



UNITED NATIONS  
Office for Outer Space Affairs

UN-SPIDER Regional Workshop  
'Building Upon Regional Space-  
based solutions for Disaster  
Management and Emergency  
Response for Africa'  
Addis Ababa  
6 – 9 July, 2010

Workshop Report



UNITED NATIONS OFFICE FOR OUTER SPACE AFFAIRS, UNOOSA

***This document has not been formally edited.***

**UN-SPIDER Regional Workshop**  
**'Building Upon Regional Space-based solutions for Disaster**  
**Management and Emergency Response for Africa'**

Organized by the  
**United Nations Office for Outer Space Affairs**

Together with the  
**United Nations Economic Commission for Africa**

With the support of  
**The Government of Austria**

And in cooperation with  
**Secure World Foundation**

**ECA Conference Centre**  
**Addis Ababa, Ethiopia**

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## Acknowledgements

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## I. Background

The Regional UN-SPIDER Workshop *Building Upon Regional Space-based Solutions for Disaster Management and Emergency Response for Africa* was held from 6 to 9 July 2010 at the Conference Centre of the United Nations Economic Commission for Africa in Addis Ababa, Ethiopia.

The workshop brought together 80 experts and practitioners from 20 countries representing 18 national, regional, and international organizations, Centres of Excellence, universities, and private companies. All representatives actively contributed to a series of presentations in plenary sessions, two expert panel discussions as well as several group discussions. These representatives come from the space community, the disaster risk management community and from various development sectors (planning, education, health, science and technology, etc.). Hence, the workshop enabled UN-SPIDER to fulfil its role as a convener in bringing together representatives of the space community, civil protection and disaster response in the African continent.

An Organizing Committee was established to plan, coordinate, and conduct the workshop. This Committee was comprised of representatives from UNOOSA; the ECA Information, Science and Technology Division; and Secure World Foundation.

To strengthen its presence in Africa, the UN-SPIDER Regional Workshop focused on the following objectives which have been outlined in the Framework and Implementation Plan for activities in Africa in the year 2010:

- To identify and harmonize the various existing initiatives helping African countries to access and use space-based technologies for disaster management and risk reduction as well as to explore possibilities of capacity development and institutional strengthening.
- To discuss the overarching topics of climate change in Africa, with special emphasis on the contribution of space-based technologies to: mitigate the impact of global climate change, enhance adaptation to global climate change and land degradation utilizing innovative monitoring and analyzing tools.
- To develop a strategy to engage the support of Regional Support Offices and National Focal Points in contributing to capacity building and institutional strengthening regarding the use of space-based information.

The outcomes of the Workshop have allowed UN-SPIDER:

- To continue its outreach activities as specified in the UN-SPIDER Outreach Strategy.
- To identify approaches to bridge the gap between the space and the disaster risk management communities.
- To improve coordination and communications among existing initiatives in African countries regarding access to, and use of, space-based technologies for disaster-risk management, emergency response, climate change, and health-related issues.
- To continue strengthening the network and role of National Focal Points and Regional Support Offices in Africa.
- To obtain inputs to improve the UN-SPIDER strategy to support Africa, including capacity building and institutional strengthening.
- To collect additional Country Profiles as proposed in the UN-SPIDER 2010-2011 Workplan.

More information about this workshop and the UN-SPIDER program can be found at the following website: <http://www.un-spider.org>

## II. Participants

The workshop brought together 80 representatives from various governmental institutions from the following countries in Africa, Europe and Western Asia: Austria, Burkina Faso, Cameroon, Republic of Congo, Ethiopia, Ghana, Kenya, Madagascar, Malawi, Mozambique, Namibia, Nigeria, Saudi Arabia, South Africa, Sudan, Tanzania, Togo, Uganda, Zambia, Zimbabwe.

**Several United Nations agencies and offices were represented by experts from:**

- The United Nations Economic Commission for Africa (ECA);
- The Food and Agriculture Organization - Somalia Water and Land Information Management (FAO SWALIM);
- The United Nations Office for the Coordination of Humanitarian Affairs – Regional Office for Western and Central Africa (UNOCHA ROWCA), UNOCHA Kenya, UNOCHA Democratic Republic of Congo;
- The United Nations Development Programme in Côte d’Ivoire;
- The World Food Programme in Ethiopia; and
- The United Nations Office for Outer Space Affairs.

**In addition, officials from various regional organizations were present at the workshop including:**

- The African Union and the AMESD program;
- The African Centre for Meteorological Application for Development (ACMAD);
- The Regional Centre for Mapping of Resources for Development (RCMRD);
- The Regional Centre for Training in Aerospace Surveys (RECTAS);
- The Intergovernmental Authority on Development - Climate Prediction and Applications Centre (IGAD-ICPAC);
- The European Space Policy Institute (ESPI); and
- The Pacific Disaster Centre (PDC).

**The event assembled representatives from space agencies and remote sensing centres such as:**

- The National Space Research and Development Agency (NASRDA) which also hosts a UN-SPIDER Regional Support Office
- The Satellite Applications Centre of the Council for Scientific and Industrial Research of South Africa
- The Remote Sensing Authority at the National Centre for Research in Sudan
- The Centre for Remote Sensing and Geographic Information Services at the University of Ghana,
- The Coordinating Office for the Peaceful Uses of Outer Space at the King Abdul Aziz City for Science and Technology of Saudi Arabia.

**In the areas of civil protection and civil defence, the workshop benefited from the presence of representatives from:**

- The National Emergency Management Agency of Nigeria;
- The Disaster Management and Mitigation Unit of the Office of the Vice-President of Zambia;
- The Disaster and Risk Management Unit of the Office of the Prime Minister in Madagascar;
- The National Office for Disaster Management of Madagascar;
- The Disaster Preparedness, Relief and Rehabilitation Unit of the Office of the President of Malawi;
- The National Disaster Management Institute of Mozambique;
- The Disaster Prevention and Management Centre of the Republic of Congo;
- The Department of Civil Protection of Cameroon;
- The Civil Protection Department of the Ministry of Local Government, Rural and Urban Development of Zimbabwe;
- The Department of Civil Protection, Crisis and Disaster Management of Austria.

**The academic sector was represented by:**

- Participants of the African Regional Centre for Space Science and Technology Education in English language (ARCSSTE-E)
- The Institute for Global Mapping and Research of the European Academy of Sciences and Arts,
- The Wolaita Sodo University in Ethiopia
- The Addis Ababa University
- The International Research Institute for Climate and Society at Columbia University in the USA
- The Makerere University in Uganda
- The Disaster Management Training and Education Centre for Africa at the University of the Free State (UFS-DimTEC) of South Africa
- The Joint Research Centre of the European Commission.

**Other Agencies and Organizations present at the workshop included:**

- The Ministry of Agriculture, Water and Forestry of Namibia
- The Statistics and Ecological Monitoring Directorate of Burkina Faso,
- The National Meteorological Agency of Ethiopia
- The Ethiopian Mapping Agency
- The Ministry of Environment and Forestry Resources of Togo
- The Ministry of Agriculture, Food Security and Cooperatives of Tanzania
- The Ministry of Lands of Malawi
- The Office of the Prime Minister of Uganda
- The Statistical Agency of Ethiopia
- The Ethiopian Railway Corporation
- The Horn Economic and Social Policy Institute (HESPI)
- The International Water Management Institute.

**Several Non-Governmental Organizations participated in the workshop including**

- Action Contre la Faim in Ethiopia
- CARE Burundi
- The Ethiopian Red Cross Society
- Secure World Foundation.
- Space Generation Advisory Council

**Likewise, the workshop benefitted from the presence of a number of private companies such as:**

- Infoterra UK
- EADS-Astrium
- Pictometry International
- GeoEye
- Kimetrica
- GeoSAS
- e-Systems Africa
- Chareese Technologies.

**The list of participants is available at the following website:**

<http://www.un-spider.org/sites/default/files/Final%20list%20of%20participants.pdf>

It is important to emphasize that the financial support provided by the Government of Austria, Secure World Foundation and financial resources made available by the UNOOSA facilitated the participation of 22 participants from Africa and Europe, 21 of which came from developing countries in Africa.

### III. Programme of Activities

The four-day programme included a series of plenary sessions, two expert panel discussions, and six discussion sessions conducted in three breakout groups. The detailed Programme of Activities can be found in Annex 3 of this report.

#### III.1 Inauguration and Plenary Presentations

The inauguration of the workshop on Tuesday, 6 July 2010 was conducted by the following authorities:

- Mrs. Aida Opoku-Mensah, Director of the ICT, Science & Technology Division at the Economic Commission for Africa.
- Mr. Juan-Carlos Villagrán de León representing the United Nations Office for Outer Space Affairs
- Ms. Agnieszka Lukaszczyk representing the Secure World Foundation.
- H.E. Ambassador Gudrun Graf, Ambassador of Austria in Ethiopia.
- Mr. Josué Dioné, Director of the Food Security and Sustainable Development Division and Officer-in-Charge of the Economic Commission for Africa.

In her opening remarks, **Mrs. Opoku Mensah** highlighted the need to target the topic of disasters, as Africa is exposed to droughts, floods, desertification and other natural hazards, as well as social crisis. In addition, she pointed out current constraints that impede efficient and timely disaster response such as problems with data quality, difficulties in accessing data, and lack of familiarity with respect to space-based data by end-users. Key tasks highlighted by Mrs Opoku Mensah to deal with these constraints include: increase in capacity building, strengthening of coordination mechanisms, harmonizing capacities across Africa, facilitating and encouraging international cooperation, and assigning responsibilities regarding spatial database infrastructures as key elements to generate information required by decision-makers.

**Mr. Juan Carlos Villagran de Leon** commented that UN-SPIDER had its origins in the UNISPACE III conference, which took place in 1999, and has been established to promote the use of space-based information to support efforts at national and regional levels in all phases of the disaster-management cycle. He remarked that UN-SPIDER is cooperating with the International Strategy for Disaster Reduction of the United Nations, with OCHA, UNDP and other international and regional agencies working to reduce the impacts of disasters and supporting emergency response activities through a variety of mechanisms such as the SpaceAid Framework. He further explained that UN-SPIDER is in the process of establishing a network of Regional Support Offices, with an established team of expert National Focal Points, in order to support efforts at the national level.

**Ambassador Graf** commented on the fact that Africa is particularly vulnerable to a variety of hazards and climate change, recognizing the need to improve capacities and to conduct a variety of efforts targeting such extreme weather events and climate change. To this end, the Government of Austria is providing support to the UN-SPIDER programme, which allows the programme to bridge the gap between the space and the disaster management communities; to provide technical advisory support to countries, including the conduction of technical advisory missions; and outreach activities, including the conduction of regional and international workshops.

**Ms. Lucaszcyk** commented that Secure World Foundation is committed to supporting efforts that lead to sustainable development through the use of space applications. She highlighted the fact that modern societies already benefit from space-based services provided by satellites including telecommunications and navigation. She concluded her exposition by saying that disasters do not discriminate, do not follow political boundaries among countries, and reiterated the need to promote cooperation as a cornerstone to promote development.

In his opening remarks, **Mr. Josué Dioné**, emphasized the fact that climate change is frightening livelihoods of the African people, which could lead to a massive exodus to other regions of the world.

Therefore, he stressed the need to generate and use information as a way to promote security of all sectors of development, linking such efforts to the Millennium Development Goals. To this end, he commented on efforts being conducted through partnerships with the African Union and the African Development Bank to generate such information through programs such as CLIMDEV, which aim to fill in the gaps in data observation and on ways to format information in useful ways from the point of view of decision-makers. He stated that UN ECA is launching the African Climate Policy Center as a key strategy to support governments in dealing with such aspects as climate change and concluded his remarks inaugurating the workshop. Following these statements, the workshop was officially opened by Mr. Dioné.

After the official inauguration, **Mr. Juan-Carlos Villagrán de Leon** of UNOOSA made a presentation focusing on the UN-SPIDER programme and current activities in Africa, followed by Ms. Agnieszka Lukaszczyk of Secure World Foundation, who briefed the audience on the potential threat of Near Earth Objects and other activities conducted by this Foundation.

Throughout the following days, the workshop participants took part in 28 technical presentations including 3 presentations from private companies. These presentations covered five main topics:

- Climate Change, Health, and Telemedicine
- Networking and long-term Sustainability
- Opportunities to support Emergency Response and Disaster Risk Reduction Activities for Africa
- Capacity Building Efforts in Africa
- Information Management including Spatial Data Infrastructure and Communication using Space-based Information for Emergency Response and Disaster Risk Reduction

All presentations are available for download online at the UN-SPIDER Knowledge Portal:

<http://www.un-spider.org/workshop-addis-2010>

### III.2 Panel Discussions

Complementing the 28 presentations, two panel sessions were held in plenary in order to allow experts to jointly discuss specific topics and to also address questions from the audience.

#### **Panel Discussion 1: “Sources and Challenges of Space-based Information for Disaster Risk Management and Emergency Response in Africa – The Space Community Perspective”**

This panel discussion was moderated by the Acting Director General of the National Emergency Management Agency of Nigeria, Mr. Charles Agbo. The expert panel consisted of representatives from the following Space Agencies, Remote Sensing Centres as well as Space Research and Training Institutions:

- The National Space Research and Development Agency of Nigeria
- The Satellite Application Centre of the Council for Scientific and Industrial Research in South Africa
- The Remote Sensing Authority of Sudan,
- The Regional Centre of Training in Aerospace Surveys
- The Regional Centre for Mapping of Development Resources
- An intervention was also made on behalf of the Remote Sensing Centre of the University of Ghana

The panellists briefly commented on their institutions and spoke about opportunities available for African countries as well as about how space-based information could be accessed and used. It was noted that there were a number of existing National Space Agencies already in Africa that have access to various resources, including their own satellites. While there is an expectation regarding access to data

gathered by African satellites, institutional policies still need to be formulated in order to manage the provision of data generated through such satellites. Also, the continent benefits from several Regional Centres of Excellence which are involved in activities targeting disasters of various types. Table 1 presents a brief summary of issues as presented by the panellists.

**Table 1: General overview of Space Agencies / Remote Sensing Agencies.**

Topic	Sudan RSA	Ghana RSC	Nigeria NASDRA	Nigeria RECTAS	Kenya RCMRD	South Africa CRSA
Year of Establishment	1997	1993	1999	1972, under the auspices of UN ECA	1975, under the auspices of UN ECA	
Projects	Food security, land cover, mapping, monitoring of natural resources	Land and water resources appraisal and monitoring; rural and urban land use patterns and trends	Design, construction and launching of satellites; involved in Geo African Project,	Research on Forest fires, landslides, food security; conflicts,	Remote Sensing Applications, flood forecasting, Early warning, rift valley fever	Establishing and operating archive of historical imagery, linked to TIGER, AMES-D.
Link to Disaster Agency	Cooperation with Civil Defence Council since a few years ago		Member of the International Charter – Space and Major Disasters	Capacity building of staff	Project Manager for the Charter	Yes, in reaction mode, via change detection
Links to universities	Yes	Yes	Yes	Yes	Yes	Yes
Links – international organizations	IFAD, FAO,		RSO for UN-SPIDER	GARNET-E, IAEA-FGN, CODIST, AFREF	GMES, GARNET-E, USGS, RSO for UN-SPIDER	GARNET-E , GEO/GEOSS; RSO for UN-SPIDER

Major challenges that were identified and discussed by the panellists included:

- The lack of access to space-based data and availability of data for most African countries.
- The lack of understanding and awareness on the side of politicians about the value of space-based technologies and information and the challenge of convincing decision-makers regarding the value of such information.

### **Panel Discussion 2: “Ways to institutionalize Space-based information for Disaster Risk Reduction and Emergency Response”**

The second panel discussion, moderated by **Ms. Christina Giannopapa** from the European Space Policy Institute illustrated the perspective of Emergency Management and Civil Protection Agencies on this topic. The expert panel consisted of representatives from:

- The Department of Civil Protection of Cameroon
- The National Emergency Management Authority of Nigeria
- The Department of Civil Protection of Zimbabwe
- The National Office of Disaster Management of Madagascar.

Panellists gave an overview of their respective agencies as summarized in table 2. The conclusion reached from this particular panel discussion is that many African countries operate well-established National Emergency Management Agencies or Councils, structured to operate at different levels of government (local, district, provincial, national). Also, National Platforms for Disaster Reduction are

being established as promoted by the International Strategy for Disaster Reduction (ISDR), following the Hyogo Framework for Action.

**Table 2: Overview of Civil Protection Agencies represented in the Panel.**

<b>Topic</b>	<b>Cameroon</b>	<b>Nigeria</b>	<b>Zimbabwe</b>	<b>Madagascar</b>
<b>Year of Establishment</b>	The Department of Civil Protection was established in 2008	The National Emergency Management Agency was established in 1999, as a transformation of the former National Emergency Relief Agency.	The Department of Civil Protection was established in 1989.	The National Office of Disaster Management was established in 1996
<b>Overall Management</b>	The Department is under the Ministry of Territorial Administration and Decentralization.	Its Board is Chaired by the Vice President of the country and includes several Ministries.	The Department is under the Ministry of Local Government, Public Works, and Urban Development	The Office is the Executive Branch of the National Council
<b>Operational aspects</b>	The Department established a National Prevention Strategy which includes a National Risk Observatory, which was established in 2003.	A National Disaster Management Plan has been elaborated.	In case of disasters, the Office works closely with UN agencies and NGOs.	In case of disasters, the Office works closely with UN agencies and NGOs.
<b>Operational structure</b>	Structure spans National, Regional, and Local levels.	Structure spans National, Regional, and Local levels. It also operates a system of volunteers	Structure spans National, Provincial, and Local levels.	Structure spans National, Regional, District, and Local levels.
<b>Use of space-based information</b>		Participated in training activities conducted by the International Charter in 2009 (end-users) and 2010 (project managers).	The Ministry of Science and Technology and the Meteorological Office deal with this type of information.	
<b>Training</b>	The Agency established a regional training institute with the support of the International Civil Defence Organization, ICDO	Operates 6 training centres.		The Office is working with UNICEF on training programmes targeting schools and trainers.
<b>Challenges</b>		Limited funding; gaps in skills of staff; inter-institutional conflicts.	There are communication limitations that impact on the management of information. There is no clarity yet on how to best use space-based information. There is a need for capacity building.	Access to space-based information. Telecommunications in case of early warning

Best practices, bottlenecks, and challenges were identified and discussed. It was noted that space-based information was seldom used by these agencies, thus highlighting the need for awareness raising and capacity building. During the discussion, experts identified a strategy to mainstream the use of space-based information to leverage efforts conducted by the Regional Economic Commissions (RECs). In this respect, participants called upon UN-SPIDER to cooperate with National Focal Points and Regional Support Offices to conduct awareness campaigns together with the RECs. In addition, other regional

platforms were identified by some panellists, such as the Cyclone Committee, that could also be used to promote the use of space-based information targeting all phases of the disaster management cycle.

Other additional pressing requirements such as the need for improvement of communication and coordination among institutions were identified as well as the need for an overarching national and regional space policy covering various levels of national disaster risk reduction and emergency response governance systems.

### III.3 Discussion Sessions

The Regional UN-SPIDER Workshop for Africa included six breakout discussion sessions aligned with the topics of the plenary presentation sessions. Workshop participants were asked to split into (up to) three breakout groups to address a number of specific questions provided to them by the Organizing Committee. The discussions and suggestions provided by the participants helped UN-SPIDER to achieve several of the proposed outcomes of the Workshop.

While the six breakout discussion sessions were closely aligned to the topics of the plenary sessions, the outcomes of the discussion sessions are presented along eight distinct topics in the following sections:

Topic 1	Climate Change
Topic 2	Health, Telemedicine, Tele-epidemiology
Topic 3	Space-based Information for Disaster Management and Emergency Response
Topic 4	Networking and Long-term Sustainability
Topic 5	Opportunities to support Emergency Response activities in Africa
Topic 6	Capacity Building efforts in Africa
Topic 7	Ways to institutionalize Space-based information for Disaster Risk Reduction and Emergency Response
Topic 8	Information Management including Spatial Data Infrastructure using space-based information for Emergency Response and DRR

#### Topic 1: Climate Change

Under this topic, participants discussed several on-going efforts which make use of space-based information in the topic of climate change. Table 3 summarizes the main institutions that were identified by participants, their areas of focus, and the corresponding website.

#### Recommendations and Suggestions

On the issue of strategies that could be designed to promote access to and use of space-based information, the participants in this group proposed the following recommendations:

- Identify and systematize ongoing efforts as a means to recognize gaps and avoid duplication of efforts.
- Elaborate and implement strategies to share data and software.
- Use capacity building efforts to bring end-users in different countries to the same level, and promote the use of similar tools and methods.
- Bridge the gap between providers and end-users
- Take into consideration the issue of sustainability when conducting activities in the region.
- Recognize the need to conduct capacity building efforts at different levels or targeting different types of audiences: end-users, decision makers, and trainers.

**Table 3: Overview of On-going efforts targeting Climate Change**

Institution/Programme	Focus Area	Website
Climate for Development in Africa (ClimDev-Africa)	Capacity-building, information dissemination, adaptation programs; Climate Risk Management	<a href="http://www.uneca.org/">http://www.uneca.org/</a>
Economic Commission for Africa (ECA) - African Climate Policy Centre	Policies targeting climate change	<a href="http://www.uneca.org/">http://www.uneca.org/</a>
African Monitoring of the Environment for Sustainable Development (AMESD)	Environmental monitoring; spatial planning, agricultural, maritime and fluvial resource management	<a href="http://www.amesd.org/">http://www.amesd.org/</a>
African Centre of Meteorological Application for Development (ACMAD)	Meteorology, forecasting	<a href="http://www.acmad.ne/">http://www.acmad.ne/</a>
IGAD Climate Prediction and Applications Centre (ICPAC)	Climate early warning information, impact mitigation, information	<a href="http://www.icpac.net/">http://www.icpac.net/</a>
Regional Centre for Training in Aerospace Surveys (RECTAS)	Capacity Building and Training	<a href="http://www.rectas.org/">http://www.rectas.org/</a>
Regional Centre for Mapping of Resources for Development (RCMRD)	Geo-information and services in environmental and resource management	<a href="http://www.rcmrd.org/">http://www.rcmrd.org/</a>
International Water Management Institute (IWMI)	Management of land and water resources for food, livelihoods and the environment	<a href="http://www.iwmi.cgiar.org/">http://www.iwmi.cgiar.org/</a>
World Meteorological Agency; Food and Agricultural Organization; International Strategy for Disaster Reduction, Etc.	Provision of policy-relevant advice on this topic; conduction of activities targeting adaptation and mitigation.	<a href="http://www.wmo.org">http://www.wmo.org</a> <a href="http://www.fao.org/">http://www.fao.org/</a> <a href="http://www.unisdr.org/">http://www.unisdr.org/</a>

On the topic of potential tasks which could be conducted, participants provided the following suggestions:

- 1- Follow-up this workshop with regional workshops targeting stakeholders.
- 2- UNECA and UNOOSA should plan and conduct activities on this topic jointly.
- 3- Map the different ongoing initiatives conducted by regional and international agencies, identify end-users of space-based information.
- 4- Conduct joint training/ simulation exercises on the use of space-based information to target all phases of the disaster management cycle.
- 5- Elaborate a regional atlas addressed to schools, from elementary to high school, displaying space-based information.
- 6- Make space-based data available for prevention and mitigation.
- 7- Prepare and conduct tailored workshops for key decision makers.

## Topic 2: Tele-health and Tele-epidemiology

Experts in this group discussed a number of on-going activities in their countries which make use of space-based information in the areas of tele-health and tele-epidemiology such as:

- Weather and atmospheric monitoring for forecasting purposes (malaria, vector-borne diseases).
- Prediction of disease outbreaks.
- Health/Disease mapping, mapping the spread of diseases using GPS.
- Mapping and visualization of Health Facilities.

### Recommendations and Suggestions

In the context of Strategies targeting access and use of space-based information in this context of tele-health and tele-epidemiology; participants in this group suggested the following recommendations:

- Promote the incorporation of contents related to this space-based approach in the curricula and link it with contents targeting Geographical Information Systems.
- Facilitate data sharing among institutions.
- Facilitate the creation of National Spatial Database Infrastructures and GeoPortals as ways to facilitate access to space-based data and information.
- Promote the development of Data Policies regulating data use in these topics.
- Provide information on exiting international resources.

### Topic 3: Space-based Information for Disaster Management and Emergency Response - The Space Community Perspective

Taking the first panel session on this same topic as an input, participants in this group discussed ways in which UN-SPIDER could facilitate synergies among space agencies and the disaster-risk management community targeting prevention and early warning. Participants commented that there are already a number of different mechanisms targeting disaster-risk reduction as well as emergency response. However, these mechanisms often lack coordination and do not benefit from potential synergies between institutions and relevant programmes. Sometimes, access to space data through these mechanisms is restrictive. In addition, it was also noted that earth observation technologies are seldom used for disaster risk management and emergency response by many African countries.

Participants stressed the importance of space data particularly for early warning purposes. It was suggested that all countries should elaborate proper early warning maps by making use of the available space-based information. In the case of disasters taking place in the African continent, the need and usefulness of radar imagery was stressed. In many cases, severe cloud cover over affected areas makes radar technology imperative, even though it was considered difficult to use radar imagery and provide respective value added services.

#### Recommendations and Suggestions

- UN-SPIDER should facilitate coordination among existing mechanisms and space agencies by undertaking a survey of ongoing activities, initiatives and projects and mapping them.
- Promote “hot-spot mapping” in countries to come up with early warning maps using available space-based resources.
- Raise awareness and conduct capacity-building efforts targeting decision-makers.
- Facilitate capacity-building in the use of space-based data, particularly radar data.
- Facilitate the establishment of a network of existing mechanisms in the African continent covering the acquisition, coordination, and dissemination of space-based data.
- UN-SPIDER to also work with Universities and Regional Centres of Excellence to strengthen institutional capacities.

### Topic 4: Networking and Long-Term Sustainability

Participants discussed the role and the challenges of regional political forums in Africa in respect to networking and long-term sustainability. During the discussion, different high-level mechanisms were identified. The group also covered levels of intervention, advantages, and disadvantages concerning these political forums. In general, participants agreed that disaster risk management activities needed to be engaged at the continental level, represented by the African Union and through Continental Ministerial Meetings. A special need was also identified to initiate discussions targeting a pan-African Policy on the use of space-based information for disaster-risk reduction and emergency response. Equally, the participants deliberated on the establishment of a pan-African Space Agency . On a regional level, experts strongly recommended UN-SPIDER to conduct efforts to engage the various Regional Economic Commissions, and to encourage these RECs to take up the issue of disaster-risk management to support countries within their regions.

In addition, participants discussed the *SPIDER Thematic Partnership for Africa*, which would focus on prevention and early warning. Specific tasks were discussed that could be fulfilled through such a partnership as well as criteria identified which will make such a partnership successful. The SPIDER Thematic Partnership could also serve as tool to reach consensus on methodologies to use space-based information. It was agreed that further discussions were needed in order to strengthen this multi-institutional mechanism to promote access and use of space-based information for disaster risk reduction.

Participants discussed potential tasks which could be conducted through the *SPIDER Thematic Partnership for Africa*, among them:

- Creating linkages with universities in order to exploit their research capacity.
- Focusing on sharing best practices, data, and expertise.
- Developing and using common methodologies for risk assessment and mapping (hazard and vulnerability) as a vehicle to promote partnership and collaboration.
- Review and assess existing methodologies and tools so as develop a common one.
- Establish and use mechanisms for data sharing and collaboration.
- Preparing an inventory of existing resources (experts, institutions, data, information).

In addition, participants also discussed elements that need to be taken into consideration when establishing the proposed partnership, among them:

- The willingness of the institutions to take part and contribute to the collaborative frameworks (expertise, technology etc).
- The need to incorporate universities in conducting research
- The capacity of the partnership to demonstrate a win-win situation.
- The commitment to share responsibilities to achieve common goals.
- The capacity to do and support research.
- The recognition and endorsement by national agencies.
- The Partnership should be formulated based on thematic areas rather than language.
- Visibility of partners

Furthermore, experts deliberated on strategies to promote long-term sustainability of efforts conducted by UN-SPIDER in the field of space-based information for disaster risk management in Africa. A number of horizontal cooperation arrangements were discussed that will allow agencies, as well as countries, to facilitate the sustainability of UN-SPIDER's activities in the African region. It was noted that in many African countries there are no strong linkages between the agencies providing geospatial services (including universities) and the agencies responsible for disaster-risk reduction or emergency response. During the discussions, a concern was also raised that U.N. field offices may not have enough knowledge about UN-SPIDER, which may complicate emergency response efforts in activating the International Charter through UNOOSA.

Special attention was also given to the question of policies as a means to promote long-term sustainability. Most African countries do not have a proper policy in place that would focus on the access and use of space-based information for disaster risk reduction and emergency response. One reason for this situation is that decision-makers lack awareness of the potential of space-based information.

In addition, participants discussed the role of UN-SPIDER's National Focal Points and their links with the Regional Support Offices. A general concern was raised about the difficulty to identify an adequate National Focal Point due to a number of internal complications in many countries. Participants noted that Regional Support Offices have good knowledge about the specific problems and issues in their regions and may assist countries in the identification of proper focal points. The group agreed that National Focal Points should be institutions, rather than individuals, in order to maintain the acquired knowledge within institutions even after focal points leave.

## **Recommendations**

Cooperate with Regional Economic Commissions and encourage them to take up the topic of space-based information for disaster-risk management in their specific regions.

- Facilitate communication between providers of geospatial information and the disaster-risk reduction and emergency response community in a country to bridge the gap between these two communities.
- Strategically include applied research, synergies among universities, and research Centres to enhance applications of space-based information for disaster risk management.

- Strategically assist in making politicians and decision-makers aware of the potential of space-based information to ensure their support to sustain efforts in all phases of the disaster management cycle.
- Promote the nomination of adequate National Focal Points in countries using the knowledge and support of Regional Support Offices.
- Elaborate detailed terms of references for National Focal Points, clearly indicating the responsibilities in terms of outreach and coordination within their country.
- Promote the adoption of a comprehensive Space Policy in countries and regions to ensure sustainability of efforts.
- Continue discussing the SPIDER Thematic Partnership for Africa as a multi-institutional mechanism to promote access to and use of space-based information for disaster risk reduction.
- Reach out and inform United Nations field offices about UN-SPIDER and its services.

## Topic 5: Opportunities to support Emergency Response activities in Africa

Under this topic, participants discussed case studies and identified best practices and challenges concerning existing mechanisms. The only mechanism that is widely known and used is the International Charter: Space and Major Disasters. It was widely recognized by the group that this mechanism provided, in general, useful information in a timely fashion. However, in order to ensure increasing benefits a number of recommendations were put forward by participants including: providing a better understanding of how to activate this and similar mechanisms, broadening of the scope, building of institutional capacity to be able to better define areas of interest, and make use of institutions and private companies familiar with the local information needs as the lack of familiarity led in some cases to the provision of maps with limited usefulness.

In general, local knowledge was considered imperative to be able to properly respond to a disaster. UN-SPIDER Regional Support Offices were identified as hubs, which could provide information for disasters in their specific region. Since both existing UN-SPIDER RSOs in Sub-Saharan Africa were trained as Charter Project Managers, their services can be requested for future disaster events in Africa. A clear need was also identified by participants to receive further information about other available mechanisms such as the SAFER mechanism in support of emergency response activities.

Another recurring issue in the discussions was the question of data access and distribution, which remains a bottleneck in the context of response activities in many countries. In this regard, participants also pointed to the usefulness of low resolution imagery for emergency response activities. It was suggested that African countries should take better advantage of international meetings and conferences where space topics are discussed in order to establish contacts and remain informed of existing resources and opportunities. In addition, the need for capacity-building was raised. On the one hand capacities of value adding service providers in countries and regions need to be strengthened in order to take full advantage of existing local knowledge. On the other hand, also the capacities of end users need to be strengthened in order to allow them to make full use of the available products generated with space-based information.

Participants also talked about networking strategies that would allow agencies in African countries to maximize the benefits of accessing and using space-based information for emergency response. During these discussions, different emergency events were identified, pointing to the necessity to distinguish between sudden-onset events as well as slow-onset events. Participants also commented that space-based information has been used more successfully to target hazards such as locust swarms, drought and forest fires. In the case of floods, additional training needs were identified due to special data requirements, i.e. radar imagery to respond to these disasters.

Most importantly, participants argued that preparedness activities are key to efficient and timely emergency response. Only if proper mechanisms and institutions incorporating space-based information in all their activities are in place, the full potential of these technologies can be utilized in case of a disaster event. Participants were also informed that the International Civil Defence Organization was providing support to several African countries in Emergency Response activities.

## Recommendations

Compile a database on existing resources and mechanisms for emergency response including procedures on how to access such resources and mechanisms.

- Explore opportunities to acquire imagery using African receiving stations. UN-SPIDER should act as an interface to assist in the entire process of emergency response.
- Facilitate capacity-building efforts targeting local value adding providers as well as end users to be able to fully benefit from the available products, especially with regard to radar information.
- Take advantage of the capacities of Regional Support Offices for image processing and interpretation.
- Explore further possibilities of private-public partnerships for data provision in case of disasters.
- Broaden the understanding of emergency response, also including space-based information in terms of navigation and communication technologies.
- Synergize activities with the International Civil Defense Organization (ICDO).

## Topic 6: Capacity Building Efforts in Africa

On the topic of capacity-building efforts in Africa, participants discussed recommendations regarding the design and enactment of policies to promote capacity building within institutions, focusing on access and use of space-based information. It was noted that several international organizations such as the Economic Commission for Africa, the Office for Outer Space Affairs as well as the International Civil Defense Organization have established several Centres of Excellence and training throughout the continent as part of their efforts to strengthen capacities. Participants also commented on the existence of a network of universities that target disaster risk management (UNEDRA). It was noted that the African Union intends to create a Pan African university with a strong focus on topics of disaster risk management and emergency response.

Experts emphasized that capacity building efforts should be conducted at different levels, including primary, secondary and tertiary education. Moreover, decision-makers need to be included in comprehensive capacity-building efforts. In the course of the discussions, participants also highlighted factors that would inhibit such policies from being enacted. A critical challenge that needs to be addressed is the lack of the profession of a “risk manager” in Civil Service. Another major issue raised in the group discussion was the problem of “brain-drain” in the case of experts trained in remote sensing or geographic information systems. Participants recommended increasing opportunities within national governments for these experts as well as to explore private-public partnership models through various projects.

Participants also discussed the strategy of on-the job training and identified approaches targeting the training of staff in institutions through blended e-learning and face-to-face efforts. Participants reported on examples and case studies on how on-the-job training was exercised in their institutions. It was noted that many countries already possess adequate capabilities to train practitioners in national universities or Centres of Excellence. Participants commented on the best-practice examples of Kenya and South Africa where officials working in disaster risk management had to undergo mandatory courses on geospatial information. In some countries, training institutions lack proper capacities therefore, further “training-the-trainers” activities would be required. In addition, participants discussed the involvement of Human Resource Departments in such strategies to facilitate the institutionalization regarding access to and use of space-based information. A concern was raised that without proper comprehensive space policies incorporated at central policy levels, institutional efforts may lack sustainability.

Other topics discussed included strategies that would allow countries to establish a critical mass of professionals in various institutions, which make use of space-based information for disaster risk reduction and emergency response. Key horizontal cooperation arrangements were discussed, which would enable countries in various regions in Africa to establish inter-institutional groups.

## Recommendations

Promote the topic of disaster risk management and emergency response to be incorporated in the Pan African University which will be established by the African Union.

- Facilitate courses on disaster management at national levels.
- Facilitate cooperation between local universities and agencies responsible for disaster risk management and emergency response to create adequate demand for training on space-based information and ensure long-term partnership.
- Conduct research to establish a database or clearinghouse for existing opportunities and mechanisms in a region (including Centres of excellence as well as online courses).
- Facilitate training-the-trainer activities.
- Explore ways to benefit from cooperation with private partners for capacity-building and on-the-job training.
- Promote the implementation of a comprehensive Space Policy which covers capacity building on various institutional levels to ensure sustainability of training activities.

## Topic 7: Ways to institutionalize Space-based Information for Disaster Risk Management and Emergency Response

In the second panel discussion, participants examined a number of issues with respect to the institutionalization of space-based information for disaster-risk management and emergency response. Experts gave recommendations regarding the design and possible implementation of policies to promote access to and use of space-based information in institutions. The discussion group suggested an assessment regarding how space-based information is currently used in emergency response activities, beginning with a survey targeting the use of maps and GIS in Emergency Operation Centres. The group noted that the use of maps and GIS is a first step in institutionalizing the use of space-based information for disaster-risk management and emergency response. Participants commented that a major strategy to further institutionalize this technology was to comprehensively strengthen the existing institutions to make them able to take up new technologies.

Participants also discussed the interdependence between international, regional and national levels in terms of the institutionalization of space-based information for disaster risk reduction and emergency response. The group focused on reviewing existing twinning efforts as well as ways to leverage horizontal cooperation opportunities on various levels.

Further discussions were held on the topic of institutionalizing space-based information for emergency response activities. Participants were able to identify a number of missing links and bottlenecks: In many countries, a lack of human, infrastructural as well as financial resources was described. Also, unattended capacity-building and training needs represent another major bottleneck for adequate emergency response efforts using space-based information. Experts expressed their general concern about an existing lack of cooperation and coordination between institutions and agencies involved in emergency response activities in particular with regard to access, use and sharing of space-based information, as well as a lack of awareness on the side of decision-makers about the opportunities of these technologies.

## Recommendations and Suggestions

- Facilitate the establishment of an enabling environment for the introduction of space-based technologies in disaster risk reduction and emergency response activities.
- Conduct a survey on the use of GIS and maps in Emergency Operation Centres.
- Conduct post-event evaluation of access and use of products coming from different mechanisms.
- Facilitate the establishment of a critical mass of providers and users of space-based information in the region.
- Promote institutional preparedness as major requirement for emergency response.

- Facilitate the identification of “champions” to promote the use of space-based information for emergency response.
- Conduct awareness campaigns together with the network of Regional Support Offices and National Focal Points to promote the institutionalization of space-based information.
- Collect, systematize and disseminate case studies and best practice examples on the use of space-based information to be able to directly approach decision-makers and make them aware of its potential.
- Facilitate local action and commitment instead of relying on international assistance.

## Topic 8: Information Management including Spatial Data Infrastructure using Space-Based Information for Disaster Risk Reduction and Emergency Response

Under this topic, participants discussed recommendations regarding information management and the design of spatial data infrastructures at the level of policies and strategies. Participants agreed that each country should have a national spatial data infrastructure in place to enable data sharing and standardization. It was noted that South Africa and Nigeria have a National Spatial Database Infrastructure (NSDI) in place; South Africa also provides information to the public. These cases can serve as examples to develop similar policies in other countries and to ensure wide access to data.

Experts commented that a national policy should define classifications of information (public vs. restricted), define access levels and include provisions on how to store this information as well as data sharing. Participants agreed that setting up such a SDI requires a sincere effort from many institutions and therefore needs proper resources and budgetary provisions. It was suggested to also bring in the private sector in this endeavour since it owns valuable information. Discussions were also held on the UNSDI. It was noted that different countries have different needs and resources (software) to deal with available data. Participants suggested the use of institutional agreements for data access and sharing even though information should be made available free of charge. Participants were also informed about the African Geodetic Reference Frame (AFREF), which is a unified geodetic reference frame for the African continent and could be used for the establishment of a National SDI.

The topic of telecommunications in disasters was discussed as well. Participants identified a number of missing links and challenges as well as deliberated on strategies to address these missing links. A major concern raised was the non-existence or inefficiency of country-wide telecommunication networks as well as an inadequate rural telecommunication systems. Many African countries suffer from inadequate or erratic power supply to charge either fixed or mobile phones, especially in rural areas. There was also a lack of emergency response communication plans in case of large scale destruction to communication infrastructure identified by participants.

### Recommendations and Suggestions

- Compile best practice examples of existing National Spatial Data Infrastructures in African countries and share information to raise awareness.
- Facilitate access to respective national policies of other countries as guidelines for the design of new national policies, also with the assistance of ECA, and support countries who have started to set up a NSDI or are willing to do so.
- Promote the inclusion of capacity-building aspects in a national SDI policy.
- Facilitate cooperation and networking among actors that deal with SDI to avoid redundancies and benefit from synergies.
- Promote the use of intermediary software to deal with different standards etc.

- Facilitate the installation and provision of effective telecommunication networks across countries by taking advantage of private-public partnerships.
- Facilitate the provision of adequate power supply, also using alternative energy sources in disaster prone areas.
- Explore satellite communication tools such as Broadband Global Area Networks (BGAN).

### **Recommendations and Suggestions (Knowledge Portal)**

A number of experts attending the workshop were given a brief presentation about the UN-SPIDER Knowledge Portal and its present and future format, content and functions. Several recommendations were provided regarding how to adapt the Knowledge Portal to the needs of African countries:

- Set-up a low bandwidth site for institutions in disadvantaged African countries to benefit from the information contained within this Knowledge Portal without losing content.
- Make the Knowledge Portal information available in all six U.N. languages.
- Consider an online activation tool for SpaceAid and a request form for other needs for National Focal Points and U.N. agencies.
- Continue the work on the online capacity-building segment of the Knowledge Portal, eventually considering the provision of online courses and e-learning segments.
- Define procedures on how NFPs and RSOs can directly contribute to content of the Knowledge Portal.
- Develop quality control and assurance mechanisms for content uploaded by partners.
- Continue to work on the development and implementation of Geo-viewers and visualization tools; provide tools to synchronize different data formats.
- Avoid duplicating similar webpages.

## IV. Results

The conduction of the Africa Regional Workshop allowed UN-SPIDER to achieve the proposed objectives as specified in the announcement of the workshop, thus making it successful on the whole. More specifically, the workshop led to a number of specific results which are described in the following paragraphs.

### **The workshop allowed participants to:**

- Become aware of examples regarding the use of space-based applications and solutions targeting disaster-risk management, emergency response, climate change, and health-related issues; and to advantage of those applications and solutions.
- Become aware of the activities being conducted by UN-SPIDER in Africa, and identify ways and means to become engaged in such activities.
- Network with representatives of a variety of countries and regional and international institutions engaged in such types of activities.
- Become aware of opportunities provided by the private sector in the context of space-based data and information.

### **The workshop allowed UN-SPIDER to:**

- Bridge the gap between the space and the disaster management communities, bringing together representatives from the disaster management and civil protection agencies of nine countries and from regional and international organizations; two space agencies from African countries (Nigeria and South Africa), and representatives from seven private companies that target the use of space-based data and information, as well as commercial applications.
- Improve the communication and coordination among existing initiatives in African countries regarding access to, and use of, space-based technologies for disaster-risk management, emergency response, climate change, and health-related issues.
- Continue strengthening the network and role of National Focal Points and Regional Support Offices in Africa.
- Obtain elements to refine its strategy to support Africa, including recommendations on policies and specific actions.
- Become aware of on-going efforts at the regional and continental scale.

More specifically, the workshop facilitated further discussions and planning of technical missions to countries of Africa in the context of the UN-SPIDER Workplan for the biennium 2010-2011 as endorsed by the UN General Assembly. Discussions regarding the conduction of Technical Advisory Missions were held with representatives of Cameroon, Ghana, and Nigeria, who suggested the conduction of these missions in the course of the next year. Discussions were also held with the representative of Sudan with regard to support provided by UN-SPIDER to the country.

The workshop also provided an opportunity for UN-SPIDER to receive National Country Profiles of representatives from several African countries, which will serve to delineate a baseline at the regional level regarding the use of such a type of information to support all phases of the disaster management cycle.

Participants from various countries requested more information with regard to the topic of a National Focal Point for UN-SPIDER. In all likelihood, UN-SPIDER will receive further nominations for National Focal Points of African Countries as an immediate result of the workshop.

## V. Future Activities

The workshop provided the opportunity for UNOOSA to hold very fruitful discussions with colleagues from the Economic Commission for Africa. The two institutions agreed to strengthen their cooperation in the field of space-based information for disaster-risk reduction and emergency response by complementing existing efforts. Several strategic points were also identified as the foundation to build synergies between ECA and UNOOSA and to support sustainable development:

- Participation in activities and events conducted by each of the partners (Technical Advisory Missions, Technical Workshops, Conferences)
- Conduction of applied research on the use of space-based information to reduce the impact of disasters
- Promotion of the use of space-based information for disaster-risk reduction and emergency response on the African continent

In order to provide continuity to its support to countries in the Western and Central African Region, UN-SPIDER suggested conducting a technical workshop featuring a hands-on training of selected staff of countries, which already have a working relation with UN-SPIDER. The Workshop in Addis Ababa was used to start the planning of this event with representatives from Burkina Faso, Cameroon, Ghana and Togo. The event is slated to take place early next year in Burkina Faso. An Organizing Committee comprised of representatives of these countries, the UN-SPIDER Regional Support Office based in Nigeria as well as UN-SPIDER staff was established to continue planning this activity in subsequent months.

UN-SPIDER requested the assistance of representatives of Civil Protection agencies and of UNOCHA staff to conduct a survey on how space-based information is used in case of disasters with Emergency Operations Centres in different countries of the continent. A questionnaire will be elaborated by UN-SPIDER to identify typical sources of information as well as the use of geo-spatial and space-based information in particular.

## VI. Final Comments

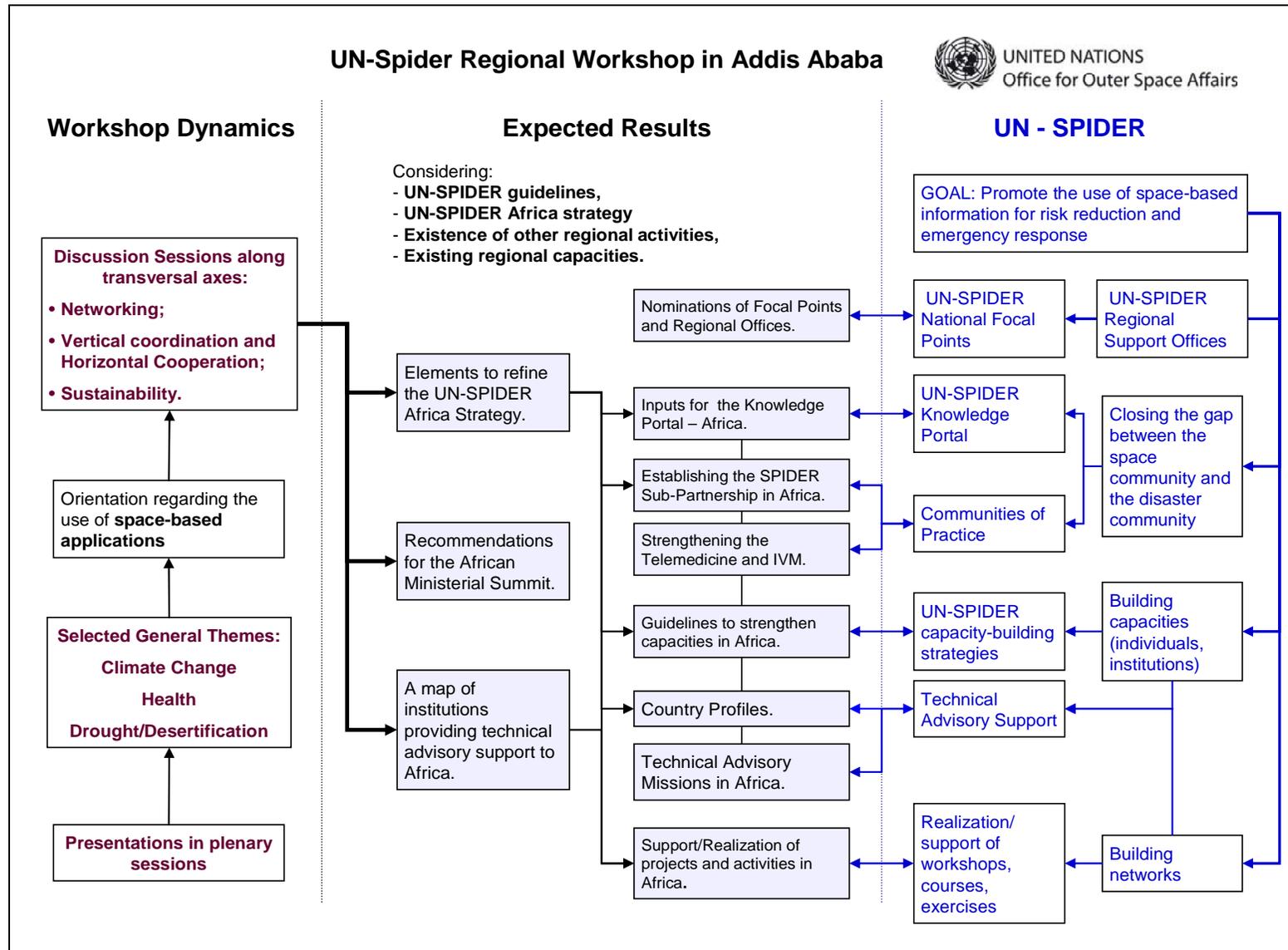
With the support of various institutions, the regional workshop in Ethiopia has allowed the UN-SPIDER programme to advance its agenda in Africa as well as at the global level.

The results obtained through the discussion sessions will be reflected in the work program for Africa and in the thematic partnership, which will be launched by UN-SPIDER for this region in the near future.

Activities to be conducted by UN-SPIDER as a result of the UN-SPIDER Conference are as follows:

- UN-SPIDER International workshop in Bonn to take place in October 2010.
- The meeting of the Scientific and Technical Sub-Committee of COPUOS in February 2011.
- The technical workshop for Western and Central Africa to take place in early 2011.
- Technical Advisory Missions to African countries to take place in 2011
- The regional UN-SPIDER workshop in Asia, to take place in 2011.
- The meeting of COPUOS to take place in June 2011.

## ANNEX 1 – Scheme of the Workshop



## ANNEX 2 – Workshop Evaluation

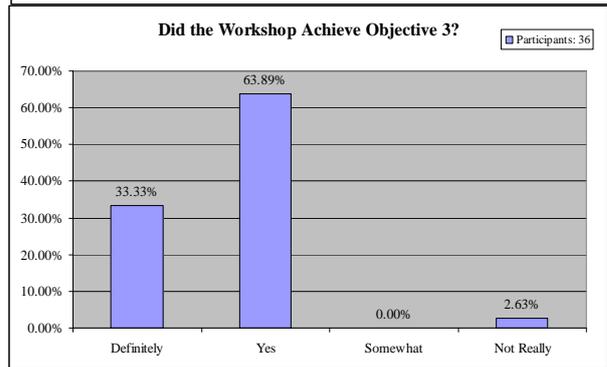
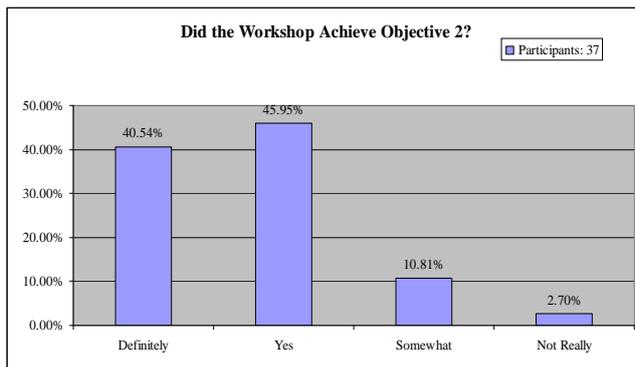
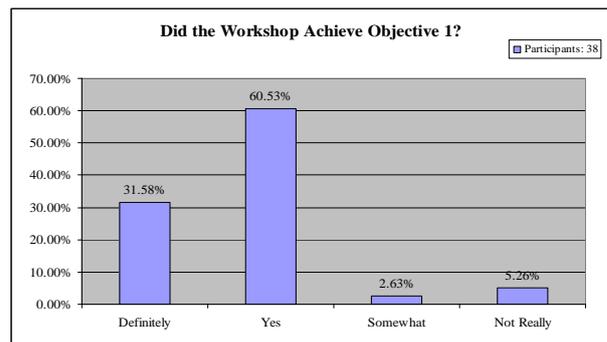
At every workshop conducted, UN-SPIDER requests participants to complete an evaluation to assess the contents and the structure of the workshop. This allows UN-SPIDER to learn from previous experiences and improve the organization of future workshops.

On the last day of the workshop in Addis Ababa, evaluation forms were distributed to all participants. A total of 38 participants handed in their completed evaluations and the results are presented in the following sections.

To begin with, participants were asked to rate whether the workshop was able to reach of the three proposed objectives, which were:

1. To discuss the overarching topics of climate change in Africa with special emphasis of the contribution of space-based technologies to mitigate the impact and enhance adaptation to global climate change and land degradation utilising innovative monitoring and analysis tools.
2. To capture and harmonise the various existing initiatives that are contributing to helping African countries to access and use space-based technologies for disaster management and risk reduction as well as to explore possibilities of capacity development and institutional strengthening.
3. To develop a strategy to engage the support of Regional Support Offices and National Focal Points in contributing to capacity building and institutional strengthening regarding the use of space-based information technology.

Participant’s responses to the three above questions are shown in the graphs on the side and below. The vast majority of participants felt that the objectives of the UN-SPIDER workshop were properly achieved. Some participants however indicated that some of the objectives were not or only partly achieved.



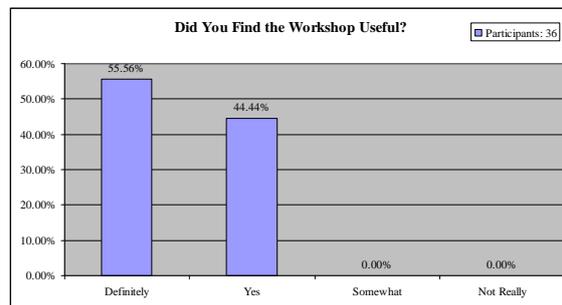
Participants were using the opportunity to provide comments or suggestions on how UN-SPIDER might improve its workshops to achieve the proposed objectives in a better fashion.

The following points and suggestions were raised:

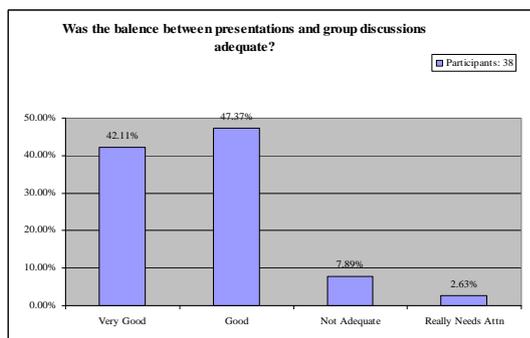
- Provide translation services and allow discussions in three African languages
- Allocate more time to participants to discuss the topics at hand in more detail
- Invite more African politicians, international experts, decision makers, donor organizations and university representatives to ease the implementation of the UN-SPIDER programme

- Some presentations were difficult to understand since the presentation speed was fast and presentations technical in nature
- The workshop was very theoretical and some hands-on use of the identified tools would have been beneficial

All participants who have submitted their evaluation form were of the opinion that the workshop was useful for them as shown in the graph on the side.

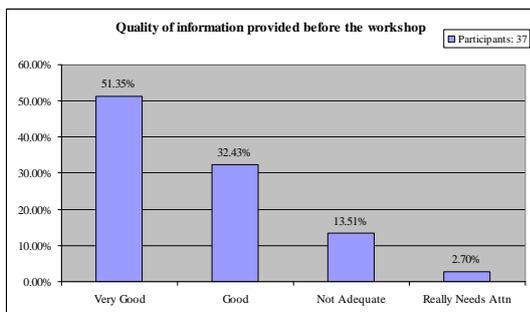
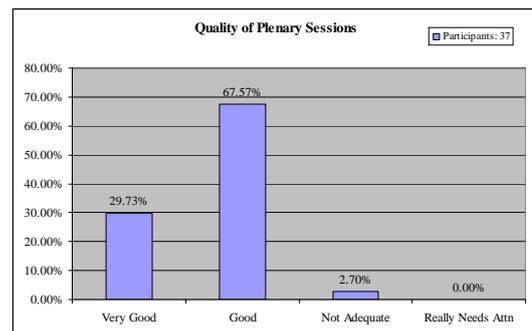


In the next section of the evaluation, participants were confronted with questions about the Programme of Activities:



When asked about the balance between presentation and group discussion sessions, the majority of respondents rated this balance very good or good, whereas only 4 out of 38 respondents felt that the mix was not adequate, or really needed attention.

The quality of the plenary presentations was rated as “good” by more than two thirds of the participants and even “very good” by 30%, with only one participant feeling that the quality was not adequate.

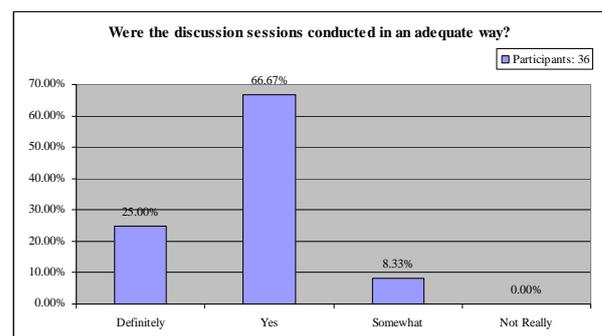


Participants generally appreciated the quality of information provided before the workshop by UN-SPIDER, even though 16% of the respondents considered the information inadequate or requiring attention.

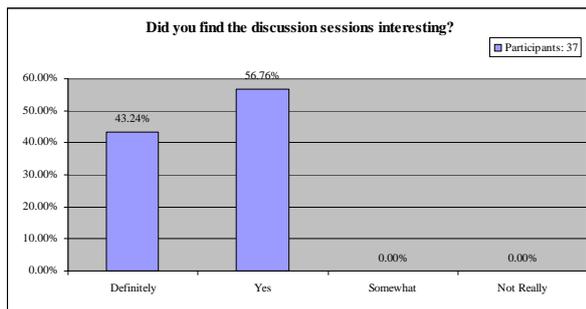
Several comments and suggestions were provided to UN-SPIDER which would allow to improve the workshop in terms of the programme of work:

- Timeliness of presentations and provision of longer discussions times due to technical content
- Discussion sessions should be organized according to thematic areas and similar topics should be pooled
- Last day of the workshop should be half-day to allow participants to finalize individual arrangements
- Share evaluation comments with participants

In the third part of the evaluation form, participants focused on the discussion sessions in break-out groups.

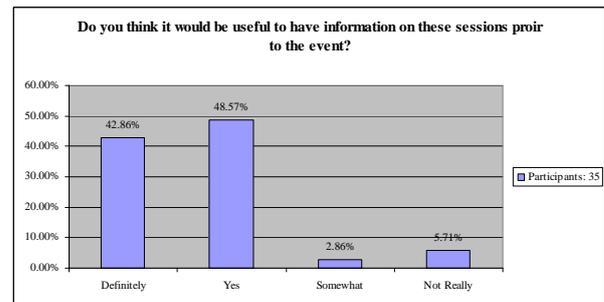


Asked about the conduction of the discussion sessions, more than 90% of the participants felt the discussions were adequately led, while 8% of the respondents could see improvements.



All responding participants found the various discussion sessions interesting according to the graph on the left.

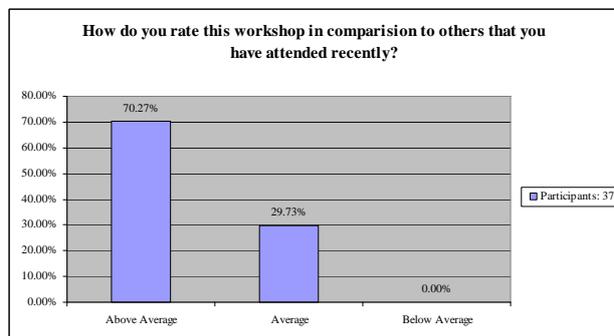
It came out clearly that participants wished to have more information on the sessions prior to the workshop. Only two participants felt that additional information prior to the sessions was not really required.



Participants gave recommendations on the type of information that would be useful prior to the event:

- Subjects and questions of the discussion sessions; also to be able to choose groups in advance
- Circulate guidelines for group discussions or upload them on website
- Background and source information for further reading
- Printouts and synopsis of the presentations
- Presentations of the presenting organizations

Finally, participants were asked to compare this workshop with other similar events they have attended. More than 70% rated the UN-SPIDER workshop above average with less than 30% rating it average and nobody considering it below average.



In order to improve the conduction of workshops in general, participants were asked to provide overall recommendations which can be summarized as follows:

- Support countries with limited capacity in capacity-building activities to join the workshop
- Provide more funding for participation
- Provide possibilities for social networking
- Invite more disaster management organizations and regional emergency coordinators
- Invite more experts to give presentations
- Work with agencies at grassroots level
- Inform presenters in advance about available time for presentations
- Request presentations in advance and re-direct if necessary
- Discuss in more detail information-sharing strategies and policies
- Name a focal point in countries to speed up development of space-based solutions

## ANNEX 3 – Programme of Activities

TUESDAY, 6 July 2010

TIME	ACTIVITY	Lead/Moderation
8:30 - 9:00	<b>Registration of Participants</b>	Moderator:
9:00 - 9:30	<b>Opening of the Workshop</b>  ECA – Aida Opoku-Mensah UNOOSA/UN-SPIDER – Juan-Carlos Villagran de Leon Government of Austria – H.E. Gudrun Graf Secure World Foundation – Agnieszka Lukaszczyk ECA/FSSDD – OIC of ECA – Josue Dione	Makane Faye (ECA)
9:30 - 10:15	<b>Introductory Presentations</b>  Juan-Carlos Villagran de Leon (UNOOSA): Applications for Disaster Risk Management and Emergency Response in Africa  Agnieszka Lukaszczyk (Secure World Foundation): Near Earth Object Overview	
10:15 - 10:45	<b>Coffee Break</b>	
10:45 - 12:30	<b>PRESENTATION SESSION 1:</b> <b><i>“Climate Change, Health, Telemedicine”</i></b>  Marc Leroy (AU): The African Monitoring of Environment for Sustainable Development (AMESD) Program and its links with Disaster Risk Management Issues Hamdou Wane (ECA): Food Security, Disaster Management and Space-based Solutions in Africa: Identifying some of the main issues Cheikh Kane (ACMAD): African Early Warning and Advisory Climate Services - ViGIRisc Philip Omondi (ICPAC): Climate Change and Health: Experience in use of Space Technology over the Greater Horn of Africa Aster Yilma (IWMI): Overview of Climate change and Adaptation in Africa/Ethiopia	Moderator:  Andre Nonguierma (ECA)
12:30-14:00	<b>Lunch Break and Discussions</b>	
14:00 - 15:15	<b>PANEL SESSION 1</b> <b><i>“Sources and challenges of space-based information for disaster risk management and Emergency Response in Africa – The Space Community Perspective”</i></b>  Panelists: Space Agencies and Remote Sensing Centres	Moderator:  Charles Agbo (NEMA)
15:15 - 15:45	<b>Coffee Break</b>	
15:45 - 17:15	<b>DISCUSSION SESSION 1</b> <b><i>“Climate Change, Health, Telemedicine”</i></b> 3 Breakout groups coming up with recommendations to three distinct areas	All participants  Discussion sessions chaired and facilitated by participants
17:15 - 17:30	<b>Plenary Session: Group presentations</b>	Rapporteurs of groups
17:30 - 18:30	<b>Ice-Breaker</b>	SWF

WEDNESDAY, 7 July 2010

TIME	ACTIVITY	Lead/Moderator
8:30 – 10:30	<p><b>PRESENTATION SESSION 2</b>  <i>“Networking and long-term sustainability”</i></p> <p>Godstime James (NASRDA, RSO): Sustaining the Activities of the UN-SPIDER Regional Support Office in Nigeria</p> <p>Hussein Farah (RCMRD, RSO): RCMRD and its Role in Disaster Management in East Africa.</p> <p>Bruno Meyer (CSIR): CSIR Satellite Applications Centre: Earth Observation Service Centre; Towards a RSO in South Africa</p> <p>Rigobert Bayala: Burkina Faso's National Ecosystems Monitoring and Desertification Dynamics Programme: existence of sharing network for its implementation in the long-term</p>	<p>Moderator:</p> <p>Isi Ikhuoria (RECTAS)</p>
10:30 – 10:45	<b>RSO Signing Ceremony – RCMRD</b>	UN-SPIDER/RCMRD
10:45 - 11:15	<b>Coffee Break</b>	
11:15 - 12:30	<p><b>DISCUSSION SESSION 2</b>  <i>“Networking and long-term sustainability”</i></p> <p>3 Breakout groups coming up with recommendations to three distinct areas</p>	<p>All participants</p> <p>Discussion sessions to be chaired and facilitated by participants</p>
12:30 - 14:00	<b>Lunch Break and Discussions</b>	
14:00 - 15:15	<p><b>PRESENTATION SESSION 3</b>  <i>“Opportunities to support Emergency Response and DRR activities for Africa”</i></p> <p>Teshome Erkinah (GEOSAS): The Role of GARNET-E in supporting Disaster Management and Emergency Response for Africa</p> <p>Otilie Angula: The Namibia flood pilot project</p> <p>Vera Thiemig (JRC): Heading Towards a Pan-African Flood Forecasting and Early Warning System</p> <p>Meron Sahlemariam (ECA): Health and Emergency Management</p>	<p>Moderator:</p> <p>Foster Mensah (CERSGIS)</p>
15:15 - 15:45	<b>Coffee Break</b>	
15:45 - 17:15	<p><b>DISCUSSION SESSION 3</b>  <i>“Opportunities to support Emergency Response activities and DRR for Africa”</i></p> <p>3 Breakout groups coming up with recommendations to three distinct areas</p>	<p>All participants</p> <p>Discussion sessions to be chaired and facilitated by participants</p>
17:15 - 17:30	<b>Plenary Session: Group presentations</b>	Rapporteurs of groups

THURSDAY, 8 July 2010

TIME	ACTIVITY	Lead/Moderator
8:30 – 10:30	<p><b>PRESENTATION SESSION 4</b></p> <p><i>“Capacity Building Efforts in Africa”</i></p> <p>Juan-Carlos Villagran de Leon (UN-SPIDER): The UN-SPIDER Capacity Building Strategy</p> <p>Isi Ikhuoria (RECTAS): RECTAS: Capacity building in Space Technology and Geospatial data applications</p> <p>Andries Jordaan (UFS-DIMTEC): Capacity building in Disaster Risk Reduction: Challenges for Post Graduate education</p> <p>Lothar Beckel (IGM): Remote Sensing in Disaster management and Risk Mapping (Atlas and Poster)</p> <p>Jean-Pierre Nana (ICDO): Capacity Building efforts by ICDO – Regional Training Centre in Yaoundé</p>	<p>Moderator:</p> <p>Makane Faye (ECA)</p>
10:30 - 11:00	<b>Coffee Break and Poster Viewing</b>	
11:00 - 12:30	<p><b>DISCUSSION SESSION 4</b></p> <p><i>“Capacity Building Efforts in Africa”</i></p> <p>3 Breakout groups coming up with recommendations to three distinct areas</p>	<p>All participants</p> <p>Discussion sessions to be chaired and facilitated by participants</p>
12:30-14:00	<b>Lunch Break and Discussions</b>	
14:00 - 15:15	<p><b>PANEL SESSION 2</b></p> <p><i>“Ways to institutionalize Space-based information for Disaster Risk Reduction and Emergency Response”</i></p> <p>Panelists: Civil Protection and Disaster Management Agencies</p>	<p>Moderator:</p> <p>Christina Giannopapa (ESPI) Juan-Carlos Villagran (UNOOSA/UN-SPIDER)</p>
15:15 - 15:45	<b>Coffee Break</b>	
15:45 - 17:15	<p><b>DISCUSSION SESSION 5</b></p> <p><i>“Ways to institutionalize Space-based information for DRR and ER”</i></p> <p>3 Breakout groups coming up with recommendations to three distinct areas</p>	<p>All participants</p> <p>Discussion sessions to be chaired and facilitated by participants</p>
17:15 - 17:30	<b>Plenary Session: Group presentations</b>	Rapporteurs of groups

FRIDAY, 9 July 2010

TIME	ACTIVITY	Lead
8:30 – 10:30	<p><b>PRESENTATION SESSION 5</b></p> <p><b><i>“Information Management incl. Spatial Data Infrastructure and Communication using SBI for ER and DRR”</i></b></p> <p>Andre Nonguierma (ECA) - The African Regional Spatial Data Infrastructure (ARSDI): A cooperative Geospatial Information Management in Africa.</p> <p>Abdoulaye Dieye (UNOCHA/ROWCA): Spatial Information Management as Coordination Tool for Disaster Risk Reduction and Emergency Response</p> <p>Chris Chiesa (PDC): Information Sharing for Decision Making</p> <p>Tufa Dinku (IRI): IRI Data Library Products for Disaster Monitoring</p> <p>Christina Giannopapa (ESPI): Policy Perspectives in European-African Partnership through the Use of Satellite Applications</p>	<p>Moderator:</p> <p>Douglas Otim</p>
10:30 - 11:00	<b>Coffee Break and Poster Viewing</b>	
11:00 - 12:30	<p><b>DISCUSSION SESSION 6</b></p> <p><b><i>“Information Management incl. Spatial Data Infrastructure using SBI for ER and DRR”</i></b></p> <p>3 Breakout groups coming up with recommendations to three distinct areas</p>	<p>All participants</p> <p>Discussion sessions to be chaired and facilitated by participants</p>
12:30-14:00	<b>Lunch Break and Discussions</b>	
14:00 - 15:15	<p><b>Private Company Presentations</b></p> <p>Suzanne Baltay (EADS-Astrium)</p> <p>Andrea Cook (GeoEye)</p> <p>Robert Carroll (Pictometry)</p>	
15:15 - 15:45	<b>Coffee Break</b>	
15:45 - 16:45	<p>Meeting Evaluation</p> <p>Plenary discussion on recommendations of the Workshop</p> <p>Workshop summary and next-steps</p>	Organizing Committee
16:45 - 17:00	<b>Wrap-up and Farewell</b>	Organizing Committee