECHNOLOGY FOR PEACE, REHABILITATION AND DEVELOPMENT. 26-29 SEPTEMBER 2005

In 2010 RSA hosted the fifth meeting of Directors of Remote Sensing Centers in Arab Region

In 2011 RSA hosted UN-SPIDER Technical Advisory Mission in Sudan and UNOOSA organized a workshop jointly with RSA in Khartoum- Sudan under the theme: Space-based Solutions for Disaster Management and Emergency Response, Khartoum- Sudan

Challenges:

1. Availability and accessibility of space-based data and information

2. Efficient utilization of space-based data and information for sustainable development and disaster management

Opportunities:

RSA Cooperation with UN organization and Bilateral agreements with the relevant institutions such as remote sensing organization of Syria and Pakistan, will be further reinforced. In its efforts to sustain the availability of environmental data. Ministry of Science and Communication initiated a program for a Ground receiving station and Remote sensing satellite.