Committee on the Peaceful Uses of Outer Space

Script

Fifty-seventh session

683rd Meeting
Tuesday, 17 June 2014, 10.00 a.m.
Vienna

Chairman: Mr. A. Oussedik (Algeria)

The meeting was called to order at 10.04 a.m.

The CHAIRMAN: Good morning distinguished delegates. I now declare open the 683rd meeting of the Committee on the Peaceful Uses of Outer Space.

Distinguished delegates, I would first like to inform you of our programme of work for this morning.

We will continue and hopefully conclude our consideration of agenda item 9, Space and Sustainable Development. We will also begin our consideration of agenda item 11, Space and Water, and agenda item 12, Space and Climate Change.

There will be one technical presentation this morning by a representative of the United States entitled "The Future of Human Space Flight: Celebrating Apollo and Looking to Mars".

The Working Group on the Long-Term Sustainability of Outer Space Activities will then hold its second meeting.

Following our meeting this morning at 1.00 p.m., there will be a panel event on "Italy and Space: Prospects, Opportunities and Benefits of Human Space Flight Activities for Sustainable Development on our Planet Earth", which will take place in this meeting room. This panel event will be followed by a reception at 2.00 p.m. in the Coffee Corner just outside Board Room D.

I wish to remind delegates that this evening, starting at 6.00 p.m., there will be a reception hosted by the United States. The reception will also be held in the Coffee Corner outside Board Room D.

The provisional list of participants was distributed yesterday morning through the pigeonholes as Conference Room Paper 2. Delegations are kindly requested to provide the Secretariat with written amendments to the list by close of business today, Tuesday 17 June, so that the Secretary can finalize it.

Are there any questions or comments on this proposed schedule?

I see none.

General exchange of views (agenda item 5)

Distinguished delegates, I have received a request from the delegation of Nigeria to make a statement under agenda item 5, General Exchange of Views.

With your permission, I now give the floor to the distinguished delegate of Nigeria.

Mr. S. ONAILO (Nigeria): Mr. Chairman, my delegation joins other delegations before us in welcoming you, Azzedine Oussedik, as the new Chairman of COPUOS. We assure you of our support during your term of Office as Chairman of this Committee.

While also congratulating the new Director of the Office for Outer Space Affairs on her appointment, my delegation is also using this opportunity to commend the excellent preparation made by the dedicated staff of the United Nations Office for Outer Space Affairs for the fifty-seventh session of the Committee.

Mr. Chairman, Nigeria recognizes the importance of international cooperation in the peaceful uses of outer space in the realization of its Space Policy and Programme. The country in this effort is committed and will continue to actively participate in the activities of international bodies such as Committee on Earth Observation Satellites, CEOS, the Global Earth Observation, GEO, the International Charter Space and Major Disasters, the International Communications Union, ITU, the International Astronautical Federation, IAF, the International Academy of Astronautics, IAA, and in the implementation of global initiatives.

Mr. Chairman, Nigeria will continue to complement the efforts of the United Nation to develop indigenous capacity and maximize the benefits of space technology in developing countries, through the

African Regional Centre for Space Science and Technology Education for English-speaking countries, ARCSSTE-E. In 2014, ARCSSTE-E commenced the new Post Graduate Programme in GNSS-based on the curriculum developed by the Office for Outer Space Affairs. The principle goal of the Programme is to build indigenous capacity in GNSS that can contribute to sustainable development in the African region. In addition, Mr. Chairman, the Centre in 2014, also commenced an 18-month Master's Degree Programme in Remote Sensing and satellite communication in partnership with the Federal University of Technology, Akure, Nigeria.

Mr. Chairman, Nigeria acknowledges the efforts of the Office for Outer Space Affairs and associated group of experts, in developing a curriculum for the teaching of space law courses at the Regional Centres for Space Science and Technology Education affiliated to the United Nations. ARCSSTE-E is preparing to benefit from this space law development.

Furthermore, Mr. Chairman, there is also an intensified move by the National Space Research and Development Agency of Nigeria to include space law in the general international law courses of the various institutions in Nigeria. And on the regional level, Nigeria hosted the Third African regional round of the Manfred Lachs Space Law Moot Court, in Abuja, Nigeria, from 23-24 May 2013.

Mr. Chairman, the establishment of a Centre for Atmospheric Research, in January 2013, as a Research and Development Centre of the National Space Research and Development Agency, with a clear mandate for space weather monitoring and research is a clear demonstration of Nigeria's commitment and contribution to the safety of the outer space environment. Since the establishment of Centre for Atmospheric Research in 2013, the Centre has organized a series of events aimed at promoting the science of space weather. One of these events is the hosting of the First Annual Conference of the Africa Geophysical Society, held from 2-6 June 2014. The Conference was attended by delegates from seven African countries with delegates from Japan, India and the United Kingdom and also the United States.

Mr. Chairman, we wish to recall that the United Nations General Assembly, in its resolution 61/110 of 14 December 2006, agreed to establish the United Nations Platform for Space-Based Information for Disaster Management and Emergency Response, UN-SPIDER. Nigeria will continue to provide support for the effective running of the UNSPIDER Regional Support Office located in Nigeria for the West and Central African Region.

Finally Mr. Chairman, Nigeria and other African member States participated actively in the Fifth African Leadership Congress on Space Science and Technology for Sustainable Development, held in Accra, Ghana. from 3-5 December 2013. We take this opportunity to congratulate all the participants and the host country, Ghana, for a successful event.

Thank you Mr. Chairman.

The CHAIRMAN: I thank the distinguished delegate of Nigeria for his statement.

We have, therefore, concluded our consideration of agenda item 5, General Exchange of Views.

Report of the Legal Subcommittee on its fifty-third session (agenda item 8)

Distinguished delegates, I have received a request from the delegation of Venezuela to make a statement under agenda item 8, Report of the Legal Subcommittee.

With your permission, I now give the floor to the distinguished delegate of Venezuela.

Mr. R. BECERRA (Bolivarian Republic of Venezuela) *(interpretation from Spanish)*: Thank you Mr. Chairman. Thank you for this opportunity to address the room again.

We would like to recall the importance of the Legal Subcommittee within COPUOS. The Legal Subcommittee was the first official forum of COPUOS and thanks to its work, we have now the five United Nations treaties on outer space.

It is very clear that all technical activity of whatever kind requires legal support to develop successful, clear-cut norms that lead to wholesome and peaceful activities, and when I say wholesome activities, I mean those that take into account care of the environment, safety, security and international peace. We have heard statements from the majority of delegations under this agenda item and understood that more than 80 per cent insist on the need for close interaction between the Scientific and Technical Subcommittee and the Legal Subcommittee and we are working towards that objective.

Therefore, we have proposals of a formal nature regarding the duration and the structure of the

Committee and other proposals of a substantive nature with reference to specific agenda items. It would be very good to be able to evaluate some of those proposals.

I would like to recall the proposal made by the Czech Republic, for example, making the Space Debris Mitigation Guidelines into principles, elevating their status. This is something that can be done in the Legal Subcommittee. Also the Legal Subcommittee can look at the Safety Framework for the Use of Nuclear Power Sources in Space. Therefore, I wonder, and I ask how do we do this? It is clearly necessary to modify the timetable and the structure of the Committee and the way decisions are made within COPUOS. COPUOS takes decisions by consensus but some of the time it is a false consensus because it is really not possible to imagine that of all the member States, everyone agrees on something. If one or two does not, then does progress stop? This is not right. Maybe the Secretariat could respond and they tell me that there are certain customs and traditions that cannot be changed or modified. I am not sure that is right. We are part of the United Nations. COPUOS does not have any strict regimentation prescribing the way it arrives at decisions and we know how things happen in New York. A lot of the time decisions are made by a vote and COPUOS could also go that way and there have been cases in the past.

So it would be good to think of various possibilities, how we modify the decision-making process, particularly in the Legal Subcommittee and in the Committee in general, for example, on the issue of the definition and delimitation of outer space. A vast majority of States agree that there should be such delimitation, to 100 to 140 kilometres, that is the practice, that is where the borderline lies between air space and outer space. But without certain decisions in that regard we cannot make further progress and it has been 40 years that we have debated that.

Also with regard to space debris and the use of nuclear power sources, unless the Legal Subcommittee makes those decisions, we will not be able to make progress so we need to reflect on this, how to change the timetable, the structure, the way in which we arrive at decisions. We think it would an excellent exercise. Therefore, we applaud the proposal made by Germany. It needs to be studied overall. It is very positive and it is welcome.

I suggest that we consider the way in which this Committee handles issues and makes decisions. It is necessary if we really want to move forward. Yes, these are sensitive issues. We cannot talk about a simple majority but maybe if 80 per cent of the Committee agrees on something, maybe we should go forward.

I did not want to let that stay outside the discussion. I wanted to make sure that our focus is brought back on these issues and the Legal Subcommittee has a very important role to play here. We do need to update the United Nations treaties on outer space, make them compatible with current realities. A lot of work needs to be done.

I do not want to take any more time. I will stop here, Mr. Chairman, and I wish all of us every success incorporating that work of the Legal Subcommittee as part of the large Committee.

Thank you.

The CHAIRMAN: I thank the distinguished delegate of Venezuela for his statement.

Space and sustainable development (agenda item 9)

Distinguished delegates, I would now like to continue and hopefully conclude our consideration of agenda item 9, Space and Sustainable Development.

The first speaker on my list is the distinguished delegate of the United States of America, Mrs. Margaret Kieffer.

Ms. M. KIEFFER (United States of America): Thank you Mr. Chairman. The United States is pleased to address this important topic and will focus our statement on the critical relationship between education and sustainable development. Education that uses space-related tools is a compelling way to inspire students and to encourage them to pursue careers in science, technology, engineering, and mathematics or STEM. These tools also increase the number of professionals in STEM fields, strengthen national capabilities in science and industry, and enhance educational opportunities using distance-learning technologies, such as tele-education and e-learning.

The United States' Civil Space Programme continues to inspire the next generation, as highlighted by the following examples.

The International Space Station continues to play an important role as a research platform for students and educators of all ages and is an effective outreach tool for the education community. For example, the NASA-sponsored Sally Ride EarthKAM Programme allows students and teachers to directly benefit from

the Station's tremendous educational potential. During EarthKAM missions, middle school students from across the globe use the Internet to direct a camera onboard the Station to photograph specific locations on Earth. More than 32,000 students and teachers from 76 countries participated in the two most recent Sally Ride EarthKAM missions. The related NASA-sponsored Sally Ride MoonKAM instrument flew on the twin spacecraft named Ebb and Flow which orbited the Moon in 2012. The MoonKAM allowed students from across the globe to use the Internet to direct an onboard camera to experience the mission first-hand.

The NASA Digital Learning Network, with studios at each of the 10 centres, uses video-conference and webcast technologies to connect students from across the world to NASA educators and specialists. During Digital Learning Network events, international schools are paired with United States schools on a video-conference with NASA, providing a unique opportunity for students to not only learn about space but also to interact with each other and learn about another culture.

With active international agreements with 109 countries and 132 partners across the United States,, the NASA-led multiagency Global Learning and Observations to Benefit the Environment Programme, or GLOBE, is a very successful, long-standing international programme with global reach and high visibility. GLOBE provides students with hands-on learning opportunities focused on Earth system and environmental science and fosters interaction with scientists. During its 20-year existence, over 66,000 teachers and 10 million students have participated and more than 90 million Earth system measurements have been reported.

This year, more than 500 students from around the world took part in NASA's Human Exploration Rover Challenger, held in Alabama in the United States. This event challenges students to design, build and race lightweight, human-powered roving vehicles, solving technical problems along the way, just as NASA engineers must do.

The Mars Student Imaging Project is an award-winning inquiry-based learning and student-centred education project. Students learn how science works by engaging in science research using data from a NASA spacecraft orbiting Mars.

The Students' Cloud Observations On-line Project, which encourages the involvement of teachers and students of all ages in real science, had participation from approximately 685 schools from around the world in the last six months. By making and reporting ground observations of clouds, students and teachers can help validate NASA space-based observations.

NASA is also a founding member of the International Space Education Board, or ISEB. As the 2013-2014 Chair, NASA is working closely with other ISEB members to prepare for the sixty-fifth IAC in Toronto, Canada, with a week-long programme of activities and networking opportunities for students. NASA and the ISEB welcome students from around the world to stop by and network at the International Student Zone.

NASA continues to welcome opportunities for international collaboration where resources can be leveraged and where collaboration supports our education strategic goals and objectives.

Through education, particularly education in the use of space-generated data, nations can better prepare their citizens to solve the challenges of sustainable development.

Thank you, Mr. Chairman, for allowing us to share these ideas and experiences and we look forward to learning more on this topic from other member States.

The CHAIRMAN: I thank the distinguished delegate of the United States, Mrs. Margaret Kieffer, for her statement.

The next speaker on my list is the distinguished delegate of Venezuela, Mrs. Romina Acevedo.

Ms. R. ACEVEDO (Bolivarian Republic of Venezuela) *(interpretation from Spanish)*: Thank you very much Mr. Chairman. In full compliance with the political guidelines contained in the Second Plan for the Bolivarian management of the country for 2013-2019, the National Government, through its Bolivarian Agency for Space Activities, ABAE, has carried out a series of activities designed to strengthen space science and technology and their applications as a fundamental tool to promote the sustainable development of the country. And we have contributed to meeting the needs of the population in such strategic areas as health, energy, education, housing, food security, natural disaster mitigation, the environment and the security of the country, all of this with a view to improving the life of future generations and not undermine their needs.

After the successful launch of the first remote sensing satellite in Venezuela, MIRANDA, on

28 September 2012, we have to date catalogued a total of 76,612 satellite images of the entire national territory which has benefited various sectors of the Government, academia, industry, the private sector and community organizations.

Furthermore, I would like to inform delegations that the Bolivarian Republic of Venezuela has successfully concluded the approval processes for its formal application to join the International Charter for Major Catastrophes. Recently, a formal request was submitted to the National Space Administration of China, which is currently managing the Charter. This would lead to an expansion of the multilateral cooperation mechanisms and thus we have placed at the disposal of the international community, our national infrastructure and capabilities to assist countries in emergency situations in the face of natural or man-made disasters.

For its part, the Simón Bolívar satellite, the VENESAT-1 Programme, launched into orbit in 2008, has in the first trimester of 2014 led to including about 5.4 million users in the telephony network and those were from communities that were previously excluded from such services. The Simón Bolívar satellite is being used to strengthen the national seismological network in coordination with the Venezuelan Foundation for Seismological Research, FUNVISIS, with a view to improving our response to these natural disasters.

Mr. Chairman, following the request of the United Nations General Assembly to promote participation of citizens and their education in the area of space science and technology, ABAE has developed a project entitled "Application of Satellite Technology in Social, Scientific and Technological Projects", which includes courses, both in-person attendance and through distance learning, regarding various remote sensing techniques and analysis of geographic systems. To date, we have trained 2,109 professionals of the National Public Administration.

Finally, talking on the regional scale, cooperation in the space area between the Bolivarian Republic of Venezuela and fraternal countries such as the Plurinational State of Bolivia and the Republic of Argentina, has made it possible to successful carry out training courses, both with in-person attendance and through distance-learning, between 2013 and 2014 for a total of 69 Bolivian professionals and 30 Argentinian professionals in such areas as space applications and management of space projects, raising the regional capabilities associated with the peaceful use of outer space.

Thank you very much.

The CHAIRMAN: I thank the distinguished delegate of Venezuela, Mrs. Acevedo, for her statement.

The next speaker on my list is the distinguished delegate of Romania, Mr. Dumitru Prunariu.

Mr. D. D. PRUNARIU (Romania): Thank you very much Mr. Chairman. Romania considers that sustainable development through space activities, in practical terms, is a multi-dimensional and multi-sectoral process, including industrial development, societal and economic benefits, national security issues, political ambitions and educational issues.

Taking into account the approach of the problem of space and sustainable development at different levels of the United Nations, and the necessity to better manage this approach, to find ways to deepen the institutional recognition and implications of space for sustainable development, the Romanian delegation wants to express some views, and looks for comments and opinions from other delegations, as well.

The Romanian delegation is of the view that the entire sustainability agenda depends on working with space-based data and information. In this respect, space-related capacities have, therefore, to be integrated into the sustainability policy processes, the design of operational programmes and their implementation.

We are of the view that sustainability management is inherently pluri-disciplinary, inter-sectoral and pluri-institutional reaching into all levels of governance, global, regional, national and local. Capacity-building for sustainability has, therefore, to take account of these different levels and sectors of institutional responsibilities.

The integration of space-related capacities into sustainability management has, therefore, very significant institutional implications. The Romanian delegation considers that space-related capacities have, therefore, to be part of policy platforms at governmental and intergovernmental levels and share responsibility for the achievement of sustainable use and development of our natural and environmental resources endowment. The claim for an integration of space-related capacities into the sustainability policy and management processes has to be articulated by the international community, that is. the members of the

United Nations COPUOS as an example of this subsidiary organ's key responsibilities.

In our view, COPUOS is to appeal to the spectrum of organs and bodies such as the United Nations General Assembly, ECOSOC, the HLP Forum, etc.), with global responsibilities for sustainability, to institutionally root space in the pertinent structures, processes and responsibilities. COPUOS is to appeal to regional organizations to develop, strengthen and integrate space capacities into regional sustainability-related processes of cooperation.

In our view, COPUOS is to appeal to national governments and local authorities, such as the United Nations Advisory Committee of Local Authorities, to capacitate national and local authorities to work with space in an integrated manner.

In our view, COPUOS is to appeal also to the international outer space community to recognize the new identity of outer space and being "for the people and with the people".

In this respect, we would like to propose to include in the report of COPUOS on agenda item 9, Space and Sustainable Development, a reference stating that "COPUOS recognizes the fundamental significance of space-related information and data for global, regional, national and local management of sustainability. There is a need to recognize the contribution of space for the formulation of policies, of programmes of action and of their implementation. COPUOS, therefore, presents an urgent appeal to the institutions responsible for the sustainable development and use of humankind's natural and environmental resources endowment to create adequate patterns of participation and institutional integration of space-related capacities into international, regional, national and local sustainability responsibilities".

Thank you for your attention, Mr. Chairman and distinguished delegates.

The CHAIRMAN: I thank the distinguished delegate of Romania, Mr. Prunariu, for his statement.

The next speaker on my list is the distinguished delegate of the United Nations Economic and Social Commission for Western Asia, Mr. Ayman El-Sherbiny.

Mr. A. EL-SHERBINY (United Nations Economic and Social Commission for Western Asia): Good morning. First, please let me convey the congratulations of my delegation to the Chairman of the COPUOS, Mr. Azzedine Oussdik, for his election, and to the new Director of the Office for Outer Space Affairs, Ms. Simonetta Di Pippo, for her appointment, as well my appreciation to the efforts of the Secretariat and different sections of the Office for Outer Space Affairs in organising this session, and in cooperating with ESCWA during the elapsing year, wishing them success and advancement in their mandates.

Mr. Chairman, distinguished delegates, the United Nations Economic and Social Commission for Western Asia, ESCWA, established in 1973, is one of the five United Nations Regional Commission. ESCWA has a clear mandate to foster socio-economic development and regional integration amongst its 17 member countries in Western Asia and North Africa, representing the largest part of the Arab Region.

Regional integration is no longer seen as just another pillar of development. In a world dominated by powerful blocs, it has become a requirement for survival. Comprehensive integration is not only a vital necessity for the ESCWA world, it can also launch it towards a comprehensive renaissance.

The region, assisted by ESCWA, has made impressive progress towards the achievement of many Millennium Development Goals, in particular capitalizing on ESCWA's sub-programme on "Information and Communication Technology for Regional Integration", which aimed at bridging the digital divide and at building the Arab information society, under the umbrella of the World Summit on the Information Society, WSIS, and the Commission on Science and Technology for Development, the CSTD..

For more than a decade, ESCWA has been a major player in the fields of ICT policies, cyber laws, Internet governance, ICT infrastructure, ICT applications, smart governments and science, technology and innovation, STI.

In looking at the Post-2015 Agenda, a more diversified economic structure should be considered to promote inclusive and quality development. Arab countries need to rethink macro-economic policies accordingly. In particular, policies are needed to ensure that industries grow in directions that contribute to transforming economies. Complementary policy reforms in areas such as investment science and technology, including ICT and the peaceful use of outer space and regional development will be needed.

Mr. Chairman, distinguished delegates, the United Nations General Assembly resolution 68/75 on international cooperation in the peaceful uses of outer space has reiterated, in its Article 23, that the benefits of space technology and its applications should continue to be brought to the attention of the major United Nations conferences and summits for economic, social and cultural development and related fields and that the use of space technology should be promoted in efforts towards achieving the objectives of those conferences and summits, including implementing the Millennium Declaration and contributing to the Post-2015 Development Agenda process.

The United Nations General Assembly resolution also, in Article 19, that regional and interregional cooperation in the field of space activities is essential to strengthen the peaceful uses of outer space, assist States in the development of their space capabilities and contribute to the achievement of the goals of the United Nations Millennium Declaration. It also requests relevant regional organizations to offer the assistance necessary so that countries can carry out the recommendations of regional conferences.

Mr. Chairman, distinguished delegates, ESCWA recognizes the strong connection of space technology to the modern infrastructure that underpins the information society and contributes to economic, social and environmental sustainable development and acknowledges that conditions to fully benefit from space technology and its applications including a long-term vision and strategy to ensure sustainability of efforts, a powerful regulatory environment that ensures stability and confidence to attract private industry, strong policy support from the government, and regional and international cooperation with considerations related to competitive advantage, specialization and complementarity of capabilities.

ESCWA is closely following-up on the deliberations in the Committee on the Peaceful Uses of Outer Space particularly on the space and sustainable development theme as well as the use of space within the United Nations System and recognizes the respective roles of States, intergovernmental organizations, non-governmental organizations and private sector entities to promote the safety and long-term sustainability of outer space activities.

Last year, ESCWA participated in the United Nations/United Arab Emirates Symposium on Basic Space Technology that took place in Dubai, United Arab Emirates, during October 2013, as part of the Basic Space Technology Initiative, carried out in the framework of the United Nations Programme on Space Applications.

During the Symposium, ESCWA chaired the session on space technology development activities in Western Asia and moderated the panel on prospects for space technology development activities and regional and international cooperation in Western Asia. Panel discussions included speakers from Egypt, Oman, Tunisia, United Arab Emirates and the Regional Centre for Space Science and Technology Education for Western Asia, affiliated to the United Nations and located in Amman, Jordan.

The panel considered past efforts for space technology development in Western Asia, in particular in the Arab-speaking countries, the present status, plans and visions for the future, opportunities and challenges and the role of regional cooperation.

Panel participants agreed that while the Arab countries had been users of space technology and its applications for several decades, there was a need to move from being users or operators to becoming developers. Assessment of regional needs indicated a need for policy coordination role to be played by ESCWA in the space and satellite technologies field on the regional and national levels as a strategic liaison between the United Nations COPUOS and the Office for Outer Space Affairs, on the one side, and the stakeholders in the region, on the other. There was also a need for enhancing regional cooperation as the capabilities of the countries in the region would complement each other through competitive advantages and specialization. Such cooperation could also build on the definition of a regional roadmap for space activities.

With regard to regional cooperation in Western Asia, participants at the United Nations/United Arab Emirates Symposium recommended that all members States in the region should consider to become members of the Committee and actively support the Regional Centres for Space Science and Technology Education for Western Asia, which is affiliated to the United Nations. Member States took note of the fact that there are major opportunities and untapped potential for cooperation among member States of the ESCWA region, particularly in terms of policy coordination and harmonization with socio-economic development goals in mind. They also took note of the fact that ESCWA could organize an Expert Group on Regional Space Cooperation for the Arab Region as it has done for activities in the field of information and communications technologies, under the umbrella of the World Summit on Information Society.

In the geospatial data information field, ESCWA cooperated in bringing the Global Geospatial Information Management, the GGIM, Initiative to the Arab region. After the successful regional cooperation with the Department for Economic and Social Affairs, DESA, the member countries agreed to set a regional governance structure for the GGIM and to establish its foundations in form of a Regional Committee for the GGIM. The inaugural meeting for the Regional Committee took place in Amman, last February 2014. From the beginning the regional implementation of the GGIM brings together cartographic authorities with national statistical agencies in recognition of an acute need of geo-referenced evidence for policy-setting and monitoring for the Post-2015 Development Agenda. A particular challenge in Arab countries is that the socioeconomic issues depend very much on small geographic areas. Therefore, ESCWA will prioritize in 2014 and beyond the work on methodological issues related to the collection of information that is geo-referenced, whether it is statistics or any other information, for example, those on road safety, environment, business activity, housing, environment, etc. The Economic and Social Commission for Western Asia also attaches a high priority to support development, acquisition and implementation of technologies supporting geospatial information management.

On another front, namely the climate change field, ESCWA is coordinating the implementation of the Regional Initiative for the Assessment of the Impact of Climate Change on Water Resources and Socio-Economic Vulnerability in the Arab Region, the initiative is called RICCAR. It generates geospatial information and analysis for the Arab region based on regional climate downscaling, hydrological modelling and an integrated vulnerability assessment that draw upon geospatial databases, satellite images, remote sensing and local observations. Composite geospatial analysis and disaggregated layers focused on thematic clusters covering water, biodiversity, ecosystems, agriculture, infrastructure, human settlements, health and employment will be made available on a regional knowledge hub covering the Arab region next year by 2015.

RICCAR is implemented through a collaborative partnership involving ESCWA, the League of Arab States and other strategic partners, such as the United Nations Environmental Programme Regional Office for West Asia, UNEP/ROWA, the Arab Centre for the Studies of Arid Zones and Dry Lands, ACSAD, the United Nations Educational, Scientific and Cultural Organization Cairo Office, UNESCO, the United Nations International Strategy for Disaster Reduction, UNISDR, Regional Office for the Arab States, the United Nations University, UNU, the Swedish Meteorological and Hydrological Institute, SMHI, the World Meteorological Organization, WMO, and Deutsche Gesellschaft für Internationale Zusammenarbeit, GIZ, and the Food and Agricultural Organization, FAO.

Furthermore, it is to be mentioned that ESCWA has recently substantively contributed to the report of the Secretary-General on the coordination of space-related activities within the United Nations system, directions and anticipated results for the period 2014-2015, on the use of space-derived geospatial data in addressing the Post-2015 Development Agenda.

Mr. Chairman, distinguished delegates, while ESCWA is developing its Space and Satellite Technologies Program, it is also currently exploring ways to foster regional cooperation between ESCWA member countries and other regional organizations, including and not limited to, the ITU regional Office and the League of Arab States, in addition to coordination with other United Nations Regional Commissions, like ESCAP and ECA. Serious discussions took place last week during the Word Summit Information Society+10 Review, a high-level event that took place in Geneva last week during 10-13 June 2014. The partnerships are open to actors and active players from the international communities and to countries interested in promoting South to South cooperation and/or science, technology and innovation in developing countries.

In the field of capacity-building in space technology development, ESCWA, through its existing mechanisms, will explore ways to set up a network of universities and other academic institutions involved in space technology as well as space law for the promotion of space education and for strengthening space project capacities.

Last but not least, ESCWA is calling upon member countries and upon major players from the international outer space community to partner with ESCWA in convening its First Regional Expert Group Meeting on Space and Satellite Technologies for Development in the Arab region, which will take place during the first quarter of 2015.

Lastly, ESCWA, through its strong ties in the Internet eco-system and within the information society and knowledge economy communities of practice, is ready to strengthen ties and synergies between the WSIS community and the COPUOS community, both

constituting important pillars of the Global Development Agenda Post-2015.

Thank you and best wishes.

The CHAIRMAN: I thank the distinguished delegate of ESCWA, Mr. Ayman El-Sherbiny, for his statement.

Are there any other delegations wishing to make a statement under this agenda item at this time?

On my list there is the distinguished delegate of Korea and after the distinguished delegate of Iran and after the distinguished delegate of Japan.

So the distinguished delegate of Korea, you have the floor.

Mr. Y. LEE (Republic of Korea): Thank you Mr. Chairman. Good morning distinguished delegates and colleagues.

Mr. Chairman, my delegation believes that the space technology based on information communication technology, ICT, would be able to assist as most active tools, the sustainable development on the global level. This technology in essence, with limitlessness of human dreams can help keep our environment, resources, population, operations, education, industry, forests, oceans, Arctic and Antarctic areas sustainable and on optimum development and conservation levels, even supporting vulnerable people such as women and children. My country would like willingly to join the global forces for sustainable development with her merit of ICT plus space technology, as combined that may be called ICST.

Mr. Chairman, my delegation supports with appreciation the Work Plan suggested by Japan for this goal and we expect next session of the Scientific and Technical Subcommittee to deal with more detailed ones in order to contribute for Post-2015 Development Agenda. In this regard, the Secretariat is kindly requested to strengthen more than ever its bridging laws between the COPUOS and the whole United Nations system in a course of work for establishing new global sustainable development goals through United Nations space and other coordinating means.

My delegation is of the view is what we can is to share with our experiences on how we can take advantage of space technology to achieve social and economic sustainable development.

In line with these efforts, the Republic of Korea, through Korea Aerospace Research Institute, its acronym is KARI, has been implementing an International Space Training Programme for two weeks annually since 2010. KARI is holding its fifth Training Programme later in June 2014, now, with 21 participants from 15 countries. This Programme offered courses in satellite systems, such as system engineering, spacecraft subsystems and payloads, satellite assembly and integration, satellite operation, remote sensing and application, and space communication, as well as in space policy and space science, including hands-on training on ground system operations, and in particular, observation of the Naro Space Centre, the Korea Advanced Institute of Science and Technology Centre, other research institutions and industries in Korea. Moreover, Mr. Chairman, KARl officially joined International Space Education Board, ISEB. in 2012. Through this Board, KARl becomes able to make contribution to international efforts to foster the younger generation's inspiration and to share information. In this connection, in 2013, 10 Korean students majoring in aerospace-related technology actively participated in the Sixty-Third International Astronautical Congress in Beijing with KARI's support.

Mr. Chairman, in conclusion, the Republic of Korea will keep expanding its efforts to share our experience with the international community and in particular with developing countries sharing thus far developed our wisdom of sustainable development.

Thank you Mr. Chairman for your kind attention.

The CHAIRMAN: I thank the distinguished delegate of Korea for his statement.

I now give the floor to the distinguished delegate of Iran.

Mr. H. FAZELI (Islamic Republic of Iran): In the Name of God, the Compassionate, the Merciful. Mr. Chairman, thank you for giving me the floor to share my delegation's view on this important subject.

I take this opportunity to congratulate Dr. Martinez and his Working Group for their efforts on the issue of long-term sustainability in outer space.

Mr. Chairman, distinguished delegates, the Islamic Republic of Iran assumes that one of the most important issues before this Committee would be the contributions of space technology to sustainable development in the years ahead. It is highly crucial nowadays to make an appropriate linkage between the

human needs and space technology based on a sustainable approach which would keep our planet as well as outer space safe, clean and prosper for us and future generations.

As we all appreciate, with the development of space activities, the pollution of the outer space environment is increasingly growing. The protection of the space environment, rational exploitation and utilization of space resources and sustainable development in the peaceful use of outer space has become a serious concern nowadays. In this regard, the Islamic Republic of Iran would like to draw your attention to the issues which had been raised in the fifty-first Scientific and Technical Subcommittee by my delegation, such as natural space thresholds and limitations in terms of space carrying capacity studies which refers to the determining the acceptable limits of manipulation of the outer space environment to prevent irreversible changes in the space environment and also establishment of international space debris found in order to support the peaceful activities that remove or mitigate current and future debris or rid us(?) their impacts.

Mr. Chairman, indeed the space environment is a basic need for the sustainable development of human space activities. Protecting this environment has become a common responsibility of all the space-faring nations and requires full cooperation from all Parties. As a responsible space-faring country, Iran stands ready to continue exploring and promoting ways and means of sustainable development in the peaceful uses of outer space and also warmly welcomes the exchange of information among States and transferring of space science and technology.

Mr. Chairman, distinguished delegates, to conclude, I would like to, once again, appreciate the progress which has been made up to date on this important issue and look forward to further progress and noticeable conclusions of relevant Working Groups, deliberations and consensus on a set of guidelines which will help to pave the way towards a future in which all nations can continue to utilize space in a peaceful and sustainable manner to improve lives and help us to address the challenges we are facing here on the Earth.

Thank you Mr. Chairman.

The CHAIRMAN: I thank the distinguished delegate of Iran for his statement.

I now give the floor to the distinguished delegate of Japan.

Mr. H. KISHINDO (Japan): Thank you Mr. Chairman for giving me the floor. The statement by the delegation of Romania is consistent with the overall objective of the Japanese proposal. Therefore, we support this statement.

Finally, I appreciate the Korean delegation for supporting our proposal.

Thank you Mr. Chairman.

The CHAIRMAN: I thank the distinguished delegate of Japan for his statement.

Distinguished delegates, we have concluded our consideration of agenda item 9, Space and Sustainable Development.

Space and water (agenda item 11)

I would now like to begin our consideration of agenda item 11, Space and Water.

The first speaker on my list is the distinguished delegate of India, Mr. Dadhwal.

Mr. V. K. DADHWAL (India): Thank you Mr. Chairman. The availability of water resource is highly dynamic in space and time. The demand of water is increasing with the growing population and thereby, reducing the per capita availability. For example, in India, the per capita water availability declined from l,8l6 cubic metres in 2001 to 1,545 cubic metres in 2011 and, by 2025, per capita water availability is expected to further decline to 1,341 cubic metres. With the seasonal variation in the surface water availability, particularly for agriculture, there is an increasing reliance on the ground water which leads to a fall in the ground water level. The recent studies have indicated that the Himalayan glaciers and snow cover are likely to contract which would reduce the snowmelt-runoff and availability of water. Therefore, concrete efforts are necessary towards sustainable management of available water sources, efficient harvesting of rain water, improving the irrigation use efficiency, restoration of reservoir storage capacity, to name a few.

Space technology plays a rapidly increasing role in the field of hydrology and water resources management and enables varied applications, like the estimation of water balance components at the regional scale, snow and glacier studies, rainfall measurements, planning and management of reservoirs and irrigation projects and near real-time damage assessment of

hydro-meteorological disasters like floods, glacier lake outbursts as well as slow phenomenon like drought.

The Indian delegation would like to brief the Committee on major applications of space technology towards sustainable management of water resources in India.

Mr. Chairman, web portals are now an integral part of the modern day's information systems and offer a single point access to a wide range of information, applications and services in an integrated environment. With the objectives to provide easier and faster access to national water resources data, along with allied natural resources information and to support informed decision-making, a national-level geo-portal on water resources, India-WRIS which means India Water Resources Information System, has been developed for the Ministry of Water Resources. The portal contains 12 major information systems, 35 sub-information systems and 95 spatial layers along with large attribute data.

Satellite data is being used operationally for snow cover monitoring, inventory of glacial lakes and water bodies in the Himalayan regions, glacier advance or retreat monitoring and glacier mass balance studies. Seasonal and short-term forecast of snowmelt run-off for five Himalayan river basins is being carried out during the pre-monsoon period to aid effective utilization of water in the downstream.

The occurrence and movement of groundwater is controlled by hydrological, geological and geo-morphological factors. Using satellite data, techniques for the assessment of ground water potential zones have been developed to address the drinking water problems especially in the arid and semi-arid regions of the country. The hydro-geo-morphological maps of ground water prospects have been found to be immensely useful in locating sites for drilling wells as well as creating recharge structures.

Satellite data has been used to prepare detailed wetland inventory of the nation at 1:50,000 scale. Using multi-data observations over major reservoirs, capacity depletion due to sediment inflow has been characterized. High resolution data of the CARTOSAT satellite has been used extensively for mapping and monitoring of the irrigation infrastructure in the country to assess the existing irrigation potential for more than 100 projects. The results have significantly helped the Ministry of Water Resources in effective monitoring and realizing irrigation potential of the project. The project has now been internalized at Ministry of Water Resources and the project activities are being carried out through ISRO's Geoportal BHUVAN.

Mr. Chairman, in the area of hydro-meteorological disasters, near real-time flood inundation mapping and development of rainfall run-off and flood forecast models are the priorities. With space-derived high-resolution Distiller(?) Elevation Model, spatial simulation of the flood extent has also been initiated. More than 500 high altitude glacial lakes that have potential for lake outburst are also regularly monitored through space observations.

The Indian Remote Sensing Satellite, RESOURCESAT-2, is the backbone satellite in the domain of land and water resources. With its three-tier imaging system, it provides multi-spectral data in medium- to high-resolution to help in water resources inventories at multiple scales. In addition, many other remote sensing satellites provide inputs to the study of water, including the Megha-Tropiques for the study of the water and energy cycle, microwave satellite RISAT-1 for mapping of flood inundation, and SARAL to detect water level variation in large inland water bodies. The INSAT-3D satellite with a 19-channel sounder and six-band imager, launched in July 2013, has added a new dimension to weather monitoring and provides vertical profiles of temperature, humidity and integrated ozone.

Mr. Chairman, cleaning the waterfront and providing a much needed facelift to the surrounding areas of the major river systems is one of the major aspects of water resource development. In order to enhance the livelihood of the people who depend on the river and also to boost tourism, India is embarking on the Ganga Action Plan. The River Ganga is the major source of the Himalayan origin and entwined with the humanity from ancient times. The Plan include interception and diversion of raw sewage flowing into the rivers, setting up of sewage treatment plants and diverting the sewage, creating low cost sanitation facilities, and river front development. In this regard, space and geospatial technology would be of much use for judicious and optimal implementation of restorative measures.

Mr. Chairman, India is an active partner in international space cooperation in various thematic areas. The Global Precipitation Measurements Mission, comprising a constellation of satellites, has been designed to serve the world community with multiple satellites based unified global precipitation measurements for research and applications. India is cooperating with GPM by sharing its data products

from the Megha-Tropiques and will also get access to data products from GPM.

In conclusion, technologies developed for addressing various aspects of water resources management, using satellite data, ground observation and models have immensely contributed in decision making processes, thus contributing to the sustainable management of water resources. The Indian delegation would like to reiterate its willingness to share its experience in this important area.

Thank you Mr. Chairman.

The CHAIRMAN: I thank the distinguished delegate of India, Mr. Dadhwal, for his statement.

The next speaker on my list is the distinguished delegate of Japan, Mrs. Chihiro Kato (Ms. Matsami Mitsui?).

Ms. C. KATO (Ms. MATSAMI MITSUI?) (Japan): Mr. Chairman, distinguished delegates, on behalf of the Japanese delegation, I am pleased to present Japan's experiences and future plans for space-based water cycle observations.

Currently, Japan operates two Japanese geostationary meteorological satellites, "MTSAT-1 R and MTSAT-2, also called the Himawari-6 and Himawari-7 respectively. These satellites are important components of the world-wide geostationary meteorological satellite network and reinforce the Japanese meteorological observation system. Japan has contributed to meteorological observations over the Asia-Pacific region as well as over Japan through more than 35 years of observation by the Himawari series.

Observation data obtained by Himawari is also being utilized efficiently as the basis for research on climate change including changes in water cycles. Japan plans to launch Himawari-8 in 2014 and begin its operation in the middle of 2015. To ensure the robustness of the satellite observation system, the launch of a second follow-on satellite, Himawari-9, into on-orbit standby is scheduled for 2016.

Just recently, research has found that on a global scale, water cycle changes are directly affecting precipitation and water resource management on a regional and national scale. Understanding the global water cycle is, therefore, vital for ensuring and improving the quality of our daily lives. Water cycle observations need to be made globally and frequently due to its short-term variability. Satellite observations provide the single most effective means of making global water cycle observations in this way. For these reasons, Japan promotes water cycle observations through satellites with a focus on precipitation.

Mr. Chairman, let me touch on the importance of international cooperation on joint projects such as TRMM, Aqua and the newly arrived on-orbit GPM.

NASA and JAXA are working together to observe global water cycles. Data acquired by the Tropical Rainfall Measuring Mission, TRMM, which carries the Japanese sensor of Precipitation Radar, PR, and by Aqua, also with the Japanese sensor of Advanced Microwave Scanning Radiometer for EOS. AMSR-E, contribute to the analysis of rainfall and global water cycle mechanisms and the accuracy of weather forecasts. The data of AMSR-E also contributes to the ongoing observation of Arctic sea-ice, which has been quickly declining in recent years.

In addition, NASA and JAXA initiated the Global Precipitation Measurement, GPM, mission. The GPM core satellite will carries the Dual-frequency Precipitation Radar, DPR, developed by JAXA and the National Institute of Information and Communications Technology, NICT, and the GPM Microwave Imager, GMI, provided by NASA. The satellite was successfully launched on 28 February of this year. Through improved measurements of global precipitation, the GPM mission will help to advance our understanding of Earth's water and energy cycles, improving forecasting of extreme events that cause natural hazards and disasters and extend current capabilities in using accurate and timely information of precipitation to directly benefit society. Although, the satellites and instruments are still in the commissioning phase, the first images arrived in the beginning of last March. After calibration and validation activities, NASA and JAXA will release their observation data to the public. We expect the data will contribute to science and increase societal benefits.

Observation data is being used not only for research, but also for weather forecasting by meteorological and disaster management agencies worldwide.

GSMaR, which combines observation data, including those from a weather satellite, microwave imager and precipitation radar, provides hourly precipitation information with a four-hour time delay after observation. It benefits water resource management and contributes to a reduction of water disasters. For example, GSMap was provided for the review and update of the Nigeria National Water Resources Master Plan.

Japan also leads the Asian Water Cycle Initiative, AWCI, a GEO initiative developing an information system of systems for promoting the implementation of Integrated Water Resources Management, IWRM. through data integration and sharing as a basis for appropriate decision-making of national water policies in 20 Asian countries.

The first GEOSS Joint Asia-Africa Water Cycle Symposium organized by the University of Tokyo and GEO was held in Japan last November. This Symposium built the commonalities of approach by both the AWCI and the Africa Water Cycle Coordination, AfWCCI, towards addressing integrated water resource management in the context of climate change.

Japan is very honoured to be able to contribute to the improvement of climate research and Earth observation activities and will continue contributing to such efforts.

Thank you for your kind attention.

The CHAIRMAN: I thank the distinguished delegate of Japan, Mrs. Matsami Mitsui, for her statement.

The next speaker on my list is the distinguished delegate of Egypt, Mr. Alaaeldin El Nahry.

Mr. A.H.M. EL NAHRY (Egypt) *(interpretation from Arabic)*: In the Name of God, the Merciful, the Compassionate.

Mr. Chairman, Excellencies, space technology has significantly impacted the economic development on our Earth over the past decades, and it will increase to be so during this century. Attempts to explore water on Mars by using a radar loaded on satellites, orbiting on Mars, was very important. A million years ago, tremendous floods occurred on Mars, evidenced by the existing of dry valleys that resembles greatly to the dry valleys in our deserts. However, due to climate change on Mars, there was a severe drop in the temperature of Mars and the atmosphere of Mars had become very thin and dry.

Ladies and gentlemen, experts of NASA and scientists believe that water on Mars exists in the form of ice buried under several metres of sand. Its location varies according to the dust storms on Mars that resembles the Earth sandstorms such as the Hammasin(?) dust storms in March in Egypt. Radars loaded on satellites were the means to discover water on Mars in addition to descending magnetic coils from a spacecraft on Mars to measure the magnetic power of Mars, as well as descending electro-magnetic sounders to measure the electric field of Mars' soil and to understand the composition of the soil where ground water exists and measure the quantity of those waters and whether they were static or dynamic.

From these observations, we understood that there are dry valleys on Mars and beneath them there are quantities of water.

Space geologists tried to uncover water and explore water in deserts by utilization radars loaded on satellites orbiting our planet in limited orbit. This advanced and new technologies were used in the discovery of ground water in Arab deserts where ground water existed for millennia. A million years ago, this region witnessed consequent periods of rain and drought. Heavy rain used to fall in Sub-Saharan Africa and then the water created valleys. The fall of the heavier rain dissolved the sandstorms in Nova(?) which created sediments and this region, which was beaming with flora and fauna, where human beings used to live in hunting, the lakes and the marshes dried out and the sediments started to be carried by the wind and thus sand dunes were formed.

This is why the modern theory that sand dunes originated from sandstone erosion by rain before they were moved by sand and before the end of the last heavy rain season. This is why there is always an old valley near the sand dunes. This theory has been validated in the southern-western part of our deserts and the oasis zone where we discovered old rivers that are buried under the sand and they were only discovered thanks to the radars loaded on satellites. This is why they are called Radar Rivers. Old rivers were also discovered in the Kochra(?) in Libya by using radars and, thanks to this technology, we managed to delineate the older Nile Delta where the new Delta was part of the Mediterranean a million of years ago.

The African Sub-Sahara was not the only desert where old rivers were discovered thanks to the radars loaded on satellites. In the deserts of the Arabian Peninsula, old rivers and old valleys were discovered, especially in Saudi Arabia and the Sultanate of Oman.

Many Arab States that are inflicted by water-posity(?) started to benefit from this advanced space technology by using radars loaded on satellites in conjunction with magnetic coils and electro-magnetic sounders to uncover their underground waters, measure their quantities and measure the average of the lake through the stones and the rocks. They started great

development projects, such as the Great River in Libya and the Toshka Project in Egypt.

Arab countries were among the first users of this developed and advanced space technology. Desirous of using space technology in the study of water resources, we launched MOSSAT(?)-2 in order to study the Nile Basin. The Nile, as you know, is the lifeline of Egypt, and, as you know, for Millennia and has have been described by Greek historians, the Nile has always the lifeline of Egypt. The cross-section of the High(?) Dam will be disastrous as follows.

During the period of filling the Dam, the results will be disastrous. This will lead to a deficit of 19 billion cubic metres, namely 34 per cent of Egypt's share of water and an average deficit of 11 billion cubic metres. The period will be stretched over six years and this will lead to a drop in the production of hydro-electric power. If the filling period would be left on six years, the disaster will be sure to happen.

In case the filling period will be an average one, the lake of the High Dam will be depleted and the level of water will reach 159 and that will lead to a catastrophe if that period was followed by a drought.

Those afore-mentioned consequences will lead to disastrous environmental and societal results. Every deficit of four billion cubic metres of water will damage one million Verdan(?), at this place at two million families and lead to a severe drop in the Nile tourism and also to many other severe problems.

Fourthly, the construction of the Dam will increase the vaporization of water, contrary to what was believed that the Dam will decrease the vaporization. If we suppose that we were to go through the filling period, with the least losses, and this is very unlikely, then starting the operation of the Dam will present different challenges, for operating the Dam is on the principle of capitalizing the level of hydro-electrical power. Water will be stored in order to raise the level of water and generate electricity and that will lead to a decrease in the level of water.

Finally, and in conclusion, we would like to reiterate that we are keen and desirous on preserving the interests of the benefits and interest of our brotherly nation. However, this should not impair and hamper our development projects and we believe that the filling period should not be disastrous to Egypt. We do not want to create damage and we do not want to bear damage as well.

Thank you.

The CHAIRMAN: I thank the distinguished delegate of Egypt, Mr. Alaaeldin El Nahry, for his statement.

The next speaker on my list is the distinguished delegate of the United States, Mrs. Margaret Kieffer.

Ms. M. KIEFFER (United States of America): Mr. Chairman, the United States delegation is pleased to provide a statement on current United States activities related to the use of space-derived data to improve water management. Water is essential for life and the United Nations estimates that by 2030, close to one-half the world's population will be living in areas of high water stress. Quality water data and information is critical to addressing these water-related challenges.

The United States is leveraging our investment in space-based assets to help address these problems by supporting a free and open exchange of Earth science and satellite data to assess international water management issues, such as floods, droughts, water for food, and transboundary issues. This United States data policy is especially valuable for countries with limited *in situ* and observational data needed to support improved decision-making to ensure the long-term viability of water resources and to enable the integrated management of water resources at the local, national and global scales.

Space-based observations of precipitation, soil moisture, snow pack, water levels, agriculture and land cover, and ground water can benefit society through the widest practical use. Such observations provide a huge volume of valuable data in both near real-time and, in some cases, data extending back nearly 50 years about the condition of Earth's land and freshwater systems. The Earth Observing System is a series of coordinated satellites that help us better understand and monitor Earth system change, climate change and the water cycle. A few examples of United States satellite-based systems that help improve water management are as follows.

Data and products from the Moderate Resolution Imaging Spectroradiometer sensors on NASA's Terra and Aqua satellites are widely used throughout the world to provide more effective planning and efficient use of water and land resources.

The Gravity Recovery and Climate Experiment is alerting water managers to critical ground water depletions from agriculture and droughts throughout the world.

The recently launched Global Precipitation Measurement Mission Core Observatory, a joint programme with the Japanese, will significantly extend and improve the current Tropical Rainfall Measuring Mission data set, while enhancing our ability to assess precipitation over remote areas.

LANDSAT satellites provide moderate resolution measurements of the Earth's surface to foster understanding of climate, carbon cycle, ecosystems, water cycle and land use. A key aspect of the LANDSAT-8 mission is the improvement of a thermal infrared sensor that enhances the capability to estimate water loss from the surface to the atmosphere by evapotranspiration.

The Famine Early Warning System Network is moving beyond emergency response to support long-term disaster reduction and climate change adaptations for many developing countries, especially in Africa, through the use of satellites and hydrologic modelling.

NASA researchers on the Nile Basin Initiative have been actively working with countries in the Eastern Nile region to use near real-time satellite driven estimates to improve water resources management and help address critical transboundary water issues.

And, the United States is expanding the highly successful SERVIR Programme throughout Africa, Asia and Latin America. The SERVIR teams have developed an innovative, satellite-based solution for timely water hazard mapping, early warning and post-disaster assessment.

Mr. Chairman, the topic of "Space and Water" is always timely and one we should continue to highlight. This is great potential for expanding applications of space-based observations to address water-related issues here on Earth. The challenge for member States, and one the United States is actively pursuing, is to ensure that the wealth of valuable water-related information from space-based assets is readily available, converted into practical information, and usable by decision- and policy-makers around the world.

Thank you, Mr. Chairman.

The CHAIRMAN: I thank the distinguished delegate of the United States, Mrs. Margaret Kieffer, for her statement.

I give the floor to the distinguished delegate of Syria, Mr. Osama Ammar.

Mr. O. AMMAR (Syrian Arab Republic) *(interpretation from Arabic)*: Thank you Mr. Chairman. As is well-known, my country is located in an arid or semi-arid region of the world and the main challenge that we face when it comes to water resource management is the rarity of water resources. Over the past few years, owing to human activities and economic activities, in particular, we have seen deterioration of the quality of our water owing to contamination of our water resources. And so, in view of all of this, it is particularly important for us to be able to use space data in terms of managing water resources.

My Government, together with our National Agency for Remote Sensing, has carried out many different studies and research projects and the aim has been to increase water availability and to optimize resources, and I refer to surface water and subterranean water, ground water, and also non-traditional sources of water, and also the use of ways and means to preserve our resources.

The studies that we have carried out have been nation-wide in their scope. We have looked at identifying sites for the construction of water preservation installations. Our aim has to draw the best possible benefit from precipitation waters, rainwater. We have carried out studies in to the seismological, geological and other properties of these sites in question.

We have also carried out work to increase the availability of drinking water to our population and we have done that by drilling deep wells, at the same time ensuring preservation of ground water. We have also sought to collect drainage water, water run-off, that would otherwise drain into the coastal waters. So we sought to optimize our water resources. We have sought to reduce evaporation and we have also sought to reduce run-off into the sea, so to collect this water and to make the best use of it.

We have also carried out studies into the different types of water pollution that affect our water resources. This pollution affects both surface water and ground water. We have used space data and space cartography for this purpose and my delegation will be presenting a technical presentation under item 11 where we will cover some of these studies and experiments that we have carried out.

Thank you.

The CHAIRMAN: I thank the distinguished delegate of Syria, Mr. Osama Ammar, for his statement.

We will continue our consideration of agenda item 11, Space and Water, this afternoon.

Space and climate change (agenda item 12)

Distinguished delegates, I would now like to begin our consideration of agenda item 12, Space and Climate Change.

The first speaker on my list is the distinguished delegate of Japan, Mrs. Masami Mitsui.

Ms. M. MITSUI (Japan): Mr. Chairman, distinguished delegates, on behalf of the Japanese delegation, I am pleased to share our activities on the current agenda item.

Climate change is an urgent issue, affecting developed countries and more particular developing countries. Japan has played a leading role in the establishment of the Global Earth Observation System of Systems, GEOSS, which addresses global climate change and other global environmental issues using Earth observation satellites. During the Japanese fiscal year 2015, JAXA will assume the Chair of the Committee on Earth Observation Satellites, CEOS, succeeding the European Organization for the Exploitation of Meteorological Satellites, EUMETSAT. JAXA will continue to be an active member of CEOS by monitoring greenhouse gases, forest carbon and water cycles.

JAXA also uses Earth observation satellites to monitor rice crop in the South-East Asian region. This activity will contribute to the GEO Global Agricultural Geo-Monitoring Initiative, so-called GEO-GLAM.

Greenhouse gases monitoring from space, to prevent global warming and reduce greenhouse gases emissions, was agreed to by the Kyoto Protocol. Before the Greenhouse Gases Observing Satellite, GOSAT, or IBUKI, we did not have the means to measure the concentration distribution of greenhouse gases globally and accurately and there were only about 300 ground observing points in the world. In January 2009, IBUKI, along with the joint mission of Ministry of Environment, MOE, the National Institute for Environmental Studies, NIES, and JAXA was launched. IBUKI can accurately observe the concentration distribution of global greenhouse gases in the atmosphere by taking measurements in thousands of spots of almost the entire surface of the Earth with high-precision sensors.

Japan also produces and distributes data of $C0_2$ and CH_4 concentration in cooperation with the Jet Propulsion Laboratory of the United States.

Japan continues its efforts to monitor global greenhouse gases in the long term. In direct response, NIES, MOE and JAXA have started the development of the follow-on mission, GOSAT-2. GOSAT-2 will observe CO and Short-Lived Climate Pollutants, SLCP, such as black carbon in addition to $C0_2$ and CH_4 with higher precision to determine changes in the concentration of these greenhouse gases and will contribute to climate change prediction and climate policies.

With regard to forest and carbon tracking, JAXA launched in the last month the newest Earth observation satellite, the Advanced Land Observing Satellite-2, with a state-of-the-art phased array type L-Band synthetic aperture radar. ALOS-2 is the successor of ALOS, which contributed to forest and carbon tracking activities such as REDD+. ALOS-2 will continuously the various observations conducted by ALOS. In cooperation with national agencies, JAXA will continue to demonstrate the effectiveness of satellite applications in disaster management, including their ability to give disaster management organizations immediate information in the aftermath of natural disasters.

Mr. Chairman, in addition to ongoing space applications, Japan is now exploring new applications in the fields of agriculture, food security and water resources. Space Applications For Environment, SAFE, established through the activities of APRSAF, is an initiative that aims to encourage environmental monitoring for climate change mitigation and adaptation studies using space applications. The drought index developed by the SAFE prototype in Indonesia was utilized to estimate the impact of drought on rice production by agricultural institutes under the Ministry of Agriculture. Japan also contributes to the Asian Water Cycle Initiative, AWCI.

The first GEOSS Joint Asia-Africa Water Cycle Symposium, organized by the University of Tokyo and GEO, was held in Japan last November. This Symposium built the commonalities of approach by both the AWCI and the Africa Water Cycle Coordination, AWCCI, towards addressing integrated water resource management in the context of climate change.

Mr. Chairman, Japan supports the continuation of this agenda item to share our after activities and solutions on this important topic. We believe that COPUOS can make significant contributions in helping solve climate change issues globally.

Thank you for your attention.

The CHAIRMAN: I thank the distinguished delegate of Japan, Mrs. Masami Mitsui, for her statement.

The next speaker on my list is the distinguished delegate of Mexico, Mr. Balán Guttiérrez Herrera.

Mr. B. GUTTIÉRREZ HERRERA (Mexico) *(interpretation from Spanish)*: Mr. Chairman, distinguished delegates from member States, recognizing the benefits of the remote observation of the Earth in such areas as food security, resource management, environmental protection, mitigation and adaptation to climate change, and the prevention and mitigation of disasters, Mexico favours coordination of international efforts in the search for technological solutions that will be up to the new challenges of the twenty-first century. The delegation of Mexico is thankful for the opportunity to address this Committee under this agenda item.

On this occasion, we would like to highlight the actions that have been carried out by the Federal Government in applying control and monitoring measures with regard to climate change.

We are aware of the fact that climate change is one of the major problems of our time. It negatively affects all regions of the world. The Government of Mexico decreed in 2012 a law on climate change, one of the first such laws in the international arena which officially proclaims Mexico's commitment to ensuring the right to a healthy environment, regulate greenhouse gas emissions, promote mitigation of climate change effects.

In the same line of thought, in June 2013, we proclaimed the National Strategy on Climate Change consisting of the following eight pillars, reduce our vulnerability to climate change, reduce vulnerability of productive systems, promote the capability to adapt among eco-systems in view of climate change, accelerate clean energy production, reduce the amount of energy consumption, move cities to sustainable models, promote best practices in agriculture and forestry, reduce emissions of short-lived contaminants.

Furthermore, Mexico had the honour to host the Second World Summit of Legislators, from 6-8 June 2013, attended by more than 400 legislators from around the world who work on common programmes to benefit the environment. It considered such issues as legislation on climate change, natural resources and forest management and could contribute to such measures nationally and internationally.

Satellite observation and space-based data are indispensable to working to mitigate and prevent climate change effects on the economy. However, it is important to have additional information regarding the impact on all of humankind on the planet.

Mexico has currently been developing a National Atlas of Risks providing all information regarding natural disasters, possibly provoked by climate change. It could be an important platform and tool to assist decision-making in this field.

Mexico favours the intensive study of the causes and effects of climate change through the use of space-based system, as well as constant monitoring of natural resources through remote sensing. Environmental issues do not recognize borders. What happens at one end of the planet, undoubtedly has repercussions at the other end. Therefore, cooperation in this regard would grant us a better understanding of the impact of human activity on our planet. Weather forecasts has always been important to humankind but this time it is critical to know how climate phenomena evolve and have precise and robust data.

Our country believes that unrestricted access to trustworthy data obtained from remote sensing satellites in space provides a necessary element for global action to reduce the impact of climate change and allow humankind to adapt. Mexico supports all types of international cooperation that would benefit this cause, such as the Kyoto Protocol, and activities that I have mentioned before where there are deeply committed to continuing work in this regard.

Mr. Chairman, distinguished delegates, thank you very much for your kind attention.

The CHAIRMAN: I thank the distinguished delegate of Mexico, Mr. Balán Guttiérrez Herrera, for his statement.

We will continue our consideration of agenda item 12, Space and Climate Change, this afternoon.

Technical presentations

Distinguished delegates, I would now like to proceed with the technical presentations. Presenters are kindly reminded that technical presentations should be limited to 15 minutes in length.

We have one presentation scheduled for this morning. It is a presentation by Mr. Alvin Drew of the United States entitled "The Future of Human Space Flight: Celebrating Apollo and Looking to Mars".

Mr. A. DREW (United States of America): Thank you Mr. Chairman … *(no microphone)* … Thank you Mr. Chairman. I will first share some introductory remarks from our astronauts onboard the International Space Station.

Message

"Today, we would like to salute the Apollo XI crew. Forty-five years ago, astronauts Neil Armstrong, Buzz Aldrin and Michael Collins embarked on humanity's boldest journey, the first human mission to land on the Moon and return safely to Earth. Apollo XI not only achieved its mission. It will forever raise the bar of human potential. The mission showed the best of what humankind can accomplish when it works together as one.

Here on the International Space Station, we are learning how to live and we are together in space for longer periods of time as we prepare for the giant leap to explore an asteroid and to visit Mars. Like the Space Station itself, these inspiring missions will require the expertise and collaboration of many nations.

In the spirit of exploration that made Apollo XI a success, we salute the United Nations Committee on the Peaceful Uses of Outer Space and its rich history of promoting international cooperation in space for the benefit of people on Earth."

End of message

Thank you to the International Space Station crew members for taking time out of their busy day to offer that inspiring message. Thank you to the Committee on the Peaceful Uses of Outer Space for having me. It is an honour to be here with this distinguished international community who is dedicated to the exploration and has proven to be an effective catalyst for international cooperation in space.

As we recognize the forty-fifth anniversary of the first lunar landing, we are reaffirming that as a global community we are committed to the peaceful exploration of outer space, the advancement of scientific discovery and protection of the most important planet in our solar system, planet Earth.

While we are proud of United States leadership in space, we are also mindful that the scientific and human space flight achievements of the past half century would not have been possible without international cooperation.

Right now, 400 kilometres above us is a six-person crew of astronauts and cosmonauts from America, Russia and Germany are demonstrating the true meaning of international cooperation and we have been doing that not only for the more than 13 years that the International Space Station has had a continuous human presence, but even before as we plan and built and envisioned a brighter future for humanity.

International cooperation is an intrinsic part of NASA's activities and we built strong collaborations with other nations to explore space throughout history. NASA currently has over 600 acts of international agreements for collaboration with over 120 countries in every mission area, from aeronautics research and scientific investigations to human and robotic exploration.

This year, NASA is launching five Earth science missions. The first, the Global Precipitation Measurement Core Observatory, was launched in February as a joint mission developed by NASA and the Japan Aerospace Exploration Agency. The second one, the Orbiting Carbon Observatory-2, is targeted for a 1 July launch. We have also signed an Agreement with the French Space Agency, CNES, for the Surface Water Ocean Topography Mission. In coming years, the Station will host an Orbital Carbon Observatory to track carbon dioxide in the atmosphere. And Stage Three, a collaboration between NASA and the European Space Agency to observe ozone.

Space science, in general, is fertile ground for collaboration. Together with partners throughout the world, we explore deep space, seeking answers to some of humankind's most fundamental scientific questions. The Curiosity Rover on Mars, for example, includes instruments from five nations and enjoys the involvement of researchers from around the globe, just

as we continue to develop new missions to the Red Planet, in cooperation with our international partners.

The bridge between our current robotic exploration activities and our future goal of bringing humans to Mars and deeper into the solar system is, of course, the International Space Station, an amazing example of how many nations can pursue their unique interests while pursuing a common goal. It enables us to make research breakthroughs not possible here on Earth. As a conversion of science, technology and human innovation, it is helping us learn what it means to be a space-faring people by demonstrating new technologies and making research breakthroughs, again not possible here on Earth.

The lessons we are learning about long-duration space flight and the Space Station, coupled with the capabilities, will prove through our Asteroid Mission, are precisely the tools we will need to reach Mars in the 2030s.

Beyond its technical engineering accomplishments, however, possibly one of the greatest accomplishments of the Space Station is how it has united many nations in common pursuit of something that none of us could have accomplished on our own. Not only are its crews made up of international astronauts, the Station has allowed us to set our sights on something global that improves life for all and opens up the door to a bright future in space.

I had the distinct privilege of being onboard the International Space Station twice. First in 2007 as a member of the Space Shuttle STS-118 crew, and then again in 2011 as a member of the Space Shuttle STS-133 crew. The STS-118 mission marked the first flight of an educator astronaut and delivered the third Starboard Trust segment to the Space Station. And STS-133 was the final flight of the Space Shuttle Discovery. During that mission, we delivered the Italian-built Permanent Multi-Purpose Module, Leonardo, to the Station, working and living with the astronauts from other nations was a thrilling experience that I will never forget.

In addition to the core International Space Station partner nations, dozens of countries have used the Space Station for research and the possibilities continue to grow. To date, literally millions of students have been touched, including participation in activities by more than 60 countries, 25,000 schools, almost three million teachers and over 43 million students.

NASA's path to Mars is a stepping-stone approach, using commercial space capabilities and the International Space Station to get us to the proving ground of deep space. The path involves our continued work in low-Earth orbit around the International Space Station, learning to live and work in space, researching human health issues in space, demonstrating new technologies to travel further and giving our commercial partners the continued successful experience carrying cargo to the Station and the time to develop systems for crew.

We have been making steady progress with the Space Launch System and the Orion spacecraft which will send astronauts further into space than ever before in history, helping to enable some of the big goals that we share with other nations. This includes the mission I mentioned, to capture and redirect an asteroid closer to the Earth so astronauts can visit and sample it. The Asteroid Mission and others will help us mature our technologies in the proving ground of deep space before we build on that for the truly Earth-independent missions that combine all of this integrated work to do something humans have never done before, travel to Mars. Certainly, many nations will be collaborating with us on that path. Right now, for instance, the European Space Agency is providing the service module for the Orion spacecraft that will carry astronauts into deep space again, including our mission to an asteroid in 2025.

Later this year, we will witness the first flight test of the Orion as it simulates a lunar mission re-entry as we get closer to the first launch of a fully integrated space launch system in 2017.

I think that everyone here would agree that the investments by our respective governments in space exploration are critical to our future success. The returns on these investments are real and complex. From new discoveries to technological breakthroughs to jobs and inspiration for future generations.

The Global Exploration Roadmap, the work of NASA and 12 nations, sends a clear signal that the global community is committed to a unified strategy of deep space exploration, including robotic and human missions to destinations that include near-Earth asteroids, Mars and the Moon. This Roadmap builds on our collective successes to date, drives innovation and new technologies and increases collaboration and integration between human and robotic exploration to return great benefit to the global community.

We are committed to the continued peaceful uses of outer space and to exploring space in collaboration with space agencies around the world. There are many opportunities ahead of us for all of us to work together.

Space helps us to join together with a common purpose, to achieve the promise that some of us will travel to space, have been fortunate to see, that of our Earth floating peacefully beneath us, devoid of political borders, but magnificent with its vast oceans and its continents seen only as continuous land masses.

NASA is committed to the International Space Station as a long-term platform to enable utilization of space for global research and development. We are committed to the Global Exploration Roadmap and implementing a unified strategy of deep space exploration with robotic and human missions to destinations that include near-Earth asteroids, the Moon and Mars.

And finally, we are committed to the continued peaceful uses of outer space and unlocking the mysteries of our vast Universe. It is going to be a great journey, achieved by peoples of all nations working together.

Thank you.

The CHAIRMAN: Thank you Mr. Drew for your presentation.

Is there any delegate who has questions for the presenter?

I see none.

Distinguished delegates, I will shortly adjourn this meeting so that the Working Group on the Long-Term Sustainability of Outer Space Activities can hold its second meeting.

Before doing so, I would like to inform delegates of our schedule of work for this afternoon.

We will meet promptly at 3.00 p.m. At that time, we will continue our consideration of agenda item 11, Space and Water, and agenda item 12, Space and Climate Change. We will also begin our consideration of agenda item 13, Use of Space Technology in the United Nations System.

There will be three technical presentations this afternoon by a representative of Canada entitled "Space Security Index 2014", by a representative of Italy entitled "Use of Earth Observation Data for Emergency Management and Situation Awareness", and by a representative of the Russian Federation entitled "The Effect of the Criterion Value of Single Entry Interference on the Efficiency of Use of the Geostationary Satellite Orbit Resource".

Are there any questions to this proposed schedule?

I see none.

Delegates are reminded that the provisional list of participants was distributed yesterday morning through the pigeonholes as Conference Room Paper 2. Delegations are kindly requested to provide the Secretariat with written amendments to the list by close of business today so that the Secretariat can finalize it.

I wish to remind delegations that starting at 6.00 p.m., there will be a reception hosted by the United States in the Coffee Corner outside Board Room D.

I now invite the Chair of the Working Group on Long-Term Sustainability to convene the second meeting of the Working Group.

Following the Working Group, delegations are invited to attend the panel event on "Italy and Space: Prospects, Opportunities and Benefits of Human Space Flight Activities for Sustainable Development on our Planet Earth", which will take place in this Meeting Room. This panel event will be followed by a reception at 2.00 p.m. in the Coffee Corner just outside Board Room D.

This meeting is adjourned until 3.00 p.m. this afternoon.

Thank you.

The meeting adjourned at 12.03 p.m.