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Report on the United Nations/Syrian Arab Republic/ European Space Agency Regional Workshop on the Use of Space Technology for Disaster Management in Western Asia and Northern Africa

(Damascus, 22-26 April 2006)

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I. Introduction

A. Background

1. The Third United Nations Conference on the Exploration and Peaceful Uses of Outer Space (UNISPACE III), in particular through its resolution entitled “The Space Millennium: Vienna Declaration on Space and Human Development”,¹ recommended that activities of the United Nations Programme on Space Applications should promote collaborative participation among Member States at the regional and international levels, emphasizing the development of knowledge and skills in developing countries.²

2. At its forty-eighth session, in 2005, the Committee on the Peaceful Uses of Outer Space endorsed the programme of workshops, training courses, symposiums and conferences planned for 2006 as proposed in the report of the Expert on Space Applications.³ Subsequently, the General Assembly, in its resolution 60/99 of 8 December 2005, endorsed the activities to be carried out under the United Nations Programme on Space Applications in 2006.

3. The United Nations/Syrian Arab Republic/European Space Agency Regional Workshop on the Use of Space Technology for Disaster Management in Western Asia and Northern Africa was held in Damascus, from 22 to 26 April 2006. The Workshop was organized by the Office for Outer Space Affairs of the Secretariat, as part of the 2006 activities of the United Nations Programme on Space Applications and in cooperation with the European Space Agency (ESA) and the Government of the Syrian Arab Republic. On behalf of the Government of the Syrian Arab Republic, the Workshop was hosted by the General Organization of Remote Sensing (GORS).

4. Each year, natural disasters such as storms, floods, volcanic eruptions and earthquakes cause the death of thousands of people and tremendous damage to property around the world, displacing tens of thousands of people from their homes and destroying their livelihoods. From 1995 to 2004, there were more than 320 natural disasters on average each year, affecting an average of 108 countries and killing over 77,000 people a year. Those disasters affected nearly 260 million people and caused damage amounting to an annual average of \$65.5 billion. In 2005 alone, 127 countries were affected by natural disasters, with nearly 90,000 people killed and with economic damage of approximately \$160 billion. Some of the most devastating events in recent years include the 2004 tsunami in the Indian Ocean, with a death toll of more than 240,000 people and economic damage of \$103 billion, the 2005 earthquake in Pakistan, which killed more than 70,000 people, and hurricane Katrina, which accounted for \$132 billion in economic damage in the United States of America in 2005.

¹ Report of the Third United Nations Conference on the Exploration and Peaceful Uses of Outer Space, Vienna, 19-30 July 1999 (United Nations publication, Sales No. E.00.I.3), chap. I, resolution 1.

² *Ibid.*, chap. II, para. 409 (d) (i).

³ *Official Records of the General Assembly, Sixtieth Session, Supplement No. 20* and corrigendum (A/60/20 and Corr.1), para. 94.

5. The impact of natural disasters on developing countries was particularly severe. In some instances, disasters destroyed in minutes the progress in social and economic development that developing countries had made over a period of years. This proves once again the need for integration of disaster planning into development programmes, including the building of local capacity for disaster preparedness and response.

6. Managing disasters effectively has become a global challenge and is essential if their impact is to be minimized. Governments, when implementing risk reduction and disaster management activities, should recognize the use of space-based technologies as tools to gather timely and accurate information at the local and regional levels. Furthermore, Governments must recognize the important role they can play in supporting the integration of space-based technologies into national risk reduction plans and policies.

7. Space technologies such as earth observation satellites, meteorological satellites, global navigation satellite systems and communication satellites have a proven success record in supporting not only the emergency response phase of disasters but also the pre-disaster and rehabilitation phases, and are being integrated into modern disaster management programmes.

B. Objectives of the Workshop

8. The overall objective of the Workshop was to address the above issues as well as to increase the awareness of policymakers, planners and managers in the area of disaster management and civil protection in Northern Africa and Western Asia of the potential benefits and cost effectiveness of using space technology for preventing and managing disasters.

9. The specific objectives of the Workshop also included the following:

(a) Updating the participants' knowledge of the current and potential uses of space technology for disaster management in the region;

(b) Identifying international, national and regional activities to be carried out jointly by space technology and civil protection institutions;

(c) Identifying existing and planned initiatives that national and regional institutions should be aware of;

(d) Enhancing communication and networking in the region.

10. The present report provides information on the background to and objectives of the Workshop as well as a summary of the observations and recommendations made by the participants. It has been prepared for submission to the Committee on the Peaceful Uses of Outer Space at its fiftieth session and to the Committee's Scientific and Technical Subcommittee at its forty-fourth session, both in 2007.

C. Organization and programme

11. The programme of the Workshop was developed jointly by the Office for Outer Space Affairs, GORS and ESA.

12. The Workshop programme included presentations that detailed the current use of space technologies for disaster management, presentations that discussed the ongoing and planned initiatives that national and regional institutions should be aware of and take advantage of, and discussion sessions that contributed to the creation and consolidation of existing networks and partnerships.

13. The programme of the Workshop consisted of five technical sessions, which focused on the following areas: (a) space technologies and trends related to disaster management; (b) national initiatives and experiences in the implementation of space-based solutions for disaster management; and (c) international and regional initiatives and experiences in the implementation of space-based solutions for disaster management. It also included two discussion sessions, a technical field trip and a poster exhibition session.

14. A total of 39 technical presentations were delivered during the Workshop and four papers were presented at the poster session. The presented papers focused on the following topic areas:

- (a) Geo-hazards: seismic hazards and landslides;
- (b) Floods;
- (c) Dust and sand storms;
- (d) Desertification;
- (e) Wild fires;
- (f) Technological disasters (including detection and monitoring of oil spills).

15. The Workshop discussion sessions focused on specific topics of interest and provided additional opportunities for participants to voice their opinions. During the discussion sessions, participants developed a set of recommendations as well as put forward follow-up initiatives that would improve national and regional coordination mechanisms for matters relating to natural disaster management and would strengthen capacities of countries in the region to respond to natural disaster challenges and to enhance regional cooperation in these areas. The results of the Workshop deliberations were summarized and presented at the closing session. A final discussion was held during that session, at which time the conclusions and recommendations resulting from the Workshop were adopted.

16. The Workshop was conducted in English. A detailed programme of the Workshop as well as an account of its proceedings have been made available on the website of the Office for Outer Space Affairs (<http://www.unoosa.org>).

D. Attendance and financial support

17. The United Nations, on behalf of the co-sponsors, invited developing countries to nominate candidates for participation in the Workshop. Selected participants were experts and professionals from space-related, disaster management and civil defence institutions and organizations and they had a well-established professional working experience in a field related to the overall theme of the Workshop. In addition, participants were selected on the basis of their working experience in programmes, projects or enterprises that were already using space technology applications for

disaster management or that could potentially benefit from using space technology. The participation of specialists at the decision-making level from both national and international entities was particularly encouraged.

18. Funds allocated by the co-sponsors for the organization of the Workshop were used to provide financial support required for the participation of 25 participants from developing countries. A total of 19 participants received full financial support (which included international round trip air travel, hotel accommodations and living allowance for the duration of the Workshop) and six participants received partial support (either air travel or hotel accommodations and living allowance). These 25 participants came from 17 countries.

19. In addition, the hosting organization, GORS, provided conference facilities, secretarial and technical support and local transportation to and from the airport for all funded participants, and organized a number of social events for all participants of the Workshop.

20. The Workshop was attended by a total of more than 70 participants from the following 22 countries and two international organizations: Algeria, Armenia, Austria, Bahrain, Bangladesh, Egypt, Iran (Islamic Republic of), Iraq, Jordan, Kuwait, Lebanon, Libyan Arab Jamahiriya, Morocco, Oman, Saudi Arabia, the Sudan, the Syrian Arab Republic, Tunisia, Turkey, the United Arab Emirates, the United Kingdom of Great Britain and Northern Ireland, Yemen, the United Nations Development Programme and the Office for Outer Space Affairs.

II. Observations and recommendations

21. Major recommendations made during the Workshop discussions and in presentations made by the participants are summarized as follows:

(a) All Governments of the region should be encouraged to establish national centres for disaster monitoring and mitigation;

(b) Each centre should assign a national task force, including specialists in different application areas, and a focal point to facilitate cooperation at the local, regional and international levels;

(c) Countries should encourage research and development in satellite data applications that provide reliable solutions to prevent most of the natural disaster hazards;

(d) During emergency or disaster situations, satellite owners and ground receiving stations should acquire and process data of the affected area. They also should increase cooperation with international and regional organizations;

(e) The United Nations should continue its efforts in promoting the use of communications, navigation, meteorological and remote-sensing satellite systems for disaster monitoring and mitigation;

(f) The United Nations should continue development and organization of training programmes in various fields related to natural disaster hazards for specialists from developing countries;

(g) The United Nations and other relevant international organizations should establish links to databases of high- and low-resolution data to be used in natural disaster management;

(h) Information and data about the weather conditions for early warning should be transmitted, exchanged and relayed immediately by any means and at very low cost;

(i) Increased cooperation between the related national, regional and international institutions should be encouraged;

(j) Existing media infrastructures (radio, television, newspapers and the Internet) should be used more effectively for general awareness-building;

(k) Support of non-governmental organizations operating in disaster reduction areas should be increased.

III. Follow-up action

22. As an outcome of deliberations at the Workshop discussion sessions, two follow-up projects were initiated by the participants of the Workshop. One project focuses on the development of an early-warning strategy for disaster management using space technologies, and the other concerns data access and sharing in relation to the establishment of base maps for focused types of natural disasters in the region.

23. Both projects are to be carried out through a network of national teams established at the Workshop and with the assistance of the Office for Outer Space Affairs. Implementation of these projects will eventually result in improving national and regional coordination mechanisms for matters relating to natural disaster management, as well as in strengthening capacities of countries in the region to respond to natural disaster challenges and in enhancing regional cooperation in this area.
