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Committee on the Peaceful Uses of Outer Space

Unedited transcript

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Vienna

Chairman: Mr. G. Brachet (France)

The meeting was called to order at 10.13 a.m.

The CHAIRMAN (*interpretation from French*): Good morning distinguished delegates, please be seated. I now declare open the 576th meeting of the Committee on the Peaceful Uses of Outer Space.

This morning we will continue our consideration of agenda item 7, report of the Scientific and Technical Subcommittee at its forty-fourth session, then item 10, space and society, item 11, space and water. Agenda item 12, which we will start our consideration of that item, use of space-derived geospatial data for sustainable development and, time permitting, we will then take item 13, other matters.

At the end of the morning's meeting there will be three technical presentations. Mr. Iván Dario Gómez-Guzmán from Colombia will make a presentation under agenda item 7 on Colombian Space Commission Structure: its main achievements and future plans. Following which, Mr. Radhakrishnan of India will take the floor to make a presentation under agenda item 10, entitled, use of space-based systems for education in India. Finally, Mr. Christián Gómez from Chile, will be speaking on the FIDAE Conference.

As for item 7, report of the Scientific and Technical Subcommittee on its forty-fourth session, we still have to consider the issue of the SPIDER programme and here, I draw your attention to both Conference Room documents distributed in your pigeon-holes, which you no doubt have in hand now, CRP.13 and CRP.14.

CRP.13 is presentation of the proposed 2008-2009 plan of work and CRP.14 is presentation of the UN SPIDER summary report. So that delegations have sufficient time to become acquainted with these documents we will take that in the afternoon session, so I am suggesting that item 7 be deferred to this afternoon to give you sufficient time to read both CRPs.

We can now embark on other items and before I take item 10, space and society, I would briefly, for just a couple of minutes, re-open consideration of item 4, by giving the floor to the distinguished representative of Saudi Arabia, Mr. Mohamed Ahmed Tarabzouni, who wanted to make a statement on behalf of his delegation.

General exchange of views (agenda item 4)

Mr. M. TARABZOUNI (Saudi Arabia) (*interpretation from Arabic*): Mr. Chairman, it pleases me in the name of the delegation of the Kingdom of Saudi Arabia to extend my gratitude to you for granting me this opportunity to address you and to address the distinguished delegates about the space activities of the Kingdom.

Before doing so, I would like to join all those who already expressed their congratulations to you for electing you to chair this session. A session that coincides with the fiftieth anniversary of the launching of the first satellite to outer space and the fortieth anniversary of the signing of the Treaty on Principles. I am certain and confident that your experience and your good management will lead us to achieve our aspirations and to achieve the positive outcomes in this

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session and confirming our cooperation in achieving that. It is also my pleasure to extend my gratitude to Mr. Camacho and all the staff of OOSA for the efforts they made in the process of preparing for this session and wishing Mr. Camacho a pleasant life after his retirement.

Mr. Chairman, the Kingdom of Saudi Arabia and since 35 years, has entrenched its infrastructure to benefit from outer space technologies and applications in different areas, particularly in communications and meteorology, environmental protection, direct broadcast, remote sensing, navigation and search and rescue operations. In this context, it has acceded to and cooperated with global organizations as well as regional organizations and has implemented a number of projects, such as building reception stations and specialized centres in the use of data and information to achieve the objectives of the national plan, the developmental, social and economic objectives of the national plan that aim to secure security and welfare for all citizens and residents in the Kingdom.

The Kingdom has devoted special attention to support international cooperation. This has been represented by the King AbdulAziz City for Science and Technology, represented by the Space Research Institute of the City, signing a number of cooperation agreements with NASA, NOAA, CNES and others. These agreements have covered data reception from satellites for monitoring the Earth, Landsat, SPOT, Radar Set, IRS and IKONOS, with the reception station in Riyadh. This information was put to use in preparing geological maps and topographic maps and in city planning and development, planning of roads and agriculture and prevention of natural disasters, desertification and other purposes.

International cooperation was also embodied in the effective participation of the Kingdom in organizing conferences, seminars and international and regional workshops related to space technology, such as the Saudi/Japanese seminar on remote sensing and the seminar on satellite technology and applications in cooperation with CNES. The Kingdom has also organized the first International Conference on Remote Sensing Systems and Applications for Earth Monitoring in cooperation with the International Society for Photogrammetry and Remote Sensing (ISPRS). The conference was a major success in the form of international participation and in the research papers presented and discussed.

The Kingdom also hosted the regional workshop for western Asia on the use of space technologies for disaster management in cooperation with UNOOSA in the year 2004. It is also worth noting that the year 1985, witnessed the participation of the first Arab Muslim astronaut in the space shuttle Discovery mission as a prelude to launching the Arab communication satellite, ArabSat, and conducting medical experiences in non-gravity zones with the French astronaut. Saudi scientists have also taken part in other scientific experiences. The City has delegated a number of specialists to obtain higher scientific degrees in space sciences and technology abroad. In the field of scientific and applied research, a number of projects and scientific research work has been implemented and cooperation with partners in governmental, private and university sectors.

The year 2000 witnessed the launching of the SaudiSat satellite for information and amateur communications. This was designed by specialists at the Saudi Space Research Institute and this satellite was launched from Baikonur station in Kazakhstan.

The year 2004 also witnessed the launching of SaudiSat 2 for scientific experiments. In the same year, on 17 April, the remote sensing satellite, SaudiSat 3, was also launched and the land station for control and reception of information was launched during the last year, 2006.

The Space Research Institute, represented by the Satellite Technology Centre, prepared a summer programme to spread space technology and a number of distinguished students were hosted from all parts of the Kingdom within the context of this programme. The programme continued for a month and it involved activities to assist the students to discover their capacities and orientations and areas of distinction in different scientific areas related to space sciences and to help them obtain basic skills of _____ (*inaudible*) and scientific research.

Mr. Chairman, the King Abdulaziz City for Science and Technology has undertaken the implementation and preparation of a national plan in the field of long-term science and technology and the Space Research Institute contributes to the preparation of this plan. This plan is embodied in the development of strategies for space technologies and applications, in participation with other relevant bodies, whether in the government sector, the private sector or in universities. The objective is to identify and develop research and space technologies that are needed in the country alongside programmes and projects that would support these strategies.

Mr. Chairman, in light of the report of the Scientific and Technical Subcommittee, it is the

pleasure of my delegation to address the participating parties in the programme of the United Nations for Space Applications, to provide the necessary support for capacity building in developing countries and to attract youth to be interested in space activities and to devote special attention to regional and international cooperation in this field.

On the implementation of the recommendations of the UNISPACE conference we believe that this can be done through effective international cooperation among member States and agencies of the United Nations as well as international and regional organizations in the field.

Mr. Chairman, my delegation is well aware of the danger imposed by the question of space debris on the space and Earth environment and believes in the need to devote sufficient attention to the question of solving this problem and calls on the Scientific and Technical Subcommittee to devote greater attention to explore the possible ways to mitigate this debris and to find the necessary means to do away with the existing debris. The protection of the space environment is of utmost importance if we are to continue using space for peaceful purposes and my delegation agrees to the guidelines for mitigation of space debris.

Mr. Chairman, my delegation also welcomes the resolution of the General Assembly 61/110 as regards the SPIDER system, being one of the OOSA programmes and extend support to convening conferences and extending experts. We hope that there shall be cooperation in the field of disaster management among countries that own satellites for land monitoring and meteorology and those countries that have stations for reception of information from those satellites, prior to, during and after, the disasters take place. The Kingdom of Saudi Arabia shall place its space stations in the service of this international system.

Mr. Chairman, I would like to conclude by saying that the Kingdom of Saudi Arabia supports the efforts to use space science and applications and technologies in the service of sustainable development. We look forward to improving and developing our contributions in the field of space in the benefit of our local, regional and international community. I thank you and thank all the participating delegations for your attention and I hope that God shall guide our actions to success. Thank you.

The CHAIRMAN (*interpretation from French*): Thank you very much Mr. Tarabzouni for having made this presentation on behalf of Saudi Arabia. Thank you for all the information you have shared with us on the space activities of your country. These activities have developed a pace and also thank you for the support for the report of the Scientific and Technical Subcommittee of COPUOS.

I would like to say that we can now go on to agenda item 10, space and society, we already broached this yesterday. I would now like to give the floor to Ms. Takemi Chiku, the representative of Japan.

Space and society (agenda item 10)

Ms. T. CHIKU (Japan): Mr. Chairman, distinguished delegates, on behalf of the Japanese delegation, I am honoured to have the opportunity to address the fiftieth session of the Committee on the Peaceful Uses of Outer Space under the agenda item of space and society. Our delegation would like to express their satisfaction that the Committee continues its consideration under the special theme at this session in view of its importance.

As exemplified by the fact that the Japan-led Action Team on capacity building in the follow-up to the UNISPACE III conference, Japan places importance on the matters relating to capacity building as it pursues space activities. Following the five-year review of the recommendations of UNISPACE III or UNISPACE III+5 review, Japan has contributed to international efforts in various matters to implement the recommendations of the Action Team to enhance capacity building in space-related activities.

The plan of action endorsed by the General Assembly in its resolution 59/2, provides that further action should be taken to achieve a systematic exchange of experiences and information and coordination of capacity building efforts. By addressing space and education as the official theme under the agenda item of space and society, this Committee provides a global framework for such systematic exchange of experiences and information.

Following the agreement of the Working Group of the Whole of the Scientific and Technical Subcommittee, we are pleased to note that the member States of the Committee and of the United Nations system and other organizations having permanent observer status with the Committee, continue to have opportunities to report on their efforts to promote education and opportunities for greater participation of youth in space science and technology. As the question of space education includes social science aspects, we also welcome the agreement reached by the Legal Subcommittee, at this year’s session, to include

capacity building in space law as a single issue, an item for discussion at the next session in 2008 with the aim of promoting cooperation with and assistance to developing countries. Japan has been providing a regional forum for a systematic and a regular exchange of experiences, information and coordination of capacity building efforts by organizing the Asia-Pacific Regional Space Agency Forum, known as APRSAF.

The space education and awareness working group of APRSAF provides a useful forum for exchanging information experiences and opinions regarding education training and capacity building in space activities. This working group also benefited from the participation of UNESCO space education programme and the Office for Outer Space Affairs. Contributions of Japan to the exchange of experiences and information of space education, at the regional level, extends beyond Asia and the Pacific. Through the participation of the Japan Aerospace Exploration Agency, known as JAXA, in the fifth Space Conference of the Americas held in July last year, in Quito, Ecuador, Japan took a step forward in enhancing interregional cooperation in space education.

By receiving a group of science teachers from eight African countries, through Japan International Cooperation Centre, to share its methods and materials to teach space subjects, JAXA also took the initiative to establish channels for exchanging information experiences on space education with teachers of African countries.

Beyond the exchange of information and experiences, Japan also contributes to enhancing space education in developing countries and strengthening their capacity building in space science and technology and the applications through concrete activities and projects. I should like to mention a few examples of such efforts in support of the global initiatives of the entities of the United Nations system.

In the area of basic space science, Japan has been donating 45cm telescopes to developing countries through the Japanese cultural grant aid over a decade. Starting with Sri Lanka in 1996, Paraguay, the Philippines and Chile have received such telescopes. This is in support of the implementation of the tripod concept, promoted by the Office for Outer Space Affairs, to provide research tools that can be functionally maintained by the national socio-economic infrastructure of the receiving nations. Teaching materials that allow basic space science in middle and higher education and application materials for provisional research in basic space science.

In this connection, we are pleased that UN/ESA/NASA workshop on basic space science and the International Heliophysical Year 2007 will be hosted by the National Astronomical Observatory of Japan of the National Institutes of Natural Sciences in Japan, to take place from 18-22 June in Tokyo. The workshop will, among other things, review the achievements of the cooperation between the United Nations and Japan regarding planetariums and astronomical telescope facilities to developing countries.

As for primary and secondary school teachers and students, together with UNESCO, APRSAF space education and awareness working group organized space education workshops in Viet Nam and a space education seminar in Indonesia. The workshop in Viet Nam provided opportunities for students to learn about a wide range of space science and technology and applications and to experience hands-on activities. The seminar in Jakarta, Indonesia, provided opportunities for schoolteachers to increase the understanding of the link between space and our daily lives and also to acquire knowledge and skills in bringing space subjects into the existing classroom activities. Similar workshops and seminars are being planned to be organized in other countries of the region together with UNESCO.

JAXA is also participating in UNESCO space education workshops organized in developing countries and contributes to their follow-up actions. For Colombia and Ecuador, where the UNESCO space camps were organized in November and December 2005 and in May 2007, respectively, JAXA introduced water rocket activities for secondary school students at hands-on training for space science and engineering education purposes. JAXA had first introduced the water rocket activities in APRSAF and more and more countries in Asia and the Pacific are now carrying out water rocket activities for educational purposes.

JAXA is supporting those countries interested in water rocket activities by providing educational materials and other material support. As for an APRSAF-hosted contest for elementary schoolchildren in the region, the working group agreed that its theme should be the same as that of the World Space Week, 50 years in space. The poster selected by the participating countries of APRSAF would be displayed at the next meeting of APRSAF in Bangalore, India, in November this year.

In addition to working together with the entities of the United Nations system, Japan contributes its knowledge, expertise and experience to many other

international initiatives to enhance space education and capacity building in space science and technology and applications. Through the International Space Education Board (ISEB), established in October 2005, JAXA works together with other members namely, NASA, European Space Agency, Canadian Space Agency and the French Space Agency (CNES) to provide more opportunities, mainly for university and graduate students, to participate in space activities. Together with the University Space Engineering Consortium (UNISEC), whose membership consists of 35 university laboratories and more than 300 students in Japan, JAXA organized the International CanSat Workshop in Tokyo in February this year. This workshop was organized as one of the joint projects pursued by ISEB to promote CanSat development and experiments as a means to enhance training opportunities in basic space engineering among young people. In addition to promoting CanSat activities in the countries of ISEB members, JAXA took additional steps to invite members of APRSAF Space Education and Awareness Working Group to participate in this workshop. This enabled Japanese universities, that are active in space engineering, hands-on training to create opportunities to further assist interested developing countries in initiating or strengthening space engineering education training. Many universities and technical colleges in Japan are indeed engaged in hands-on space engineering activities, such as developing satellites and rockets by the students.

Five CubeSats by Tokyo University, Tokyo Institute of Technology and Hokkaido Institute of Technology as well as a small satellite by _____ (*inaudible*) Institute of Technology, to investigate the ecology of whales by six satellites installed or developed by students have been launched into outer space. This type of activity should serve as a model of hands-on training that could be more effective than listening to lectures in classrooms.

In the area of remote sensing and GIS, JAXA continues to provide advanced engineering education opportunities in Asia and the Pacific through the Asian Institute of Technology (AIT). JAXA continues to send its staff to support this course on remote sensing and GIS which has benefited by now hundreds of promising engineers in the region.

Japan also supports efforts to enhance capacity building in Earth observation with the use of space technologies such as GOES by the working group on education, training and capacity building of the Committee on the Earth Observation Satellite (CEOS) and by the Capacity Building Committee of the Group on Earth Observations to carry out the 10-year implementation plan of the Global Earth Observation System of Systems (GEOSS).

Mr. Chairman, education is the key for the development for any individual, any society and any nation. While those pursuing space activities may anonymously agree on the importance of education, the focus of efforts made by each one of us may vary depending on how we interpret education in association with the primary goals that we pursue in space activities. Some may focus on the need to include space subjects in the school curriculum and to increase educational materials that address space-related subjects. Some may focus on the need to secure future professionals in areas relating to space science and technology and their applications. Some others may focus on the capacity building of the nation to improve the overall framework for basic and advanced education, professional training and a comprehensive infrastructure including national policies and strategies.

In this regard, we think that it would be useful for the Committee to address specific issues of space and education at its future sessions, either as a special theme under this agenda item of space and society or through its symposia. As well as the aspects of the work plan to address space and education, consideration could also be given to compiling information, either online or in the form of a brochure, on successful activities and initiatives from member States and international entities in enhancing space education while categorizing those activities and initiatives by their target beneficiaries and main objectives. This could be useful for interested decision-makers and educators to initiate space education activities, particularly in developing countries, if the contacts for those activities could also be made available to provide further information upon request. Thank you very much for your attention.

The CHAIRMAN (*interpretation from French*): Thank you very much Ms. Takemi Chiku for your very interesting presentation on Japanese activities in the field of education. There are ever so many varied activities and I would like to thank you for having shared them with us.

I will now be giving the floor to the United States delegation, Mr. Higgins.

Mr. J. HIGGINS (United States of America): Thank you, Mr. Chairman. The United States would like to address the special theme of space and education at COPUOS. We acknowledge the important role of space education for inspiring students to pursue careers in science, technology, engineering and

mathematics. To increase the number of professionals entering those fields, to strengthen national capabilities in the fields of science and industry and to enhance educational opportunities using satellite-based tele-education and e-learning. The United States civil space programme continues to emphasize the importance of space to education and education to space. One of our top priorities is to expand the science, technology, engineering and mathematics, and here I will use the term "stem", pipeline, in the pre-college grades to increase the stem workforce in the post-secondary grades. Let me highlight several NASA programmes to illustrate the types of projects we have underway.

The NASA Educator Astronaut Programme has brought some of the best teachers in America into NASA's programme and four have been chosen as permanent members of our astronaut core. With the leadership of these educator astronauts we will be able to better utilize the International Space Station for space science experiments created by students and build connections between science at work and science in school. Barbara Morgan, our first educator astronaut to fly in space, will serve as a mission specialist aboard the space shuttle Endeavour this summer. Her mission, STS-118, is an important step in the completion of the International Space Station. She will be part of an international crew that will be conducting scientific experiments, solving engineering challenges and inspiring countless numbers of students as she translates the stem work taking place in space for generations of students on Earth.

The NASA Explorer School Programme selects school teams from grades 4-9 for a three-year partnership with NASA. This partnership aims to promote ongoing professional development for educators and administrators and to create family involvement through electronic and web-based opportunities. The NASA Explorer School Programme targets under-served populations in diverse geographic locations throughout the United States. On 11 May this year, NASA announced 25 new NASA Explorer School teams. There are now over 200 schools associated with the NASA Explorer School Programme. NASA has worked with explorer schools throughout the United States and we are helping our international colleagues expand the model in their own countries.

In December 2004, NASA, the European Space Agency and the Netherlands Ministry of Education, Culture and Science entered into a written understanding to establish the Delta Research Schools Programme in the Netherlands. The Delta Research Schools Programme is patterned after the NASA Explorer School model and selects schools throughout the Netherlands for a three-year partnership. On 6 June this year, the Netherlands announced its third class of 19 Dutch schools. The Science, Engineering, Mathematics and Aerospace Academy (SEMAA) is another exemplary project by NASA. It targets K-12 stem education. The SEMAA project brings together the resources of NASA, institutions of higher education, science centres, museums and primary and secondary schools, to bridge the education gap for historically under-served and under-represented K-12 youth in stem. The goals of the NASA SEMAA project are to inspire a more diverse population of students to pursue careers in the stem fields, to engage students, teachers and parents by incorporating emerging technologies into the programme and provide a challenging curriculum that meets State, math, science and technology standards. SEMAA proactively addresses these goals by delivering a hands-on, minds-on curriculum, a state of the art aerospace education library and an innovative family café. During 2006, SEMAA engaged over 63,000 students, parents and adult family members and teachers in 13 States in the District of Colombia. SEMAA sites also developed a network of 200+ partners that contributed more than $2.7 million in matching funds for operations nationwide representing a 50 per cent match to the base funding provided by NASA.

The United States continues to work with foreign partners in developing global capacity in the science and technology field particularly in the remote sensing area. As you may recall from special presentations in years past, the Globe Programme continues to be an excellent example of the worldwide student/teacher/scientist partnership that has continued to grow and prosper. Globe is an exciting hands-on, school-based, international, environment, science and education programme. Now in its twelfth year, Globe has trained over 32,000 teachers in more than 17,000 schools in 109 countries to use Globe in their classrooms. Students are provided data from over 14 million measurements to the Globe database which is accessible on the worldwide web. Without question, Globe continues to be an excellent example of the interplay between space and education, done on an international scale and tailored to the needs of participating countries.

The International Space Station is playing a role in education and reaching out to international educational communities. We are working to expand the ability of students to use it as a research platform. The United States segment of the International Space Station has payload resources and accommodations that exceed the requirements for planned NASA

missions for space exploration. Under the USS/ISS National Laboratory Concept, NASA is pursuing a strategy for the use of some of these available resources and accommodation to engage, inspire and educate students, teachers and faculty in the areas of stem. Under this concept ISS resources will be managed as a national education centre accessible to teachers, students in kindergarten through post-doctoral studies and university college faculty.

The NASA Education Portal has been recently revised and we have expanded our use of distant learning technologies through the NASA digital learning network and introduction of the NASA student opportunities podcast series. The Digital Learning Network capacity has allowed us to create a direct link from every NASA Explorer School right back to the NASA centres where original science is being conducted and engineering challenges are being solved. Students speak with scientists and engineers to learn first-hand how the science, technology, engineering and math, that they are learning in school, are applied in the field.

The NASA Student Opportunities effort is a weekly audio podcast which is a media file distributed by subscription over the Internet for playback on portable media players and personal computers. It is targeted at students who may be interested in pursuing NASA learning opportunities. To learn more about these educational programmes we encourage delegations to visit the website, www.nasa.gov/education.

For the third year, NASA is sponsoring students at the under-graduate and graduate levels to travel to the annual International Astronautical Congress which will be held this year in Hyderabad, India. NASA chairs the International Space Education Board this year and we are hosting an international education forum and currently with the International Astronautical Congress. Nations from around the globe will gather to share and learn from each other. Exposing our students to the activities of an international scientific congress and allowing them to be active in presenting their own poster sessions will open new doors for these prospective space professionals. Our next generation of researchers and engineers will increasingly need global perspectives and experiences to solve the future challenges we face as space explorers. A likely challenge, using the unique environment of space to inspire students to study science and technology in all nations, is the availability of resources. NASA continues to welcome opportunities for international collaboration where resources can be leveraged, where collaboration supports NASA's education strategic goals and objectives.

Mr. Chairman, I have presented a number of examples of ways in which my country is working hard to inspire the next generation of explorers and to strengthen our national education posture by using content, materials and applications unique to space activities. We look forward to sharing ideas and experiences with the Committee and to learning more about the successes achieved by other member States. Thank you, Mr. Chairman.

The CHAIRMAN (*interpretation from French*): I thank Mr. Higgins for that very interesting statement, NASA activities in the sphere of education. I would put a question, if I may, to Mr. Higgins. On page 2 of that document you used an expression "stem" what is this? What does K-12 stand for?

Mr. HIGGINS (United States of America): Are you referring to acronym "stem" or "K-12"? K-12, kindergarten through the 12th grade.

The CHAIRMAN (*interpretation from French*): Thank you for pointing that out. Thank you for that information and I would next hand over to the distinguished representative of India, Mr. Suresh.

Mr. B. SURESH (India): Mr. Chairman, use of space-based systems for providing quality education and health services is an important topic that needs to be supported in developing countries. Effective implementation of these systems will make it possible for the timely access of _____ (inaudible) services, which are available in urban areas, to the needy populace in rural areas and far-flung regions. It was this, the concept of tele-education and tele-medicine, has yielded good results in India. As there is a lack of proper education and illiteracy in the majority of developing countries, identification of space and education as the primary theme under this agenda item is of high relevance and importance to developing countries. The improvement in education is essential for capacity building in the developing countries to absorb higher technologies required for effective implementation of space application programmes. We are of the view that the UN Programme on Space Applications should place more emphasis on supporting education and training for capacity building in developing countries, in particular, through the regional centres for space science and technology education.

Mr. Chairman, the space programme in India is application-driven. To provide these space-based

services related to education, health care, weather, land and water resources management, mitigation of impact of natural disaster through a single window delivery mechanism, ISRO has introduced a concept of Village Resource Centres. This has made sufficient impact in various regions of the country for the last year and is functioning well. Some of the interesting outcomes of the establishment of Village Resource Centres has been that it has motivated farmers through scientific advisories and expert consultations on natural resources management, enthuse the schoolchildren resulting in reduced number of school dropouts, provided for better educational and health care services, online decision support, weather services, water management and tele-fishery support.

Mr. Chairman, the Indian delegation is of the view that the UN Programme on Space Applications, while addressing matters relating to capacity building in developing countries, should also play an enhanced role in strengthening international cooperation. The requirement and the scope to provide distance education through satellites are enormous in India and ISRO will continue to meet these national challenges in education through its space systems and application programmes. We are happy to note that during this session the Committee will undertake specific actions to develop concrete action plans for enhancing education in space and expanding space tools for importing quality education. Thank you.

The CHAIRMAN (*interpretation from French*): Thank you Mr. Suresh for that statement on behalf of the Indian delegation describing his country's programmes on education. Those of us who will be fortunate to take part in the Hyderabad congress, come September, will benefit from the event to learn more about Village Resource Centres, a very interesting concept indeed, may I say.

Any additional statements please on space and society?

I see no further delegations on my list and no request. We will continue consideration of item 10 this afternoon.

Distinguished delegate of Chile.

Mr. R. GONZÁLEZ-ANINAT (Chile) (*interpretation from Spanish*): I cannot fail to take this opportunity to congratulate our friend, Takemi Chiku from Japan, for the excellent presentation. She is a very skilled staff member of OOSA and I think that that was very important contribution. There are two elements where she particularly noted that Japan is involved in international cooperation but also regional space cooperation for Latin America where she and her country have been most active.

Unlike what happened with other countries of the Americas, she used terms we can entirely go along with, education is a key to that development that we seek and there is a social and societal dimension which she noted so I would like thank her yet again.

What I do want to say is that we do not have a very optimistic view of what occurred in Quito, in terms of the participation of UNESCO. UNESCO was not very active in terms of the preparatory conference in FIDAE in 2006, nor were they of great assistance in the context of the Quito conference. There was no commitment from the side of UNESCO towards the Space Conference of the Americas and we would like to clearly state that.

Finally, we are very much impressed to hear the presentations made by the United States and India. The only comment I have, in respect of the presentation made by the United States, is that in 1985 we signed an agreement, that is USA and Chile, the _____ (*inaudible*) Agreement, which, in article 19 of scientific and technological cooperation, was part of the context and the overall subject and unfortunately, to this day, it has not been implemented. So, over 25 years ago this was entered into, almost now a golden jubilee, I would say, in terms of a marriage it would be.

The CHAIRMAN (*interpretation from French*): Thank you Mr. González for that statement and for the interesting comments made on our colleague's statement from Japan. I see that the representative of UNESCO has now asked to speak. I suppose you are exercising your right of reply after having heard the Ambassador's comments.

Ms. Y. BERENGUER (UNESCO): In due respect to Mr. Raimundo González and his very enlightening comments, I would like to respond to his unfortunate and not real observation concerning UNESCO's participation in the Space Conference of the Americas. As you may recall, Mr. González, UNESCO participated in the preparatory conference of the Fifth Space Conference of the Americas through the participation of Mr. Mario Hernandez. He was part of the Committee that dealt with the finalization of the programme wherein education was explicitly mentioned and, a year later, UNESCO participated in the Fifth Conference of the Americas itself wherein we had initial discussions on the organization of a workshop of which I will be presenting later. Thank you, Mr. Chairman.

The CHAIRMAN (*interpretation from French*): Thank you Madam Berenguer for the additional information you have provided. I am going to hand back to Ambassador González for just a minute, if I may, because we do really have to take agenda item 11 next.

Mr. R. GONZÁLEZ-ANINAT (Chile) (*interpretation from Spanish*): Very briefly, Mr. Mario Hernandez did participate on the occasion of the preparatory conference leading up to the fifth Space Conference of the Americas. His participation took the form of conversations, I did engage in conversations with him and we were told that there would be very specific cooperation but that has not actually gone ahead. I do recall that in Quito, I think there was a project, but we are talking about workshops, there are hundreds and thousands of workshops everywhere, we want solid and consistent cooperation, that is our aim. On one of the main features and important elements that can help us to overcome under-development and that is what we hoped to do in Quito, so from that point of view we simply have to convey that there is a measure of lack of satisfaction in the preparatory committee, above all, that was held in Santiago de Chile, inaugurated by the President of the Republic and the Minister of Defence and the Assistant Secretary as well, there was no UNESCO representative and the representation for Latin America is located in Chile, the UNESCO representative is located there.

Mr. R. GONZÁLEZ-ANINAT (Chile) (*interpretation from Spanish*): I thank you Ambassador González for those points of information. I suggest that you continue your discussions during the lunch break. Perhaps you can meet with the distinguished representative of UNESCO.

Unless I hear additional statements on agenda item 10, I suggest that we take agenda item 11, space and water. Here we have several speakers scheduled, I would call on the representative of the United States, Mr. Higgins.

Space and water (agenda item 11)

Mr. J. HIGGINS (United States of America): Thank you Mr. Chairman. We are pleased to take the floor again to make a statement about the current and future activities in the United States related to the space-derived data and water management.

There is a broad spectrum of water-related issues facing the world at large, ranging from too much water in a limited time frame or area, causing floods and destruction, to too little water to sustain human life for food production. Space-borne platforms including those currently in space, those in the planning stage and those still in the theoretical stage, provide a rapidly expanding potential to obtain new and increased information regarding water and water management. This information can be used to expand scientific research to support sound water management practices and to inform policy-makers. The scientific research we understand the global water cycle is vast and cannot be fully understood with only *in situ* observation networks. Satellite observations offer an alternative method for seeing the entire Earth and are essential for understanding remote hard to reach places. In the realm of water management and policy setting decisions are necessarily moving beyond local areas and the growing areas of water cycle science and the use of satellite technology allow a much broader view to be distilled for local and regional use.

Currently there are many research and operational space-borne assets that shed light on water in all its forms. These include satellites that allow us to look at the state of the ocean with improved accuracy for seasonal climate forecasting. In the case of El Niño and La Niña, satellites also provide information about the potential for various hydrological extremes, such as flooding, droughts or high numbers of intense thunderstorms. The United States continues to explore the uses of satellite remote sensing data to solve and/or mitigate the problems related to limited water resources. For real time assessment of water properties, data from many operational satellites, including a United States Polar Operational Environmental Satellite (POES), the Geostationary Operational Environmental Satellites (GOES) and Defence Meteorological Satellite Programme (DMSP). The research satellites, Gravity Recovery and Climate Experiment (GRACE), Landsat, Tropical Rainfall Measuring Mission (TRMM) and Terra and Aqua. These satellites can help to determine precipitation activity, snow cover, soil moisture, changes in underground water storage, flood inundation areas and even some estimates of evaporation. Additional information can also be derived that is critical for water science and management, such as surface temperature, wind speed, short and longwave radiation and vegetation type and _____ (*inaudible*).

I would like to highlight some specific examples of space-derived data being used to solve water-related problems here on Earth. Altimetry products are being used for lake and reservoir elevation monitoring. Data from the Moderate Resolution Imaging Spectrometer (MODIS), on the Terra and Aqua satellites, is used for various applications including snow cover area products for development of

US State and local agencies monthly climate reports and seasonal weather forecasts. Products for use by the African Famine Early Warning System. Products for use by the South Asian Drought Monitor and, in conjunction with the Advanced Microwave Scanning Radiometer (AMSR) on the Aqua satellite, for use by the Dartmouth Flood Observatory.

Landsat data is used internationally to estimate evaporation rates to better manage water resources. Data from the US/Japanese TRMM mission is used internationally to estimate flood potential. Satellite precipitation products from TRMM and other missions are used internationally to monitor heavy rain events to prepare landslide forecasts.

In 2006, the US Congress directed the establishment of a National Integrated Drought Information System (NIDIS). This effort, led by the National Oceanic and Atmospheric Administration (NOAA), is a multi-agency approach to improve drought monitoring, forecasting and early warning. NIDIS features include consolidation of physical, hydrological and socio-economic impacts data. Integrated observing networks, development of a suite of drought decision support and simulation tools and interactive delivery of standardized products through an Internet portal. The vision for NIDIS is a dynamic and accessible drought risk information system, it provides users with the ability to determine the potential impacts of drought and the decision support tools needed to better prepare for and mitigate the effects of drought.

The use of satellite remote sensing in other space-based measurements will be an important component of observations for NIDIS. NIDIS is one of the US contributions to the Global Earth Observing System of Systems (GEOSS) activity. In the future, the United States plans to begin operating its next generation environmental satellites, the National Polar Orbiting Operational Environmental Satellite Programme (NPOESS) and the next Geostationary Operational Environmental Satellite R-series (GOES-R). These satellites will collect and disseminate data about the Earth's oceans, atmosphere, land, climate and space environment providing high quality, sustained environmental measurements for monitoring the global water cycle and related weather phenomena.

Mr. Chairman, I think we all agree that the topic of space and water is very timely and one that we need to continue to highlight. There is great potential for expanding the applications of space technology to address water-related issues here on Earth. The challenge now, for all member States and one the United States is pursuing, will be the task of ensuring that this new wealth of valuable science data is readily available, converted into practical information and usable by decision and policy-makers. Thank you.

The CHAIRMAN (*interpretation from French*): Thank you Mr. Higgins for that statement describing for us the large spectrum of space systems that are being implemented in the United States or forms of cooperation between the United States and other countries to provide useful data that make a contribution to better water management and all mechanisms serving to describe the water cycle on our planet.

I will now call on our distinguished colleague, the representative of Canada.

Ms. A-M. Lan PHAN (Canada) (*interpretation from French*): Canada recognizes the fact that development of data and services focusing on terrestrial and hydrological resources is now a top international priority. The issue of water is ever more important. Let me now put you up to date in respect of the activities of the Canadian Space Agency in the context of the ESA efforts, TIGER efforts and other cooperation activities on an international scale with regional organizations or with certain member countries of the Committee.

In Africa, under the TIGER initiative, the Canadian Space Agency supports seven projects in six countries intended to improve water management with Earth observation data. A detailed reference is available on the Internet site of the Canadian Space Agency, www.space.gc.ca/tiger. Among them the Nile River Awareness Kit, now available online, is part of the Nile Transboundary Environmental Action Project (NTEAP). I would like to thank Ms. Berenguer from UNESCO who made an excellent statement, very exhaustive, of the TIGER project during the Space and Water Symposium last Monday.

Still on the African continent, we would like to bring to the attention of this Committee the latest developments after the Memorandum of Understanding entered into between the Canadian Space Commission and the Egyptian National Authority for Remote Sensing and Space Science, last November. In the context of the Memorandum of Understanding meeting between the Ministry of Water and Irrigation of Egypt and the Canadian Space Agency had been particularly useful, leading on to a commitment to have a tele-detection workshop and particularly study the applications of radar harnessed for a better water

management. This workshop was held 7-8 May 2007 on the campus of the National Water Research Centre on the outskirts of the city of Cairo. The Canadian Agency participated and four Canadian companies as well as the Canadian Remote Sensing Centre, they made presentations on practical applications based on space technology relevant to water management and demonstrations and trials of their expertise.

In Asia, Canada is continuing its activities with the Mekong River Commission. The Canadian Space Agency visited in April, the Secretariat of the Mekong River Commission (MRC) in Vientiane, Laos and the Regional Flood Management and Mitigation Centre (RFMNC) in Phnom Penh, Cambodia. The purpose of this is to define openings for cooperation and developing applications for water management, wetland management and flood prevention. The Canadian Space Agency likewise discussed the possibility of extending the Memorandum of Understanding with the Mekong River Commission which would then include the Ministry of Natural Resources of Canada. Projects delivered thus far are the Mekong Awareness Kit and the Mekong from Space Internet site.

As for northern Europe, in the context of the Memorandum between Canada and Finland, one of the four supported projects is water resource development project intended to prepare products and services on river and lake ice, the snow cover and the quality of water. All these products were developed with a Finnish partner. A project intended to prepare a framework document on hydrological areas was recently finalized. This document will be a reference and will guide us in order to then give a very specific focus to this area. Collection of information will be done in Canada and throughout the world.

Mr. Chairman, for Nordic countries like Canada, management and monitoring of ice makes it possible to prevent flooding in areas bordering main waterways. The polar view initiative, via monitoring of river ice, makes it possible to provide information on the location and ice cover in real time. This information is then used to assess the level and degree of threat and facilitate early warning and risk mitigation of potential flooding. To this day, the users in Canada, USA and Russia have made use of this service.

Finally, I would like to refer to the latest initiative serving to illustrate the significance of water-related issues in Canada. In order to provide effective management of the majestic St. Lawrence river, one of the major waterways that is navigable of the country and at the same time with a host of ecosystems. Seven ministries in Canada pooled their efforts to define a framework for coordination for the St. Lawrence river, 2005-2010. The main purpose is to define and analyse the environmental indicators for that river environment and surrounding areas. This is based on environmental integrity concepts and full respect for the environment in economic activities, a commitment of local authorities and full governance that is concerted and integrated for the St. Lawrence river. We also have reference to agriculture, navigation, wetlands, pollutants, deposits and sediments and the physio-chemical properties of water. The experience acquired by the Canadian Space Agency, in the context of the last year in the Nile and Mekong, then demonstrated the usefulness and effectiveness of advanced technology for resource management both for experts and for the public at large. It needs to be noted that the Earth observation tools and geomatics are very useful for this project. The Earth observation data that is given by RadarSat-1 are particularly effective for this type of application because of the vast range of beams of the satellite, radar technology ability to frequently observe, in one point, those products that are excellent in quality and the very rapid and effective response. Thank you for your attention.

The CHAIRMAN (*interpretation from French*): I would like to thank Ms. Lan Phan for her statement describing major activities of Canada and space and water-related technology. I will next call on our distinguished colleague the representative of Saudi Arabia.

Mr. M. TARABZOUNI (Saudi Arabia): Mr. President, the Chairman of the fiftieth session of the United Nations Committee on the Peaceful Uses of Outer Space, distinguished ladies and gentlemen, it is my pleasure to have the opportunity to contribute to the activities of the fiftieth session of the United Nations Committee on the Peaceful Uses of Outer Space.

As a general secretary of the Prince Sultan Bin Abdulaziz International Prize for Water and the director of the Prince Sultan Research Centre and Environment, Water and Desert at King Saud University in Riyadh, Saudi Arabia. It was in October 2002 when His Royal Highness Prince Sultan bin Abdulaziz, the Crown Prince, announced a call for nominations for the Prince Sultan Bin Abdulaziz International Prize for Water, which was designed as a gesture of appreciation to both scientific research work and efforts exerted by scientists, innovators and worldwide institutes in the water research field. The Prize is an appreciation to all distinctive research outcomes that have contributed towards establishing

practical solutions for making usable water accessible, minimizing water insufficiency and maintaining water supply, especially in arid regions. The Prize is put forward to appreciate all research efforts, in all nations of the globe, irrespective of, I repeat, irrespective of race, nationality or religious affiliation. The International Prize consists of five branches, 1 million Saudi Riyals, equivalent to US$266,000, is allocated for the new creativity prize, while half a million Saudi Riyals or US$153,000 is allocated for each of the other four branches.

For the second award 2004-2006, the Prize has received 67 nominations from 25 different countries all over the world, based on norms of objectivity, precision, _____ (*inaudible*), accuracy and integrity observed. In the process of selection, all accredited research works were arbitrated by a reliable international referee committee. Five winners from England, Malaysia, Morocco and Saudi Arabia won the second award of the Prize last November in Riyadh and five others from the United States, Egypt and Saudi Arabia won the first award prize in 2004.

The announced targets for the third award, 2006-2008 of the Prize, are first the creativity prize. The creativity prize is getting to every innovator or pioneer who effectively and distinctively contributes in creating a new work which is considered as a breakthrough. Accurate and original, whether research, innovation, technology or development projects in any water-related field. The work must help increase water resources, reduce its scarcity, eliminate its pollution, conserve it, rationalize its use and manage it effectively. It must also be practicable, economically feasible, environmentally friendly and having an effective impact on development in general and on community member in particular to purify drinking water and to promote their social level.

The specialized branches for the prize are:

- Surface water. The topic is sedimentation control in surface water system;
- Groundwater. The topic is exploration and assessment of groundwater;
- Alternative non-traditional water resources. The topic is innovative methods and system in desalination;
- Water resources management and protection. The topic is water demand management in urban areas.

Space technology in general and satellite remote sensing technology in particular will be introduced to the Prize in the fourth award, 2008-2010. One of the main topics will focus on implementation of these technologies for water resources exploration, management and protection.

Finally, I am pleased to call on all scientists and researchers, from all world countries, to advance their research paper to be evaluated and consequently nominated for the third award 2006-2008, according to the announced topics.

Full information can be obtained through the Prize website which is, www.psipw.org. Thank you very much for listening.

The CHAIRMAN (*interpretation from French*): I would like to thank Mr. Tarabzouni for that statement on the International Prize for Water, awarded by Prince Sultan Bin Abdulaziz and may I, in passing, thank the Kingdom of Saudi Arabia for this method of awarding highly developed projects in water management.

I do not think we have other statements under agenda item 11, space and water and therefore I suggest, I see that China has asked to take the floor.

Mr. A. MAN (China) (*interpretation from Chinese*): Mr. Chairman, water resources are an important factor for social economic development. For some countries, particularly for developing countries, it is even a matter of life and death. If the issue is not addressed properly it can trigger off serious social economic and political problems and it can even lead to armed conflicts. The development of space technology opens up a broad perspective for effective control and management and rational use of water resources therefore it is of positive importance to carry out such a discussion. The day before yesterday, a symposium was devoted to the discussion on space and water and the excellent presentations by the panellists have left a deep impression on us.

The Chinese delegation is very pleased that countries have achieved many important progress in the area of water resources management with space technology and the results are encouraging and some of the practices and methods can be emulated and disseminated. For instance, space-based marine observation technology has been used to carry out extreme hydrological phenomenon information and satellite data has been used to assess precipitation, aquifer changes and evaporation of water.

China is also a water deficit country. It attaches great importance to the use of space technology for water resources management. China will continue to actively use space technology to carry out water resources management projects and we would like to carry out international cooperation in this respect.

The use of space technology for water resources management is, no doubt, an important component of the peaceful uses of outer space and China is ready to make an effort, together with other countries, to promote this work. Thank you.

The CHAIRMAN (*interpretation from French*): Thank you very much China for your statement. This supports the interest you have indeed for space technology for water resource management.

Are there any other speakers on item 11? I do not see any.

I would say that we can start on item 12, the use of space-derived geospatial data. In paragraph 48 of resolution 68/111, the General Assembly decided that, at our fiftieth session, the Committee should indeed examine a new issue, that is, international cooperation promoting the use of space-derived geospatial data for sustainable development within a pluriannual agenda that we adopted at our forty-ninth session and we should hear presentations of member States, representatives of international regional organizations on respective activities on the use of space-derived geospatial data for sustainable development.

The first on the list of speakers under this item is the representative of Nigeria.

International cooperation in promoting the use of space-derived geospatial data for sustainable development (agenda item 12)

Mr. J. AKINYEDE (Nigeria): Mr. Chairman, thank you for giving my delegation this opportunity to make a contribution to this very important agenda item which was endorsed and supported by Nigeria after its introduction by Brazil during the forty-ninth session of this Committee.

The Nigerian Government has continued to recognize the importance of geo-information in its sustainable national development efforts. In this regard, the Government has been supporting a number of initiatives to promote the acquisition and use of geospatial information in national planning and decision-making in Nigeria.

In 1999, the Government approved the development of a National Geographic Information System (NAGIS) to support sustainable national development planning and efficient allocation of resources, taking into account the specific need of the environmentally degraded or polluted areas. NAGIS was designed to integrate resources, environment and socio-economic data enabling planners, to see at every point, the optimum best mix between various resources and the pressures on both the resources and the environment. During the following years of interaction amongst _____ (*inaudible*) at seminars, workshops and conferences however, it was realized that NAGIS should be consistent with the _____ (*inaudible*) and international concept of Spatial Data Infrastructure (SDI) and serve to promote greater awareness about the standards of geospatial datasets.

Specifically, the Committee on Developmental Information (CODIGEO) of the Economic Community for Africa (ECA), urged African countries to develop SDI as part of the regional efforts to achieve an information society. On the basis of Nigerian experience with NAGIS, the Nigerian geo-information community recommended the development of a National Geospatial Data Infrastructure (NGDI) which was approved by the Government. In the implementation of NGDI it is considered alongside other national infrastructures such as roads, telephone and electricity. NGDI is therefore a critical national resource established to enhance the harmonization of geo-information and provide its easy access and use in planning and decision making as well as investments and business opportunities in Nigeria.

Mr. Chairman, since its establishment in 2002, the development of NGDI has been given accelerated consideration by the Nigerian Government. Also in 2002, an expert committee was established by the National Space Research and Development Agency, the national coordinating agency for NGDI, to prepare a national geo-information policy to serve as a road map for the implementation of NGDI in Nigeria. The geo-information policy, that was subsequently developed, was approved by the Nigerian Government in February 2006. In accordance with the provision of the policy document, a 27-member NGDI implementation committee, 6 implementation subcommittees and many working groups were established. Appropriate terms of references and activities were given to the subcommittees and working groups, especially in the areas of geospatial

datasets acquisition, data standards, meta data and clearing-house issues, legal issues, funding and sustainability as well as capacity building and awareness.

Furthermore, a User Requirement, Survey and Analysis (URSA) were carried out by NASRDA to serve as a guide in a comprehensive systems design, system requirements and budgetary implications for NGDI. The User Requirement, Survey and Analysis also provides for the source and custodians of geospatial datasets including core datasets, thematic datasets and application datasets in Nigeria. Within the above-stated objectives of building data for multiple uses, the NGDI is the definite and authoritative repository for geospatial data in Nigeria. Accordingly, Nigeria views the implementation of the space policy and programme as part of its strategies for geospatial data acquisition, management, easy access and use, in order to improve the quality of every Nigerian. It also provides opportunities to share and optimize the use of data derived from other satellites with their ranges of spatial spectra and temporary solutions.

Nigeria wishes to commend the United States for donating its Landsat data, through the Office of Outer Space Affairs, to the developing countries for use in their researches and environmental management and other sustainable development efforts. Furthermore, NASRDA is collaborating with the International Institute for Geo-Information Science and Earth Observation (ITC) in a training workshop, entitled, building disaster management capacity in western Africa subregions with regionally-owned satellites. The workshop is being hosted by the Regional Centre for Training in Aerospace Surveys (RECTAS) in Ile-lfe, Nigeria, in October 2007. This is part of the national effort to maximize the use of data, from satellites owned by Nigeria and other African countries, for disaster management and reduction in Nigeria and the west African subregion. Thank you.

The CHAIRMAN (*interpretation from French*): Thank you very much Mr. Akinyede for your statement and your very interesting description of the activities in your country and national infrastructure on geographic data.

For the time being, I do not have any other speakers lined up under item 12. Would there be any speakers on international cooperation in promoting the use of space-derived geospatial data for sustainable development?

This does not seem to be the case, so we will be continuing this agenda item this afternoon.

Ladies and gentlemen, let us continue with item 13, other matters. As I indicated to you yesterday, under this agenda item there are various items. Yesterday we dealt with the candidate countries for the Committee as well as candidates for observer status.

Today, before we launch into the technical presentations, I would like us to take a look at the document that I prepared on the role and future activities of the Committee. This is A/AC.105/L.268, this is a working document. You will recall, ladies and gentlemen that, last June at our last session, the Committee examined its role in future activities and we agreed that our Chairman could propose open-ended consultations for the presentation of a list of elements to be taken into consideration. The General Assembly had noted with satisfaction the agreement in the Committee on this point.

The present working document is the result of the informal consultations that I conducted as Chairman since last July, in particular, the last couple of months of 2007. These were informal open-ended consultations in three phases, I will recall for our mutual benefit.

The first phase was in 2006. These were exchanges with members of the Committee as well as representatives of non-governmental space organizations, most of which have permanent observer status with the Committee.

The second phase was from December 2006 to mid-February 2007. During this period of time, we disseminated drafts, _____(*inaudible*) memorandum on this in order to elicit feedback from the various parties, in particular the member States of the Committee meeting during the Scientific and Technical Subcommittee, as well as during meetings of the Astronautics Federation, during COSPAR meetings, within the Institute of Space Law etc. Many responses came in, many comments were registered after this initial draft was circulated and this prompted me to draft a second version, which was distributed during the forty-sixth session of the Legal Subcommittee in March. I got another series of responses and comments to the second version, as well as, in the corridors of the Legal Subcommittee's session and, on the basis of that, I have worked up what you have in A/AC.105/L.268. I would like to hasten to thank all delegations having shared with me their input on the successive versions of this document, they are listed in paragraph 6 of L.268.

The objective of this work is to seek to see, over and above the ongoing work in the Committee

and its two subcommittees, what can be planned for the future. What can be done by way of identifying new issues that could be tackled, either in the short, medium or long-term, by the Committee and which would allow the Committee to continue, as it has in the past, playing an important role in coordination of space activities in promoting international cooperation in that regard.

As you know over the last couple of years the Committee has successfully focused on the implementation of UNISPACE III recommendations and this prompted us to embark on various initiatives that we can refer to. There was the setting up of the International Coordination Committee for Satellite Navigation and, more recently, the setting up of the SPIDER programme in compliance with General Assembly resolution at the end of 2006. This afternoon we will talking about the implementation of the SPIDER programme, the programme adopted by OOSA.

Apart from these recent results, which reflect an enormous amount of work done by the Committee over the past couple of years with the working group set up after UNISPACE III and those which have picked up where these section teams left off, there are other ideas over and above that which can also emerge. Some of these ideas are in the document, I hasten to add that these ideas are not an exhaustive list by any means, I believe that this is work that is meant to be pursued, to be developed, expanded, for the next couple of years, issues that can be examined by the Committee.

I just wanted to go through some of the ideas presented in this document, possibly we could collect some delegation input on this. We would have to do this fairly quickly because it is 11.55 a.m. and we still have three technical presentations, so we would have to wrap up this phase of our work here at 12.10 p.m. at the outside

The non-exhaustive list of ideas. Contribution to knowledge of the Earth. The Committee, it is felt, should regularly call upon the Director of the GEO Secretariat to report on progress registered in implementing Earth observation systems and that in a regular fashion. You know that GEO is an initiative which was set up a couple of years ago outside of the United Nations system and it appears necessary for the Committee to be apprised of what is happening there so that the Committee, apart from being kept up to date, should also be able to make suggestions that could be sent to the GEO Executive Committee. So, the suggested decision is to invite the Director of the GEO Secretariat to report, on a regular basis, to us on what they are doing.

The second idea is comparable. We are talking about satellite navigation systems and signals. Following the initiatives taken by this Committee, an international coordination body has been set up with visible significant assistance from our colleagues from the United States and Russia and there, as well, it would be important for the Chairman of the Global Navigation Satellite Systems group to come to report to us on their activities and for us to be able to ask them to examine a given issue or two, which we believe should be examined, in this general field of global satellite navigation systems.

The third point is the contribution of satellite technologies for sustainable development, this is something we are venturing into in our Committee. Our approach is somewhat overly restricted and it might be a good idea for the Committee to call upon internationally renowned experts in this field to give us the benefit of their summing up of the state of the art applications in this field so that it would facilitate the Committee's contribution to the Committee on Sustainable Development.

Monday, we adopted a text on this contribution, this is something I would recall should be continued in the next couple of years. So this input, that we would solicit by invitation from these organizations, would allow us to enrich our contribution to the Committee on Sustainable Development.

The fourth idea is more long-term and has to do with long-term sustainability, viability of space activities and this within the general context of mitigation of space debris work. The decision here is to set up a working group to think about the rules of the game, rules of the road, to organize interaction with commercial space operators. These are needs already emerging in the geostationary orbit where operators have already, *de facto*, set up an information exchange system allowing for the facilitation of the movement of satellites from one place to another without causing any disturbance with other satellites' operations. This is something that is already set up, the objective is not to work up a resolution or text in the short-term but rather the development of a joint approach and vision based on practical experience of these traffic operation problems in space.

The fifth idea has to do with space exploration. You know that we had a high-level session on space exploration last week, during the first week of

our work, several of the questions had to do with the participation of the developing countries in space exploration programmes. This is not by any means a simple issue. The Committee has to think about what initiatives it could ensure to make possible the participation of young generations that could, indeed, come up with interesting ideas on such possibilities. We have to start thinking about proposals, basing ourselves possibly on work done by non-governmental organizations such as the International Astronautics Federation, which could come up with some suggestions if they wish to do so, if they can do so. What is proposed is that there be a dialogue established between the Committee and these NGO observers to envisage various ways and means to promote participation in space exploration initiatives and projects.

The last point has to do with the protection, the conservation of designated areas of the Moon and other bodies in the solar system. This is also long-term work. Suggestion here is to invite COSPAR, along with the IAA, to consider the issue of protection, conservation of designated areas on the Moon and how such protection would be ensured. COSPAR and IAA, with UNESCO support, have indicated to us that they would be ready to prepare a report on this, that they would then come and present, in two or three years hence, for our Committee's benefit.

Then there are also issues related to the development of passenger space transport. We heard Professor Logsdon speaking yesterday giving some figures on passenger space transport. This is not a short-term issue, rather a long-term one, depending on the evolution of technologies and the way in which such transport develops. The development of such commercial transport will raise legal issues and it is felt that the Committee should start thinking already about these issues, maybe creating an active dialogue between our Legal Subcommittee and the International Institute of Space Law and possibly the International Astronautics Association so that these legal issues could usefully be broached.

The last item is on near Earth objects. You know that an action team was set up after UNISPACE III on this. This was under the guidance of Mr. Richard Tremayne-Smith of the United Kingdom who presented to the Scientific and Technical Subcommittee a work plan for near Earth objects and here I think that the Committee can just encourage this work plan being implemented without delay. There is quite a bit of international activity on this subject. It has become a fashionable, trendy subject and the Committee should, indeed, bear this in mind at its international debates how our planet can best be protected against collision risks with near Earth objects.

That is about it, this is a series of ideas, suggestions. I suggest that we seek to elicit reactions from various delegations on this.

Now we have the Czech Republic on our list, Chile as well and the United States. I have to check whether we have the time for these contributions now. The Secretariat indicates to me that we have very little time available so we would rather reschedule these statements to this afternoon. This afternoon we will rather have the technical presentations which have to be concluded by 1 p.m. We will resume item 13 this afternoon.

Let us take the technical presentations now. The first of these is Iván Darío Gómez-Guzmán, representative of Colombia, speaking on the structure and the main achievements and programme of the Colombian space programme.

Mr. I. GÓMEZ-GUZMÁN (Colombia) (*interpretation from Spanish*): Thank you, Mr. Chairman. I would like to thank all delegates for their attention. We will give a cursory overview of the experience gathered by Colombia on geospatial subjects.

Initially, I should like to refer to the following questions. Who produces geo space information? Who provides technology in this area? Who relies on this technology in order to, via applications, put this to the best possible use for socio-economic development of countries?

The Colombian Space Commission is an inter-sectoral body and an institutional one, it is intended for consultation, coordination and guidance as well as for planning purposes, to implement the national geospace policy and intended to develop space technology and coordinate the preparation of projects and plans in that particular area.

The Colombian Space Commission (CSC) which was created last year and, unlike a number of other countries, is a commission reporting to the Vice-President of the Republic with the participation of seven ministries and seven specialized bodies that use geospace information, satellite imagery and also information that is then intended for communication purposes and broadcast via satellites, hydrology, meteorology, research or other economic and social development purposes.

The Colombian Space Commission has been addressing the following subjects, telecommunications, satellite navigation, Earth observation, astronomics, astronautics and aerospace medicine based on political and legal matters, that is the Colombian legislation, as it applies to space-related issues, knowledge management and research and, a very important topic furthermore, proper support for the information system, the Colombian infrastructure for space data which I will refer to last in the context of this presentation.

For telecommunications, let me say the following. Our purpose is to have all Colombians linked up and connected for data transmission and IT but also radio broadcasts, rescue services, TV, safety, as well as, the press. We need a consistent, regulatory framework to do this that will make it possible to bring to the attention of all our citizenry, even in the remotest areas of the country, all forms of information.

The satellite navigation group has a plan and the main purpose is to use international systems that exist, GPS, Galileo and others. These systems make it possible to devise navigation systems for river shipment but also high precision agriculture, transportation in general, preventing natural catastrophes and, of course, safety-related issues, which are so important in our country.

We also have a working group for Earth observation and they have been developing quite a few projects to increase our understanding of our territory of our country. We use satellite imagery basically to do basic and thematic mapping but also environmental management and, I have mentioned in some conferences, the whole issue of water and also forests, in those countries where we still have natural forests and need to protect those resources. So often the advancing agriculture and farming projects take away from forests and we also need to have prevention and disaster policies and early warning systems are very important as well, the more so in a country like Colombia, one of the main features are natural disasters that occur quite frequently. Obviously to do this we need remote sensing technology and this, if used properly, can give us information for practical applications and decision taking in the administration of our national territory.

We have a group attending to astronautics, astronomy and aerospace medicine. I am not going to go into any major detail here but development of these space technologies have an impact here and have enabled, just a month and a half ago, launching our first pico-satellite. This is intended for academic research but this is the very first time that we have such a satellite. The purpose is to implement a space-designed programme so, of course, we have to have proper know-how, management and research as well. Together with our research institutions therefore, we are doing some technological development to provide appropriate innovation, responding to the requirements and needs of our country, thus, to have knowledge management and training and education programmes. We will have the geo-science community providing professionals for our country. To do so, together with the bodies of various disciplines and sectors, we will be running training courses for Colombian nationals and we also have masters, two post-graduate studies, geo-referential studies and about 30 young people who have degrees that have been handed out to Colombian citizens. We are training some 1,000 individuals per annum, so this will provide progress and allow us to make headway in geospace-related disciplines.

The Colombian Commission also takes interest in legal issues. It is our intention to adopt a national policy for space science and technology to increase the standards and levels in our country and we should have clear standards soon in terms of geospatial information administration and management and to defend the interests of our country in the international context. Not only do we intend to defend the interests of our country but likewise take a position in a priority area, in terms of world geography, where we can appropriately make use of space. One form of development which is important because it is not just developing countries that do not have access or do not yet have the possibility of launching their own satellites but also that we rely on the information provided by developed countries or private bodies and entities that have the required technological know-how in this area but through international technological cooperation with the European Union specifically, in this case, we can pool institutional efforts in our country to better organize access to products and services, mass services of geospace source.

Just a few months ago, we created the Colombian space data infrastructure and here we can access information and are just embarking on our IT exercise. This Colombian space data infrastructure is intended, through interaction of these public bodies making up the Colombian Space Commission, to make it possible to access basic data of essence to economic and social development. Information in one or the other way coming from outer space or processed via satellite data, I am referring to, geology produced by one of our institutes, the Mining Institute generates this data and also information on soils, the digital elevation measurement system, geographic names associated with features of our country, political and

administrative issues and also land registry. This is very important for regional planning, and we are doing an urban and rural land registry using satellite imagery and also airborne detection systems, meteorology, climatology, oceanography, where we are using satellite information on a massive scale and, via these levels of information, as we term them, we will be doing high precision mapping and we will be managing information systems. All these major efforts have been deployed.

We have been addressing the last census as well, the population census, where we got information, house by house, family by family, using highly developed technology and we were able to use the census forms and have those tally with observed information for demographic purposes and also these geo-references make it possible to plan for economic and social development subsequently. The whole Colombian space data infrastructure is in line with international standards. Using meta data to compare these sources of information, it is multisectoral, multi-institutional and, ultimately, we will be able to make available to national and international end users all this information through geoportals. All of this is necessary for taking of decisions in economic and social areas. Basically, space data should not be centralized it is decentralized in terms of generating information. There are a multiplicity of areas producing this, for example, Agustín Codazzi Institute, the Meteorological Institute, Geomine Institute for the mining sector and energy-producing sector and ministries generating multisectoral information on various disciplines. This information, I repeat, is not centralized but decentralized, and end-users can have access to this via the geoportals that are made available, at this point in time, throughout our national territory.

I should like to show you the following portal, 33,000 maps are available via this medium, many of them from remote sensing sources, optical sensing radar and also geo-reference systems are used for greater precision. We have dynamic and static mapping that you can then put one on top of the other and you can then use this for decision taking purposes, that is cross-cutting cross sectors and available for citizens as well. Geospatial information we have here makes it possible to have such multiple decision taking exercises.

This connects us to any part of the territory, on the left hand side you see some of the variables that can be accessed, among them, ortho maps, satellite imagery, land registry for transportation purposes, international borders, national borders or any other possibility of managing information.

Here you have maps that are part of the Colombian infrastructure and provided by the Colombian Space Commission. This is now part of the geospace culture so that we can get proper standards, providing geological and geographic information and infrastructure data for the provision of services throughout our national territory. In doing this we were able to devise a portal and have maps of Colombia, of various styles as I show them here, various topics, all consistent one with the other so that ultimately we can manage this as a dynamic form of geospace information where you can stack up information from remote sensing sources that are used for decision taking and economic and social development of my country.

To the extent that we use this, there is far more precise information available and ultimately we will have a geo-reference land registry system for urban and rural areas, we will have territorial information on the widest scope and breadth and we will be able to use that for decision taking. We have aerial photography used with our existing infrastructure, space maps with great precision such that we can, by way of an example, properly administer water resources, forestry resources, soil resources and thus have proper regional planning and also attend to environmental issues.

We have two interactive systems, here we have a tool that makes it possible to compare with other periods of time or other satellite systems such as SPOT or whatever else there is in the world and they can then give us an indication of the evolution.

Generally speaking and to finalize and make the best possible use of the time generously made available, we would like to say that Colombia has entered the space data administration era with the creation of the Colombian Space Commission. It is multi-institutional, it is not a single body, it is just that the Commission coordinates all the activities within the country, properly manages the geospace sources of information, makes sure that human resources, logistics and institutional means are available and, of course, human skill is made good use of in a rational manner, which, likewise, provides us with applications for information administration and all the data we get from space. I think we will be able to progress in this manner and get a better status in the community of nations.

Finally, I would like to say why the Colombian Space Commission, which is multi-institutional, is so important for our country. Let me give you an example, it is a major one, I am sure that it

applies to many developing countries as well anywhere in the world. We, on some occasions, have bought 25 times over, with very scarce resources, the same satellite image, from the same sensor, the same date, for 25 specific topics so to speak, this is just one way of telling you that the Colombian Space Commission, via proper coordination and cooperation in-house but also via international technical cooperation of course, will now enable us to make headway in a better way, meeting the challenge of putting our country on the map in terms of geospace data, processing information via publications and making that available for development of the economy and society of our country. Thank you.

The CHAIRMAN (*interpretation from French*): I would like to thank Mr. Gómez-Guzmán for that very interesting presentation on the Colombian Space Commission and the work done specifically in the area of geospace data management, space sourced or otherwise.

I would ask whether delegations wish to put a question to the distinguished representative of Colombia?

I see none. I will next hand over to Dr. Radhakrishnan from India who will be speaking on the use of space systems for education in India.

Mr. D. RADHAKRISHNAN (India): Distinguished delegates, ladies and gentlemen. During my presentation here I would like to highlight how the Indian Space Research Organization, the agency which is responsible for design, development and utilization of space systems and, more importantly, the application programmes, has effectively put to use the space-based systems for effective management of education in India.

Before I begin with my presentation, I would like to provide you with a little bit of statistics on the education scenario and the issues that are prevailing in India specially with respect to education. If we look at the total population of India, it is roughly in excess of 1,000 million with the majority of people living in rural populace. People have multilingual and multicultural habits and are separated by vast geographical distances, in many instances they are located in inaccessible terrains. If you look at the illiteracy rate, the number is quite high and alarming, it is something like 40-45 per cent and it is more dominant in the rural areas. In addition to this there are some more bothering issues, like the number of school dropouts which is something like 85 per cent by the time the students reach the twelfth standard education. As you see here, with 100 students making entry into the first standard, by the time they reach the twelfth standard the number is something like 13. This can be attributed to a number of factors, such as, lack of proper schools and teachers, improper school infrastructure and so on. All these factors put together has adversely affected the approach made in education, especially among the rural populace. On the one hand we have the problems of not having proper schools, infrastructure and teachers in the rural populace, whereas on the other hand, there has been an unprecedented growth in the number of colleges and higher secondary schools, professional institutes in urban areas. Here again, the problem of lack of qualified teachers is still a problem. To address some of these issues the challenge was how to put to use space technology that could breach the _____ (*inaudible*) divide between the urban and the rural populace and thereby fulfil our motto of universal education for all.

_____ (*inaudible*) education, some of the initiatives were taken up by ISRO in the early stages of our space programme. The first experiment in this field was the Satellite Instructional Television Experiment (SITE) way back in 1975-1976, this was conducted using NASA's ATS-6 satellite. Here the objective was to enable the relevant users and institutions to take education to all parts of the country more particularly to the difficult and inaccessible areas. What we have done is, using the spacecraft and the help of direct research and TV sets, education programmes were beamed to something like 2,500 primary schools in remote villages in central India. To make the programme more interesting, the programmes were rendered in local languages, meeting the specific needs of the illiterate population. This experiment has been hailed as the largest sociological experiment conducted endeavour in the world. What was more important was, through this experiment, we could demonstrate that the tele-education programme could bring significant gains to rural populations in the areas of health, hygiene, nutrition, animal husbandry, etc. Towards this effort the Ministry of Education and the National Council of Education and Research and Training were also very active and it has contributed to training of something like 50,000 teachers during this entire process.

Later, moving on from 75, in 1996 we took up the project called Jhabua Development Communication Project (JDCP) which involved a number of terminals installed in tribal areas as part of a pilot project. This number has grown from something like 150 to 1,062 villages. The programme has provided substantial gains to tribal communities in all subject areas and has increased the health awareness to a very great extent. With the success of all these _____ (*inaudible*)

programmes used the spare capacity available in our existing sat-based systems.

With the success of inside based educational services, a need was felt to launch a satellite dedicated for educational services and which led to ISRO conceiving the EduSat project during 2002. Subsequently, EduSat was launched 21 September 2004 using our own launch vehicle the Geosynchronous Satellite Launch Vehicle, GSLV-F01. The satellite weighed something like 1950 kg. If you look at the configuration details of the satellite, it is basically configured with multiple beams, 1Ku band covering the Indian mainland, then we have 6 C-band beams covering the entire Indian geographical boundary and 5 Ku band Spot beams, directed towards northern, southern, western, north-eastern regions of India.

As far as the ground segment for this project was concerned it is designed to cater to multimedia education packages to be delivered at a very reasonable _____ (*inaudible*) that was most important.

If you look at the educational satellite, EduSat, one of the primary objectives of this project was to take virtual classrooms to all regions of the country thus making available high quality education programmes by _____ (*inaudible*) teachers and scientists to _____ (*inaudible*) privileged classrooms in remote areas. The other objective was being able to provide interactive _____ (*inaudible*) teaching by effectiveness of delivery, through electronic media, which can be improved and create more enthusiasm among the student community. Most importantly, but not the least, eradicating illiteracy among the rural populace.

If you look at the EduSat concept in a nutshell it is fairly simple. We have a teaching-end on one side and a number of classrooms on the other end. The teaching-end and the receiving-end as the classrooms get connected through the satellite, EduSat, using both audio and video connectivity.

This is a type of connectivity we have conceived in the last two to three years. We have been through a number of options depending on the needs. We have primarily now the three options, one is in the broadcast mode, where the receive-only systems are used in the classrooms. This is basically the audio and video is uplinked to the satellite and what we get at the primary school education is receive-only terminals. This is mainly meant for imparting primary school education.

Coming to interactive teaching. We have one-way video and two-way audio, that is, the uplink is video and audio. At the receiving-end the students from the secondary and higher secondary education can interact with the teaching-end through the audio link. This is a concept we primarily adopted for the secondary and higher secondary education.

While catering to the needs for higher and professional education we had one _____ (*inaudible*) connectivity, both the video and audio channels are connected to the teacher and receiver end, where the students sitting in the classroom can interact like a video conference with the teacher. This are the three patterns in which we have established connectivity.

This is just a picture of how the EduSat network looks like. In the State capital we have the studio and the hub with a lot of ground infrastructure which uplinks the programme to EduSat by Ku or extended C-band and have issued that, the high secondary and the primary schools, depending on the need, one is the Satellite Interactive Terminal at the higher secondary level and we have the Receive Only Terminals at the primary schools.

_____ (*inaudible*) interactive networks are set up for imparting the teacher's training and curriculum-based teaching to students of the arts and science colleges, polytechnics and management of professional institutes.

Moving on, if we look at the candidate user agencies. Candidate user agencies are concerned primarily at the State level and the national level agencies. This provides the list at the State level, we have State universities, engineering and degree colleges, open universities and vocational institutions. Whereas at the national level, we have national level autonomous educational institutions, open universities and a number of government and private sector professional institutes. If you look at the EduSat Ku-band regional terminals utilization, as I mentioned earlier, we have five Spot beams in the Ku-band covering the entire Indian landmass. In the northern region we have something like nine channels, in the west, three channels and, the numbers here indicate the number of satellite interactive terminals and the receive-only terminals, 633 and 5,500 in the northern region. As you see here we have the entire spread all over the country and we have established something like 12,000 terminals with a total of 27 channels.

Coming to the EduSat current utilization scenario, as of now, we have something like 42 different networks that have been established

throughout the country and most parts of the country have digital connectivity but, I would like to highlight here, our special focus towards this effort was to view remote inaccessible areas like Jammu, Kashmir and north eastern hill regions and bring them into the connectivity of the education sectors.

The total number of virtual classrooms today is around 2,100 with more than 13,000 receive-only terminals benefiting more than 500,000 students. This is a number that we have, as of today.

This is the spread of the number of terminals in the different sectors, like in primary education we have something like 13,000 terminals, secondary and higher secondary, 2,100 terminals and the terminals for imparting science and technology education, something like 100.

What I would like to highlight here is, we have made a special effort to establish a dedicated network for the education in the blind school in Gujarat. I would like to highlight here, this is just the beginning, there will be much more initiatives which will play a big role in helping the disabled people, students, who are in remote areas as well.

Another major point here is a special network in extended C-band, connecting something like 15 engineering institutes across the country. It has been established to impart teaching by distinguished professors, faculty from top _____ (*inaudible*) universities in the USA, who are visiting there to conduct 8-week courses in various subjects in engineering. I am sure this will provide a better outreach for most students in India.

If you look at some of the key factors that have played a significant role towards the success of EduSat because we are able to identify all major players like State governments, State government departments, institutions, etc. To give proper direction to the EduSat utilization programme, a series of consultations, deliberations, seminars and workshops were organized with the objective to evolve a road map. The seminars were conducted both at the State level and the national level. Also with the State government and educational institutions involved right from the beginning it has made possible familiarization of the EduSat concept to the entire community. Also, this _____ (*inaudible*) helped us in getting a very clear picture of the regional problems and their requirements. After having accessed _____ (*inaudible*) scenario, with respect to EduSat utilization programme, an appropriate project structured to monitor and supervise and formulate the policies and guidelines in running the programmes were also undertaken.

Responsibility with respect to State and national level governments and institutes were identified, ISRO took the responsibility of providing the space segment and setting up of limited _____ (*inaudible*) networks in each State but with the majority of the responsibility in line with respect to monitoring, supervising, _____ (*inaudible*) with the users.

Let me conclude by saying that the space efforts in India, evolved over the years, has opened up new opportunities and innovative possibilities to achieve economic growth. The space-based distance education is one such opportunity towards national development. ISRO has taken the initiative to provide the dedicated space infrastructure to enable large-scale connectivity from leading institutions to remote educational institutions. Right now we are in the semi-operational phase, we plan to complete the semi-operational phase by the year end and, from next year onwards, the project will get into the operational phase.

This is our plan in the operational phase, to provide the EduSat network, spread it out across the country, users will fund and set up networks with technical support from ISRO and the space segment will be augmented to meet the future bandwidth demand. A proper synergy among the concerned agencies will revolutionize the education system of a developing nation like India. Thank you.

The CHAIRMAN (*interpretation from French*): Thank you Mr. Radhakrishnan for that very substantial coverage of the EduSat programme and satellite that you have had in India for some time.

Any questions please on EduSat?

I see none. I am going to thank him, yet again, for that statement and next I will give the floor to Mr. Christián Gómez from Chile who will be speaking on the space conference in the context of FIDAE.

Mr. C. GÓMEZ (Chile) (*interpretation from Spanish*): Let me take this occasion to salute all delegates here, OOSA, the Director of OOSA and all those in attendance at this major Committee.

I would like to pay tribute to the invaluable significant efforts deployed in this meeting to make the peaceful use of outer space, in the legal context, compatible with all end-users and use of proper

technology to make the best possible use of the benefits that outer space provides.

Without doubt those in attendance here do not have to be persuaded of the significance of the topics that we deal with here today. There are many States, indeed, that have travelled a long, long way, not just in terms of reaching out to the outer world but also making a direct contribution to the development of other countries, improving progress and a general welfare of humankind.

Chile considering efforts deployed in this area can, I think, be considered to be the State that is expecting much from the achievements of highly advanced countries. There is no doubt that we stand ready to make a contribution in terms of our own resources, all in step and tune with our possibilities, in order to give our support to whatever we can do jointly in this area provided this is done within the context of the United Nations.

What has been our contribution to space development? Chile, as part of the many things given by Mother Nature, has not just striking landscapes and outstanding vineyards and _____ (*inaudible*) producing wine to please any discriminating palette, also possesses one of the cleanest skies of the planet and this means that we have many facilitative sites in our country to observe and investigate outer space. In the northern area of the country we find the Atacama desert with several stations located at Tololo, La Silla and _____ (*inaudible*) among others. Furthermore, making use of our privileged conditions, we are now installing ALMA observatory with the millimetric radio telescope, the largest ever built, specifically sited on the Chajnantor Plains, which has really fostered enormous hopes in the scientific community due to the results expected from this project because new discoveries could generate a revolution in terms of modern astronomy.

Furthermore, Chile has exerted efforts, with its own means, for the benefit of the peaceful uses of outer space. In recent years, we launched two micro-satellites and, as we know, in any human endeavour that tries to overcome its shortcomings it is exposed to success and failure at the same time, on this occasion it was not an exception. The first project, FaSAT-Alpha, was not fully successful because there was a problem in the separation phase. However, it was the basis for continuing along that road and was achieved in the second project, FaSAT-Bravo, which was able to provide Chile with a satellite platform. During its lifetime it gave us valuable information to measure the ozone layer. A basic pillar for that achievement was presidential advisory mission known as the Chilean Space Agency, a body that has done its utmost to consolidate, in Chile, the institutional approach that is important and should be part of this major human endeavour. Public policies were developed and a course of action so that Chileans can make the best possible use of the benefits of outer space.

A very interesting and important body that we have created in our country in order to foster space awareness is FIDAE, the International Air and Space Fair, which is recognized in terms of its prestige on an international scale and it is held every two years in Santiago. There are various events to reinforce in our communities the significance of the peaceful use of outer space and, in this context, it is a meeting point for various bodies that deal in space issues.

By way of an illustration, let me say that, in 1998 we took on board the space discipline and in 1990 space was added to the official title, so instead of being known as FIDA, it became FIDAE, adding space. During that year the Russian space museum was added with a model of the Soyuz space craft. Together with the space-related issues that pertain to the American continent, we have five international space conferences on this continent and, to a certain extent, this was also a preparatory meeting for the Conference of the Americas.

FIDAE 2000 organized a meeting on space development, a challenging future. In 2002 there was a talk on space information as an instrument for human development and the preparatory meeting for the fourth Conference of the Americas, held in Cartagena de Indias, was also part of this exercise. In 2004, we had consideration of the space and water topic. As we saw, just two days ago, this has a real impact on mankind. In 2006 there was a conference on space information as an instrument for human development and a preparatory meeting was held in preparation for the Fifth Space Conference of the Americas held in Quito, Ecuador. For 2008, we are preparing a conference on space technology and climate change in tune and step with the pressing need to come to grips with the main threat for this planet.

The purpose of these conferences was to have preparatory meetings bringing about the Space Conference of the Americas, have a full understanding, in a preliminary fashion, on the main topics and get familiar with the main players. Furthermore, the conferences provide us lecturers of the highest level and quality, decision takers at the governmental level, academic life and business communities as well as the community in general and it is essential to bear in mind

this last element. The information intended for the end-user and all the possible benefits are as well. These persons will ultimately benefit from the impact of space technology and that has to be borne in mind by the decisions taken by State authorities. That is why we are convinced that we all need to make a huge effort to disseminate knowledge which becomes available at the high level meetings such as in this Committee. Here major decisions are taken but, let us never lose sight of the fact that, it is the general public that will benefit from such decisions and be affected by such decisions. Fortunately we have positive experience and we are now in a position to say that these world organizations not only protect the interests of the world community but that, furthermore, they support efforts in each of our individual countries made to disseminate space knowledge. In fact it gives us great pleasure, with the auspices of OOSA, to organize the conference on the occasion of FIDAE 2008. This is an example of how our communities receive support. These institutions, constantly delving into the issues of space with this type of activity and project, provide the down to earth approach because let us not forget that ordinary people are the end users.

Finally, let me take this occasion to turn to those who wish to contribute to the best success of the Space Conference to be held in Chile in 2008. They may contact us and we, of course, stand ready to cooperate in similar initiatives, in as far as our possibilities allow, in your respective countries of origin. Let me already thank all distinguished delegates at this point in time and particularly the Director of OOSA and you, Mr. Chairman.

The CHAIRMAN (*interpretation from French*): Thank you Mr. Gómez for that very interesting statement and your kind invitation to participate at the next conference on space technology and climate change that you will be organizing in Santiago de Chile, between 1-3 April 2008.

Any questions please for our distinguished Chilean colleague?

I see none. So distinguished delegates I will soon proceed to adjourn this session of the Committee but, before I do that, I would like to announce the programme for this afternoon.

We will meet at 3 p.m., we will continue then and hopefully complete our consideration of agenda item 7, Scientific and Technical Subcommittee report, forty-fourth session. Item 10, space and society, item 11, space and water. We will also continue our consideration of item 12, international cooperation in promoting space-derived geospatial data for sustainable development, plus item 13, other matters.

Towards the end of the session this afternoon, we will then have four technical presentations, Germany will be speaking, Japan, Saudi Arabia and the European Space Institute. During lunch break you will be shown a documentary at 2.15 p.m. presented by Ukraine on the Ukrainian space industry. Finally, I recall that after the afternoon's session, the French Government will be hosting a reception at the residence of the Ambassador at 6.30 p.m.

Any questions in respect of the afternoon schedule. I see none. I thus adjourn this meeting, we next meet at 3 p.m.

The meeting closed at 11.57 a.m.