United Nations COPUOS/T.586

Committee on the Peaceful Uses of Outer Space

Unedited transcript

586th Meeting
Friday, 13 June 2008, 10 a.m.
Vienna

Chairman: Mr. Ciro Arévalo-Yepes (Colombia)

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

The CHAIRMAN *(interpretation from Spanish)*: Good morning distinguished delegates, I declare open the 586th meeting of the Committee on the Peaceful Uses of Outer Space.

This morning we will continue and hopefully conclude our consideration of agenda items 6, Ways and Means of Maintaining Outer Space for Peaceful Purposes, and 7, Implementation of the Recommendations of UNISPACE III. We will also begin our consideration agenda item 8, Report of the Scientific and Technical Subcommittee on its Forty-Fifth Session.

Following the plenary, there will be three technical presentations. The first one by a representative of the National Oceanic and Atmosphere Atmospheric Administration of the United States on "International Cooperation in Space Weather Monitoring and Forecasting".

Secondly, a presentation by a representative of the International Institute for Applied Systems Analysis on "Food Security and Sustainable Agriculture: Bridging Remote Sensing and Ground Information for National and International Policy Actions", is the title.

And thirdly, a representative from the European Commission on "European Space Policy".

Ways and means of maintaining outer space for peaceful purposes (agenda item 6)

Distinguished delegates, I would now like us to continue and hopefully conclude our consideration of agenda item 6, Ways and Means of Maintaining Outer Space for Peaceful Purposes.

The first speaker on my list on this item is the distinguished Ambassador from Chile, Raimundo González Aninat and I give him the floor forthwith.

Mr. R. GONZÁLEZ ANINAT (Chile) *(interpretation from Spanish)*: Thank you very much Chair. I think it is time to make a few remarks on this item which has been subject to discussion and quite substantially for the last few years and which was the object of a consensus during the 1980s during the Cold War. Some countries at that time believed that we had to deal with this subject of militarization of space, others thought this was a good way to put the emphasis on international cooperation. So this debate has since been overcome. Those who prefer to set aside the idea of an arms race in space, I think those who do that are making a seriously illegal mistake, if they have any knowledge of international law at all. It is just here, the name of this Committee, for example, is already a somatic(?) debate in itself.

When we talk about peaceful uses of outer space, so obviously anything that is not of a peaceful nature is, in fact, a threat to the essential pillars of foundations of this Committee. We cannot imagine, talking about the advantages and benefit of space for societies and so on, if the environment in which this is all unfolding is becoming full of hostility and tension and this is a very substantive issue.

If we look at the way international law has developed in this respect, we see three phases which

---

V.08-54785 (E)

are military use of space, for example, the use of satellites to supervise progress of disarmament treaties. This is indeed part of at least one treaty or convention and there is clause here that indicates this kind of role that has to be played and, again, this has an impact on this global heritage which is space and this is being done for the sake of international stability and in order to protect that, we need an instrument that allows us to ensure that progress in the field of disarmament is indeed being made and implemented. Something that is a little less well defined by the international legislation is militarization of space. And I have to admit publicly that I know that there must be some kind of matrix to measure this somewhere. I am really not too familiar with it.

This is a hard fact. There are serious attempts to speed up the arms race by adding this new theatre to it. This is covered by the 1967 Space Treaty and other documents that put this in the public domain, treaties also linked to the environmental protection. I am not trying to give you an overview of this but I am talking about the rejection(?) of the China proposal and the Legal Subcommittee would not(?), we dealt with this in the environmental aspect. The fact is if we advance more of these things, we will see that we are, through certain actions, going to be weakening treaties and mainly open loopholes which can be indirectly legally interpreted and not following the true meaning. All of these international treaties can be interpreted, including the 1967 Treaty and we can even cite the United Nations Charter here and the preamble when we have the enumeration of the different principles, resolution 2625 mentioning the prohibition and non-recurrence to use of force, this is part of the international law and it is also in the Vienna Treaty under the international law, even the resolution on the duty to cooperate. And we have had some excellent presentations done here but in terms of concrete cooperation for many of our countries, these presentations are not translated to reality. I am not going to cite any specific cases in this regard but a couple of examples from presentations that are made here and in the case of Chile, this has not met any cooperation, quite frankly.

OK, we are getting back to the heart of the matter, it is the truth.

Article 4, as fragile as it may be, of the 1967 Treaty, which deals with militarization, the preparatory work of a prior legal doctrine here, the resolutions prior to the adoption of the 1967 Treaty show clearly that any attempt to put arms into space is quite strongly prohibited.

So on this specific point, we would like to propose, first of all that this be taken note of in our report. Let me say that this may not be the appropriate forum. I am not quite sure what the appropriate forum would be. The measures would be, first of all, we think that it is first of all important that national legislations all be able to avail themselves of a kind of overarching treaty. The Treaty, the current treaty which is from1967, is clearly obsolete. It does not reflect the technological advances, for example, remote observation, remote sensing, or even space debris. We are still dealing with this within our Subcommittees and not been able to come up with very clear legislation in respect of these and the implications this has for the environment as well. So I think that this will require high-level diplomatic commitment to make progress on it.

Secondly, specific provisions of treaties such as the one of 1967 and others, do not deal with the arms race in space issue, at least not explicitly and we have opened a dangerous loophole for Article 4. The idea of a common of mankind does not allow for any militarization of any kind and confidence-building measure which has been discussed quite broadly in many other fora, including the inefficient(?) disarmament conference in Geneva where a whole year was spent debating this with plenipotentiaries only to go through the General Assembly in New York saying that _____ *(not clear)* rules. So we need confidence-building(?) measures here to make this more effective and particularly in crime(?) in order to include the developing countries interest. This is not just me, these are issues that have been brought up time and again. We have to have compositive discrimination here in order to make up for inequality.

Now in the Legal Subcommittee, here we need to have to see a commitment made to undertaking a greater effort towards making clear definitions of militarization of space. We do not want to mix this up with things like espionage, espionage, which, by the way, is enshrined basically by common law and practice.

And along another line, we think it is very important to urge the International Law Commission of the United Nations to undertake a study on this and legal and technical experts, I think, can provide input here but this should be put to particular use afterwards.

Also we think it would be appropriate to look at consultative opinions from the International Court of Justice on the application and scope of the principles allowing recourse to force in space. And we should take into account the complementary nature of Article

3, No. 4 of the United Nations Charter and Article 3 of the Space Treaty of 1967, as well as the pertinent resolutions from the General Assembly and within the framework of the Fourth Committee.

Also urge the implementation of the General Assembly resolutions and prevention of an arms race in outer space, for the time and this does not cover anti-satellite weapons specifically which, of course, is going to severely limit confidence-building measures. On a regional basis, we think that it is necessary to promote global declarations for the Americas so that this thing be shown clear support. Also I think it is important to create a coordinating body, a body for the dissemination of information of the First Committee of the United Nations General Assembly, the Fourth as well, and principally for the Disarmament Committee. I think this is fundamental. COPUOS cannot fully carry out all of its mandate for to fulfil its purpose that is to ensure cooperation in the peaceful use of outer space without having an idea of what is being debated in these other specific fora, in fora, if they do this, I think it is going to be able to be able to work more easily and have our work better known.

And in this respect, Chairman, we think that is surrealistic that we cannot even find out what is happening in the Disarmament Conference and it is a totally relevant issue for us, we would have to travel to Geneva. Somehow we are kept with blinders on and it is a part of the work that this Committee is supposed to carry out and this is something we should practice(?) from now on and it has a very strong impact on developing countries. We are getting less and less official assistance in adverse proportion in the increase of arms spending. It is a very difficult situation.

And lastly, a purely academic question which might be worthwhile, the only disarmament and research institute which is located in Geneva, could organize a seminar on this subject, holding this in cooperation with the United Nations Disarmament Development Centre, UNDIAC(?). Thank you Chair.

The CHAIRMAN *(interpretation from Spanish)*: Let me thank the distinguished Ambassador from Chile. I am quite sure that you have given us ample food for thought on this important item of the agenda. Let me just remind you that we already a couple of years have begun to establish a relations with the Disarmament Committee. We have even sent someone to attend their meetings and I think this is something which is going to be continued in the future. Thank you.

Now, I give the floor to Iván Garcés-Burbano, the representative of Ecuador.

Mr. I. GARCÉS-BURBANO (Ecuador) *(interpretation from Spanish)*: Thank you Chair. In order to continue the discussion of our meetings _____(?), continuing ways and means of maintaining peaceful purposes, is a sincere honour for my country to be present here and share our experiences as Pro Tempore Secretariat of the Fifth Space Conference of the Americas which we held since 2006. The participants here should all know the Pro Tempore Secretariat is a regional mechanism with administrative and legal autonomy made up now a standing Planning Committee, two other committees, Science and Technology and Legal Affairs and Cooperation, and an Administrative Unit.

Additional at international level has been advisers from the International Experts Group and the Secretariats from the Fourth CSD, which is supplied from COMDER(?) and the responsibility will soon be held by Guatemala, as well as other members of international organizations working in this field. We should find out the Pro Tempore Secretariat the Fifth CA has an appropriate infrastructure and is located in the Ministry of Foreign Relations of Ecuador. It has also set up a website to disseminate its activities.

Now in the light of this institutional framework, and following the Quito Declaration and its Action Plan, my country has been implementing the appropriate programmes and projects. We have made established contacts to come up with cooperation agreements with international organizations and agencies, as well as regional, and we have held a series of activities and projects which I would now like to enumerate.

It has been especially important for the Secretariat to see the implementation of our remote medicine project which, of course, is aimed at implementation technologies, satellite technologies to boost the diagnostic and treatment capacity for patients in remote areas. We are going to be able to set up Centres for Research, Dissemination, Diagnosis and Medical Treatment as a part of our national remote medicine network.

Indeed, in the last few months under this project, we have carried out a coordinating activity with our two-year plan in Peru in order to establish these Centres in the more remote border areas of our country and Peru. Likewise, in order to regionalize this project, the Pro Tempore Secretariat, through the Ministry of Health of Ecuador, and in the framework of

the second meeting of the Intergovernment Committee for the Amazon for Science, Technology and Health Innovation, held in Brazil a few months ago, we saw that there was a possibility of establishing a Regional Programme for Remote Medicine. This was very well received and will be developed beginning July this year, at a time when Ecuador will assume the chairmanship of that Committee.

Moreover, it has been an honour for the Secretariat under the mandate established by the meeting in Quito, to carry out, from 19-23 May, our Regional Space Camps Programme, in cooperation with UNESCO as a part of its Space Education Programme. Space Camps are educational activities, of course, for schoolchildren and students up until the secondary level, which all have to do with space themes. Young people from Argentina, Brazil, Chile, Colombia, Mexico and Peru participate and the idea here is to encourage a future calling for science technology and space education among them.

Now the following international organizations participated in this, the Japanese Aerospace Agency, the French Space Research Centre, the Regional Centre for Science and Technology Education in Latin America and the Caribbean, the National Committee for Development of Aerospace Research in Peru, the similar institution from Argentina, Brazil, and so on.

Now these conferences dealt with the following topics, space sciences and its applications, astronomy, manned and non-manned flights, theory and practice on rocketry and propulsion and Earth observation. Following the conferences, a second stage of the Space Camps began with field work, such as space observation and rocketry, space rocket(?) model shows as well as presentations and videos on this topic. We had the participation of high-level experts, some from the Japanese Space Agency, from Manoca(?), Columbia, the CNES from France, UNESCO and our National Institute for Space Research.

As a result of these educational efforts, the Pro Tempore Secretariat and UNESCO endorsed the document called “Recommendations for the 2008 Space Camps”, for which it suggested that the necessary education of participating States include the curricula of these Space Camps in their regular school curricula, in cooperation with national and international institutes that work in this field, as well as setting up the Regional Committee made up representatives of National Space Science Committee members. This would act as a kind of standing bottle for the follow-up to activities dealt with in the curriculum, coordinated by the Ministry of Education, with the cooperation of the Pro Tempore Secretariat and would involve all of the pre-mentioned entities, including Space Camps special space entities of each country, universities, research centres, ministries, astronomical observatories, planetariums, associations and so on.

It is also a pleasure for me to inform this body that in order to implement the conclusions and recommendations of the International Group of Experts of the Space Conference of the Americas, fifth in number, and an Action Plan that we drew up in Quito in December, we have decided, with the cooperation of the Office for Outer Space Affairs, to hold in the Galapagos on 30-31 July and 1 August, the second meeting of the Group of Experts and of the Trioka(?) of the Pro Tempore Secretariats of CEO(?), and also carry out a special legislative forum. Here we would deal with the different regional and global themes such as climate change, remote observation and all this from a legal perspective and particularly the close link that exists between space law and development law.

Now, in this respect, on a national level, according for it to be carried out with the appropriate institutions in order to look at the possibility of setting up a research centre for space law that will be of a regional nature. We would be particularly grateful for any technical and financial support that the Office for Outer Space Affairs could provide the Pro Tempore Secretariat with to hold these important events for our region.

Chairman, it is also a moment of satisfaction of our delegation to inform the Committee that in May of this year, the Pro Tempore Secretariat held coordinating meetings to individuals in the United Nations University in order to identify projects for cooperation. As a result of these meetings, it was decided to draw up a Memorandum of Understanding to officialize this cooperation.

Also my delegation wishes to reiterate the interest that the Pro Tempore Secretariat has in holding a regional seminar on the UNSPIDER Programme insofar as the Pro Tempore Secretariat could be considered as the regional platform for that project.

Also I would like to inform you that in order to follow up on the Workshop on the Application of Global Satellite Navigation Systems which will be held in Madellin(?), Colombia, 22-27 June 2008, the Pro Tempore Secretariat is holding national coordinating meetings in order to hold a seminar on this towards the end of this year.

I would also like to remind you that the Secretariat was a participant in the Space Technology and Climate Change Conference held during FIDAE 2008 on 1 April of this year, as well as participating in meetings with the Chilean Space Agency and members of the International Experts Group of the Space Conference of the Americas. Here opinions were exchanged on the holding of a Regional Seminar on Space Law as well as a second meeting of the Troika(?).

Moreover, the Secretariat has also worked towards considering the process of establishing the Ecuadorian Space Development Agency. It will be this body that will regulate the development applications of space science and technology and in the near future will be the body in charge of promoting all programmes linked to the use of outer space for peaceful purposes.

Now, geostationary orbits. Here the Pro Tempore Secretariat is carrying out research and studies on a national level for the appropriate entities. This, of course, is a topic which is a priority for our country, as I have already mentioned during the general debate.

As you can see, the work carried out by the Pro Tempore Secretariat has been intense, demanding perseverance and professionalism. Nevertheless, all of these laudable efforts require continuous support from the Office for Outer Space Affairs and international cooperation in order to ensure the correct achievement of these goals. Thank you very much Chairman.

The CHAIRMAN *(interpretation from Spanish)*: I thank the distinguished representative of Ecuador for his statement in which he shared with us the activities deployed by the Pro Tempore Secretariat of the Conference of the Americas which has been very active and obviously the Secretariat will continue extending the support required for further activities. Thank you very much.

And I have the final speaker on my list on this agenda item, the representative of Cuba. You have the floor Daniel.

Mr. D. CODORNIU-PUJALS (Cuba) *(interpretation from Spanish)*: Thank you Mr. Chairman. My delegation also would like to thank the distinguished delegation of Ecuador for providing the up-to-date information on the work of the Pro Tempore Secretariat of the Space Conference of the Americas and commend them and congratulate them on the accomplishments so far. Cuba attaches particular importance to its Conference and will continue actively supporting it.

Mr. Chairman, my delegation believes that the objective of maintaining outer space for peaceful purposes requires, first of all, that we update international legislation so that it absolutely and clearly prohibits the use of all types of armaments in outer space. The threat of an arms race moving into outer space is increasing. New versions of projects such as Star Wars, Anti-Missile Shields and other abhorrent and costly programmes threaten every day the peaceful uses of outer space and also the survival of the human species itself. In this regard, we recall that resolution 62/20 of the United Nations General Assembly adopted in December 2007 by an overwhelming majority of member States, reiterated that the existing legal regime governing outer space does not *per se* guarantee the prevention of an arms race in outer space and emphasized the need to adopt new measures with adequate and effective provisions of verification to prevent such an arms race in outer space.

While my delegation is aware that the bulk of negotiations related to this essential matter are encumbered upon the Disarmament Conference, we believe that COPUOS cannot stay in the margins of this important process. Therefore, we endorse the need to have a structured and permanent dialogue between COPUOS and the Disarmament Conference which will allow among other aspects to contribute to the speedy adoption of the measures mentioned above.

In the opinion of my delegation, there is nothing more practical and urgent than to confront this critical problem by all international organizations involved in this, including COPUOS.

To definitively resolve the arms race in outer space is a very important matter but new legal measures are also needed to address other issues, such as the definition and delimitation of outer space, guaranteeing non-discriminatory access to the geostationary orbit, regulations for the access to outer space by private entities, measures to reduce the danger posed by space debris or indiscriminate use of nuclear power sources in outer space. All of these issues and many others form part of the essential mandate of COPUOS have to be tackled in an integrated and decisive manner. Lack of definitions, lack of regulations that exist in many of these areas are beginning to turn into a real problem for the development of space applications for the majority of States, today and in the future. We should not allow those few that benefit from the current status quo to

continue blocking or slowing down the search for solutions. Thank you very much.

The CHAIRMAN *(interpretation from Spanish)*: I would like to thank the representative of Cuba for his statement. Thank you very much.

This was the last speaker on my list and this agenda item.

Is there any delegation in the room who would like to speak on this item at this point?

I see none. Therefore, we have concluded our consideration of agenda item 6, Ways and Means of Maintaining Outer Space for Peaceful Purposes.

Implementation of the recommendations of the Third United Nations Conference on the Exploration and Peaceful Uses of Outer Space, UNISPACE III (agenda item 7)

Distinguished delegates, I would now like to continue and hopefully conclude our consideration of agenda item 7, Implementation of the Recommendations of the Third United Nations Conference on the Exploration and Peaceful Uses of Outer Space, UNISPACE III.

I would like to remind delegates about Conference Room Paper 3 which we discussed on Wednesday regarding the contribution of the Committee to the work of the Commission on Sustainable Development for the period 2010-2011 and the proposal by Chile for a panel discussion at the Fourth Committee of the General Assembly this year with the theme "Space Applications and Food Security".

May I take it that the Secretariat can send out a request for submissions to all member States of COPUOS in accordance with the proposed plan, as contained in document CRP.3 regarding the contribution of the Committee to the work of the Commission on Sustainable Development for the period 2010-2011, of course taking into account comments raised under issue and the discussion held and opinions put forward on Wednesday in the course of our session?

If there are no objections, it is so decided.

It is so decided.

Do I take it that the Committee also agrees with the proposal by Chile that a panel discussion should be held at the Fourth Committee of the General Assembly this year with the theme "Space Applications and Food Security"?

If there are no objections, it is so decided.

It is so decided.

Thank you very much.

I now turn, I was too fast with the gavel it seems. The distinguished delegate of the United States has the floor.

Mr. K. HODGKINS (United States of America): Thank you Mr. Chairman. Yes, regarding the proposal for a panel at the Fourth Committee, my delegation does not necessarily have an objection, it is just that we had these kind of events before associated with the meetings of the General Assembly. I remember one we had, I think it was in conjunction with UNISPACE III + 5 and it was not very well attended. So I think perhaps before we make a final decision, as we see it, may perhaps a paper, it does not have too long, on exactly how this would be organized and just the general concepts so that we can make sure that the event is as well attended as possible and is a success. Thank you Mr. Chairman.

The CHAIRMAN *(interpretation from Spanish)*: I see too more requests for the floor. First, the representative of Mexico and then the representative of Chile. Mexico has the floor.

Mr. S. CAMACHO-LARA (Mexico) *(interpretation from Spanish)*: Thank you Mr. Chairman. We would like to request, through you, for information to be provided by the Secretariat. If in General Assembly meetings there is a format to consider that themes proposed in the form of presentations to make the discussion more dynamic. So my question is, is there a mini-panel format or something like that? Would that be possible to have two mini-panels on the two issues? Thank you.

The CHAIRMAN *(interpretation from Spanish)*: I think methodologically, it would be a good thing for the Secretariat to look into this matter particularly since it is coming from who has great experience of many years of participating in the General Assembly. Shall I give the floor to the Secretariat? No. The Secretariat prefers not to respond at this point to this specific question. So the distinguished representative of Chile has the floor.

Mr. R. GONZÁLEZ ANINAT (Chile) *(interpretation from Spanish)*: Thank you Mr. Chairman. First of all, I would like to commend the constructive attitude of the United States to the idea of having such a panel. The United States is not opposed to having such a panel, it just would like to receive some additional information. What I wanted to emphasize is that the report we said very clear there will be a panel, a group to discuss the matter. I would like the report to state that.

I would like to recall that we are in the middle of the biennium of agriculture, I do not know the exact title, but it is important at this time to make it possible for such groups to meet within the framework of the United Nations General Assembly.

I would also like to recall that we want to emphasize space and space-related issues in that discussion.

What we can say in our report that the organization of a panel has been approved ad referendum and we are waiting to receive further information on the matter. I think this is something that we should say in the report. This would be a way of moving forward and I am sure that the panel would be organized in an excellent way, as it has in the past and this is a group of people that will look into the very important issues and allow for a better, more profound understanding of these issues and it should happen within the framework of the United Nations, be it within the General Assembly session itself or as part of the work of the various committees. This is something that would be extremely useful. It is an important matter. Obviously, we need additional information, no question about that. Therefore, through you, Mr. Chairman, I would like to ask that the Chilean proposal is considered approved.

The CHAIRMAN *(interpretation from Spanish)*: Yes, thank you. The United States delegate, you have the floor.

Mr. K. HODGKINS (United States of America): Thank you Mr. Chairman. It would premature to say that the whole proposal has been approved until we have a paper outlining how this will be organized. Again in principle, we have no objection but our concern is that organizing a panel for to be convened during the Fourth Committee is a considerable amount of work for the Secretariat and I know for a fact that the last event we organized in conjunction with the Fourth Committee was a lot of work for the Secretariat and I want to make sure that we are not placing on them more the burden than is necessary. So one of my suggestions would be that Chile lead a smaller group of member States with an interest in this particular panel in order to help the Secretariat organize this event. I think that would probably quite useful or would make it a little bit easier on the Secretariat and I would suggest that could be part of whatever paper that is put together that kind of outlines the topics that will be discussed, who will be organizing this and perhaps we need an organizing committee or something along those lines.

So I am just again, we do not need to bring all of this to closure today in terms of the specifics. Again, the general concept is acceptable but the devil is always in the details. Thank you Mr. Chairman.

The CHAIRMAN *(interpretation from Spanish)*: Thank you. I do not want this to turn into a protracted debate. I see that the compositions are complementary of Chile and the United States. It seems to me that the fact that we have more examples of this is quite pertinent. The representative of Chile has no objections? Do you? No. Now you do. OK, the Secretariat is going to come up with a document regarding basic ideas here and we will have a working group. Obviously, the Ambassador of Chile will be able to provide all of the necessary input and on the basis of that we will come back to this topic. Do you all agree with that? I would thank you for that and we will proceed in that manner. Thank you.

Yes, you have the floor Ambassador of Chile.

Mr. R. GONZÁLEZ ANINAT (Chile) *(interpretation from Spanish)*: Very briefly Chair to thank you, heartfelt thanks for the confidence and responsibility you have shown towards to myself, your humble servant, thank you very much and thank you very much to my friend from the United States. We are ready to work together.

The CHAIRMAN *(interpretation from Spanish)*: Fine. We move on to the agenda and I have a list of speakers now on agenda item 7, Implementation of the Recommendations of the Third United Nations Conference on the Exploration on the Peaceful Uses of Outer Space, UNISPACE III.

The first speaker on my list is the representative of Ukraine, Nataliya Malysheva. You have the floor Madam.

Ms. N. MALYSHEVA (Ukraine) *(interpretation from Russian)*: Thank you very much Mr. Chairman. Mr. Chairman, next year, 2009, will mark the tenth anniversary of UNISPACE III and a

second quinquennial review of the implementation of its recommendations will be carried out. In this context, the Ukrainian delegation notes with satisfaction the positive value of an annual review by this Committee of the way UNISPACE III recommendations are being implemented. This is in full accordance with the General Assembly resolution 59/2 of 20 October 2004.

It is a good point of departure for this analysis, in our view, to have the resolution "Outer Space at the Turn of the Millennium: the Vienna Declaration on Space Activities and Human Development", which outlined the priorities for the applications of space science and technology. One of the top priorities on that list, as established by the Conference, is sustainable development. And as the specific ways in which space-faring can be used to promote sustainable development, it defined health, education, environmental monitoring, rational use of natural resources, prevention and management of emergency situations, prevention of climate change, and others.

UNISPACE III happened at a time when the international community had already become aware of the need to work towards sustainable development as one of the most pressing issues facing humankind. At that time, two world summits had already taken place, on the environment and development, Stockholm in 1972 and Rio de Janeiro in 1992.

The International Commission on the Environment and Development had already prepared and, in 1987, submitted to the United Nations General Assembly, their report entitled "Our Common Future", which, for the first time in history, defined sustainable development as development that not only meets the needs of the present time but does not threaten the ability of future generations to meet their needs.

At present, it is that definition of sustainable development that has been taken up as part of the strategies, the political and legal documents adopted by many countries around the world. The main objective of sustainable development is to reach a balance between the three components of development, the economy, the environment and the social sphere. This major objective was detailed in the United Nations Millennium Declaration adopted by the fifty-fifth session of the United Nations General Assembly where it was listed as one of the eight development goals which all member States of the United Nations, 191 States, pledged to live up to by the year 2015.

Mr. Chairman, my delegation notes with satisfaction the fact that ensuring sustainable development is increasingly in the focus of the attention of a variety of United Nations agencies and institutions. These issues are considered from various perspectives by the United Nations Commission on Sustainable Development, the United Nations Environment Programme, UNEP, the United Nations Department on Social and Economic Issues, the United Nations Development Programme, UNDP, the United Nations HABITAT, regional institutions of the United Nations such as the European Economic Commission, as well as a host of other regional, sub-regional and international bodies. Practically all of them at present have special divisions dedicated to issues of sustainable development.

The United Nations system, with its multi-sectoral potential and its vast experience in various areas of international cooperation, possesses unique capabilities in terms of assisting governments in working towards the goals of sustainable development. In this regard, it is important, on the one hand, to ensure reliable integration of these various structures and entities, and on the other hand, to bear in mind the need to divide spheres of responsibility and to coordinate the work of these various institutions to make sure that every link in this organizational chain of the United Nations systems has its own niche, without overlapping with others or duplicating the work of others but working together towards sustainable development. This is something that was particular emphasized in Agenda 21.

My delegation welcomes this Committee's efforts in working together with the Commission on Sustainable Development within the framework of the thematic cluster of issues annually tackled by the Commission. In this context, we would like to convey a word of particular thanks to the Secretariat for the truly exemplary documents prepared and submitted to us by Mr. Niklas Hedman. On the one hand, these documents contained ample information on this Committee's contribution to the work of the Commission on Sustainable Development, the areas in which space science and technology are used for tackling the tasks that the Commission included in the thematic cluster for 2008-2009. And on the other hand, and here I am referring particularly to document A/AC.105/2008/CRP.3, this document contains a far-reaching plan up to the year 2017 structured as a series of biannual thematic clusters.

When we analyzed the thematic cluster that the Commission has outlined for the years 2010-2011, my delegation is of the opinion that not all issues

pertaining to sustainable development require the use of outer space or space exploration to the same extent. Obviously this Committee has certain advantages compared to other United Nations bodies since its mandate has its own specific dimension which makes sure that what we do does not overlap with the work of other United Nations entities. Therefore, the coordinating component of what we do should come down to identifying and defining those sustainable development-related issues where space-faring could be of the greatest benefit.

The contribution that we could make for the thematic cluster for 2010-2011 clearly has to do with addressing the issue of transportation stability, particularly the use of satellite navigation. On the other hand, there is another extremely important issue pertaining to sustainable development, namely waste management, including the rational use of waste at their source, their re-utilization or recycling, detoxification of hazardous waste, including radioactive waste, and the burial of waste in the situations where other methods of waste management are not applicable.

Now, all of these are important issues but it is unlikely that in addressing this set of issues, space-faring could be of decisive benefit. Therefore, in the period 2010-2001, we suggest focusing the attention of this Committee specifically on those issues that fit within the thematic clusters outlined by the Commission but also run through the various biennia and those where our participation can be of real significance. These are issues pertaining to food security, which has already been mentioned here, rational use of natural resources, the experience we already have in the area of water management and water resources, forestry and the use of forestry resources, atmospheric air, weather, climate change, forecasting and preventing natural and man-made disasters, and so forth.

Having said that, my delegation would like to note that taking into account the multi-factorial nature of sustainable development, particularly the existence of an important environmental component to it, it would be reasonable to more closely coordinate the work of this Committee, not only with the Commission on Sustainable Development, but with other United Nations entities such as UNEP and some of the others that I enumerated earlier, particularly in those areas where this Committee has its own important experience to share to truly benefit the work of those other institutions. Such coordination would be fully in accordance with the spirit and the letter of UNISPACE III recommendations, as well as the recommendations issued by other fora working towards sustainable development for the third millennium. Thank you very much.

The CHAIRMAN *(interpretation from Spanish)*: Let me thank Nataliya Malysheva from Ukraine for that statement.

I now have the pleasure of giving the floor to Mr. Bhaskaranarayana of India. You have the floor Sir.

Mr. A. BHASKARANARAYANA (India): Thank you Mr. Chairman. Mr. Chairman, one of the primary objectives for the UNISPACE III was to strengthen the capabilities of member States, especially developing countries, to use the benefits of the space research for economic and cultural development. Today, the developing countries face a number of challenges in terms of improving their agriculture, water resource management, eradication of illiteracy and providing better education for the populace(?) and improving public health services.

In this context, the implementation of UNISPACE III recommendations will directly enable and assist developing countries in meeting these challenges in a much efficient and faster way. Towards this, the practical actions defined by the Action Teams have to be implemented to really achieve the concrete results.

Mr. Chairman, we fully support the recommendations of the Working Group of the Whole Scientific and Technical Subcommittee who focused these discussions on the implementation of three actions coordinate first the Plan of Action have identified in our report the United Nations General Assembly, that is maximizing the benefits of existing space capabilities and disaster management, maximizing the benefits of the application of global navigation satellite systems, and enhancing the capability of building the space-related activities.

We feel that the developed countries can pool in the necessary available resources to enable some of the developing countries in initiating their space-based application programmes and services would provide broad successful atmosphere(?) in other developing countries. This will benefit a way of implementing the recommendations of UNISPACE III in a synergetic fashion.

Mr. Chairman, the recent natural disasters in Myanmar and China have once again reminded us of the necessity of space-based systems which can help us

with disaster management support in a timely and effective manner. In this regard, we feel that the establishment of SPIDER under the United Nations umbrella has been very appropriate. The Indian delegation is of the view that the International Charter on Space and Major Disasters is a concrete initiative and has contributed significantly to support disaster assessment and relief activities since its conception. It is particularly gratifying to know that the Charter has been activated several times in the past and provided valuable support. The Charter's results with supports from United Nations member States and other organizations which are in a position to contribute to the growth of this Charter.

Mr. Chairman, the Indian delegation is prepared to participate and contribute actively to these discussions and activities under the agenda of the implementation of UNISPACE III recommendations with the aim of progressing towards achieving concrete results in this area.

Thank you for your attention Mr. Chairman.

The CHAIRMAN *(interpretation from Spanish)*: Thank you very much Mr. Bhaskaranarayana from the Indian delegation.

I now give the floor to the Hideyuki Yamada from Japan. You have the floor.

Mr. H. YAMADA (Japan): Mr. Chairman, distinguished delegates, on behalf of the Japanese delegation, I am honoured to present Japan's activities relating to the implementation of the UNISPACE III recommendations.

Mr. Chairman, Japan has actively participated in and contributed to a number of Action Teams established to carry out implementation of the Vienna Declaration, the three recommendations adopted in 1999.

Primary, Japan acted as the Chair of Action Team number 17 to enhance capacity-building by developing human and budgetary resources. Two discussions on space education and the runners(?) during the Asia-Pacific Regional Space Agency Forum, APRSAF. Japan supported activities to highlight the importance of space science and technology and their applications for sustainable development with the view to securing more support from the general public, especially deepening the understanding of the younger generation to space education.

In recent years, space education activities have become one of the main activities of APRSAF. For example, the Third APRSAF Water Resource Event was held last November in Bangalore, India, during APRSAF-14. This even drew a large number of participants including many students in the region. Additionally, the Second APRSAF Poster Contest was also held during the meeting.

The Working Group of APRSAF also discussed ways and means for contributing to improve education for young people to each country's space activities. And also how we can provide more space materials to schools in order to make space applications more interactive.

Japan will continue to carry out activities that stimulate interest among the young people in the street(?) and inspire them to develop visions for the future to space activities.

As for the field of the education of Earth observation, the JAXA Observatory addressed space education and cultivation of human resources that contribute to the training and promoting of the remote sensing applications. So a pilot project is being carried with organizations in Thailand and Indonesia.

Mr. Chairman, at this moment, I would like to turn our attention to Japan's recent activities to implement the recommendations of the Action Team.

To begin, on item 1 of UNISPACE III, development of a comprehensive worldwide environmental monitoring strategy. Japan has contributed towards fulfilling the 10-Year Implementation Plan as a member of the GEO Executive Committee in order to promote remote sensing activities in the Asia-Pacific region. APRSAF has been active and exchanging information and has more specific proposals to promote cooperation activities in the field of space technology.

Mr. Chairman, regarding item 10, improvement of universal access to and compatibility of space-based navigation and positioning systems, called Global Navigation Satellite Systems, GNSS. Japan is participating in the International Committee on Global Navigation Satellite Systems, ICV, as a member country. We are using this opportunity to promote cooperation and the compatibility and inter-operability of GNSS according to the basic plan for the advancement of utilizing geospatial information which is based on the basic law for the advancement of utilizing geospatial information, passed in Nadayo(?) 2007, which the Cabinet approved this April.

Specifically, Japan is developing the Quasi-_____(?) Satellite System, QVSS, and NTSAT-Based Augment System, NSAS, which are GPS augmentation systems.

QVSS consists of several satellites with highly-inclined orbits and geosynchronized(?) spheres(?). At any given time, at least one of the QVSS satellites is located over Japan. Unlike geostationary satellites, QVSS can transmit signals free from obstruction in urban or mountainous areas because the satellite remains aloft at all times.

In addition, the system, used together with a global positioning system, GPS, provides to enlarge the area where our GPS can be used, include convenient standards for GPS users and generally provides more accurate photo_____(?) information than before.

QVSS is accessible also in Asia and Oceania and research on the positioning experiment system is expected to increase benefits to GPS users and promote more sophisticated users of the advanced future of satellite positioning systems.

Upon the completion, last year, of a back-up system consisting of two NTSAT satellites, we relayed a GPS _____(?) Augmentation, namely ENSISERVICE(?), covering civil aviation.

Satellite-Based Augmentation Systems, SBAS, such as the Wide Area Augmentation System, WAAS, operated by the United States, the European Geostationary Navigation Overlay Service, EGNOS, operated by Europe, and ENSIS inter-operable and can be accessed by aircraft equipped with the same gear.

By developing a radar(?) level of inter-operability and including the system's performance, we will provide a global, themeless(?) and high-quality services.

Mr. Chairman, regarding item 7, implementation of an integrated global system to manage natural disaster mitigation, relief and prevention efforts, Japan is now working closely on the Sentinel-Asia Project, together with countries in the Asia-Pacific region.

Through these activities, Japan will make the necessary contribution to the UNSPIDER Project.

Regarding management of the Earth's natural resources, _____(?) weather and climate forecasting and near-Earth objects, Japan will continue to support the implementation of the Vienna Declaration to the extent permitted by our limited resources.

Japan is of the view that the recommendations of UNISPACE III can be firmly implemented in collaboration with COPUOS member countries, the United Nations and other international organizations.

In particular, we believe with countries of the Asia-Pacific region, that Japan can play a critical role by balancing activities through APRSAF and the strengthening of relations between APRSAF and the international framework, such as UNRESAP(?) and INIPR. Thank you very much for your attention.

The CHAIRMAN *(interpretation from Spanish)*: Thank you very much for that presentation Mr. Yamada from the Japanese delegation.

I give the floor now to Mr. Mohammed from the Nigerian delegation. You have the floor Sir.

Mr. S. O. MOHAMMED (Nigeria): Mr. Chairman, my delegation appreciates the work of the Secretariat in response to the call of General Assembly resolution 62/217 which required the Committee, while implementing the recommendations of UNISPACE, to also contribute to the work of the Commission on Sustainable Development, the overall objective of which is to create synergies between the work of the two institutions.

_____(?) the focus of the thematic cluster of the work for the period 2008-2009 is agriculture, human development, land, drought, desertification and Africa.

While the Secretariat is encouraged to continue to provide relevant and adequate information to the Commission on Sustainable Development, efforts should continue in this Committee at implementing specific thematic issues in the Implementation Plan of UNISPACE III + 5 Review.

We should not lose sight of the need to emphasize setting cross-cutting issues in the Multi-Year Work Plan which include changes all sustainable importance of consumption, poverty eradication, protecting and managing the natural resource-base for economic and social development, as well as sustainable development of _____(?).

To this end, Nigeria wishes to emphasize the importance it attaches to the ability of member States, particularly the developing countries, to exploit the

huge advantage presented by the use of space-derived, geospatial data for sustainable development.

Over the past year, Nigeria has started the process of implementing a comprehensive, global navigation satellite system, GNSS project, to including a technical infrastructure for space-derived geospatial data collection, process and application in different sectors of the economy. Presently, the National Space Research and Development Agency, NASDA(?), is concluding a plan execution of a series of this important GNSS-dependent project. The objective is to harmonize related satellite-based navigation for priority positioning, navigation and timing, information and value-added services to boost tourism, aid transportation, civil aviation, agriculture, oil exploration and security.

Furthermore, Nigeria is proposing to establish a satellite-based augmentation system, NSDA, for the early initial-wide _____(?) GNSS for the water layer and the land layer GNSS for sovereign(?) and other applications there in the land layer.

We have been involved in awareness creation and sensitization of the Nigerian public of GNSS and its implications through the organization of participation in conferences, workshops and seminars.

Furthermore, we are also implementing a project on land _____(?) mapping of Nigeria. It is kilo 1:100,000. This is NIGERIASAT-1 data, with increased population and increase man-environmental interaction, the environment, the immediate challenge, therefore, is to have adequate knowledge of water change(?) in the last 13 years when the last land _____(?) produced.

The aim is to update our knowledge about the various lines(?) of characteristics from the areas of agriculture, mineral exploration, environment and other land _____(?) in Nigeria.

This will help in the management and protection of our natural resource-based by economic and social development.

Following the launch of NIGERIASAT-1, the National Space Research and Development Agency, in collaboration with national and international institutions, carried out various projects, which include monitoring of deforestation, and this implication on that _____(?) in Nigeria, development of remote sensing and GIS-based predicti-model for early warning, covering the northeastern part of Nigeria, the development of early warning for food security, covering two _____(?) 23 crops at case study, as well installation and use of a high-resolution picture transmitter, HRPT, which has the capacity to download real-time data for any part of the world from the National Oceanographic Atmospheric Administration of the United States, NOAA. Data from this facility are currently being used for agriculture, environment and research purposes.

Mr. Chairman, these are some of the initiatives taken by Nigeria and its efforts at implementing the recommendations of UNISPACE and request that the Committee remain on course for the continued implementation of UNISPACE according to the plan thematic work. Thank you Mr. Chairman.

The CHAIRMAN *(interpretation from Spanish)*: I would like to thank Mr. Mohammed from Nigeria.

I have no further speakers on my list.

Are there any other official delegations that wish to take the floor nevertheless?

The delegate from Belgium has the floor.

Mr. C. DOOMS (Belgium) *(interpretation from French)*: Thank you Mr. Chairman. I wanted to ask a question. It has to do with the World Conference, UNISPACE III. It is a question that comes up in Belgium often and I have not yet seen a clear or accurate response. What is the policy in terms of organizing these conferences? I personally participated in the Conference in 1999. I understand that they are held with a certain periodicity but today when we talk about the results and the pursuit of objectives set by these conferences, would it not be better to think ahead to the programmes that will be launched to make sure that all of this is consistent that current objectives are also considered within the framework of the next Conference's decision. Five years is an enormous period of time in space terms so my question is, would it perhaps be appropriate or useful to have a shorter period, every 15 years was the periodicity, maybe every 10 years would be a more reasonable term.

That Conference is held by the United Nations with global repercussions, every five years would be too much but every 10 years perhaps would be reasonable and every time set objectives and a time for the next one. That would make more sense, I think, when we have this clearly defined period of time. So my question is what is the policy currently in place for

the organization of these conferences and who makes these decisions? Thank you.

The CHAIRMAN *(interpretation from Spanish)*: It seems to me that this is an appropriate question, a correct one. I have my own response and we will see if the Secretariat has something to add.

I think you are right on one important point. Space as a theme is something that has got almost like exponential increases in speed, for example, look at the way this was perceived during UNISPACE III. This does not necessarily match the rhythm with which things are moving along at this time. The United Nations, when it holds international conferences, usually set up review mechanisms and these act as barometers to measure the level of implementation of the conferences. In general, and what we look at are the most tangible results and decisions that are made and on that basis see whether or not a new calendar for conferences is necessary. I agree that 15 years is a long time, five is not very much. We need to find a kind of middle ground on this. Obviously the main body to deal with this is the General Assembly of the United Nations, at least this is the sounding board so they can have an overview. We must not forget that this Committee set up by part of the members of the General Assembly and we need to have the general thrust of the house.

But I think this is a very pertinent point. We should not let too much time go by. We should look forward to something that would give us greater clarity on this, perhaps even come up with some dates to create a reaction that would integrate our implementation of things that are still pending.

I think one of the most important facets of action plans of different groups is that we had very concrete results, not necessarily complete but a lot of progress has been made.

Now, this is the Secretariat's response. They do not want to go any further on this. I think that this does indeed merit further reflection and we should do some more closely focused thinking about the objectives that we have set for ourselves here. Thanks very much for that pertinent remark.

Now, we go on. We have finally finished this item. We are going to suspend our consideration of 7, Implementation of the Recommendations of UNISPACE III, while we are waiting the results of the consultations on the panel discussion to be held at the fifty-fourth Committee.

Report of the Scientific and Technical Subcommittee on its forty-fifth session (agenda item 8)

Having said that, distinguished delegates, I would now like to begin our consideration of agenda item 8, Report of the Scientific and Technical Subcommittee on its Forty-Fifth Session.

I would like to inform you that the Scientific and Technical Subcommittee at its forty-fifth session had before it the report of the Inter-Agency Meeting on Outer Space Activities on its twenty-eighth session. This is document A/AC.105/909 on the report of the Secretary-General and the Coordination of Space-Related Activities Within the United Nations System: Directions and Anticipated Results for the Grid(?) 2008-2009, document A/AC.105/910.

I would like to inform the Committee that the current Chairman of the Inter-Agency Meeting, Mr. Francesco Pisano, of UNOSAT/UNITAR, is here with us today to provide information on the twenty-eighth meeting of the Inter-Agency Meeting, held in Geneva from 16-18 January. I think it is now time to turn to Mr. Pisano and ask him to take the floor on this topic. I do not see Mr. Pisano, is he here? Yes.

Good morning and welcome and please take the floor.

Mr. F. PISANO (United Nations Institute for Training and Research): Thank you Mr. Chairman. First of all, let me congratulate you on behalf of the Executive Director of UNITAR on your designation of Chairman of this distinguished Committee, as well as your co-Chairs and the same congratulations go again to Dr. Mazlan Othman for her recent designation as Director of the Office for Outer Space Affairs.

I would like to thank first of all the Secretariat of the Office for Outer Space Affairs for having prepared the report that I am going to read out for the benefit of delegations.

Distinguished delegates, the Annual United Nations Inter-Agency on Outer Space Activities serves as the focal point for inter-agency coordination and cooperation in space-related activities. This year, the twenty-eighth session of the Inter-Agency Meeting was held in Geneva from 16-18 January, hosted by UNOSAT, the UNITAR Operational Satellite Application Programme. Representatives from 11 United Nations entities participated in that meeting.

The meeting reviewed and approved the report on the work of the Inter-Agency Meeting and the Secretary-General's Report on the Coordination of Space-Related Activities Within the United Nations System. Both reports are circulated in the room. Both reports had been considered by the Scientific and Technical Subcommittee at its forty-fifth session, and I am pleased to note that some delegations expressed their satisfaction about this report and the progress made in its Inter-Agency Coordination and Cooperation. The reports are now before the Committee as I said.

I would now briefly report on the meeting highlights. At the beginning of meeting, the representatives of the participating United Nations entities reported on their activities and plans for 2008 and 2009 emphasizing those activities requiring all the efforts(?) benefiting from inter-agency coordination and cooperation. Participants were also briefed on the work of the Committee on the Peaceful Uses of Outer Space and its subsidiary bodies, with special attention given to matters relating to inter-agency coordination.

In this context, the meeting agreed to continue contributing to the work of the Committee, in particular of the Committee's contribution to the work of the Commission on Sustainable Development, as well as the implementation of the recommendations of the Third United Nations Conference on the Exploration and the Peaceful Uses of Outer Space.

During the discussions, a number of key issues concerning coordination and cooperation were also identified.

I will now report on a few of these, mention a few of these.

The meeting recognized the benefits of the Inter-Agency Meeting on Outer Space as the central mechanism of the United Nations for coordination of space-related activities and its important links to this Committee, COPUOS. In this context, the meeting reviewed its present reporting structure and made proposals for improvement. In view of the increasing importance of space technology and its applications, the meeting wishes to re-establish a link with the United Nations system Chief Executive Board of Coordination. I will revert to this later on in my report Mr. Chairman.

The meeting also agreed to reinforce the contributions made by the United Nations entities to the implementation of the United Nations Spatial Data Infrastructure, also known as UNSDI, a comprehensive but centralized geospatial information framework that facilitates decision-making at various levels by enabling access to assets(?) and dissemination of geospatial data and services in a rapid and secure way.

UNSDI is being developed by the members of the United Nations Geographic Information Working Group and under the agenda item 13 of this Committee, international cooperation in promoting the use of space-derived geospatial data for sustainable development, a representative of the Secretariat of this Working Group of the United Nations, will make a technical presentation informing delegations on the current status of UNSDI.

The meeting considered as well the enhanced use of space-based assets in support of disaster management and the optimal use of relevant opportunities, such as the International Charter on Space and Major Disasters, the existing United Nations tools and programmes and, of course, the new UNSPIDER Programme.

The meeting noted that between 2003 and the end of 2007, the United Nations had activated the Charter 44 times. In 2007 alone, the Charter had been activated 11 times to the Office for Outer Space Affairs, with the support of UNOSAT, in this _____(?) international disasters and technological disasters.

And this, Mr. Chairman, makes the United Nations system the largest collective user of the International Space Charter and an important user of satellite-derived geographic information services.

The meeting noted as well the progress achieved in the process of the Group on Earth Observation, GEO, and its Global Earth Observation System of Systems, known as GEOSS. It agreed to enforce the contributions made by the United Nations entities to GEOSS and to optimize the use of its benefits with a view to strengthening the capacity of the United Nations itself. The Inter-Agency Meeting, as the primary coordination mechanism of the United Nations system in spatial activities agreed that it provided an excellent platform, GEOSS, I mean, sorry, the Inter-Agency Meeting, sorry, provides this platform for consultation among relevant United Nations entities with respect to GEO and GEOSS. And the Meeting is a useful forum to exchange views with the GEO Secretariat which, by the way, was present in our meeting in Geneva.

I should also point out that the Inter-Agency Meeting agreed on a report on the benefits of space

technology and its applications to achieve sustainable development in Africa, to be prepared in time for the Third African Leadership Conference on Space Science and Technology for Sustainable Development, to be held in Algeria in 2009.

Distinguished delegates, the traditional opening formal session of the meeting was held on the afternoon of 18 January2008 with the theme "Public/Private Partnerships and Innovative Funding Approaches in the United Nations System to Promote the Use of Space Technology and its Applications". Representatives from eight United Nations entities and eight member States, including the Chairman of COPUOS, attended the opening formal session. The Office for Outer Space Affairs presented at that session its activities related to public/private partnerships and innovative funding approaches. The Secretariat of the International Strategy for Disaster Reduction, ISDR, reported on its approach to public/private partnerships. And other examples of public/private partnerships were presented by the Economic Commission for Africa, which described an example in the framework of the African geodesy reference frame project, and by UNITAR/UNOSAT which illustrated financial and innovative funding the projects.

The strategy of the planned United Nations Spatial Data Infrastructure that I mentioned before, towards public/private partnership was also presented by the current United Nations UNHCR Co-Chair of the United Nations Geographic Information Working Group.

Representations made at the Inter-Agency Meeting and the opening formal session, as well as the reports and they gave information on the current space-related activities of the United Nations system, are available at the website dedicated to the coordination of outer space activities within the United Nations system.

I would like to take this opportunity to invite delegations today to suggest themes to the Secretariat for the half-day opening formal session we shall organize next year here in Vienna. Your proposals would be discussed among the focal points of the Inter-Agency Meeting in order to select a theme that would be of interest to members of Committee and entities of the United Nations system participating in the meeting.

As indicated at the beginning of my statement, I would like now to return to the issue of further strengthening the role of the Inter-Agency Meeting as an essential mechanism of the United Nations for the coordination of space-related activities.

In this context, the meeting considered its current reporting structure and agreed on the desirability of reporting directly to the Committee on the Peaceful Uses of Outer Space. I should underline that the Scientific and Technical Subcommittee of COPUOS has already taken note of this request earlier this year. The request aims at increasing the desired links between the meeting and COPUOS in a way to strengthen the coordination and cooperation momentum we are generating within the Inter-Agency Meeting.

In the same vein, we have pledged to increase intersessional consultations among relevant agencies with a view to creating a stable and constructive inter-agency environment.

With that, Mr. Chairman, distinguished delegates, I wish to conclude my report on the twentieth session of the Inter-Agency Meeting. I thank you for your attention.

The CHAIRMAN *(interpretation from Spanish)*: I would like to thank Mr. Pisano for his statement. I think it is the general feeling in the Committee and the Subcommittees that the ties with the Inter-Agency Meeting should be made closer, that we should have better coordination, a better understanding of our respective activities to create synergies and to build on the various excellent initiatives that are being implemented. So we are very thankful for your work and would like to convey to you that this view is shared by members of the Committee and the Scientific and Technical Subcommittee and the Legal Subcommittee that it is desirable reporting to the Committee on the Peaceful Uses of Outer Space and moving the dates of its annual meetings closer to the sessions of the Committee. For example, on the subject that you have mentioned, it is very interesting and there is no question that there will be a large number of delegates that would be interested in better structuring the discussion of this matter and participating in it.

Also you have asked us to think about the appropriate issues, subjects to be taken up by an informal meeting and I think all delegations should be thinking about it and then later we will propose.

If there are any reflections, remarks on this at this point, you are welcome to make them. If not, it is so decided and again thank you very much for your statement Mr. Pisano.

And now moving to the list of speakers I have under this agenda item, I do not see any and I think we can move right to the technical presentations so that we will have enough time for the three presentations that we have scheduled here.

In this connection, I am calling on Mr. Thomas Bogdan of the National Oceanic and Atmospheric Administration of the United States. He will make a presentation entitled "International Cooperation in Space Weather Monitoring and Forecasting". Mr. Bogdan, you have the floor.

Mr. T. J. BOGDAN (National Oceanic and Atmospheric Administration, United States of America): Mr. Chairman and distinguished delegates, as we begin the twenty-first century, we find ourselves immersed in a global community and it is based on the use and exploitation of advanced technologies. Advanced technologies like global navigation satellite systems, like satellite-enabled telecommunications, surveillance, reconnaissance and tele-medicine. Advanced technologies like micro-gravity fabrication and energy supply and distribution networks. These are all the basis for our safety, our livelihood and national security.

With this progress comes a new vulnerability, a vulnerability to adverse and rapidly changing conditions in space to something we call space weather.

Just as terrestrial weather has the potential to interrupt services and destroy property here on the ground and within the oceans, space weather is now placed be the same for assets located in space and the services that are derived from these assets. To the World Meteorological Organization, the nations of the world now closely share knowledge, data and forecast capabilities to guard against the adverse impact of terrestrial weather and ultimately to better the human condition.

It is time for us to do the same for the space environment, to share knowledge, data and space weather forecast capabilities and to build international capacity to mitigate the unwanted and often debilitating impact of storms in space and in the near-Earth space environment.

What really is space weather? Our space weather comes from the Sun, our nearest star, and it takes the form of intermittent bursts of ultraviolet and X-ray protons or radiation from solar flares, as seen in the movie on the left scanner. It takes the form of swarms of energetic charged particles travelling at nearly the speed of light and it takes the form of the ejections of copious amounts of magnetized ionized material or plasma from the outer solar atmosphere, as we see in the movie on right which shows those masses being ejected from the Sun, which is the small disc in the centre, being occulted by the bigger disc and we watch a comet pass by.

The shortwave length electromagnetic radiation ionizes the upper atmosphere of the Earth between 60 kilometres and 1,000 kilometres above the surface, creating a layer known as the ionosphere. The clouds of magnetized plasma buffet the Earth's protective magnetosphere like immense tsunamis in space producing geomagnetic storms and beautiful alloy.

The energetic particles create unhealthy and in extreme cases even lethal conditions for space-based electronics, avionics and for human explorers.

But who is at risk from severe space weather. The ionosphere shown again because of the radiation that comes on the left, impacts precision global navigation satellite system users because it introduces a time delay between the satellite and the receiver which is interpreted as a position error. High-frequency communications below 30 MHz are influenced because it produces absorption in the ionosphere scatters through scintillation. The ionosphere impacts orbital debris because of enhanced satellite drag due to heating and the expansion of the neutral atmosphere and there are no indications that it may perhaps even contribute to some aspects of climate change.

Radiation and the space tsunamis affect the health of satellites, the capability of power grids to transfer energy and to operate generators and the ability of air traffic to follow trans-polar routes to reduce travel time and contain fuel costs. And finally, it impacts our operations on the International Space Station.

The advanced technologies we depend upon have a growing vulnerability to space weather. Like hurricanes and cyclones, space weather has a seasonal variability but the length of the solar season is approximately 11 to 12 years. The frequency of severe solar storms is proportional to a so-called Sun Spot Number. Since 2000, solar activity and storminess has steadily decreased while at the same time, use of advanced space-based technologies has corresponded in an increase. But the solar activity transit(?) will soon change. The frequency and severity of extreme space weather events will begin to increase with a maximum of activity predicted as shown in the chart

on the right for some time around 2012. Will all the service providers illustrated in the various photos do well that make use of these events space-based technologies, be prepared for this change in the space weather?

Thankfully, international collaboration in forecasting space weather is already underway. The International Space Environment Services is a confederation of 12 and with the addition of INPE soon, soon to be 13 so-called Regional Warning Centres. These Centres share data and are attempting to specialize services to avoid unnecessary duplication of efforts. But the individual Centres are woefully understaffed and without sufficient resources to meet the tremendously exponential growing needs of their customers and stakeholders. By far the largest of these Regional Warning Centres, is the Space Weather Prediction Centre in Boulder, Colorado, with an annual budget of a mere US$6 million per year and about 50 full-time employees.

The services that require space weather guidance also create additional avenues for international collaboration. In the year 2000, there were only eight inaugural trans-polar flights but by the end of this year, 2008, there will be over 8,000 commercial flights that pass through the polar region and they are handled by air traffic controllers in countries that border the Arctic Circle.

Above 80 degrees latitude satellite communication is not currently available. Therefore, the loss or degradation of high-frequency radio communication through space weather events can make these profitable links unavailable for service.

Although space weather is global, it also has important regional variations. Real-time ground-based space situation awareness from Pole to Equator to Pole is required to accurately assess the current state of the space environment. The geographical dispersion of the COPUOS members offers a welcome potential(?) to meet the new requirements for global space weather coverage.

Under the auspices of the International Heliophysical Year, more than 50 new instruments have already been installed, or are planned to be installed, in Africa alone. The equatorial regions are known for their very dynamic and highly intermittent ionosphere simulation. Therefore, the increased GPS surveillance over Africa would be very helpful in aiding navigation and positioning activities in this region.

International cooperation can also help in creating critical space situation awareness information from satellites. NASA's Advanced Composition Explorer, or ACE, is our only source of real-time information on the space tsunamis directed from the Sun towards the Earth. It takes about one hour for the approaching solar storm to travel from ACE to the Earth's magnetosphere. With ACE, we can provide extreme accurate one-hour warnings to events of geomagnetic storms and enhanced radiation levels in the near-Earth space environment.

The lower panel is a time-lapse photograph showing a couple dozen of over the 250 commercial satellites that are located in the geostationary orbit. Each of the little dots with an arrow pointing to it represents a stationary satellite and the bright arcs are the background stars that move across the sky.

Geostationary orbit is home to the majority of our commercial assets in space, with a combined value exceeding some US$70 billion. Satellite services have increased in capacity and in international coverage since the last solar maximum in 2000.

By hosting space weather sensor payloads on the commercial satellites, the private sector can dramatically increase our awareness of the space environment with the immediate benefit of protecting their assets and ensuring their continuity of operations from damage and interruption.

Where can we work together to increase space weather awareness and protect our advanced technologies? Here, under the guidance of the Committee on the Peaceful Uses of Outer Space, to the International Committee on Global Navigation Satellite Systems, and through the World Meteorological Organization, based in Vienna.

How can we work together to increase our space weather preparedness and safeguard our global economy? First, by sharing space weather products, services and expertise, through the exchange of near real-time data from regional networks of ground-based instruments distributed around the globe and by establishing cooperative networks of radio dishes around the globe, continuously monitoring space weather information broadcast by beacons on research and commercial spacecraft and satellites.

Mr. Chairman and distinguished delegates, the future is ours to shape and safeguard for all of humanity and space weather is fast becoming a critical activity needed to support the advanced technologies

that form the basis of our new-found global economic prosperity and international cooperation.

In closing, I kindly ask you all to give consideration to how COPUOS can exercise a leadership role in ensuring that critical space weather forecasts and guidance will be there when we need them most. I thank you sincerely for this opportunity to address this esteemed assembly.

The CHAIRMAN *(interpretation from Spanish)*: In turn, I would like to express my special thanks to Thomas Bogdan from the National Oceanic and Atmospheric Administration for his talk on space weather as a framework for international cooperation. One simple remark. You hit upon one of the topics which are very important. I am sure that COPUOS, as you requested, will attach all of the importance and thought that it deserves, as you requested. Your summary of the situation and proposal for a solution, I think, gave us a lot of food for thought and I thank you very much for that.

Now the second presentation is from Hélène Diane Dage of the European Commission, speaking about the European Space Policy. You have the floor Madam Dage.

Ms. H. D. DAGE (European Commission): Thank you Mr. Chairman. Mr. Chairman, let me start by congratulating you for your nomination as Head of COPUOS, on behalf of my institution. And I would also like to congratulate and thank very much the outgoing Chairman, Mr. Brachet, for his very strong contribution to the work of COPUOS and in general the strong contribution to objectives with regard to space which are very much by the European Union.

I would present to you today the European Space Policy which is a very recent step for Europe. This document was drafted in 2007, commons needs between the European Commission and the European Space Agency and has been drafted with the main objective of bridging actually the space development, the expertise of the European Space Agency all this existing space capacity(?) with the user needs and use the different policies of the European Union.

So the first European Space Policy provided with European(?) and identity to space. It highlighted the fact that space policy provided with _____(?) *(tape not clear)* and a complex interrelation. This is currently a bit too obvious for the issues of climate change and on the province that we have had recently and floods and the earthquake.

Basic _____(?) tools with regard to address many of the challenges of the twenty-first century too. It is extremely important on to, for the knowledge-based economy that is more and more important across the globe.

Space-based systems provide improved weather forecasts and it brings an opportunity into education and the medicine for example. They are actually critical to key areas of the economy among other communications systems, but also electrical _____(?) and _____(?) networks which depend certainly on space timing.

Satellite communications bring benefits to every citizen. If, like any accident, the space satellite communication capacities were to be not functioning, it will have a major impact on the daily life of citizens. And mostly it also brings new possibilities of bringing high-definition TV but also broadband in remote and rural areas.

Space also contributes to the knowledge-based community and society by providing tools for understanding of planning, its origin, its environment, its solar system and the Universe. Space can contribute, therefore, to European Space Policy(?) and identity reaching citizens across all countries.

Space is finally also a major tool in support of the European Space Policy especially with regard to humanitarian aid, sustainable development and development policy.

So what are the strategic objectives of the European Space Policy? Those objectives are first to develop an expert space application serving the European public policy objectives and needs of European enterprises and citizens including in the sphere of environment and global climate change. It is thus a very much user-driven policy.

It also has an objective of meeting Europe's Technical Strategy Objective. It can be a very useful tool, for example, in monitoring for _____(?). And another major objective which is highlighted is to protect actually space-based capabilities against destruction which really extremely are important for the economy and also for the _____(?)

Therefore, we want to ensure a strong and competitive space industry which focuses on innovation, growth and the development and the _____(?) of sustainable and protected services. Europe also wants to ensure an independent access to

space and we want to maintain and develop technological expertise _____(?) knowledge in space-based science and space exploration due to their contribution to the knowledge-based society.

We also want to secure unrestricted access to new and critical technology systems and capability and also due to the importance of spin-offs and the importance of space-developed technology called the Global Technological Development.

Therefore, we also try to raise awareness of the socio-economic benefits of space and its contribution to the economic objectives of the EU which are presented in our Lisbon Objectives.

The Space Policy is very much user-friendly. Therefore, the evolution of user needs that we have seen, we would try also the development of integrated applications but I think integrated space systems where there is a similar link between satellite and territorial communications and other services on the one hand, but also between the different areas of space-based services, that is space communications, space provisions and also space management capabilities. All that in the various areas of strategic, economic and protected(?) values.

We will, therefore, also need a very strong industrial policy just to ensure that we have a strong autonomous and competitive space industry and the objective. And the objective of the industrial policy will be to foster, first of all, innovation and growth, and once again, the development and _____(?) of sustainable high-quality cost-effective services, since that is the main objective to provide the services to the people.

One of the services which is important is space-based positioning. I would now present to you on the state of the document of the General _____(?) Programme. There was an agreement in the Central Council in 2007 on modified _____(?), Havana(?), with poor public financing, and the Programme is well on track. We have an _____ *(not clear)* and the objective is to deliver five different systems, among which you can see on the screen, an open-access one, a commercial one which is going to be of a higher accuracy, and we will also want to develop one commercial signals which require a _____(?) new services.

Last but not least, one element which is really the most important for us in Galileo is the search and rescue service which will bring real-time positioning and will have to stabilize in difficult situations.

Space is also to the service of security but the security of the space infrastructure is a very big role for us. Therefore, due to the increasing problems lately among others, the European Union is working on the development of a space situation awareness programme.

Space is also a very useful tool for maritime safety. The European Union has created recently the European _____(?) and Safety Agency which is already providing services based on space, along with identification and tracking of goods and the Clean _____(?) Satellite Service which is the best tool available for all space monitoring.

I will soon present you our GMES Programme. Many GMES services are in support to EU _____(?) Action and I will highlight two of them. The GMES Preview which is about prevention information and early warning preparational services to support the management of _____(?) and GMES Response which is a _____(?) of European and international organizations working with the humanitarian community to improve access to maps, satellite imagery and geographical information, and we have a very good collaboration with UNOSAT in general systems.

So GMES is a joint initiative of the European Commission and ESA. Its objective is to provide relevant information to policy-makers and other users. It started doing relations to environment and security. So its _____(?) is global monitoring for _____(?) and security. So it is, first of all, a networking programme where we are going to network existing aspects and services and also the additional space infrastructure.

The GMES services that offers _____(?) in three different areas. First, elementary, then _____(?) monitoring and _____(?) monitoring. So those are the three basic services and on the base of the three services, always _____(?) are going to be developed. So exploiting the information which has been gathered by all those three different basic services and the _____(?) are especially important for emergency response and climate change.

The land monitoring service will provide for Europe every three or four years on the sate of _____(?) land cover with a minimum mapping image of between one and five pictures. It is very important for different European policies, among which agriculture, also to monitor the evolution of

_____(?) soil, especially on soil, and water resources and it can be also a very useful tool when trying to understand the challenges which we are now facing, such as increased flood in Europe, for example.

The Marine Corps(?) Service, we will make systematic reference information on the state of the ocean, of the global ocean and European regional. So this is really a considerable(?) service.

There was an evolution also towards a _____(?) and coastal zone management and it is a very important company of the EU Mountain(?) Policy.

The Atmospheric Service will provide main information within and outside Europe on air quality, climate also forecasted, strategic and ocean (ozone?) renewable energy support.

All those three authorities will all co-_____(?) an important tool for trying to understand climate change. Generally contributes to monitoring and status and long-term evolution plans of the _____(?) driving the Earth's climate. And the GMES Observation and _____(?) Service Company are, therefore, designed to contribute to _____(?) monitoring of Earth's systems and _____(?) understanding and accuracy with major problems of climate change.

Thank you very much for your attention.

The CHAIRMAN *(interpretation from Spanish)*: Let me, of course, express my thanks for your presentation. My thanks to Madam Dage from the European Commission. Your presentation was an excellent regional approach to space policy which could apply to other regions and I think regions like Latin America and Asia would be more interested in going into greater depth on the aspects that you have illustrated here. And we would also like to have a copy of your presentation here to distribute to delegations.

I think that, if we have some time at the end of the three presentations, we could have time for a few questions.

Let us move on then with the final presentation from Mr. Mahandra Shah from the IIASA to talk to us on "Food Security and Sustainable Agriculture: Bridging Remote Sensing and Ground Information from National and International Policy Actions".

You have the floor.

Mr. M. SHAH (IIASA): Mr. Chairman, distinguished delegates, thank you for this opportunity to make this presentation. Bridging the remote sensing data and ground information, after 30 to 50 years of using ground information, we realized that we have not made progress in the area of food security. Bridging the two informations is essential to making this progress because food security, environmental change, agriculture have a special and a temporal dimension.

At the outset, we need to recognize that there are two elements in human rights. Food and water are universal human rights which means that there is a legally binding obligation on each individual on each government to ensure that nobody goes hungry. At the same time, we are on the brink of a food crisis.

Information, there is too much information in many cases and there is too little information for policy-making. So it is critical that when we gather information, we are fully aware of the utility to which this information will be put, and, of course, the primary aim is actions.

So from information to knowledge in order to understand the system, from knowledge to policy-making through inter-disciplinary analysis, from policy-making to policy actions which involves prioritization and making the commitments, moving from agenda to action, and during the process of re-implementation, monitoring and evaluation is critical.

So the first question is, when we talk of food security, who are the food insecure? The rural poor, the urban poor. Where are they? And this is the critical aspect of knowledge geographically specific areas where the poor and the hungry are. And then we know the geographically specific areas we can ask the question, what makes them more vulnerable(?)? Is it their resources? Is it their income? And when are they in need? We realize more and more that the temporal time is critical to this. We have extreme events and we have long-term changes occurring. And what needs to be done in the area of natural resources, technology, human capital, finance.

To define food security is that sustained access to food at all times in a socially acceptable way and adequate in quantity and quality to maintain a healthy life and this is important at the global life in this inter-dependent world at the regional, at the national, at the sub-national and also at the household level.

It is interesting to note that we have 100 years of conferences and meetings that have made promises. The first of it was in 1905, the International Institute of Agriculture Conference in the United States which made an endorsement that we should end hunger. Even the United States Conference for Defence in 1941 made a similar resolution. We have had three World Food Summits, 1973, 1996 and 2002, and 10 days ago we had the FAO Conference facing this world food crisis.

When we look at these three summits, the first summit in 1974 (1973?) said that within 10 years we will eradicate hunger. Twenty-two years later in 1996, we reduced that goal to say we will reduce hunger by 50 per cent. We did(?) forget this goal in 2002 and at the Millennium Summit in 2000. Even when we knew scientifically that it would take us 60 years or more to reduce hunger and yet we have a 2015 target which is seven years away.

Currently there are, or rather last year there were 820 million people in the developing countries that were hungry. Today the number is well over a billion because of the food crisis that had increased in the last years. What we forget in meetings such as this, and in the summits, is that every one of these 820 million or a billion hungry people have a name, they have a face, they have a voice and they see here the reality of urban Brazil.

Now the twenty-first century challenges in terms of food security are major. We have population and demographic change, we have natural resources exploitation, a lot of degradation in land, water, biodiversity loss. We have scientific and technological barriers, the public goods of yesterday are now the patented goods of tomorrow, globalization and development disparities, governance in a wide range of societal conflicts, and there we face the emerging risk of climate change and justice.

If you look at the growth of populations, that for centuries there was hardly any droughts and when we look at the most recent and the projections in the next 50 years, the good news is that the population growth is coming to an end in the twenty-first century, at least from the fence we see. However, there will be a major shift in populations. Africa's population will substantially increase from a small percentage to almost doubling.

At the same time, we need to be aware that in the last 300 years, the distribution of population as it spread across the world over these 300 years, is shown here, and the question is, how will this population change in the future? So we take satellite data and convert it into gridded populations because these urban centres and are a good measure of the gridded population. And from this, if we relate the population to the change in land use over the same period of 300 years, and one thing to notice in both population and land, is the fact that it is only the last 60 to 70 years that the change has been the most rapid.

Here is an example of the global land cover and this is now available on a regular basis so we can begin to see how land use is changing. The critical need to integrate information, turn it into knowledge, turn it into agendas and turn it into action, on the basis of Earth-based as well as space-based information, but always remembering that we want to analyze this information in a timely manner for decision-making and actions.

We need to let upscale from the ground but we also need to downscale from the satellite imagery. Now, two excellent examples are the FAO and the USDA Famine Early Warning System. We often have warning systems that _____(?), warning systems that are extremely FlexNet(?) famine. Where we are failing is the fact that our ground capacity to respond is limited and, therefore, while we invest in remote sensing, it is also simultaneously necessary to strengthen our ground response system including information.

This is an example of integrating satellite data process models, eco-system models, towards being with the global climate issue. And again, I want to emphasize the fact that information in order to have the utility must be considered at the outset in the context of the analysis we want to do and then limiting the information that is pertinent and critical to that analysis.

I present here an example of the modest land products that are available in terms of surface(?) reflection, timely production, vegetation, continuous feed. So we already have data which is available in timed sequence that can be input into this analysis.

At the same time, remote sensing data by itself is not sufficient. We need ground observations because there are limitations to what remote sensing can provide. And it is in this context that the FlexNet, Flex Towers are being developed, but you will notice here that in Sub-Saharan Africa, there are very, very limited coverage on the ground and this is the region where we need information, knowledge and the food security challenge is the greatest in this region.

So how do we consider the methodology, the modelling and the policy analysis we want to do and from that ask the question what is the relevant data that we need? IIASA and the Food and Agriculture Organization of the United Nations, over the last 30 years, have developed an integrated ecological, economic and a social methodology and modelling and I would like to present briefly this methodology and the kind of policy and results that we get from it.

Number three, that you see at the top of this, is the agro-ecology of the world. Number four is the climate impact. Number five is the economy, not only national economy but the national economy embedded in the world economy. And then we have the future development parts which is the GVS(?) (GDP?) scenario for the future.

So we begin with the agro-ecology. What land and water resources do we have? On the right hand side at the top are our soils, our terrain and we match this resource base with the left hand side which are the crop models and when you compare the crop models to a piece of land, you can evaluate what can you grow on this land. And, of course, you can grow more than one crop and you have to make a choice and that choice is dependent on the demand.

So we will form a digital inventory. So here is an example of the terrain slow(?) database, the FAO/UNESCO soil map, ground information, global land cover database imposed on it, and then the gridded population and this results in 2.2 million grid cells that cover the whole world, all developing countries and all developed countries, and we assess for each of these land units approximately 5,000 hectares as to what you can produce here. Now remember not all of this land is available and I will come back to this issue at the end.

So here is an example of the results. On the top you see the 6190 results on what are the environmental constraints to agriculture? On the bottom you see in the 2080 according to the heavily climate model that Nortiz(?), Brazil, will become dry and no longer viable for any kind of agriculture. Similarly in Spain, similarly parts of China, and also in Northern Canada the soil will be highly constrained. This is an example of information derived from satellite and ground data analysis that tells us what should you invest in agricultural research and we must invest today because of climate change because if we do not invest today, in 30 years' time, it will be too late.

Here is another example of what is the production of cereals in the world and at the bottom you see the impact of climate change in comparison to the present.

This is a Global Net Productivity Index which is derived from satellite data and we compared it with the previous slides which is based on ground analysis.

So, to revert back, we have the ecology and we use remote sensing and ground-based data to develop the ecology of the world and I now turn to the economy. The economy comprises of nations of this world interlinked to the international trade system into the global economy. And the results from the ecologic and economic analysis of what climate change will do, at the global level we will lose 1.5 per cent of GDP in agriculture.

But when you look at the developing countries, the impact will be cereal production will decline by almost four per cent and you notice that in the case of Latin America there will be gains in production because there are areas that will gain and there are areas that will lose.

Climate change will result in additional need of 500 million tons to be traded. This is a substantial amount and the question is what will be the cost? Because at the end of the day to take a container from Rotterdam to Djibouti is only US$2,000 but to take it from Djibouti to Khartoum is US$10,000. There is a tremendous cost associated with distributing this.

The number of people at risk you will notice that in the bottom chart, South and South-East Asia, the number of hungry will decline. But when you look at Africa, that there is no progress in reducing hunger in any of the optimistic scenarios because of climate change until after 2050.

One of the results of this study also showed what is the value of agriculture production that you can expect and you can plan for which can be related to rural poverty and it gives us such a graphical handle on dealing with rural poverty as to where to invest in agro-industry, in water, etc., in order to create this income.

Take one particular country, in the case of India, cereal production, what you see on the left at the edge, the CS, the CS and NT are different climate models and for each of these models you will find cereal production in India will decline. GPD will also decline. And this raises the question on what should be the response to climate change?

Currently we have a world food crisis. Now when we ask the question and let me recall 10 days ago

at the FAO Summit in Rome, there was little mention of food as a universal human right. The debate turned to food prices have increased, why have they increased? And what was stood on the table in Rome was one group saying bio-fuels only account for two per cent rise in the food prices. Others talked of 30 per cent to 100 per cent. The fact that only five per cent of the world's food is traded and when exporters divert some of this food which can normally put on the world market for five per cent, it has a major impact and that is a driver which has resulted in international prices increasing and that, of course, filters down to domestic prices.

We need to think this whole policy of first generation biofuels in response to climate change needs to be looked at more carefully. And currently, remote sensed data on forest areas of the world is being looked at by the private sector to see what could be the biomass production in the forest areas that produce biofuels.

Let me just present a combination of remote sensing and ground information, that if we take away the cultivated land, we take away the forest areas, we take away the non-vegetative areas, we take away the protected areas, we take away the land with _____(?), and what are marginal and unsuitable land areas, and we end up with a calculation of how much land is there in the world. There is 4.1 billion hectares of land, out of which 2.1 billion is for livestock and potentially for second generation biofuels. Out of 2.1 billion, the maximum land available in the world is 700 million hectares which could be put to second generation biofuels.

Climate change, we have heard a lot of what is the greatest threat, the new emerging threat, and we need to ask the question again, how much fairness and justice. First of all, to recognize that the current emerging level of climate change is the accumulation of the last 50 years of emissions. The red dot you see on the right hand side are the OECD countries, and if you look at the upper right hand rectangle, you see many of the OECD countries will gain. On the vertical we have the gain in cereal production plotted against cumulative greenhouse gas emissions, carbon emissions. So countries in red on the top left hand side will gain. They polluted the most and they will gain. And if you look at the left hand lower rectangle, the countries in black are developing countries, the countries in blue are plantation countries, and where it say minus 50 at the bottom left hand side, that is Mozambique. Mozambique has contributed hardly anything to the greenhouse gas emissions and yet here is a country that will lose 25 to 50 per cent of its production potential. Mozambique produces 0.1 tons of greenhouse gas emissions of Africa and Europe. In comparison to OECD countries, it is 11 tons(?) and currently the EU is thinking of converting land in Mozambique to biofuels, _____(?) biofuels.

Bridging remote sensing and ground data is essential and if you do not do this, our home, planet Earth, and our own future and everything else in this world will be put at risk. Thank you.

The CHAIRMAN *(interpretation from Spanish)*: Let me thank Mr. Shah from IIASA, a very interesting talk on food security and sustainable agriculture and bridging remote sensing and ground information from national and international policy actions. We cannot stress enough the importance of this topic, this global and fundamental point on which the future of many parts of the world is hanging. You have shown us a lot of concerns, a lot of worries and trends and begs the question how this Committee, as a part of its mandate, act in a more firmly and act with more vision in perhaps not solving but at least to intenuating the adverse effects you have described here. Thank you again.

We have 15 minutes remaining and I would like to use some of this time for questions which I think might be even further concerns but certainly this is a very complex topic.

And maybe again I see the distinguished representative of India who has asked for the floor. You have the floor Sir.

Mr. A. BHASKARANARAYANA (India): Thank you Mr. Chairman. My delegation would take this opportunity to compliment all the three speakers for the excellent presentations starting with space weather, two, how the policy is provided in a _____(?) for the space, and the last and most fundamental issue of mankind and if we start from the third, dutifully, it has been brought out by 2008, how the climate change is going to affect the plantations in the countries. And I would say that the space community has a major responsibility for two reasons. The space-based information provides major inputs to understand the climate change. The space-based inputs are vital for understanding issues related to food security and especially on the sustainable agriculture. And my suggestion(?) to this august body is we must have a proper discussion on this subject, how space can contribute to understanding the climate change and also contribute to the food security aspects and probably this Committee could think of having an agenda item introduced in this direction. This is one

way of orchestrating the national efforts, vital efforts, and the Committee's efforts in this direction. Thank you Mr. Chairman.

The CHAIRMAN *(interpretation from Spanish)*: Thank you very much for those remarks. You have, I think, hit upon a fundamental methodological aspect of this. I think we want to ensure that we have this kind of continuity on topics that we have discussed and which we do not want to come to an end with the report and its issuance. We have to assume responsibilities here, whether it is small or large in scope.

Who else? The Ambassador from Chile has the floor.

Mr. R. GONZÁLEZ ANINAT (Chile) *(interpretation from Spanish)*: Thank you very much Chair. My commendation goes to the three presentations this morning, especially the last one from my dear friend Mahandra Shah. His presentation was quite spectacular, both from the substance and from the challenges that we see arising from his presentation.

I think we have been quite premonitory(?) in our work and especially in the Space Conference of the Americas in hitting upon food security as a theme. This is, I think, now is going to be the main reference for the upcoming Space Conference and I think it was a good idea to take it into account in this way.

His brilliant presentation was impressive but also reflects the important work being done by IIASA in this field. Now they have the status of observer to this Committee and I think they have received specific recognition from the last General Assembly to a resolution.

Let me say that my delegation is enthusiastically supporting the proposal made by the distinguished representative of India. I think what we have here before us is a task which is extremely interesting and fully shared by you, according to what you just said. And obviously all of our efforts will be trying to turn this into a reality.

As I said, the content of this presentation was so rich as to deserve a truly pragmatical follow-up. Thank you.

The CHAIRMAN *(interpretation from Spanish)*: Thank you. It really does seem to me that we need to think further on the proposal which was a very concrete one, very specific and when we come to other matters, I think perhaps we can return to that.

I see the representative of Nigeria has asked for the floor. You have the floor.

Mr. S. O MOHAMMED (Nigeria): Thank you Mr. Chairman. I just want to identify with the distinguished delegates from India and Chile. And the Chairman will recall that in Nigeria's statement in the general exchange of views, this Committee was alerted by the current increase in food prices and a common matter for great concern but it was really this Committee to begin to address this issue, especially in areas where space technology can play a major role.

And I want to commend the presentations, particularly the last one as well, and we wish that the presenter if he would be available at the Regional Conferences, particularly those, of course, in Africa. We would like to have this kind of presentation by him in these Regional Conferences where we can also begin to address these issues. Thank you very much Mr. Chairman.

The CHAIRMAN *(interpretation from Spanish)*: It is pleasing to here that the African nation(?), through the representative also, shares the feeling that we need to have this better, more substantive approach to this without prejudging all of the regions. I think that this indeed shows that there is a growing awareness of the importance of this matter.

Who else wishes to take the floor?

I see no one. Let me just inform delegates that these presentations will be present on the website of the Office for Outer Space Affairs and are available to all in that way.

Distinguished delegates, we will soon be concluding our work this morning and before doing so, I would like to inform delegates of our schedule of work for this afternoon.

We will reconvene promptly at 3.00 p.m. We will continue our consideration of agenda item 8, Report of the Scientific and Technical Subcommittee at its Forty-Fifth Session. We will also begin our consideration of agenda items 9, Report of the Legal Subcommittee at its Forty-Seventh Session, and 10, Spin-Off Benefits of Space Technology: Review of Current Status.

There will be two technical presentations this afternoon, the first one by a representative of the Russian Federation on Space Debris.

I would also like to inform you that during the lunch break to 2.30 p.m. to 3.00 p.m, two short videos will be screened here in Conference Room III, provided by Japan. The first is a 10-minute video on the Mission of Space Shuttle STS-123. The second, a 15-minute video is about Japan's space activities. Screening will start at 2.30 p.m. Delegates are cordially invited to view the videos.

Thank you very much and I adjourn the meeting.

The meeting adjourned at 12.51 p.m.