



UNITED NATIONS  
Office for Outer Space Affairs

## INFORMATION NOTE

### United Nations/Pakistan International Workshop on Integrated Use of Space Technologies for Food and Water Security

Islamabad, Pakistan, 11 - 15 March, 2013

#### 1. Introduction

The United Nations Office for Outer Space Affairs (OOSA) and the Government of Pakistan are jointly organizing the above Workshop to promote the use of space technologies for the benefits of developing countries.

The Workshop will be held in Islamabad, Pakistan, from 11 to 15 March 2013, hosted by the Pakistan Space and Upper Atmosphere Research Commission (SUPARCO) on behalf of the Government of Pakistan and cosponsored by the Inter-Islamic Network on Space Science and Technology (ISNET).

The Workshop will explore how present-day space technologies help to identify and monitor the relationships between mountain environment (as a source of water), sustainable water resources and how these affect food security on an international and regional scale. It will therefore also link to the context of the Rio+20 Summit Declaration and to the evolving United Nations Post-2015 Development Agenda.

#### 2. Background and objectives

At the Third United Nations Conference on the Exploration and Peaceful Uses of Outer Space (UNISPACE III), held from 19 to 30 July 1999 in Vienna, Austria, a fundamental requirement agreed upon was to assist States, especially developing countries, in applying the results of space research with a view to promoting sustainable development of all people. The resolution entitled “**Space Millennium: Vienna Declaration for Space and Human Development**” adopted by UNISPACE III, contains a strategy for enhancing the use of space science and technology to contribute to solutions for major global issues, including water- and food security.

Space technologies, satellite remote sensing technology in particular, have demonstrated capabilities in meeting challenges of water resource management, as rapid population growth and development pressures continue to impose additional stresses on scarce resources and result in food crises as well. Continuous Earth observations from space are crucial to manage water resources for the benefit of mankind, as well as to provide important forecasting services to prevent water-related disasters such as floods or droughts which then can impact food security.

Remote sensing satellites provide data on several key variables (for example rainfall, precipitations, water storage, soil moisture and evaporation) using spatial and temporal scales that are appropriate for reliable assessment. A satellite-based approach to assessment and management of water resources in particular is especially important in countries and regions of the world where adequate hydrological networks do not exist.

Monitoring agricultural crop development from space can help to predict a region's agricultural output well in advance. This information is often crucial in helping authorities to anticipate food shortage and famine, giving them enough lead time to take preventive action.

Rainfall assessments from satellites help farmers plan the timing and amount of irrigation for their crops. Such assessments can then also contribute to improving food security.

Effective use of Remote Sensing data from existing satellite systems such as Landsat, SPOT, IRS, ENVISAT and Radarsat (to name a few) already provides tools that enhance the collection, storage, analysis and dissemination of food security information or for carrying out comprehensive studies on food security and vulnerability.

Available high-resolution Earth observation data combined with GNSS (satellite navigation) data contribute to development of precision farming techniques that allow monitoring crops on individual farms. These techniques then help to identify precisely areas under stress due to lack of water, in need of fertilizer or affected by disease. Accurate targeting of such areas helps to optimize distribution of water and fertilizers, and in this way improve crop yields and reduce environmental impact of agriculture.

The outcome document “**The Future We Want**” of the 2012 United Nations Conference on Sustainable Development conference (Rio+20) recognized that “the benefits derived from mountain regions are essential for sustainable development.” Mountain ecosystems “play a crucial role in providing water resources to a large portion of the world's population, yet “fragile mountain ecosystems are also particularly vulnerable to the adverse impacts of climate change, deforestation and forest degradation, land use change, land degradation and natural disasters.”

Mountains are often home to communities, including indigenous peoples and local communities, that sustainably use mountain resources. Continued efforts will be required to address poverty, food security and nutrition, social exclusion and environmental degradation in these mountain areas therefore.

Earth observation from space, complemented with other applications, is clearly a cost-effective method for efficient management of natural resources and for providing essential data to decision-makers to formulate policy and implement programmes at the national, regional and international levels, including those of the United Nations system entities.

While the potential benefits of space science and technology and its applications for developing countries are generally well-recognised, experience has shown that successful implementation and operational use of this technology is subject to the resolution of some major issues, including the continuous development of human resources at all levels, training of end-users, development of appropriate infrastructure and policy regulations, allocation of necessary budgetary resources.

This Workshop will address all these issues, and will discuss how space technologies, applications, information and services can contribute into sustainable economic and social development programmes supporting agricultural and water security, primarily in developing countries, with the following primary objectives:

- To enhance capabilities of countries in the use of space-related technologies, applications, services and information for identifying and managing water resources, and addressing food security concerns
- To examine low-cost space-related technologies and information resources available for addressing water- and food security needs in developing countries
- To strengthen international and regional cooperation in this area
- To increase awareness among decision-makers and research and academic community of space technology applications for addressing water- and food-related issues, primarily in developing countries
- To promote educational and public awareness initiatives in the area of water- and food security, as well as to contribute to capacity building efforts in these areas

### **3. Programme**

The Workshop will be composed of a series of technical presentations with sufficient time set aside for discussions. Technical sessions will be followed by open discussions, which will focus on specific topics of interest and will provide additional opportunities for participants to voice their opinions.

The programme may address, but is not limited to, the following topics:

- Applications of space technologies that provide cost-effective solutions and essential information for planning and implementation of programmes or projects to enhance management and protection of water resources
- Use of space-related technologies in mitigating water-related emergencies, providing safe access to water and combating desertification
- Use of space technologies for food security research and early warning
- Use of space technologies for improved sustainable agriculture practices, and in the development of precision farming
- Capacity building in water management and food security research, including development of human resources, establishing technical infrastructures and legal frameworks, and access to financial resources
- Education and training required for various target groups on using space technologies for addressing water- or food-related challenges, as well as public awareness initiatives in this area
- International, regional and national initiatives and international and inter-regional cooperation in the domain of water- or food security
- Case studies on successful applications of space technologies for enhancing water resources management and improving food security in developing countries

The Workshop's discussions will consider ways of expanding the use of space technologies and information/data for better water resources management and food security, as well as identify priority areas where pilot projects could be launched, and will examine possible partnerships that could be established.

In light of the above-highlighted special importance of the mountain regions, a special session, possibly lead by the U.N. Environment Programme (UNEP) in collaboration with others, will be devoted to the role and significance of mountains – with a focus on food and water security - in the regional (Hindu Kush Himalayas) as well as global context by highlighting, in particular, the need for space based applications and earth observation. This session would be a good continuation of the successful event "Mountains under review: human alteration of landscapes" organized by UNEP in collaboration with UNOOSA, UNEP/GRID-Arendal, EURAC and others at the Mountain Pavilion of the Rio+20 Summit.

All participants of the Conference are encouraged to make presentations on all the topics suggested above, as well as to participate actively in all discussions.

### **4. Participation**

The Workshop is being planned for a total of 90 - 100 decision-makers, technical experts, researchers and educators drawn from international, regional, national and local institutions, academic institutions, multi-lateral and bi-lateral development agencies, non-governmental organizations (NGOs) and also from private industry. Experts and professionals from both space-related, water management and food security research institutions will be invited, providing an opportunity to exchange experiences and strengthen

networks and partnerships that will contribute to the increased use of space technology-based solutions for water- and food security.

## **5. Participation requirements**

Applicants must have a university degree and well-established professional working experience in a field related to the theme of the Workshop. Applicants should be in managerial, decision-making, technical or academic positions within government agencies, international, regional and national institutions, universities, NGOs or private industry with responsibilities for carrying out programmes or projects in the areas related to the theme of the Workshop.

Applicants who can clearly demonstrate that the Workshop is central to their professional activities or responsibilities will be selected on a priority basis. **Equally qualified female applicants are particularly encouraged to apply.**

The co-sponsors of the Workshop will jointly select participants on a competitive basis. Selected funded participants will be notified by 28 January 2013.

## **6. Dates and location**

The Workshop will be held in Islamabad, Pakistan, from 11 to 15 March 2013.

All selected and invited participants will receive an information package with details on boarding, lodging and other local arrangements.

## **7. Language of the Workshop and presentation by participants**

The working language of the Workshop will be English.

Selected participants who are funded by the cosponsors will be required to prepare a presentation of approximately 15 to 20 minutes on topics relevant to the Workshop objectives and the programme. Presentations on actual on-going projects will be of particular interest to the organizers.

It is also expected that selected participants will submit their full papers/presentations to organizers by the end of January 2013.

## **8. Financial support**

Within the limited financial resources available, a number of selected participants will be offered financial support to attend the Workshop. Such financial support will defray the cost of travel (a round trip air ticket - **most economic fare** - between the airport of international departure in their home country and Islamabad, Pakistan) and/or room and board expenses for the duration of the Workshop.

Due to limited availability of financial support, not all participants can be funded. In this respect, applicants and their nominating organizations are strongly encouraged to find additional sources of sponsorship to allow them to attend the Workshop.

Funded participants will receive detailed information upon notification of their selection.

## **9. Deadline for submission of applications**

The completed application form, properly endorsed by the applicant's government/institution, should be received by the UN Office for Outer Space Affairs **no later than Monday, 21 January 2013.**

Applications received after the deadline will be considered, but applicants will not be eligible for financial support.

We strongly encourage all candidates **to apply for the Conference online**, as it helps us to streamline the processing of applications. The online application form can be accessed through the following Internet link: <http://www.oosa.unvienna.org/oosa/en/SAP/act2013/pakistan/index.html>

Alternatively, candidates may download a copy of application form from the above Internet site, complete it and submit it by mail to:

Office for Outer Space Affairs  
United Nations Office at Vienna  
Vienna International Centre  
P.O. BOX 500  
A-1400 Vienna, AUSTRIA  
Fax: (+43-1) 26060-5830  
E-mail: [unpsa@unoosa.org](mailto:unpsa@unoosa.org)

In that case, an advanced copy of completed application form should be e-mailed to the Office or sent there by fax. The applicant may also submit the original of his/her application through the Office of the Resident Representative of the United Nations Development Programme (UNDP) in the applicant's respective country.

**Only complete applications, with all the requested information and signatures, will be considered for financial support.**

## **10. Life and health insurance**

Life/major health insurance for each of the selected participants is necessary and is the responsibility of the candidate or his/her institution or government. The co-sponsors will not assume any responsibility for life and major health insurance, nor for expenses related to medical treatment or accidental events.

## **11. Points of contact**

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