SPACE-BASED TECHNOLOGIES FOR HELPING DEVELOPING COUNTRIES

Strategic Issues of Disaster Management

One of the main recommendations put forward at the Third United Nations Conference on the Exploration and Peaceful Uses of Outer Space â€“ UNISPACE III â€“ was the need to help developing countries have access and be in a position to use space-based technologies (Earth observation satellites, meteorological satellites, communication satellites and global navigation satellite systems) for risk reduction and disaster management. This article reviews the progress achieved by initiated actions and, in particular, the success of the International Charter Space and Major Disasters.

The number and scale of natural and technological disasters and their increasing impact in recent years have resulted in massive loss of life and long-term negative social, economic and environmental consequences for vulnerable societies throughout the world, in particular in develop-ing countries. Disasters affect
millions of people, degrading human security and hampering the achievement of sustainable development. Disasters and poverty compound each other in a vicious cycle. When implementing risk-reduction and disaster-management activities, governments must recognise the use of space-based technologies as a source of timely and accurate information at the local and regional scale and, further, they must recognise their responsibility to support the integration of these technologies into national risk-reduction plans and policies.

UNISPACE III

Under the theme Space benefits for humanity in the twenty-first century, UNISPACE III was held in Vienna, Austria, from 19th to 30th July 1999. It was attended by more than 2,500 participants and included representatives from 100 countries and 30 international organisations and representatives from the private sector. The most important result of UNISPACE III was the adoption of the Vienna Declaration on Space and Human Development in which 33 specific actions were recommended that should be carried out to enable space technologies to contribute to the global challenges of the new millennium. One of the recommendations put forward was the need â€˜to implement an integrated, global system, especially through international co-operation, to manage natural disaster mitigation, relief and prevention efforts, especial-ly of an international nature, through Earth observation, communications and other space-based services, making maximum use of existing capabilities and filling gaps in worldwide satellite coverageâ€™.

Space Technology for Disaster Management

This recommendation led to the establishment of an action team, known as Action Team 7, led by Canada, China and France, which met several times from 2001 to 2004 and in its final report put forward three recommendations for further action: firstly, the establishment of a co-ordinating entity to provide for co-ordination and the means for optimising the effectiveness of space-based services for use in disaster management; secondly, the establishment of a fund to provide sustainable resources; and thirdly, countries should allocate funds to enable the incorporation of space technology in disaster-management activities and also should identify a single point of contact between the co-ordination entity and the country. At the same time as Action Team 7 was carrying out its study, the United Nations Office for Outer Space Affairs (UNOOSA) organised a series of regional workshops between 2000 and 2004 on the use of space technology for disaster management, bringing the results of the regional workshops to a final international workshop, which was held in Munich last October. This wrap-up workshop was jointly organised by UNOOSA and the German Aerospace Center (DLR), and co-organised by UNESCO, UNISDR and the European Space Agency (ESA).

The Munich Vision

In Munich, a total of 170 participants from 51 countries discussed a global strategy that would contribute to helping developing countries have access and be able to use space technology for disaster management. This strategy is known as The Munich Vision.
The strategy focuses on three levels. At the national level, institutions within a country should be responsible for actions that would lead to the successful use of space technology for disaster management. Additionally, the participants proposed a partnership of interested institutions, space agencies and UN agencies to contribute to channelling support to these institutions. This partnership will be registered in the context of the forthcoming World Conference on Disaster Reduction to be held in Kobe, Japan, in January 2005. At the regional level, UNOOSA will continue supporting the implementation of regional task forces that are aimed at increasing joint partnerships of institutions and joint activities. At the international level, participants strongly supported the recommendation of Action Team 7 for the creation of a co-ordinating entity, recommending a pragmatic approach building upon the experience of existing operational initiatives such as the International Charter Space and Major Disasters.

The International Charter

Following UNISPACE III, the European and French space agencies (ESA and CNES, see websites) initiated the International Charter

Space and Major Disasters, with the Canadian Space Agency (CSA) signing the Charter on 20th October 2000. In September 2001, the US National Oceanic and Atmospheric Administration (NOAA) and the Indian Space Research Organisation (ISRO) also became members of the Charter. The Argentine Space Agency (CONAE) became a member in July 2003. The International Charter aims at providing a unified system of space data acquisition and delivery, through authorised users, to those affected by natural or man-made disasters. Each member agency of the Charter has committed resources to support this initiative, which is contributing to mitigating the effects of disasters on human life and property in countries around the world.

The UN and the Charter

In March 2003, at the 8th Meeting of the Charter Board, UNOOSA was accepted as a co-operating body to the Charter, a mechanism through which the UN system can request imagery from the Charter members to help respond to emergency situations. Beginning 1 July 2003, UNOOSA set up a 24-hour hotline. UN Focal Points can fax in requests for imagery to support disaster response. This request is subsequently re-sent to the Charter.

Since UNOOSA became a co-operating body, the UN system has requested imagery a total of 12 times in response to the following emergencies: floods in the Dominican Republic (twice), Haiti, Namibia and Nepal; train crash in DPR Korea; earthquakes in Afghanistan, Indonesia and Morocco; landslides in the Philippines and Nepal; and hurricanes and typhoons in Grenada, Haiti and the Philippines.

UNOSAT

The UN has successfully taken advantage and used the International Charter because of UNOSAT. UNOSAT is a UN initiative aiming to expand direct access to satellite imagery through the internet and other multimedia tools for humanitarian applications. The overall goal is to facilitate physical planning and programme implementation by local authorities, project managers and field personnel, working in emergency response, disaster management, risk prevention, peace-keeping, environmental rehabilitation, post-conflict reconstruction and social and economic development. UNOSAT is a service-oriented project spearheaded by UNITAR and implemented by UNOPS. It can be seen as a single point of entry, or a one-stop shop for facilitating the use of satellite imagery in combination with geographic information systems by the UN humanitarian community. There is a need to process the data received from the Charter to provide value-added products to the user community; products that can be understood and used by all those responding to the emergency. UNOSAT has provided this service each of the 12 times that the UN has requested imagery from the Charter.

Moving Forward

Various UN agencies have agreed to work together to a greater extent, taking advantage of the Charter. The focus in the coming months will be on working closely with the UN resident representatives and the humanitarian co-ordinators, channelling support to the national institutions through the UN field offices and consolidating a partnership of institutions committed to helping individual countries build capacity, raise awareness and successfully use satellite imagery for emergency response. These same agencies are committed to working together to extend the work carried out so far for natural and technological disasters to epidemiological, humanitarian and security issues. This network of partnerships (humanitarian organisations, civil protection agencies and space technology institutes) will be defined through the same partnerships proposed in Munich and will be registered in the context of the forthcoming World Conference on Disaster Reduction to be held in Kobe in January 2005.

Effectiveness of Space-based Services

During its 59th session, the UN General Assembly adopted the draft resolution on the five-year review of the implementation of the recommendations of UNISPACE III, including the proposal that a study should be conducted on the possibility of creating an international entity to provide co-ordination and the means for optimising the effectiveness of space-based services for use in disaster management. This is the first concrete step toward the implementation of the proposed co-ordinating entity, which will provide a platform for fostering alliances of international initiatives and a one-stop shop for knowledge and information sharing, enabling developing countries not only to have access to satellite imagery for emergency response but also access to all types of space technologies (Earth observation satellites, meteorological satellites, satellite communication and global navigation satellite systems) for all phases of the disaster cycle.