Coordinated Disaster Preparedness and Response for Near-Earth Object (NEO) Threats – Experiences from the "United Nations Platform for Space-Based Information for Disaster Management and Emergency Response (UN-SPIDER)"

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United Nations Office for Outer Space Affairs (UNOOSA)

Vision

*Bringing the benefits of space to humankind*

Mission Statement

The core business of the Office is to promote **International Cooperation** in the peaceful uses of outer space to achieve sustainable development goals
UNOOSA and NEOs

• Acting as a gateway to space in the United Nations system, UNOOSA is uniquely positioned in intergovernmental cooperation and coordination on outer space activities, and in the broader perspective of space security, including the area of planetary defence.

• Given the global consequences of a NEO impact and the resources required to prevent a collision, UNOOSA and COPUOS have been actively involved in the international discourse and dialogue, raising awareness and promoting global cooperation on NEO-related issues.

• NEOs & Planetary defence - an area crucial to ensuring human security, hence the United Nations continues to facilitate the processes for developing an international response.
IAWN, SMPAG and UN

**United Nations COPUOS/OOSA**

*Inform in case of credible threat*

**Parent Government Delegates**

- **IAWN**
  - Observers, analysts, modelers...
- **SMPAG**
  - Space Agencies and Offices
  - Potential deflection mission plans

**INTERNATIONAL ASTEROID WARNING NETWORK**

**SPACE MISSION PLANNING ADVISORY GROUP**
Involving developing countries in planetary defense efforts

Building technical capabilities

Communicating risks arising from NEOs

Integration with existing early warning systems

Include NEO threats in the existing emergency response mechanisms
UN-SPIDER Mission statement

“Ensure that all countries have access to and develop the capacity to use all types of space-based information to support the full disaster management cycle.”

NEO threats can be addressed through UN-SPIDER mandate
... to support the **full disaster management cycle**

**NEO threats**

- Information on Hazard, exposure, vulnerability, and risk assessment
- Information onPost Disaster Needs Assessment and Loss Assessment
- Information on Disaster management cycle
- Information for Rapid mapping: Extent and impact
- Prevention and Mitigation
- Preparedness
- Recovery
- Response
Coordinated Disaster Preparedness and Response For Near-Earth Object (NEO) Threats

- Use of UN and international frameworks for reaching to the disaster management community
- Early reconnaissance and integration with the early warning mechanisms
- Coordinated disaster response

Priorities for Action:

1. Understanding disaster risk;
2. Strengthening [governance / institutional arrangements / organizational, legal and policy frameworks] to manage disaster risk;
3. Investing in disaster risk reduction for resilience;
4. Enhancing disaster preparedness for effective response, and to Build Back Better in recovery, rehabilitation and reconstruction.

Support from space technologies

*NEO threats are not included in the Sendai Framework*
UN-SPIDER – Bridging space and disaster management community

Knowledge Portal
The UN-SPIDER Knowledge Portal is a web-based tool for information, communication and process support.

Fostering Cooperation
UN-SPIDER fosters alliances and creates forums where both space and disaster management communities can meet.

Capacity Building
UN-SPIDER facilitates capacity building and institutional strengthening, including the development of curricula and an e-learning platform (e-SPIDER).

Technical Advisory Support
UN-SPIDER provides support to countries in assessing national capacity and in evaluating disaster and risk reduction activities, policies and plans.

UN-SPIDER engages with the National Disaster Management Agencies
This community needs to be made aware of NEO threats.
Network of Regional Support Offices

Space agencies
Intergovernmental organisations
Universities
Research Institutions

This network can be linked to IWAN/SMPAG and expanded to contribute to the Planetary Defense efforts
Capacity building
Regional Centres for Space Science and Technology Education (affiliated to the United Nations)

New curricula and courses on planetary defense may be introduced
Coordinated Disaster Preparedness and Response For Near-Earth Object (NEO) Threats

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Effective Early Warning System needs four components

1. Detection, monitoring and forecasting the hazards;
2. Analyses of risks involved;
3. Dissemination of timely warnings - which should carry the authority of government;
4. Activation of emergency plans to prepare and respond.

Source: World Meteorological Organisation (WMO)
International Network on Multi-Hazard Early Warning Systems (IN-MHEWS)
International Network on Multi-Hazard Early Warning Systems (IN-MHEWS): A Voluntary commitment

• To identify effective strategies and actions to promote and strengthen MHEWS in support of the implementation of the Sendai Framework;

• To facilitate the sharing of good practice and making available to governments and key stakeholders expertise and policy-relevant guidance to enhance and sustain MHEWS and related services;

• To promote synergies and partnerships between and among stakeholders at national, regional and international levels and those in charge of MHEWS at the national and local levels;

• To advocate the usefulness of MHEWS in regional and international platforms and among key stakeholders.

UN-SPIDER can be a voice for introducing NEO threats in IN-MHEWS
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Emergency response and alert mechanisms

International Charter Space and Major Disasters

Copernicus Emergency Management Service

Global Disaster Alert and Coordination System

UN-SPIDER

- Provide support from ‘space’ during emergencies
- Procedural guidelines
- Simulations
- Capacity building

Include NEO threats in disaster management strategies and disaster response plans
Involving developing countries in planetary defense efforts

Building technical capabilities

Communicating risks arising from NEOs

Integration with existing early warning systems

Follow existing mechanisms of the emergency response
Technology providers  

End users