United Nations COPUOS/T.589

Committee on the Peaceful Uses of Outer Space

Unedited transcript

589th Meeting
Monday, 16 June 2008, 3 p.m.
Vienna

Chairman: Mr. Ciro Arévalo-Yepes (Colombia)

The meeting was called to order at 3.15 p.m.

The CHAIRMAN *(interpretation from Spanish)*: Good afternoon distinguished delegates, I now declare open the 589th meeting of the Committee on the Peaceful Uses of Outer Space.

This afternoon we will continue and hopefully conclude our consideration of item 8, Report of the Scientific and Technical Subcommittee on its Forty-Fifth Session. We will also consider item 9, Report of the Legal Subcommittee on its Forty-Seventh Session, and 10, Spin-Off Benefits of Space Technology: Review of Current Status.

Time permitting, we will also begin our consideration of agenda item 14, Other Matters, related to the proposed Strategic Framework. This is an item of great importance, the Strategic Framework for the Programme of the Peaceful Uses of Outer Space for the period 2010-2011, which has been distributed to delegates today.

Following the plenary, there will be three technical presentations. The first one by a representative of the International Astronautical Federation on the subject "Space and Society". The second will be made by a representative of the Association of Space Explorers and it will deal with "Near-Earth Objects". The third presentation will be made by a representative of the Space Generation Advisory Council and it is entitled "Introducing a New Framework for Space Traffic Management".

I would also like to remind delegations to provide the Secretariat with possible corrections to the provisional list of participants which was distributed as Conference Room Paper No. 2. It is necessary for the Secretariat to finalize the list of participants. Any corrections should be submitted by tomorrow afternoon at the latest.

Report of the Scientific and Technical Subcommittee on its Forty-Fifth Session (agenda item 8)

Now, we are taking up agenda item 8, Report of the Scientific and Technical Subcommittee on its Forty-Fifth Session.

The first speaker on my list under this agenda item is the representative of Italy. You have the floor.

Ms. G. ARRIGO (Italy) *(interpretation from Spanish)*: Thank you Mr. Chairman.

(Continued in English) Mr. Chairman, distinguished delegates, the Italian delegation is pleased to join other delegations in congratulating the Scientific and Technical Subcommittee on its forty-fifth session for the outstanding results achieved under the clever(?) chairmanship of Mr. Aboubekr-Seddik Kedjar.

Let me take this opportunity to thank also Ms. Mazlan Othman for her continuous and precious contribution to the work of the Committee and its Subcommittees.

Mr. Chairman, Italy follows with great attention the implementation of the Programme on Space Applications and appreciates the efforts achieved by the Office for Outer Space Affairs, considering its limited financial resources.

V.08-54803 (E)

Italy supports the Programme, in particular the organization of workshops and symposia through the co-sponsorship of ESA.

With regard to the implementation of the recommendations of UNISPACE III, Italy largely supported the works of the different Action Teams and is involved in some of the thematic groups or committees issued from them.

Mr. Chairman, the Italian delegation welcomes the progress made under the item on matters pertaining to remote sensing of the Earth including applications for developing countries. In particular, ASI(?) is implemented the Italian/Argentina Satellite System for Risk Management, CIASTA(?). And its applications derive from the use of each an L-Rider(?) data, a complex and unique example of a balanced bilateral cooperation focused on social applications for humanitarian aid and sustainable development. Training programmes developed in Italy and Argentina are also part of the project through the Institute of Space Aerospace(?) Studies Mario Gulich in Cordoba.

Our wish is to expand the benefits of the satellite system to a regional cooperation in Latin America in order to optimize the results of the applications according to the local needs.

At _____(?) level, Italy is greatly involved in the GMES Programme in the implementation of the 10-Year Work Plan of the Global Earth Observation System of Systems and in the works of the Earth Observation Satellite Committee.

Mr. Chairman, Italy agrees with the principle outlined in the Scientific and Technical Subcommittee Report on the use of remote sensing satellites by sharing experiences and technologies through bilateral, regional and international collaborative projects.

Mr. Chairman, regarding to the space debris, you are aware of the involvement of Italy in the space debris mitigation activities. At European level, in accordance with the Code of Conduct, as well as in the Inter-Agency Space Debris Coordination Committee and in the COPUOS context.

Italy continues to support the item in the agenda of the Scientific and Technical Subcommittee and welcomes in the introduction on the same item in the Legal Subcommittee as a single issue next year.

In May 2008, the Italian Space Agency organized a successful national Conference on Space Debris in which technical and legal aspects of the prevention are being considered. Many contributions came from the representatives of industry, research centres, universities, civil protection, ministries and public administration.

Mr. Chairman, regarding the space-based disaster management, Italy continues to follow the SPIDER Programme development, expressing, however, the wish that the Programme will avoid duplication of efforts and continue its activities closer with the other existing institutions at international initiatives.

The Italian Space Agency, through its call centre in Madeira, located at the Space Geodesy Centre, answered to 13 requests of intervention for risks and disasters operated by the COSMOS SKYMED satellite from October to June 2008. Among these, the earthquakes in China and the cyclone in Myanmar last May, the flooding in Mozambique in January 2008, five interventions in Argentina for floods, fire, sea pollution, from January to May, the eruption of the Navado de Weila(?) volcano in Colombia, and the eruption of the Etna volcano in Sicily in April and May.

Mr. Chairman, Italy continues to support the item on the recent developments in global navigation systems with its involvement in the Galileo activities and other GMES-related activities, in particular, the establishment, on a voluntary basis, of the Information Committee on Global Navigation Satellite Systems.

Italy shares the conviction of the necessity to cooperate on matters of mutual interest related to civil satellite-based position navigation timing and _____(?) services, as well as the compatibility of global navigation satellite systems.

Italy also promotes the use of GNSS to support sustainable development, particularly in developing countries.

Mr. Chairman, I am pleased to confirm to you that the Italian Institute of Navigation, located in Rome, is presently engaged in the preparation of the European Navigation Conference 2009, which will be held in Naples, on 3-6 May 2009.

Mr. Chairman, Italy actively participates in the Joint Expert Group of the Scientific and Technical Subcommittee and the International Atomic Energy Agency for the use of nuclear power sources in outer space. In this regard, we strongly recommend the application of best practices for both the safety of

people and the environment in the Earth's biosphere, as well as the safety of humans involved in missions that use space nuclear power sources, and for the protection of outer space environment.

Mr. Chairman, finally, Italy welcomes the celebration of the International Geophysical and Fiscal Year 2007. Relating to this item, next October, the International Centre for Theoretical(?) Space Interest, will host the International Heliophysical Year, European Heliophysics School next October. Thank you Mr. Chairman.

The CHAIRMAN *(interpretation from Spanish)*: I would like to thank the distinguished representative of Italy, Señora Gabriella Arrigo, for her statement.

I would now like to give the floor to the delegate of India, Madam Radhika Ramachandran. You have the floor Madam.

Mrs. R. RAMADCHANDRAN (India): Thank you Mr. Chairman. The Indian delegation is very pleased with the progress and significant achievements made during the forty-fifth session of the Scientific and Technical Subcommittee.

We would like to congratulate Dr. K. Radhakrishnan of India on being elected as the Chairman of the Working Group of the Whole during the forty-fifth session of the Scientific and Technical Subcommittee.

The United Nations Programme on Space Applications plays an important role in implementing the recommendations of the UNISPACE III, particularly in improving the capacity-building of developing countries to apply space technology to support efforts on sustainable development.

We fully appreciate the fact that identification of priority themes for the Programme on Space Applications is a very useful initiative. The success of this will depend on the benefits these pilot projects will provide to the developing countries towards capacity-building in space science and technology.

Mr. Chairman, the Indian delegation attaches high importance to the subject of space debris in the Scientific and Technical Subcommittee. We fully appreciate the good work carried out in arriving at the final Space Debris Mitigation Guidelines document, using the technical content of the Inter-Agency Space Debris Coordination Committee document.

We are happy that the final document has been accepted as guidelines and for voluntary applications by member States through their national mechanisms. This is one of the significant and concrete vessels(?) being achieved towards implementation of UNISPACE III recommendations.

We are of the view that, in the light of evolving technologies and debris mitigation practices, the Subcommittee should be periodically informed by the Inter-Agency Space Debris Coordination Committee of any revisions in the Space Debris Mitigation Guidelines.

Mr. Chairman, we note with satisfaction the good work carried out by the Working Group on the Use of Nuclear Power Sources in Outer Space during the forty-fifth session of the Scientific and Technical Subcommittee towards evolving the framework for internationally acceptable potential safety standards for use of NPS in outer space.

We are sure the Working Group will continue with the good work during the coming years.

Mr. Chairman, the Indian delegation attaches great importance to the subject of disaster management in the Scientific and Technical Subcommittee. We are of the view that the Global System covering support during all phases of disaster using space systems, and also covering all types of services which space systems can offer, will be very useful for all the countries. Towards this, the establishment of the SPIDER network under the United Nations umbrella is quite appropriate. We are confident that in the coming years, this entity would serve as an orderal point but all countries, particularly for developing nations, to quickly assess them at times of needs on all matters of disaster management.

The Office for Outer Space Affairs would like to provide the information to this forum so as to encourage many other developing countries to contribute significantly towards SPIDER in the coming years.

Mr. Chairman, the Indian delegation fully appreciates the presentation made by the experts from various countries during the Industries Symposium held on the subject of "Space Industry in Emerging Space Nations".

The presentations and deliberations during the Symposia, as well as during the end of the Scientific and Technical Subcommittee session, were of high quality and very informative.

Mr. Chairman, the Indian delegation attaches special significance to the science and technology aspects of outer space activities. It should be our endeavour to identify specific and concrete actions plans for the space-related activities for knowledge-sharing, capacity-building and increasing awareness amongst various member States. Towards this effort, the work of the Scientific and Technical Subcommittee is very important.

We, the Indian delegation, would like to express that a new priority theme "Space and Climate Change" needs to be considered as a new agenda item in the United Nations COPUOS. We are sure that discussions on this new agenda item will help addressing the issues related to food security, weather monitoring and climate change, which, in the present day context, is of very high relevance.

In conclusion, we endorse the report of the forty-fifth session of the Scientific and Technical Subcommittee. Thank you Mr. Chairman.

The CHAIRMAN *(interpretation from Spanish)*: Thank you very much distinguished representative of India, Madam Ramachandran.

I now have the pleasure of calling upon the representative of the Russian Federation, Mr. Sergey Shestakov. You have the floor Mr. Shestakov.

Mr. S. SHESTAKOV (Russian Federation) *(interpretation from Russian)*: Thank you Mr. Chairman. Mr. Chairman, I would like to briefly share some impressions as to the work of the forty-fifth session of the Scientific and Technical Subcommittee held 11-22 February this year.

The session maintained its focus on space debris mitigation and related issues. The Russian Federation emphasizes the need to continue working along these lines, within the framework of the Scientific and Technical Subcommittee. The Subcommittee has already made considerable progress and developed guidelines for space debris mitigation. This document is a set of guidelines called upon to promote the solution of that problem on the national level. It is not legally binding. It is being implemented on a voluntary basis. The scope of application of these principles encompasses only the newly designed and creative space technology.

The Subcommittee decided that the implementation of these voluntary guidelines for space debris mitigation, through national mechanisms, will promote better understanding as to acceptable limits for activities in outer space, and thus strengthen stability in outer space and decrease their likelihood of conflicts.

The Subcommittee reaffirmed its view that States must give more attention to the issue of collision of space objects, in particular those that carry nuclear power sources onboard. Their collision with space debris items is something that should be in the focus of attention as well as other aspects relating to space debris such as its re-entry into dense strata of the atmosphere.

In this context, I would like to once again inform delegations of the fact that to tackle the space debris issue in a practical way, the Russian Federation developed a special national standard which is a measure designed to limit man-made contamination of near-Earth space. The requirements of this standard are aligned with the provisions of the Space Debris Mitigation. The Russian delegation made a special presentation on this issue last week.

The Russian Federation has, through its National Academy of Sciences and the Federal Space Agency, deployed work to study space debris in-depth, in particular, space debris located at the geostationary orbit, which causes the greatest interest.

We have set up international cooperation among research centres to look into space debris in orbit and materials arising from this cooperation were presented at the forty-fourth and forty-fifth session of the Scientific and Technical Subcommittee. These were the results of a scientific network of optical instruments specially designed for astrometric and photographic observation.

This type of cooperation is open to all countries. It has thus laid the foundations for international projects along these lines.

Within the framework of the discussion on the agenda on space debris, the Russian delegation made three presentations at the forty-fifth session of the Scientific and Technical Subcommittee.

As regards the work of the Inter-Agency Space Debris Coordination Committee, we believe that it must continue studying the problem on an independent basis without extrapolating its results on to the methods of work of the Scientific and Technical Subcommittee.

We evaluate, in a positive way, the upshot of the Working Group on the Use of Nuclear Power Sources in Outer Space. This Group continued its work on a draft Security Framework for the Use of Nuclear Power Sources in Outer Space.

In the course of the last session, a number of delegations pointed out that the use of nuclear power sources for space missions is of great significance because in many cases, nuclear power is the only source that can be used for specific types of mission programmes.

Of great significance is another item on the agenda of the Scientific and Technical Subcommittee, near-Earth objects. It is a subject of global significance and it attaches upon a broad range of issues pertaining to the threat of collisions between asteroids and the planet Earth. A useful discussion of further steps by States in this area will, we hope, be held in the course of a conference entitled "100 Years since the Tungaska(?) Phenomenon: The Past, The Present and the Future". This Conference is being organized by the Russian Academy of Sciences and will be held on 26-28 June of this year, in Moscow.

In its forty-fifth session, the Scientific and Technical Subcommittee also held an organizational meeting of the International Committee on Global Navigation Satellite Systems, GNSS, which was created in 2006 upon the recommendation of the United Nations General Assembly. Russia is a participant, a member of that Committee. That session discussed the upshot of the second meeting of the International Committee on GNSS held in September 2007 in India and reviewed the implementation of the steps approved by the Committee as well as prepared proposals for the future procedures, statute and plan of work for that Committee. In our view, it is important that that session focused on issues of international cooperation among countries owners of global navigation systems, as well as on functional additions to navigation systems currently in place.

In particular, the Committee discussed issues pertaining to the compatibility of national systems, in other words, ways to rule out an influence of one system on the functioning of the other, and ensuring the mutual complementarity of the various GNSS systems with a view to setting up at some point in the future an integrated system for severely in use.

Also the Committee considered organizational issues pertaining to the next third session of the Committee to be held in December 2008 in the United States.

In 2009, the fourth session of the Committee will be held in Russia. We are prepared to continue our active participation in the work of the GNSS Committee. Thank you very much.

The CHAIRMAN *(interpretation from Spanish)*: I thank Mr. Sergey Shestakov of the Russian Federation for his statement.

And now it is my special pleasure to give the floor to Dr. Sergio Camacho, who is now representing Mexico. You have the floor Sergio.

Mr. S. CAMACHO-LARA (Mexico) *(interpretation from Spanish)*: Chairman, thank you. I should like to, as we have said before, that it is a great pleasure for us to see you chairing this meeting. And I would like to say this to you not only on behalf of my delegation but also in my own capacity. For many years, I have had the opportunity to familiarize myself with your professionalism, with your commitment, and all of these qualities are ones which auger well for the success of our work.

The delegation of Mexico will now refer to the Regional Centre on the Training on Space Activities, CRECTEALC, for Latin America and the Caribbean, which is affiliated to the United Nations and whose mission is to train highly-qualified staff and personnel and strengthen the capacity of regional organizations.

The development of space applications and the technology which stems from it, presents a great many benefits at an economic and social level for all those that participate in this development and the implementation of the sciences. Meteorological data provides us with all the necessary information for more precise forecasting, a rapid alert system regarding extreme climatic phenomenon, satellite communications assist us in providing better telephone, television, radio, and so forth, communications which are of educational and health value. They are often necessary when there is a need to respond rapidly to a natural disaster. Satellite systems collect necessary data for the development of agriculture, the protection of the environment, climate change studies, the prevention and management of natural disasters and emergency response, the rehabilitation of basic infrastructures following disasters, as well as the prevention and mitigation of diseases and CRECTEALC(?) works and deals with all these aspects of activities.

The mission of CRECTEALC(?) which was set up by the Governments of Mexico and Brazil, in collaboration with the United Nations, adopted university programmes regarding satellite telecommunications, television broadcastings, satellite meteorology and other elements which were decided upon jointly by the Office for Outer Space Affairs and CRECTEALC. As you well know Sir, we have a campus both in Mexico and in Brazil and they enjoy the support of natural institutions of global fame. INPE in Brazil and the National Institute for Astrophysics and Optical Sciences in _____(?) in Mexico.

And this Centre also enjoys the support of the Ministers of Foreign Affairs of Mexico and Brazil. Its staff is made up of renowned scientists and experts. CRECTEALC presently offers six- and nine-month courses complemented with additional projects on satellite telecommunications and geographical mapping. The Centre will soon offer meteorological satellite programmes and courses and fundamental satellite-based knowledge.

In 2007, eight courses were organized. They were between nine and 12 months in length on geographical mapping and satellite telecommunication. Two hundred and 14 students graduated and 70 projects were implemented. The Centre has also organized 10 workshops, short duration courses on both campuses in Brazil and Mexico.

And the following elements should be highlighted. There was a short course on geotechnological application for space, or rather for disaster management and prevention in Ecuador. This course was organized in collaboration between the Brazilian and the Centre on Integrated Data Using Remote Sensing in KSN(?) and was held in Quito from 20-24 August 2007.

There was another course on geotechnology to mitigate the impacts of natural disasters in Merkasur, the course took place from 27-29 November 2007 on the Brazilian campus, this with the support of SPIDER.

The Brazilian and Mexican campuses also participated in the Meeting of Experts to promote space law education, which was organized by the Office for Outer Space Affairs on 3-4 December 2007, this with a view to elaborating a space education programme.

The first course of the Galileo summer school for Latin America, it is a short course, which took place on 4-5 December on the Brazilian campus, took place with the participation of the University Coordinator of the Mexican campus.

During the present year, CRECTEALC has organized two long courses on remote sensing on the Brazilian and Mexican campuses, as well as a course on satellite communications, which is carried out on the Mexican campus. These courses started in 2008 and will run through to 2009.

Chairman, Mexico notes with interest that in the Latin American and Caribbean region, we are faced with a very specific situation. Countries such as Chile, Ecuador, Venezuela and so forth continue to set up, one was set up very recently, continue to set up institutions aimed at promoting the coordination of national space activities which can play the role of focal point for international cooperation. Similar initiatives are being conducted in other States in the region. And in a number of cases, there will be a need to strengthen, or rather to elaborate, develop national space plans and to complement national space legislation. Space legislation should be in conformity with international norms on outer space to facilitate the participation of our States in international projects and activities. CRECTEALC will contribute to these efforts.

In 2008 and 2009, CRECTEALC will collaborate with the Office for Outer Space Affairs and with the Regional Centres for Africa and the Asia-Pacific region to set out a number of space research programmes. Once these activities have been completed, the results will be integrated into and incorporated into the educational programme of the Centre.

The use of international satellite communication systems, GNSS, presents a great deal of potential as far as basic research is concerned as well as the many applications which can be used to further sustainable development. And this is the reason why CRECTEALC will seek to collaborate with the Office for Outer Space Affairs and the International Committee on Global Satellite Navigation, including the setting up of a set of courses regarding the application of GNSS to include all of this in the universities training course.

The Centre's activities are the following. The second course, co-sponsored by QUETET(?) in Ecuador, and the Brazilian campus, on geoinformation for the management of hydrological basins. The gravitational movement of Andean regions will take place in October 2008.

This course will continue the fruitful collaboration between these two institutions.

We will also organize the first spring course for space applications for natural disaster management and response to flooding. This course will be organized from 8-12 September 2008 by the Brazilian campus, a geo-disaster. INPE, UNSPIDER, GEOS and the Working Group of the CEOS body will all participate in this.

It is my pleasure to point out that from 28-29 August, Mexico will host the Second Workshop on the Dissemination of Information on the Activities of CRECTEALC. This Workshop is co-sponsored by the Government of Mexico, CRECTEALC and others. The Workshop will provide a forum for Latin American institutions to promote greater regional cooperation. The organizers of the Workshop will organize the Directors of the Regional Centres of Africa, the Asia-Pacific region, to engage in an exchange of experiences and to promote interregional cooperation.

Chairman, CRECTEALC will, of course, to seek to work at regional, interregional and international levels.

Presently, the Centre has signed a number of agreements with the National Commission on Space Activities of Argentina, that of Ecuador, the Society of Latin American Specialist on a Geographical Space System, the OAS, and the Office for Outer Space Affairs, as well as other organizations and bodies. We hope that this will be a fruitful experience.

By way of conclusion, the delegation of Mexico would like to underscore that in addition to inter-institutional cooperation, an important element to highlight is that in December 2007, the Governments of Mexico and Brazil invited all the States of Latin America and the Caribbean to sign and ratify the Agreement setting up CRECTEALC and to participate on the Board of Directors of the Centre. This would enable us to ensure that the guidelines, which govern the Centre's activities, be in line with the needs of the region and would enable us to further integrate the experience of national institutions and bodies, as well as training and hiring students and professors. The quality of the education, thus provided would be improved and relationships between professors active at CRECTEALC and their counterparts throughout the region would enable us to set up collaboration programmes between the various institutions. Thank you Sir.

The CHAIRMAN *(interpretation from Spanish)*: Thank you Mr. Camacho. It bears me to say that it is a great pleasure for me to see and to witness the great commitment of which you are leading CRECTEALC works. I believe that this will be quite positive for the region. This is a result of many years of experience and I think that we are all directly associated in this both you and I and I thank you again.

I have two further delegations on my list of speakers. We have Brazil, followed by Chile. Brazil first.

Mr. J. M. FILHO (Brazil): Thank you very much Mr. Chairman. I would like just to take this opportunity to, on behalf of the Brazilian delegation, thank the Mexican delegations for their speech and underlined importance of the activities currently being undertaken by the Regional Centre for Space Science and Technology Education for Latin America and the Caribbean. We are confident that, under the leadership of Dr. Sergio Camacho, the activities of the Centre, which have been very visible and practical, will obtain increasingly positive results.

And we also would like to take this opportunity to reinforce the invitation mentioned by the Mexican delegation to the countries of Latin America and the Caribbean to join the Centre. We believe that the region would greatly benefit from the participation of more countries in the definition of the priorities and goals of the Centre. Thank you very much Mr. Chairman.

The CHAIRMAN *(interpretation from Spanish)*: I thank the delegate of Brazil for his statement. He thus backs CRECTEALC.

I will now give the floor to the delegate of Chile.

Mr. R. GONZÁLEZ ANINAT (Chile) *(interpretation from Spanish)*: Chairman, thank you. At the outset, I would like to say that it is a great honour for me to take the floor on an issue which we have already addressed with a great deal of care in the past and one which the Director of the Centre in Mexico has just spoken to. I am referring, of course, to my friend and colleague, Sergio Camacho. And the representative of a friendly country, Brazil, confirmed this.

On behalf of my country, Chile, we would like to voice our firm support for the work carried out by CRECTEALC. With detailed description which Mr. Sergio Camacho provided us regarding the

activities of the Centre constitutes an element of additional motivation which falls within the general framework of the epicentre(?) taken in our region to promote or rather to move forward along the path of what was proposed by the General Assembly, I am referring to cooperation in space activities. This is true of Argentina as well. And this is also in line with the institutionalization, and I am here referring to the Space Conferences of the Americas, and all these efforts yield tangible results and feed on one another.

So we wanted it to be entirely clear that we firmly back CRECTEALC and Chile intends to join it soon and thus become a member of the Board of Directors of this important organization. Thank you.

The CHAIRMAN *(interpretation from Spanish)*: I thank the Ambassador of Chile.

And as I have no further speakers on my list on this agenda item, we will now suspend our consideration of agenda item 8, Report of the Scientific and Technical Subcommittee on its Forty-Fifth Session, pending the discussions regarding the proposed guidelines for selecting and setting up UNSPIDER Regional Support Offices.

If any delegations wish to take the floor on this they will be able to do so tomorrow morning.

Report of the Legal Subcommittee on its forty-seventh session (agenda item 9)

Now moving on to item 9 of our agenda, Report of the Legal Subcommittee on its Forty-Seventh Session.

On this item, I have three delegations on my list. The first of these is the distinguished representative of Nigeria, Mr. Wale Momoh. You have the floor.

Mr. W. MOMOH (Nigeria): Mr. Chairman, the Nigerian delegation wishes to commend the Chairman of the Legal Subcommittee, Professor Kopal, for bringing his wealth of experience to ensure the successful forty-seventh session of the Subcommittee.

We also want to thank the Secretariat for the report, as presented to this Committee.

In presenting the report to the Committee for adoption, Nigeria wants to comment on the issue of capacity-building in space law.

As we are all aware, this is a new agenda item approved by the Subcommittee during the fiftieth session for the COPUOS in 2007.

The Subcommittee was mandated to deliberate on ways and means of building capacity in space law, especially for the benefit of developing countries.

It is gratifying to note that at the conclusion of the Subcommittee's report, deliberations on this item, a programme of action was adopted which prepares specific action by the Office for Outer Space Affairs, member States, international and intergovernmental organizations. This includes training and the development of the capacities of developing countries in space law.

The benefits of this to the Committee is that this would enable developing countries to not only properly _____(?) treaties on space law but to understand and implement the provisions of such treaties and laws for orderly and peaceful uses of outer space.

We, therefore, call on all member States, international and intergovernmental organizations, with capacities who are advising the accommodation of the Subcommittee on this agenda item to make best efforts in its implementation. Nigeria, therefore, commends this report for adoption. Thank you.

The CHAIRMAN *(interpretation from Spanish)*: Thank you Mr. Momoh of Nigeria.

I now recognize the distinguished delegate of the Russian Federation, Olga Mozolina. Madam Mozolina, you have the floor.

Ms. O. V. MOZOLNA (Russian Federation) *(interpretation from Russian)*: Thank you Mr. Chairman. First of all, the Russian delegation would like to thank the Chairman of the Legal Subcommittee of COPUOS, Professor Vladimir Kopal, and the Chairmen of the Working Groups. Their experience and the highest professionalism they have demonstrated allowed for a very fruitful discussion on a number of issues pertaining to international space law in the course of the forty-seventh session of the Subcommittee.

This year the Legal Subcommittee included new items in its agenda and because of that, in our view, its work has been revived to a great extent.

With regard to the matter of capacity-building in space law, our delegation shares the view that the improved situation in terms of international space law education is a necessary condition for the further development of space activities and making sure these are activities are based on international law.

In addition to national efforts in this regard, we should note the work of the Legal Subcommittee and COPUOS itself to disseminate information on the current status of international space law.

In particular, I would like to mention the seminars on space law that the Office for Outer Space Affairs has been holding on a regular basis.

In this regard, we would like to suggest considering the possibility of arranging education, within the framework of the United Nations University, on subjects that have to do with space law.

Still on the matter of capacity-building in international space law, there is another new agenda item entitled "General Exchange of Views on National Legislation Pertaining to the Exploration and Use of Outer Space for Peaceful Purposes". The information we received under that agenda item was interesting and useful and we have no doubt that the consideration of this new item will make us more informed on the international level in terms of the various existing domestic mechanisms for regulating space activities. National legislations are of paramount importance to ensure compliance with international space law.

At the same time, national legislation is mostly focused on implementing international legal norms and principles within each country. And in that context, enacting national legislation cannot replace the progressive development of international space law. For many issues that this Committee has been discussing can be resolved only on the level of international space law.

Specific space activities often touch upon the interests of several countries at a time and sometimes the international community as a whole. Therefore, it is important that international legal instruments be in place to define the standards and norms for the conduct of all actors in the outer space arena. Only such an approach can ensure the predictability of the ways and means whereby outer space is used and ensure the stability and sustainability of space activities for the benefit of all nations and States.

In this context, we would like to call on all delegations to take an active part in discussing the current status of international space law and the possible parts for its future development. Agreement as to having such a discussion was reached within the Working Group on the Status and Implementation of the Five United Nations Outer Space Treaties.

After, and this regretful, delegations failed to reach consensus as to the development and dissemination of a questionnaire on the prospects for the further development of international space law.

The Russian delegation welcomes the start of a discussion within the Working Group mentioned above of the question whether or not current international law ensures the necessary legal regime for activities on the Moon and other celestial bodies.

This delegation believes that it is important to continue the discussion on the definition and delimitation of outer space, a discussion which, we hope, will lead to concrete results.

We do not view this as a purely academic or theoretical issue. On the contrary, the practical impact is evident. If the matter is resolved, it will create legal clarity as to the sovereignty of States over airspace and the principle of the free use of outer space and its non-appropriation.

The Russian Federation welcomes the suggestion that the agenda of the forty-eighth session of the Legal Subcommittee include a new item, General Exchange of Information on National Mechanisms Pertaining to Measures for Space Debris Mitigation. The issue of man-made space debris has, for a long time, been a source of concern to the international community. For the first time, the Legal Subcommittee of COPUOS will tackle the matter. The experience of those countries that have already developed and enacted national legislation or administrative norms and rules designed to mitigate or prevent the generation of space debris will, of course, be of great use to other States who will benefit in developing such measures in their own countries. Thank you Mr. Chairman.

The CHAIRMAN *(interpretation from Spanish)*: I thank Madam Olga Mozolina for her statement on behalf of the Russian Federation.

The last speaker on my list under this agenda item is the distinguished representative of China, Madam Xiaomei Guo.

Ms. X. GUO (China) *(interpretation from Chinese)*: Thank you Mr. Chairman. The Chinese delegation would like to take this opportunity to thank

all the delegations who have expressed their sympathies and condolences to the Chinese people and the Government for the Sichuan earthquake.

The Chinese delegation has noted with satisfaction that the results of the forty-seventh session of the Legal Subcommittee of the COPUOS and would like to make some remarks on its report.

With regard to the status and applications of the five United Nations treaties on outer space, we appreciate the efforts of the Working Group to promote wide applications of the five treaties, supports the extension of the mandate of the Working Group and will continue to take an active part in its activities, including further discussions on the issues related to the low rate of participation of States in the Moon Agreement.

Meanwhile, we are of the view that without prejudice to the existing basic legal principles on the peaceful use of outer space, we should consider supplementing and perfecting the present space legal regime by appropriate means so as to ensure the use of outer space for peaceful purposes to prevent the introduction of weapons into an arms race in space, to regulate commercial and private space activities, to protect the space environment, and to maintain sustainable use of space resources.

In this regard, we believe, from the perspective of the compilation of international space law, it is a very effective optional method to compile an effective international space law. We support a greater role for the Legal Subcommittee in this regard.

Mr. Chairman, we have noted that the definition and delimitation of outer space touches upon many complicated issues and factors and it is difficult for countries to reach agreement on these issues. Because of the importance of these issues, we agree to further discussion and consultations on the matter by States with a view to maintaining space security and promoting its peaceful use, without affecting the peaceful use efforts of countries.

Mr. Chairman, at the forty-seventh session of the Legal Subcommittee of the COPUOS, delegations of various countries have held fruitful discussions on the two emerging new items. We are very pleased with the discussions.

As to the subject on the capacity-building in space law, we are in favour of the fruitful results achieved by the Conference organized by the Office for Outer Space Affairs on the Promotion of Educational Expert Meetings, and also in favour that the space law capacity-building efforts should provide more assistance to the developing countries and provide them with effective assistance. And we also support a greater role by the Office for Outer Space Affairs and all the other international cooperation organizations and institutes in this regard.

Under the agenda item for the information exchange between various countries, delegations of various countries have held exchanges of views on their domestic legislation which has provided a sound basis for the work in the next three years. We are of the view that active exchange of information would not only be helpful to various countries for their domestic legislations but will also promote the development of international space law. We welcome all the countries to participate in the exchange of views and sharing of their experiences.

In this regard, we support the next session of the Legal Subcommittee to further discuss the various helpful ways and means to strengthen the capacity-building efforts in the various countries, particular the developing countries and review the legislation situations in the various countries and sum up experience so as to promote the legislations in the areas of space law in various countries.

Mr. Chairman, the Chinese delegation support to place the agenda item of the so-called information exchange under the mechanism of space debris mitigation in the agenda items of the next Legal Subcommittee. We will work with other countries to further make contributions to the reduction of space debris and improvement of the space environment. Thank you Mr. Chairman.

The CHAIRMAN *(interpretation from Spanish)*: I thank the distinguished delegate of China, Madam Guo, for her statement.

Would any other delegation like to take the floor under this agenda item?

The Ambassador of Chile. You have the floor Sir.

Mr. R. GONZÁLEZ ANINAT (Chile) *(interpretation from Spanish)*: Thank you Mr. Chairman. You were looking at me with a funny expression on your face. I was not sure whether you were going to give me the floor or not. But I just wanted to make a few comments.

As a Chilean leader once said, before speaking I have some observations.

I have listened with great attention to the three delegations who spoke this afternoon. We are in agreement with the major points made but we would like to make a few comments on some of the aspects highlighted, particularly with regard to the statement made by the Russian Federation. The Russian Federation indicated that seminars on space law should be held and they should take into account, among other things, the potential of the United Nations University. I think it is a very realistic suggestion. If we look at paragraph 39 of resolution 68/217, it says that the United Nations University has a clear mandate and within that mandate such seminars can very well be organized. And I would like to ask you, as Chairman, to please write a letter to the relevant authorities at the United Nations University in Tokyo and ask them to undertaken a study of the matter. I believe that this would make it possible for us to improve the quality of this discussion within the Legal Subcommittee, since we are talking about a United Nations body, the United Nations University, which, in my opinion, is under-used. We should not really reinvent the wheel. And I have already quoted paragraph 39 of the relevant resolution of the General Assembly which makes it very clear that the United Nations University should be involved in these type of activities. So do please write this letter.

The Committee has, on many occasions in the past, written letters of this kind and a lot of the time these initiatives were very successful.

Now, with your permission, Mr. Chairman, once again, coming back to this paragraph 39. There is a slight detail which is very important. We talk about climate change, about space law, about outer space, I believe, Mr. Chairman, that it is a little strange that a suggestion that has to do with space technology on climate change was rejected in the last session. I did propose a new item for the agenda and paragraph 39 of the United Nations General Assembly resolution particularly addresses these matters. So, once again, I would like to make sure that what I proposed be taken into account.

We believe, Mr. Chairman, that the participation of the United Nations University could be fundamental. Universities are there not just to publish papers and reports, but also to organize seminars, workshops. We have a representative of UNESCO participating in our work. I think having a representative of the University would also be very valuable. Why not have a representative of the United Nations University take part on a regular basis in sessions of this Committee? I think it would be very useful.

Also, Mr. Chairman, the matter of space debris is an issue that we have discussed within the framework of the Scientific and Technical Subcommittee so far. We also discussed in that Committee the use of nuclear power sources in outer space. If we continue discussing these issues, without establishing a link to what is being done by the Subcommittee, we think the vision we have here in the plenary Committee, COPUOS, would be a partial vision not a complete one. We should really take into account all the discussions that have already taken place and the guidelines that have been developed. Space activities have always been considered a dangerous type of activity, a type of activity that absolutely must be regulated and we believe that it is important to discuss this in the legal framework, within the Legal Subcommittee as well.

I think we should address directly the threat posed by space debris. Countries such as mine have been threatened in the past by the possibility of space debris falling on Earth so why not discuss the matter in a very clear way? The Scientific and Technical Subcommittee is not an island on to itself and the Legal Subcommittee should be involved in this discussion. We should exchange information and we should make sure that they work together.

In conclusion, Mr. Chairman, I would like to make a remark on the excellent statement made by my neighbour on the right, the Chinese representative. I fully agree with the statement made by China. China mentioned space security. I would like to point out that we would like to gratefully accept the offer to participate together in organizing seminars which would focus in particular on the interests of developing countries.

We would like to say here and now publicly that discussions should start on the possibility of ensuring the participation of a number of delegations, along with the Chinese delegation, in the activities of their Space Agency.

These are the comments that I wanted to make, Mr. Chairman, and I would like to conclude by insisting that you write an official letter to the United Nations University, based on the mandate established by Article (paragraph?) 39 of the resolution. Thank you.

The CHAIRMAN *(interpretation from Spanish)*: Thank you very much distinguished Ambassador of Chile. Obviously, it is within the competency of the Chair, as you pointed out, to motivate and incentivize institutions such as the United Nations University to make sure that they become involved in a more direct way, in a closer way, in the work of this Committee. Thank you very much for your statement and for your comments.

Very well. I have no further delegations on my list under this agenda item, Report of the Legal Subcommittee on its Forty-Seventh Session, item 9.

We will continue and hopefully conclude our consideration of agenda item 9 tomorrow morning.

Spin-off benefits of space technology: review of current status (agenda item 10)

Now we are moving on to item 10, Spin-Off Benefits of Space Technology: Review of Current Status.

I have only one delegation on my list so far and it is Japan, Mr. Tetsuya Nagatomi. Mr. Nagatomi, you have the floor.

Mr. T. NAGATOMI (Japan): Thank you Mr. Chairman, distinguished delegates, on behalf of the Japanese delegation, I am honoured to present to you some _____(?) of Japan's spin-off efforts in the field of space technology at this session of COPUOS.

To begin with, the Japan Aerospace Exploration Agency, JAXA, has established an industrial collaboration partner in order to strengthen the competitiveness of the Japanese space industry and enhance their utilization(?). The department which is predominantly in the charge of the spin-off IA technology transfer various space technology important(?) and intellectual property accumulated by JAXA for industrial use. It is expected to boost the level of cooperation among public, academic and the private sectors.

During the last session of COPUOS, Japan introduced a couple of spin-offs examples, such as the general water application system which we will apply to drinking water, the production technology for space. New types of _____(?) treatment(?) were also introduced. This _____ *(not clear)* utilized for the _____(?) power generation in space.

We would also like to introduce some upcoming spin-offs. The general review(?) this important facility with applied recycling technology of _____(?) *(not clear)*. Japan is currently developing this technology which aims to _____(?) and exclude animal waste to point us towards then maybe the use of water or energy resources. This is just one example of a Japanese space spin-off effort and will lead to comparable spin-off benefits.

JAXA has undertaken various supported activities such as increasing the promotion of licensing by business entrepreneur(?) corporation coordinators to separate the commercialization of technology based on JAXA's licensing promotion system and opening up JAXA's RMP facilities to target companies in order to support commercialization plans.

These activities are expected to lead to further generation of successful spin-off results.

Japan is of the belief that spin-off from space technology will advance economies through the production of new innovative technologies, thereby contributing to improve the quality of life.

We have distributed brochures about Japanese spin-offs in the pigeonholes. Thank you for your attention.

The CHAIRMAN *(interpretation from Spanish)*: Yes, thank you. I thank the distinguished delegate of Japan, Mr. Nagatomi.

And now, ladies and gentlemen, if there are no further speakers, but it does seem to me that Colombia had requested the floor and it is a great pleasure for me to welcome you here Madam and to give you the floor.

Ms. H. L. BOTERO-HERNÁNDEZ (Colombia) *(interpretation from Spanish)*: Chairman, in our national statement we had said what a great honour it was for us to see you chairing our meetings. We would like to tell you what for us are the spin-offs of space technology and what this contributes to Colombia.

Public institutions have used space technology to carry out a number of missions. Our country is a country which has a number of initiatives which use space applications for telecommunications, for example, we have the use of space applications for telephone transmissions, for emergency response, maritime security, and air traffic control. The Minister of Communications is currently preparing a project which will present our country with an opportunity for

managing development in remote areas and ensuring that these areas are covered by the telecommunications network. And it will also be extended to the countries in the region.

Our Government has an increasing number of clients for its GPS system by using a system of coordinates which can be used in our country and the region as a whole.

In our country, we analyze our territory using space images which can be purchased from specialized enterprises. These data can be use in different countries, ours does, but a number of decisions have to be taken here to facilitate this. And the Colombian Space Commission has decided to provide a number of resources to institutionalize and to promote guidelines and the use of space research systems and to enhance the capacity of our country in a number of fields.

We would like to set up a number of technological measures and to promote knowledge transfer, transparency in telecommunications and to promote cooperation with other national and international institutions.

We would like to ensure that space technologies be considered part and parcel of sustainable development.

and by way of conclusion, the national institutions in our country active in this field would like to have more resources at their disposal to promote this type of activity and the Colombia Space Mission seeks to strengthen and to back up a number of initiatives already undertaken to guarantee the same and to ensure that Colombian society benefit from all space applications. Thank you.

The CHAIRMAN *(interpretation from Spanish)*: I thank the delegate of Colombia for her statement.

Any further requests for the floor?

It does not seem to be the case.

Other matters (agenda item 14)

I therefore, believe that we can begin our consideration of agenda item 14, Other Matters.

As you well know, we have other matters to consider, statements to hear, but we have now reached this agenda item, Other Matters.

And the Committee will consider several matters but I believe that we can consider the proposed Strategic Framework for the Programme on the Peaceful Uses of Outer Space for the period 2010-2011. Copies of the relevant document have been distributed to delegates' pigeonholes this morning.

And I should now like to draw your attention to the fact that this document contains a proposed draft Strategic Framework for the Programme on the Peaceful Uses of Outer Space for the period 2010-2011. Delegations are invited to make comments on this document, document A/63/6, and this is the proposed draft Strategic Framework for 2010-2011.

This is a biennial programme. This is a very simple document. It has a first part, general guidelines, United Nations resolutions, mandates, the history of this topic is also contained in here, but you are all familiar with it. It, of course, refers to UNISPACE III, as well as to various programmes which have been set up by the Office for Outer Space Affairs.

It has a fairly simple structure which enables us to draw up a comparison between results expected by the Secretariat and indicators, of delivery indicators, which are found in the right square on Page 3.

We then have what would be most useful as far as strategy is concerned, we have the proposal on capacity-building as far as the implementation of the international regime is concerned. And in Part C, we refer to implementation of resolutions, achieving consensus between governments and various organization, and everything that takes place within the United Nations.

And finally in this document, we have a reference, or a list of the various mandates which have been created by General Assembly resolutions.

As you can see, this is a reference document, a document which the thrust most of you are familiar with and this is why it is very important that we should adopt it because it constitutes a strategic framework which structures all activities to be undertaken.

Do any delegations wish to take the floor on this?

Yes, the delegation of Mexico. Mexico, you have the floor.

Mr. S. CAMACHO-LARA (Mexico) *(interpretation from Spanish)*: Chairman, thank you. I only have the English version before me. I have

looked for the Spanish version but I have not found it unfortunately. And I would like to turn to Page 4 under little (d) and little (i), where it states and I will read it in English.

(Continued in English) "Increased number of countries requesting assistance in the definition of disaster management planning and policies."

(Continued in Spanish) And I believe that it would be useful if we were to come up with a definition of what we mean by planning disaster management.

Perhaps then instead of what we have in English here, we could state:

(Continued in English) "Requesting assistance in defining disaster management plans and policies".

(Continued in Spanish) Perhaps this is what is at stake here because this is an indicator and we have to see whether the text which we have here is the right one.

The CHAIRMAN *(interpretation from Spanish)*: Thank you. So the performance indicators which we have on Page 4 which you have referred to and I would ask the Secretariat to confirm this. They deal with the act of defining rather than the definition itself. But this is why I believe that you are quite right and that your proposal is a pertinent one. In other words, to present the whole thing a little bit differently and I believe that this would be a good way to meet your question, your request, in fact.

So we have taken note of the comments made by Mexico and I will now give the floor to Bolivia.

Mr. P. MARCA-PACO (Bolivia) *(interpretation from Spanish)*: Chairman, thank you. I have two comments to make. They are not on the document but on the procedure which we are to follow.

We were told that this was a draft project. This means that we cannot take a decision on this now. However, I, for one, do not know whether the document has been translated in all the different working languages, the United Nations working languages. It seems to me that it has not been. I was told that it was only available in English. So as far as the procedure is concerned, and only procedurally, this is right. I had already mentioned this in previous meetings. It seems to me that this a criterion which is not always taken into account. This is something which, of course, poses a number of problems. But in order to facilitate our deliberations, I do not know whether the Secretariat or the author of the document could perhaps present this to us so we all understand what this draft project is all about and then we would know whether we can engage in deliberations now or whether we would require a little more time to prepare to consider this at the end of our meeting because we would not to find ourselves in a situation where we are in a weaker position than those for whom English is their mother tongue.

The CHAIRMAN *(interpretation from Spanish)*: Yes, I will reply immediately, if I may, because I believe that these are very pertinent comments.

So, firstly, we have attempted to place this draft project within the framework of preliminary deliberations, no decisions are to be taken at this stage. And then after that, we can move forward in our work but because we wanted to move forward as much as we could, the documents have not all been translated into all the different languages, including Spanish unfortunately. But as the Secretariat has told me this strategic plan is a very important one and this document will, of course, be translated in Spanish and as soon as we all have a document in all the languages before us, we will be able to make decisions on this.

Do you agree that we should forward as well?

I give the floor to the Secretariat.

Mr. N. HEDMAN (Deputy Secretary, Office for Outer Space Affairs): Thank you Mr. Chairman. Yes, indeed, the Secretariat would just like to respond to a couple of questions provided by the distinguished delegate of Bolivia.

This document is the document that is the fundament(?) for the programme planning of the Office for the biennium 2010-2011. The document will be considered tomorrow afternoon by the Committee on Programme Coordination which is a Intergovernmental Committee in New York. And the Director and other colleagues from the Office will attend that session through a video conference tomorrow afternoon.

It is a proposed strategic framework because this is the proposal to the General Assembly. So it still a proposed strategic framework that will go to the United Nations General Assembly for endorsement.

This body, the Committee on the Peaceful Uses of Outer Space, is not required to adopt the document. This is not a legal document for this

Committee to take action on. The Secretariat, however, appreciates and commends any comments, any observations that we can take note of and that would be helpful in our video conference with the Committee on Programme Coordination tomorrow. Thank you Mr. Chairman.

The CHAIRMAN *(interpretation from Spanish)*: Very well, thank you. So following these explanations provided to us by the Secretariat, do any of you have any additional comments to make.

Yes, I believe Bolivia has asked for the floor.

Mr. P. MARCA-PACO (Bolivia) *(interpretation from Spanish)*: I would like to add one thing to what I said earlier, regarding the translation of the document into Spanish. Because we are told that this is a document which will be considered tomorrow. I would like to know why this document is being presented here whereas it will actually be considered by another body? Why do we have to consider it if we are not in a position to take any decisions?

The CHAIRMAN *(interpretation from Spanish)*: Well, it is often a case when we receive a document just for our information. It does not require any decisions to be taken. This often happens, especially when it comes to informing us what the Secretariat has to do in its work for other United Nations institutions or organizations. It does not require us to take or make any decisions but it is, however, useful for us to receive this information.

Please do not worry. The Spanish version will be presented, the same is true of all other working languages. They will be ready tomorrow morning and all delegations will be able to read it and make any comments.

Mr. P. MARCA-PACO (Bolivia) *(interpretation from Spanish)* But this does not resolve the problem. It is not just a question of languages, even if this should have been dealt with already, the substance here is to know why this is being presented here if we cannot take any decisions on it and we cannot even make any comments.

The CHAIRMAN *(interpretation from Spanish)*: I would reply with the same reply I gave you earlier. These documents need to be translated and they will be. The Deputy Secretary very clearly explained what this was all about, a video conference will take place tomorrow in New York, and the thrust of the document was to be communicated to the delegates here today. And this is something which has to be done within the framework of United Nations activities and the activities of other bodies.

We will consider this tomorrow and we will now move on to the technical presentations and I would like to give the floor to Mark Heppener of the International Astronautical Federation who will make a presentation on Space and Society.

I apologize, is that a question on the strategic programme?

Mr. V. KOPAL (Czech Republic): Mr. Chairman, I also wanted to make a brief remark on the document A/63/6. First of all, I believe that the whole of this document is very useful and very well conceived. I do not have objections against the document as it has been prepared. I only wanted to support the remark made by our distinguished colleague, the representative of Mexico and our dear friend for a long time, a very successful Director of the Office for Outer Space Affairs, Sergio Camacho. I think it was a very good observation so I support it.

And I have also one minor observation regarding paragraph 5, sub-paragraph (a) on Page 4. I believe that the present language is a little narrow, in my opinion, "promoting greater awareness of and strengthening the capacity to implement the international legal regime governing outer space activities, including …". I would like to suggest to delete the words "the capacity to implement" in the first and in the beginning of the second line, saying "promoting greater awareness of and strengthening the international legal regime governing outer space activities" and now add "and its implementation, including the development …". So this is the substance of my suggestion.

The CHAIRMAN *(interpretation from Spanish)*: Very well. We have taken note of Mr. Kopal's proposal. It is a very pertinent comment. Please if you are so kind.

Mr. V. KOPAL (Czech Republic): So now the text of sub-paragraph (a), as amended by our delegation would read as follows: "promoting greater awareness of and strengthening the international legal regime governing outer space activities and its implementation, including the development of national space legislation, and promoting increased opportunities for education in space law."

The CHAIRMAN:: You are very kind.

(Continued in Spanish) I think this is an outstanding proposal and I thank you for it. So we will amend it as just read out.

So, as I said, we will move on to the technical presentations, the first of which will be presented by Mark Heppener of the IAF who will make a presentation on Space and Society. I give you the floor Mr. Heppener.

Mr. M. HEPPENER (International Astronautical Federation): Thank you very much Mr. President. It is really a great honour for me to be offered this opportunity to talk to this esteemed audience. What I would like to present in this presentation is the newly-established policy of the International Astronautical Federation, which is called the Space and Society Policy which I will be honoured to address the Chair.

I would like to give you some introductions to this Policy as well as its members, the priorities we have set for this year 2008 and the activities we are trying to initiate as well as the outlook to future activities and how we think we can move on in the future.

I do not think I really need to introduce the IAF again. You know that is a body consisting of roughly 200 members in 45 countries. The IAF itself was established in 1951 but only very recently the initiative was taken to set up an Administrative Committee on Space and Society which was established by the IAF Bureau last March 2007, and we had our first meeting in September last year during the International Astrononomical Congress in Hyderabad.

During the presentation last Thursday to the COPUOS meeting, one of the members of this Committee, Sergio Camacho, gave a very short brief on what this Committee has as its objectives and he already announced that today there will be a little longer presentation on this Committee and what we plan to do.

If you will allow me to shortly introduce my scripts, shortly introduce myself, sorry, the Committee first, of course. This is the Terms of Reference that we have ourselves. We would like to advise the Federation as a whole on activities that will increase the understanding and appreciation of the benefits and importance of space activities for the general Earth population, enable and open by direct _____(?) dialogue between the general public decision-makers and actors in the space domain, list the involvement of the IAF members societies as active partners in the above endeavours being particularly well-placed to bring the very stakeholders together. And last, the number of professional member societies of the IAF and increase the presence of IAF to member societies in emerging space countries and developing countries.

That is key, I will repeat that several times, in the Terms of Reference as you see them here, is in the least double meaning of the word “society”. Of course, first of all, the general Earth population of society, the very clearly also the role that we think the IAF societies, the member societies could play in these activities and that is, of course, what should distinguish us from many other activities that are ongoing under this title “Space and Society” which are large and vast, of course.

Now, again to introduce myself a bit. I have been chairing this Committee because I am representing one of the small member societies that constitute the IAF and the Chairman is also of the Dutch Society for Aerospace. One of these, of course, is very active member in the space domain but our society is very small. Nevertheless, in my daily work as the Chairman there, I notice the interest of our members not only to communicate on space activities in The Netherlands but really to open the dialogue with other members and other groups in different corners of the world. And that, I think, is a key to this overall activity we are proposing here.

Because also I wanted to show at least one space picture, I also would like to mention that in my daily work, I am Head of Science and Applications in the European Space Agency and this is the only space picture I can offer you today but it shows you the Columbus Laboratory that was very recently last to the Space Station and I thank all you first hand that we have started our first scientific activities there. I just wanted to mention that also.

These are the other members of our group. As you can see, and maybe something to be improved. This is still a group where a large fraction of the representatives are from the developed countries in Europe and America, as well as Australia. We do have some representatives from other countries in the world as well but it is some of the aspects which I personally, as the Chair of the Committee, would like to improve in view of the dialogue that we are trying to set up.

We have a work plan. In very general terms, we would like to thank our activities in the following way. First of all, being used (new?) to the various terms, of course, to the domain of space and society, we would like to gather more information. Then we

reach out to the different actors in the field and connect people to each other, support innovative space applications, communicating and raising support, including financial support.

Now, of course, that sounds very grand. In reality, you have to be modest certainly in your first year of operation. For this current year, we have defined two _____(?).

The first one you may consider rather internal to the IAF but we do believe that more committees are present in the IAF that are actually very active in this domain. So we have sent out the questionnaire to our other IAF member societies and we would like to get their support and interest on the activities that we propose and also to make the different societies more visible on the IAF website via some specific corner in the website "Meet Our Societies", including a discussion forum.

That is the, let us say, the in perspective part of our work for this year.

The second priority is when to help set up new societies, in particular in countries where we believe that it would be a good idea to do so, where the IAF is under-represented or where space assets can really bring significant aspects to society and not yet really captured.

And in this action, we have again a few bullets that we would like to conclude with you.

First of all, just some geographic overview of current member societies. Also do an analysis on that and select some few regions because you cannot do everything in one go so we would like to do this in a stepwise approach, get some inputs also from other actors in the domain like the Space and Society Committee of the International Academy of Astronautics but also the IAF Committees on _____(?) and Education, the Young Professionals _____(?), etc.

So we would like to maybe handpick a few key areas and maybe even a few people who we would like to directly approach on _____(?) activities.

Then a very important element because we think it is important for many domains where space enthusiasts or active people in the space domain are existing to offer them the support to set up a higher level of organization. And what we can offer is, of course, to set up an IAF member organization and we would like to really present our support in doing such.

A key action also is to have the current presentation. We believe it is very important that if we open a dialogue, we are not only talking but we should also listen and this was one of the platforms that we have identified as one with opportunities to present ourselves.

We also have a special session at the IAC at the Conference in October in Glasgow in October where we would specifically like to target also those who participate in the UN/IAF Workshop that was in the week before. We will also have a dedicated session during the IAC to bridge the gap between the two activities.

Furthermore, we would like to increase the membership of our activities, some of these steps have already been taken but as I mentioned in my introduction, we believe it would make sense to further improve representation and geographical distribution of members in the Committee. I already mentioned that we have sent out a questionnaire. We coordinate with all the other relevant bodies to avoid duplication and identify the areas that our IAF society can really bring better benefits and I think the other points are docketed(?).

If we look to future activities, now we, of course, have to become very careful because this is the result of some brainstorming sessions within our Committee and certainly not the final route or the final activities that in the end we are going to propose. But under the different headings that we mentioned, if you look at the reaching out _____(?) to people bullet, we really would like to be connected and promote local activities related to space astronomy, climate, etc., and if I could also, I speak from my own experience again of local activities in The Netherlands, particular also in other areas, remote areas and villages in developing countries who currently have not yet the proper access to this space infrastructure so maybe we can support and motivate them. That is really bridging the last mile gap that still has to manifest.

Also educational activities empowering people by discussion groups or other things space tools is part of our plans, otherwise I repeat not yet we will _____(?) *(not clear)*.

Then supporting innovative space applications. We will maybe even bigger, we really would like our member societies to come up with the good ideas, maybe a red-based think thank would be a good starting point to develop such innovations and such ideas. The idea of setting up a system of micro-

credits(?), funded by our member societies to support local business-based and using space initiatives is another idea. And, of course, although that is certainly something that we are not the only ones to do, making available simple and cheap tools to provide remote areas with relevant space information for educational development.

All of this is something that we are looking at and concentrating. Truly the list is not complete or maybe already including a lot of duplications, but to point out again that we believe we can make at least our own type of contribution, we think it is important that we will use the IAF member societies, the industries and the space agencies that are represented there to funding those kinds of activities, either financially or giving in-hand (enhanced?) support.

That is in short where we are. We have been set up, as I said, we are relatively young in this domain so it is very important that we start by getting the actual support of the member societies of the IAF to help increase the awareness and benefits of space activities. We have started our first year which really has been, is focused on gathering information and setting up communication lines but we do believe, and that is the key factor we have, that our society, there are 200 in total and possibly more in the future, could really bring some additional benefits to the role of space and society activities that are being done.

So please see this also as an invitation for an exciting(?) dialogue that we can either do directly with the IAF direct or personally at the IAC in Glasgow and I am really looking forward to reactions and also possibly remarks that we have missed the boat or can we take things further.

Thank you very much for your attention.

The CHAIRMAN *(interpretation from Spanish)*: I would like to thank you Mr. Heppener of the International Astronautical Federation for your presentation. I have a question. The International Year of Astronomy is an important event, do you plan to undertake activities to contribute to cooperate? Can you give us an overview? Thank you.

Mr. M. HEPPENER (International Astronautical Federation): Thank you very much. That is an excellent question. And indeed some ideas have been forwarded to us to create links with existing activities and special events. At this time, we are also looking yet for the support to get things done so I would not like today already to promise more than we can. We are actively studying that and I hope that in the next few months we can do a little bit clear statements at that time.

I had to take a bit to mention what we are discussing right now.

The CHAIRMAN *(interpretation from Spanish)*: Thank you very much for being so prudent.

The distinguished delegate of the Czech Republic. You have the floor.

Mr. V. KOPAL (Czech Republic): Thank you very much. Mr. Chairman, I have a question addressed to the speaker. Among the conclusions that he submitted before the end of this presentation, there is also one conclusion reading for this year's activity that they should concentrate on information gathering and communication with potential shareholders. I did not understand what is meant by this potential shareholders. Could he elaborate a little bit?

The CHAIRMAN *(interpretation from Spanish)*: Yes, Mr. Heppener, you have the floor. What is this shareholders?

Mr. M. HEPPENER (International Astronautical Federation): Thank you very much. If that was indeed that was in the presentation that is an obvious mistake. The word that should have been there is "stakeholders" and not "shareholders". Thank you very much.

The CHAIRMAN *(interpretation from Spanish)*: Does that clarify the question that Professor Kopal posed?

Thank you. Thank you distinguished representative of the Czech Republic.

The second presentation this afternoon will be made by Mr. Franklin Chang-Díaz of the Association of Space Explorers. It is entitled "The Asteroid Threat: The Time of International Decision Approaches". Mr. Franklin Chang-Díaz is one of the initiators of the Space Conference of the Americas. This is a very brief introduction. Please, you have the floor.

Mr. F. CHANG-DÍAZ (Association of Space Explorers) *(interpretation from Spanish)*: Thank you very much ladies and gentlemen, distinguished delegates. We are the Association of Space Explorers and we appreciate this chance to present our comments and would like to take advantage of this opportunity to also add our voice to others who have expressed condolences to the Peoples Republic of China and the

Republic of Myanmar in view of the natural disasters that occurred in those countries. These days natural disasters are unavoidable, they do happen, but my presentation is about a different type of natural disasters which is, yes, avoidable. I am referring, of course, to the threat of impact by asteroids on our planet. They have happened in the past these collisions, these impacts, with great damage as a result.

In fact, just a couple of months ago, a small meteorite fell in Peru. Fortunately, it fell in an unpopulated or very sparsely populated area and did not cause a lot of damage.

This slide illustrates the fact that at present our knowledge has improved. We have more information about celestial bodies, we have space sensing detectors, gauges, technology that is much more sensitive than what we used to have in the past and in the 1980s, for example. These are known near-Earth asteroids that have approached the Earth since the 1980s. Of course, it shows how much our knowledge and information we possess has increased.

The red here represents the largest asteroids of the order of one kilometre and more in diameter. These are rather well-known today. They are monitored by Earth-based systems and unexpected collisions with such asteroids will probably not occur any more. The draft has plateaud out as you can in the year 2008.

By contrast, smaller asteroids of the order of hundreds of metres, maybe even 50 metres in diameter like the Tunguska(?) Asteroid that hit in Siberia all these years ago. And by the year 2022, there will be a million such smaller asteroids approaching the Earth as have already been discovered.

Three hundred thousand of these asteroids will have the same impact as the Tunguska(?) meteorite, more or less, or more, but of the same order of magnitude.

Now let us see how the paths of the trajectory of asteroids is calculated. It is relative elliptical and from time to time, these bodies collide or sometimes pass close to each other but do not collide. There are certain conditions that lead to a collision. We use the term “windows” or “keyholes” actually is the scientific term used in English. In Spanish we use the word “mentana(?)”, window. These are small spaces through which an asteroid can pass and avoid collision. Such a keyhole is about 600 metres wide and it usually passes through such a window in a cycle of its movement preceding the cycle in which it actually approach the Earth. And passing through the windows in the first cycle almost guarantees a collision in the second, the next cycle. For example, we can refer to the Apothes(?) Asteroid which will pass close to the Earth on 13 April, and it is not a joke, it is indeed the 13 April, of the year 2029. It, as you see, will go through this keyhole and then it should impact on the Earth, collide with the Earth, in the year 2036, if it goes through the keyhole. The keyhole is the window that leads to a collision, that guarantees a collision in the subsequent cycle, as I said. So it could present, pose a threat to this planet.

What can we do? There are certain strategies for deflecting such asteroids, due to the technology that exists today. It is possible to modify the trajectory of these celestial bodies. And new technologies are being developed as we speak.

First, there is the so-called primary Deflection. In this case, once an asteroid has passed through a keyhole, this Primary Deflection strategy is triggered off and can be put into effect. And there are different ways of deflecting it through nuclear explosions, through various practical methods. But it is a complex issue and it will be applied to different asteroids in different ways, obviously, but all of this constitutes primary deflection, once an asteroid has passed through the keyhole.

The second strategy, or the second approach, which requires much more time, much more anticipation, lead time, is called shepherding which is obviously an English word which is a reference to a shepherd who leads his herd away from certain dangers, from certain threats. This is a method that presupposes a trajectory that avoids passing through any keyhole, that guides asteroids in between these keyholes. And, of course, the possibility of applying this method presumes that it has not yet got to a keyhole but will do so unless we act.

Now, again, in the case of Apothes(?), we have a much more detailed study already available. This is the corridor of risk, as we call it, which shows the spot on the Earth where impact is possible. The corridor of risk passes along this line that you see in this slide. And once again, impact is expected in the year 2036 unless certain measures are taken. Obviously, it is a planetary, or planet-wide, threat. It goes through Russia, over the ocean here, both oceans, in fact, the Pacific and the Atlantic, starting with the Caribbean who will cause a tsunami with considerable impact in the adjoining areas. Apothes(?) also passes through Central America, which is of interest to us, as Central Americans. And we will have a close-up here

to see where exactly it will pass and it seems to be the border between Nicaragua and Costa Rica, then the Caribbean, Colombia, Venezuela and then across the Atlantic towards Asia, barely affecting the East Coast of Africa.

Obviously, there are many options, many possibilities that are being studied and these are these corridors of risk that have been simulated for a number of near-Earth objects for the year 2020. As you see, it is truly a global phenomenon, it affects the whole world and it has to be tackled at the level of the United Nations, a truly international issue.

To conclude, our Committee, the Committee on Near-Earth Objects of the Association of Space Explorers, has carried out workshops in Romania, Scotland and Costa Rica and a fourth workshop will take place in San Francisco, in the United States later this year.

The results of these studies will be a programme of possible decisions entitled "Asteroid Threats: A Call for Global Response" which will be presented to COPUOS for its consideration, Mr. Chairman, in its session of February 2009. And the Association of Space Explorers and our Panel of Experts, we believe, is in an excellent position to provide information to governments and any other interested organizations as to the results of our ongoing programme.

At this point, we would like to thank you for this opportunity to present our findings. Thank you.

The CHAIRMAN *(interpretation from Spanish)*: I would like to thank on behalf of all participants in this session of COPUOS, Mr. Franklin Chang-Díaz, thank you for your presentation. Indeed, it gives food for thought. It makes us all think about the big threats out there.

Any questions to the speaker?

Yes, the distinguished delegate of Bolivia.

Mr. P. MARCA-PACO (Bolivia) *(interpretation from Spanish)*: Thank you Chairman. This time I am not going to talk about procedural matters but about issues that affect all of humanity, collision with an asteroid for this planet.

Obviously, it is a problem for the whole world. There will be a new world, we hope, at that time, at the time of this anticipated collision, a more fair and just world, but be that as it may, we have heard talk about keyhole asteroids passing through a keyhole. Does this refer only to the Apothes(?) Asteroid or is this something that applies to all asteroids, that they all pass through these keyholes, prior to colliding with our planet?

And my next question has to do with the second option proposed, shepherding. How can we shepherd asteroids? How can we guide them along a certain path if we do not have the capability, the power to do that? How can we affect the trajectory of these bodies? Is there a great likelihood, 80 or 90 per cent that in after these years we will be hit by an asteroid? Those are my questions.

The CHAIRMAN *(interpretation from Spanish)*: Yes, thank you distinguished delegate of Bolivia. Obviously, everyone is concerned about the capability of deflecting asteroids, deflection is the word. This is the key word. How is that to be done in the case of Apothes(?), for example, in the year 2036? And also the line that led to the Coast of Africa and seemed to end there. Why did it end there? Why did it not continue through Asia and the rest of the globe?

Before I ask the speaker to respond, I am going to ask if there any further questions.

You have the floor.

Mr. D. D. PRUNARIU (Romania): Thank you very much Mr. Chairman. I do not have properly a question but I want to add something to what my colleague, Franklin Chang-Díaz, said, not only on behalf of the Romanian delegation which organized the Third ROSA(?) Workshop in Romania, but on behalf of myself as a former cosmonaut. We worked together from a long time and we used the very performance engine proposed by Mr. Franklin Chang-Díaz. He is the owner of a private enterprise who built plasma engines that we proposed to be applied for the deflection of asteroids between other things. And thus I want to point out his huge experience in space flights. He is being one of the very few humans flying seven times onboard the Space Shuttle around the Earth. So with the engines of Mr. Franklin Chang-Díaz, we propose to deflect the asteroids and I think he will answer and if he will give more information about the questions put before my intervention. Thank you very much Mr. Chairman.

The CHAIRMAN *(interpretation from Spanish)*: Yes thank you. Thank you indeed to Romania and now I give the floor to the United States.

Mr. J. HIGGINS (United States of America): Thank you Mr. Chairman. I do have one question to add to the list, the reference made to the keyhole as specifically for Apothes(?). I wonder if Mr. Chang-Díaz could tell us what is known today as to what the probability is of that asteroid going through the keyhole. Thank you.

The CHAIRMAN *(interpretation from Spanish)*: Thank you distinguished delegate of the United States for your comment.

Any further questions? It does not seem to be the case.

So I can perhaps turn to you for responses Sir.

Mr. F. CHANG-DÍAZ (Association of Space Explorers) *(interpretation from Spanish)*: Yes perhaps I can gather all these questions together and give you one answer which would cover all of it.

The risk corridor and in Africa because the asteroid, given the rotation of the Earth, would possibly strike there so a number of countries are "safe", if I can use this term, and this is why the trajectory does not cover the whole of the globe.

Now, there was another question on the keyholes. These are tiny keyholes, 600 metres, and the probability is, therefore, a very, very small one. But what does happen is that one can calculate a total probability basing ourselves on the number of the asteroids and the duration during which this event can occur. So these computations are based on these probabilities. It does not only cover Apothes(?), it covers a whole set of asteroids. This is what I can say on these keyholes.

And now regarding the movement of these asteroids. We have to be able to predict the whole scenario to be able to engage in an exercise of deflection. This is not something which has to happen brutally at the last minute. This is something that has to be done gradually, in short bursts, decades, decades before the asteroid enters this keyhole.

This is not a one-off event. It is a long-term endeavour. We have to ensure that asteroids which could enter through these keyholes because each of them has its own specific keyhole, while it is up to us to ensure that it is not able to enter through these keyholes. It is an ongoing campaign.

I believe I have answered all the questions.

The CHAIRMAN *(interpretation from Spanish)*: Yes, thank you Mr. Chang-Díaz, I thank you on behalf of all of us for this very interesting presentation which raises a number of issues and certainly alerts us to what are very imminent dangers and our responsibility which is to be aware of these constant dangers. So thank you and I hope that you will also be able to make a similar presentation to the other Subcommittee.

And now the last presentation is that of Johanna Catena of the Space Generation Advisory Council entitled "Introducing a New Framework for Space Traffic Management". I give you the floor Madam.

Ms. J. CATENA (Space Generation Advisory Council): Thank you Chairman and distinguished delegations. My name is Johanna Catena and I have the privilege to address this distinguished meeting on behalf of the Space Generation Advisory Council today.

This presentation will present a range of ideas and concerns from young students and professionals regarding the space environment. _____(?) consultations and general recognition that additionally leads to prevention and identification is required, a basic theme work for establishing space traffic management control system will be introduced.

This presentation will outline the goals, purpose, methodology and the general conclusion.

The goal of the Framework is to initiate a comprehensive system that would safeguard the resources of outer space and human explorations for future generations as well as ensuring a safe space and Earth environment for the innocent passage of traffic in accordance with the Outer Space Treaty and international law.

The purpose of space traffic management is to provide a working mechanism for basic management identifying and routing as well as re-routing traffic accordingly.

The methodology involves finding coherent rules within existing international and national laws and modulations which ensures international cooperation between civilian, commercial and military operators.

By analyzing procedures and terminology used by air traffic management, some _____(?)

concepts and ideas could feature in the Space Traffic Management Framework.

Air traffic management is identified as between operational air traffic and general air traffic. Adapting similar terminology into the Framework, separate space traffic services for military, civilian and commercial users, could be provided and perhaps divided between military operations space traffic and general space traffic. General space traffic could then be sub-divided into civil and commercial space traffic.

With regard to international navigation, the International Civil Aviation Organization has designated nine air navigation regions as determined by geographical practice. This could be utilized into the Space Traffic Management Framework.

It is suggested that an International Regional Communication Ground Telemetry Tracking and Control Network is created. It is noted that pertinent(?) services include ground services, there is a Mission Control Centre brought by the launches tracked. After which, hand over procedures to another facility are implemented in order for the company and their agency that procured the launch service through a student operational capability.

The Telemetry Tracking and Control Network will consist of all mentioned Mission Control Centre and Satellite Control Centres which would fall under the nine regionally-designated Mission Telemetry(?) Tracking and Control Centres. Each regional Mission Telemetry Tracking and Control Centre will direct general space traffic only.

The _____(?) Space Traffic Mission Telemetry Tracking and Control Centre will be located in Africa, India, Asia, Caribbean, Europe, Middle East, North America, North Atlantic Region, Pacific, South America Region. All Mission Control Centres and Satellite Control Centres would report to their appropriate Regional Mission Telemetry Tracking and Control Centre in an international cooperation effort to coordinate all space traffic. In order to facilitate communication and cooperation, a single automated tracking _____(?) and graphical user interface must be utilized in a network between all Centres.

Regional Mission Telemetry Tracking and Control Centres will provide similar services to ICAO information regions, that is space flight information regions, from launch to orbit injection.

Designating an appropriate Regional Centre for Mission Control will be based in the location of the launch site provider. The Mission Control Centre would coordinate any space launches through their Regional Centre. If the only operator is of a different geographical location to that of the launch provider, then the Regional Centre that provided Mission Control analysis and launch clearance would transfer tracking telemetry and control services to the appropriate Regional Centre which is again determined by the location of the owner and the authorities of satellites and Control Centre.

Military operations in space traffic will be dealt with by the military agency responsible for the space object and military operations space traffic could make it in cooperation with general Space Traffic Mission Tracking Telemetry Tracking and Control Centres and identification systems for military operational space traffic, without revealing _____ *(not clear)* due to national security requirements should be provided by the responsible agency in order to facilitate coordination with general space traffic. For example, during summer(?) ICAO and _____(?) with regard to air traffic services where a coordination between military authorities and air traffic services is provided. Under these provisions, arrangements can be made to permit information relevant to safe expedient conduct or flight of civil aircraft to be complete exchange between air traffic services unit and appropriate military unit. But, the air traffic services unit shall either routinely or on request provide the appropriate military unit with personal flight plan and other data concerning flights of civil aircraft. A flight plan is also required under controlled air space and where visual flights rules do not apply instruments light(?) rules used to separate traffic.

Transferring these provisions into the space traffic management zone web, we have to permit information relevant to the safe, expedient conduct of general space traffic to be constantly exchanged between Regional Mission Telemetry Tracking and Control Centres and the appropriate military units.

Thus, Regional Mission Telemetry Tracking and Control Centres shall either routinely or on request provide appropriate military units with personal space flight plans and other data concerning general space traffic.

Utilization national space laws in the Space Traffic Management Framework with regard to licensing space activities, all Mission Control Centres should provide to the appropriate Licensing Department an informational space flight plan in advance of any orbital or sub-orbital launch plan. This would also be made available to all Regional Mission

Telemetry Tracking and Control Centres. The information provided on the space flight could consist of launch date and time and civil space traffic and commercial space traffic identification, the launch provider and all space launch, the space launch vehicle and/or spacecraft operator, payload, designated Regional Mission Telemetry Tracking and Control Centre, the spacecraft approach to orbital plan information, for example, the _____ *(not clear)* element is applicable and is not military operations space traffic, a military operations space traffic identification code, descending re-entry information and astronauts and other passengers if it is a human space flight mission.

If the launch date and time changes or is postponed, the Mission Control Centre should inform the Regional Mission Telemetry Tracking and Control Centre using the peaceful and flexible use of air space concept which avoids any military designations typically between civil and military users where the air space is viewed as one continuant providing some flexible use on a daily basis to all users. This principle could be transferred to apply to any space launch from any launch pad or commercial space port. Thus Earth _____(?) space flight plans aside, the air space is reserved for the duration of the launch or re-entry. The Regional Mission Telemetry Tracking and Control Centres would coordinate with air traffic control services to ensure notification and re-direction of traffic.

Again, drawing on some of the terminology used in air traffic control, space traffic includes space objects ascending and descending including re-entry between …

The CHAIRMAN *(interpretation from Spanish)*: You can continue please.

Ms. J. CATENA (Space Generation Advisory Council): … Thank you. Again, drawing on some of the terminology used in air traffic control, space traffic includes space objects ascending and descending including re-entry between initial sub-orbital and orbital launch phase on spacecraft subject to the orbital approach phase.

The term space object includes component parts of a space object as well as its launch vehicles and parts thereof as defined in the Liability Convention, Article 1(b).

Sub-orbital activity includes finding rockets, weather balloons, zero-gravity flights in space tourism. Initial sub-orbital, orbital launch phase incorporates the term "launching" which includes the terms of launching. Launching also incorporates all flight services from stage separation to posting. Due to the international nature of space activities and to facilitate the movement of all kinds of space traffic in the future and to achieve a continuous space traffic management system across the border and international transnational Earth-space aid(?) could be provided. The transition of airspace could be located within the necessary layer of the atmosphere from 50 kilometres to 90/100 kilometres above the Earth's surface.

The space _____(?) orbital approach phase includes payload separation and orbit injection _____ *(not clear)* but under this segment the space object uses this information provided for which incorporates the space object's orbital perameters, the latitude(?) space object latitude and those who are concluding any kind or orbital manoeuvres in particular the orbiting.

Also transfer from spacecraft approach phase to final graveyard orbit, that is _____ *(not clear)*.

The Regional Mission Telemetry Tracking and Control Centre under Mission Control services will be responsible for the launch and re-entry clearance and the launch provider and Mission Control Centres have started space _____(?) plans for a _____(?) Regional Centre who will then distribute the plans to the eight Regional Centres, a pre-launch(?) space crew(?) assessment will be performed ensuring the flight mission path is clear. The Regional Mission Telemetry Tracking and Control Centres will deal with air defence identification frame providing information and identification of any space object re-entering the Earth's atmosphere.

The Tracking Telemetry and Control Centres include providing orbit _____(?) which also being part of the launch clearance. Other services include maintaining minimum distance(?) for the space separation of space objects and guiding them(?) over to manoeuvres. To facilitate on-orbit support, the owner/operator must provide advance notification to their Regional Centre of any planned manoeuvres. Satellite fragmentation deals(?) with information. This information will only be shared amongst the nine Regional Centres who will not re-distribute the information outside the Space Traffic Management in a network.

The Outer Space Treaty provides under Article 8 that States shall retain jurisdiction and control over objects launched into outer space that are

registered to a State and their presence in outer space or return to Earth remains unaffected. Following the definition of a space object under Article 1(b) of the Liability Convention, which includes component parts of a space object as well as the launch vehicle component parts thereof States should retain ownership and control of any pieces of satellite that should, for example, fragment.

Article 6(?) of the Outer Space Treaty provides that international responsibility for national activities in outer space that are _____(?) by governmental and non-governmental entities is that Article 7 establishes international liability of the launching State which includes the State-held _____(?) facility, Earth-based object is launched then or the State that procures the launch. However, the Liability Convention further sets out in Article 3 in the event of damage being caused by a _____(?) on the surface of the Earth to a space object of one launching State or the person capacity onboard such a space object by a space object of another launching State, the latter shall be liable only if the damage is due to its fault or fault of persons to whom it is responsible.

The application of space debris with particular regard to establishing _____(?) to Article 3 is problematic. The States national operator that suffers the damage would have to prove the other State's commercial operators were at fault but there is no assistance(?) provide the identification of component parts and it would be difficult to prove jurisdiction and control under Article 8 of the Outer Space Treaty.

Setting up an international organization consisting of inter-agencies representing each of the Regional Mission Telemetry Tracking and Control Centres, these would have responsibility of coordinating space traffic management rules in particular developing clear space debris liability and arbitration systems.

The suggested international Regional Communications Ground Telemetry Tracking and Control Network and those who _____ *(not clear)* Development Network will provide the requisite identification and tracking of space objects who had compulsory insurance procedures and a standard financial _____(?) in the event of a collision applied between tests between catalogued space objects to be initiated.

This would be detailed across all component parts of the space object in the event of any significant damage. If the damage is relatively minor and moderate, any modifications that need to be made, for example, new software that requires developing to re-own the space object, additional use of the resources and temporary operation could be indemnified.

However, regarding part objects launched into outer space that have fragmented or de-orbited and their ownership cannot fully be attributed to a particular State or commercial operator, in other words not catalogued, and in the absence of any _____(?) affects those ownership, insurance companies should in that instance have responsibility to indemnify any damages to the space object. This could also be a matter for national space laws.

Presently, the US(?) operates a Space Surveillance Network which consists of various space _____(?) sensors and conventional data which are distributed worldwide. The Space Surveillance Network also consists of ground-based electro-optic deep surveillance system. The Space Surveillance Network tracks operation satellites and space debris with a diameter of 10 centimetres or more or one metre in geostationary orbit. And the data is transmitted to the Earth through a space command joint-based operation centre _____(?) and located in Shannon(?) Mountain Air Station.

During the Shuttle Mission, NASA is informed by the Joint Space Operations Centre of any space object which comes within a _____(?) safety box that measures 40 x 40 x 10 kilometres or along the flight path of the chapeau. The Joint Space Operations Centre also coordinates with NASA _____(?) *(not clear)*, for example, docking with the International Space Station. A flight path intermitted to the Joint Space Operations then analyses the plan, 36 to 72 hours ahead that any _____(?) approaches.

With respect to space traffic management procedures, coordination of the chapeau(?) in the International Space Station and any space traffic management services can truly currently provided by the year.

Public Law, Chapter 135 _____ *(not clear)* United States Code 6374(?) connected to the Department of Defence provide satellite traffic support to entities outside the US Government under a pilot programme.

The Department of Defence is committed to provide space-faring data support which includes satellite tracking services from Radar(?) Band or controlled by the Department concerned and States _____(?) data and analysis of data

_____ *(not clear)* to non-United States government entities subject to an agreement and where the Secretary of Defence determines the _____(?) to be in the national security interest of the United States, legible foreign entities included State Governments, governments political sub-divisions of States, United States and commercial entities, governments of foreign countries and foreign commercial entities. _____ *(not clear)* the Secretary, the entities need to pay a fee which will be charged by the Secretary in order to invest(?) the department for the costs for providing space surveillance data support. They all have to agree not to transfer any data or technical information received under the agreement including the analysis of tracking data and other entity without its first approval of the Secretary.

Earth and Space Command initiated the commercial into the pilot programme through the Space Tracker or website. The full congressional pilot programme has yet to be implemented. The pilot study will be extended to 30 September 2009 and which amended their public laws. The first programme is envisioned to try and share space situation awareness of the commercial allied public and foreign interests. Services under the field(?) programme include launch support conjunction, assessment, end-of-life launch support and anomalies resolution.

I have reached my conclusions. The data provided under the Space Surveillance Network due to the sensitivity of the Radar Band is not sufficient to provide any other services as envisioned under the pilot programme or the function of a complete continuous space traffic management system. The Space Surveillance Network is a national-based system and is subject to national laws and funding and the transition to providing a full international space traffic management for all commercial foreign entities is a problematic and ambitious task to complete.

Utilizing all Regional Space Centres, this will provide optimum _____(?) to enable an international regional communication band telemetry tracking and control network to be initialized under the Space Traffic Management Framework and ensure the safe expedient conduct of all space ventures and set-up operations.

It would also enable all States to facilitate the Space Debris Mitigation Guidelines issued by the Inter-Agency Space Debris Coordination Committee which covered the environmental impact of space missions. Specifically, the _____(?) space debris for the _____(?) operations minimization potential for on-orbit _____(?) parts, _____(?), prevention on on-orbit collision.

As well as giving effect to our goal, as stated earlier in the presentation, of safeguarding the resources of outer space in human explorations for future generations, as well as ensuring the safe space and Earth environment for innocent passage of traffic in accordance with the Outer Space Treaty and international Law, the Space Traffic Management Framework outlines as the first step of many that it is intended to maturely develop as the exploration of space also develop the new paths and endeavours are utilized by commercial entities. For example, this could help facilitate space tourism and space debris retrievable systems. It is also intended to promote international peace and security as well as promote international cooperation on strengthening international relations.

Examples of future _____(?) for the Space Traffic Management Framework including developing debris(?), liability and arbitration systems, which is a protocol of the Liability Convention, coordinate and _____(?) the use of air space policy with a guide to military operations-based traffic and general space traffic, transition between air traffic control and space traffic management with the ultimate end goal a single flexible use of the air space _____(?).

The words of Chief_____(?) Irvine in an address delivered in February 1963 at the Georgia Institute of Technology, CFK(?), there is no reason why you cannot make legal research accomplish with some function of scientific research. This means that the law should no longer wait to be set by practice(?), the law should enter by changing conditions, it should anticipate impending crises, it should in other words make the future and that the future by continuing with the other States, we must look there for the rule of law. Thank you very much.

The CHAIRMAN *(interpretation from Spanish)*: Yes thank you very much. I thank Ms. Catena for a very interesting presentation and her last words were very, very important ones because they apply entirely to our work, both the Legal Subcommittee and the Scientific and Technical Subcommittee. This is something which is very complex and very important. I am referring to this issue of the management of space traffic. This contains a number of legal aspects concerning the application of existing rules, the question of liability and responsibility of the transition phase. This is something which one has not(?) traditionally referred

to. Then, of course, we have the many challenges related to the creation of an international body which would administer the whole of this system and everything related to what should be done at a local level. And a great many important things are included in this presentation and certainly provide a great deal of food for thought on a legal level.

So I think we can thank the Space Generation Advisory Council. This is information which is communicated to us by young people in a most professional way.

And with this, we are done with the technical presentations for this afternoon.

Distinguished delegates, I will shortly adjourn this meeting of the Committee. Before doing so, I would like to inform delegates of our schedule of work for tomorrow morning. But first, the Secretariat has an important announcement to make. You have the floor.

Mr. N. HEDMAN (Deputy Secretary, Office for Outer Space Affairs): Thank you Mr. Chairman. Just to make delegations aware of the fact that the Strategic Framework that we started discussion earlier this afternoon is now distributed in all United Nations official languages and is in the pigeonholes. Thank you Mr. Chairman. So this can be considered then tomorrow.

The CHAIRMAN *(interpretation from Spanish)*: Yes, I would like to thank the Secretariat for the promptness, the speediness with which this matter has been addressed. Thank you very much.

Now we will reconvene at 10.00 a.m. At that time, we will continue and conclude our consideration of agenda item 9, Report of the Legal Subcommittee on its Forty-Seventh Session. We will also continue our consideration of agenda item 10, Spin-Off Benefits of Space Technology: Review of Current Status. Time permitting, we will also consider item 11, Space and Society. And again, time permitting, we will begin our consideration of agenda item 12, Space and Water.

There will be four technical presentations tomorrow morning. The first one by a representative of the Russian Federation entitled “Presentation of the Draft Treaty on the Prevention of the Placement of Weapons in Outer Space: The Threat or Use of Force Against Outer Space Objects”.

The second presentation will be by a representative of the Indian delegation and that one is entitled “Space for Societal Applications: The Indian Context”.

The third presentation will be made by a representative of Japan. It is entitled “JAXA Industrial Collaboration Programme”.

And the final presentation will be made by a representative of Germany under the title “Space Perspective on Ocean and Inland Waters”.

Are there any questions or comments on this proposed schedule? Would any delegation like to add something to this schedule?

I see none.

I now invite delegates to attend a Reception hosted jointly by India, Japan and Viet Nam. It will take place in a few minutes in the Mozart Room of the Vienna International Centre Restaurant.

The meeting is adjourned. Thank you.

The meeting closed at 6.02 p.m.