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Committee on the Peaceful Uses of Outer Space

Unedited transcript

620th Meeting
Tuesday, 15 June 2010, 10 a.m.
Vienna

Chairman: Mr. Dumitru Dorin Prunariu (Romania)

The meeting was called to order at 10.19 a.m.

The CHAIRMAN: Good morning distinguished delegates. I now declare open the 620th meeting of the Committee on the Peaceful Uses of Outer Space.

This morning we will continue our consideration of agenda item 8, Report of the Scientific and Technical Subcommittee on its Forty-Seventh session.

We will continue and hopefully conclude agenda item 9, Report of the Legal Subcommittee on its Forty-Ninth Session. We will begin our consideration of agenda item 11, Space and Society, agenda item 12, Space and Water, time permitting, agenda item 13, Space and Climate Change.

There will be four technical presentations this morning. The first one by the representative of Canada, Canadian Space Agency, entitled "Bridging Space to Canadian Classrooms". The second one by a representative of the United States of America, NASA, entitled "NASA Technologies for the Benefit of all Mankind". The third presentation will be a representative of Japan entitled "Building Peace in Young Minds Through Space Education: Contribution of JAXA Space Education Centre to Human Development, and by the representative of Indonesia entitled "The Application of Satellite Remote Sensing on Climate Change and Food Security in Indonesia".

I want to make an announcement. I would like to inform all delegates that I would like to convene an informal meeting on 2011 Special Events today at 2.00 p.m. in Room M07. All interested delegates are invited to attend, 2.00 p.m., Room M07.

I would also like to remind delegations to provide the Secretariat with possible corrections to the provisional lit of participants so that the Secretariat can finalize the list of participants. Any corrections should be submitted by the end of this meeting.

Report of the Scientific and Technical Subcommittee on its forty-seventh session (agenda item 80

Distinguished delegates, I would now like to continue our consideration of agenda item 8, Report of the Scientific and Technical Subcommittee on its Forty-Seventh Session.

The first speaker on my list is the distinguished representative of the Russian Federation, Mr. Sergey Shestakov.

Mr. S. SHESTAKOV (Russian Federation) *(interpretation from Russian)*: Thank you Mr. Chairman. We would like to share views regarding the results of the forty-seventh session of the Scientific and Technical Subcommittee of COPUOS held on 8-19 February 2010.

The Scientific and Technical Subcommittee continued to hold in the focus of its attention the following issues.

Nuclear power sources. We would like to draw the attention of delegation's to the positive experience accumulated by the Scientific and Technical Subcommittee in defining and approving a Safety Framework for the Use of Nuclear Power

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Sources in outer space. If member States and international organizations comply with the requirements of this document, the launching and use of space vehicles with nuclear power sources, will be carried out in the safest possible manner. This document is a high-level set of recommendations in terms of organizing and regulating the activities involving nuclear power sources in outer space.

I note in particular that the Working Group on Nuclear Power Sources was able to established constructive cooperation with the IAEA, which, of course, resulted in the above-mentioned Safety Framework for the Use of Nuclear Power Sources in Outer Space.

We believe it is important not to revise the principles guiding the use of nuclear power sources in outer space. We do not see any formal rationale for such a revision, especially, and even less, rationale for working on a new document that would be legally binding. Discussing international legal regimes issues pertaining to nuclear power sources should be held hand-in-hand with other issues pertaining to nuclear activities that is as part of work on a single convention on international space law.

Another important issue is space debris. The adoption by States of effective measures to address the problem of space debris, including their compliance with the Space Debris Mitigation Guidelines approved by COPUOS, would provide assurances of a situation where space debris would not have a major negative impact on future space activities. In this context, we believe it is important to continue complying with the Guidelines and studying the experience of those States who have enacted their own national regulatory measures addressing space debris mitigation.

It would not, in our opinion, be productive to talk about a special convention of space debris also covering nuclear power sources.

The Russian Federation shares the international community's concern regarding the threat posed by the man-made contamination of near-Earth space.

The Russian Federation has carried out work to address space debris mitigation as part of Russia's Federal Space Programme for 2006-2015. It is carried out in accordance with the existing national legislation in the area of space activities, taking into account the introduction of new measures to mitigate space debris as part of the practice pursued by other States, space agencies and organizations.

As of 1 January 2009, we have enacted the Russian Federation's National Standard setting major requirements for space debris mitigation and the requirements of these standards are aligned with those of the Guidelines on Space Debris Mitigation issued by COPUOS and approved in a resolution of the United Nations General Assembly, that was resolution 62/217.

Now, Mr. Chairman, let me briefly address some of the good developments. As part of international cooperation for the peaceful uses of outer space, Russia will send in the near future to the International Space Station one Russian cosmonaut and two United States NASA astronauts. The launch will happen tomorrow as a matter of fact.

Thank you.

The CHAIRMAN *(interpretation from Russian)*: Thank you very much distinguished representative of the Russian Federation.

(Continued in English) The next speaker on my list is the distinguished representative of Nigeria. Mr. Adigun Ade Abiodun has the floor.

Mr. A. A. ABIODUN (Nigeria): Thank you very much Mr. Chairman for giving me this opportunity to address the distinguished delegates on agenda item 8. And in addition to the warm wishes already conveyed to you and other members of the new Bureau of our Committee by the Nigerian delegation at this session of our Committee, I want to personally congratulate you as well as Ms. Nomfuneko Majaja of South Africa and Ambassador Raimundo González of Chile as you all take up your posts in the new Bureau in this Committee. We trust that you all will successfully guide the work of this Committee during your tenure of office.

I also wish to thank Ambassador Ciro Arévalo of Colombia and his crew for their services to this Committee in the past two years.

Mr. Chairman and distinguished delegates, as we are aware the Scientific and Technical Subcommittee addressed an impressive number of issues during its forty-seventh session. My delegation intends to reflect only on a few of these, namely, nuclear power sources in outer space, the near-Earth objects, space debris and the long-term sustainability of outer space activities, the new Initiative of the United Nations Office for Outer Space Affairs on Human Space Flight Technology, and the planned IAA/Nigeria International Symposium on the Equatorial Plane.

Mr. Chairman, the Nigerian delegation wishes to thank Mr. Sam Harbison of the United Kingdom, the Chairman of the Nuclear Power Sources Working Group for the work carried out by that body in the past year. My delegation is satisfied with the recently completed Safety Framework on the Use of Nuclear Power Sources in Outer Space, as contained in document A/AC.105/934. Indeed, my delegation contributed to it development. The next stage is its implementation and, in particular, on how entities of member States are using or planning to use nuclear power sources, should set us the Safety Framework into their policies and processes.

We have studied the Multi-Year Work Plan proposed by the Nuclear Power Sources Working Group for the period 2010-2015 to achieve this objective. My delegation supports the organization of workshops scheduled to be held during the sessions of the Scientific and Technical Subcommittee in 2011, 2012 and 2013, with a view to promoting the implementation of the Safety Framework. We agree that these dedicated workshop should start with the sharing of knowledge by member States and international intergovernmental organizations with expertise and experience in space and its applications.

We noted that a Note Verbale, Reference ___C20010/39, has been issued by the United Nations Office for Outer Space Affairs on this subject. My delegation looks forward to contributing to the deliberations at these workshops.

On near-Earth objects, Mr. Chairman, my delegation also welcomes the arrangements that have been put in place by the Chairman of Action Team 14, Mr. Sergio Camacho, to enable the Team to identify issues and related recommendations for its interim report. A critical element in this report is the Information Warning and Analysis Network on Near-Earth Objects, as indicated in the 2009 Report of ASE's Near-Earth's Panel of Experts.

We agree that near-Earth impacts constitute a global long-term threat to our collective welfare. My delegation will continue to work with Action Team 14 and the Working Group on Near-Earth Observation to finalize the draft procedures for a meaningful global response to the near-Earth threats.

On space debris and sustainability of outer space activities, Mr. Chairman and distinguished delegates, my delegation takes this opportunity to thank the experts and representatives of France, Germany, India, the Russian Federation, Switzerland and the United States for their invaluable scientific and technical presentations at the forty-seventh session of the Scientific and Technical Subcommittee of COPUOS on space debris last February. The sharing of knowledge through such contributions is a manifestation of international cooperation in the peaceful use of outer space, the main motto of this Committee.

My delegation also compliments the efforts of the Secretariat in making available the text of the Space Debris Mitigation Guidelines of the Committee in the form of a publication, ST/SPACE/49.

Mr. Chairman, my delegation is fully aware of the dangers of space debris specifically, and as we have stated in the general exchange of views, Nigeria's Earth Observation Satellite, NIGERIASAT-1, had a very close encounter with an air and space object, _____(?) 28955 in January of this year. The satellite is still in operation today. It is a credit to space surveillance effort of the United States Space Operations Command, including the successful manoeuvres the satellite went through thereafter. This experience has awakened our consciousness about the safety and security of all space activities in the outer space environment.

Today, we all know that many countries, both industrialized and developing ones, all _____(?) to space assets. Certainly, the preservation of these space assets, particularly the communications and Earth observation satellites, is critical for the social and economic development of the countries that have made such investments. However, there is neither international space traffic management or any mechanism for sharing space awareness information among our member States with space assets. While the United States voluntarily offer such a service today, each country with any space assets has a stake in contribution in concrete terms to the sustainability of activities in outer space. That is how all of us can be active partners in space and human security. To be such an active partner, each country needs to consider a number of minimum contributions which include recognition that all nations have a stake in protecting the common global resource, that is, the outer space environment, and accordingly should establish an appropriate national enabling legislation. Each country should invest in a national functional emergency preparedness. Each nation needs to enhance science and technology education, including space science, at the local level and utilizing the generous enquiring minds to undertake appropriate research in these disciplines. Each nation is to invest in and contribute with basic _____(?) to international efforts in

tracking technologies, methods and networks for the tracking of space debris and near-Earth objects. And finally, each country needs to effectively participate in regional and international collaboration on knowledge-generation and knowledge-sharing on the sustainability of space activities and the outer space environment.

These are the reasons why my delegation fully supports the new agenda item, Long-Term Sustainability of Activities in Outer Space. We congratulate Mr. Peter Martinez of South Africa on his election as Chairman of the Working Group on this new subject and for the draft paper he already placed before us and the Terms of Reference and method of work of his Working Group. We look forward to working with him and this Committee to achieve the goals of this particular Working Group.

Mr. Chairman and distinguished delegates, the Nigerian delegation also welcomes the United Nations Office for Outer Space Affairs Initiative on Human Space Flight Technology, an initiative that aims at translating one of the key recommendations of UNISPACE III into a practice programme, as well with the collect(?) the United Nations Expert on Space Applications, Mr. Takao Doi, briefed us all on this initiative last Friday when he presented his statement. Our understanding is that HSTI would provide opportunities albeit indirect ones for research scientists and engineers in non-ISS countries to carry out experiments onboard the ISS. The justifications for participation in the HSTI are mono-syllable(?).

Today, the space enterprises are the calm one of the critical and fundamental foundations of industrialization and will be much more so in the foreseeable future. The viability of the opportunities inherent in a human space flight programme, with a view to development and improving industrial products of the future, are the improving by the _____(?) transportation systems of Russia and the United States. These systems have matured into today's ISS. Concerted efforts are now sharply focused on harnessing the economic opportunities and the social benefits that will certainly accrue from the ongoing construction of the ISS. The direct experience of a number of non-ISS partner countries, such as Brazil, Malaysia and South Korea, who already participated in a human space flight programme, should serve as a guide for other non-ISS countries. Specifically, through the ongoing efforts on ISS, advances in research and production in space can be expected in such areas as _____(?) medicine, HIV/AIDS as an example, the growth of polygen fibres to the use in the repair and replacement of human connective tissues, organic and polymer chemistry compositions for use in such areas as advanced data processing and new materials. The use of these new materials on combustion engineering is expected to yield new stress-resistant and higher strength materials for art-based vapours and machines, as well as substitutes for non-renewable resources. The possibilities and many others will certainly improve the efficiency of the production process as well as the quality of future goods produced on Earth. In addition, the _____(?) and economic impact could be very significant and far-reaching.

In order for the non-ISS partner countries, including Nigeria, to benefit from these industrial opportunities of the future, they also must be active contributors to the process as well as be committed partners in the challenges that would yield these rewards. This is why my delegation congratulates the United Nations Office for Outer Space Affairs and its Director, Ms. Mazlan Othman, and the United Nations Expert on Space Applications, for developing this initiative that should enable the developing countries in particular to contribute to building the foundations of industrialization of the future no matter how miniscule the contributions may be.

Finally, Mr. Chairman and distinguished delegate, I want to take this opportunity to brief member States on the International Symposium on the Equatorial Plane that Nigeria and IAA will be organizing later this year. So if I can have the PowerPoint please, I will do that.

Now as you can see on this screen, the venue is Abuja in Nigeria and it is to be organized on 30 November to 2 December. It is a three-day event. And why are we doing this? We have different reasons for doing different things. For us, we believe that different countries occupy different geographical locations of the globe. Accordingly, to carry out outer space activities, we need to use the orbits that are relevant to meet our own needs. Accordingly, we believe that equatorial and tropical countries should gain a better understanding of the characteristics and attributes of the equatorial plane.

With that in mind, we believe that the objectives of this particular Symposium should look at the following equatorial plane that offers a number of challenges and opportunities with the country within the equatorial plane and to look at best need to understand. They need to master these challenges. They need to develop and utilize this particular plane for their own development, as well as contribute to global efforts on space exploration.

And the focus of this Symposium would be, what is the current state and anticipated official development of space exploration in general but with emphasis on the unique contributions of the equatorial plane to this effort.

The topics currently agreed to for this particular Symposium are shown on this screen. We are going to start with the Sun and Equator and what are those challenges in the equatorial plane, we are looking at the space weather, ionospheric anomalies and many others, whether _____(?), scientific technological application opportunities and custom policy and we need to look at, especially when we consider our current preoccupation with the use of polar orbit for Earth observation satellites as compared with using the equatorial orbit for the same purpose.

Then there are a number of entities in the world that are already active in this area so how do we focus on developing funding and probably marketing and equatorial launching site? How do we also harness the solar energy for outbound and space-based human needs? And given the fact that there are a number of entities that are already utilizing this plane, what are the experiences they have that need to be shared at this particular Symposium with the global community.

We have a number of deadlines for submission of paper, 15 July, around that time official abstracts. Acceptance of abstracts is 15 August and we expect all full papers to be in by 31 October in the hope that we can them available for the Symposium when it opens at the end of November.

The participants are coming from the international community. There are experts and representatives from academia, research institutions, national and regional space organizations and the space industry.

Our keynote speaker is none other than our own Director of the United Nations Office for Outer Space Affairs, Professor Mazlan Othman, who is still sitting on the podium.

At the local level, we have Mr. Ajayi, who is the Secretary of the Symposium and you have his details on the screen there, and for the Local Organizing Committee, I have Mr. Chizea and Mr. Chizea is also responsible for organizations that we want to carry out exhibitions at the Symposium.

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

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

The next speaker on my list is the distinguished representative of Mexico.

Mr. A. SERRANO PÉREZ GROVAS (Mexico) *(interpretation from Spanish)*: Mr. Chairman, the delegation of Mexico appreciates the report of the Scientific and Technical Subcommittee for its forty-seventh session. This delegation supports the activities proposed by Mr. Takao Doi, Expert on Space Applications. He made this proposal at the most recent Scientific and Technical Subcommittee session with a view to bringing to fruition the Programme of Space Applications during 2010 as well as the suggestions made to the Committee for 2011.

My delegation also approves other activities proposed by the Office for Outer Space Affairs, information on which we have been receiving in the course of this session.

My delegation would like to emphasis that we consider to be of particular importance the fact that the Office for Outer Space Affairs supports first the setting up of Regional Centres for Space Education Science and Technology, second, activities to promote regional and interregional cooperation and, third, activities under the UN SPIDER Programme.

As we pointed out earlier, the Mexican delegation would like to see the Office for Outer Space Affairs become involved in and support the Sixth Space Conference of the Americas, as it has done with all the previous conferences in this series. The Government of Mexico will send, in due course, an invitation and a request for support to the Director of the Office for Outer Space Affairs.

With regard to global navigation satellite systems, GNSS, my delegation appreciates the work of the Office for Outer Space Affairs as Executive Secretary of the International Committee on GNSS, ICG, to use the English acronym. ICG has made good progress towards achieving compatibility and interoperability among various systems of global navigation satellite systems.

With regard to the development of capabilities for the use of navigation and global positioning satellite signals, this delegation would like to inform the Committee that the Regional Centre for Space Education Science and Technology for Latin America and the Caribbean, CRECTEALC, organized a training course on the use of global navigation satellite systems

for development, from 16-20 November 2009, in Tonantzintla de Puebla Province, for the benefit of all countries in the region.

CRECTEALC continues following closely the Office for Outer Space Affairs efforts with regard to GNSS studies and would like to include these developments in our programmes at the Brazil and Mexico campuses.

Mr. Chairman, with regard to the matter of near-Earth objects, this delegation believes that while the risk of impact with an asteroid is low, the consequences of such an impact could be devastating for our planet and we firmly support the work of the Subcommittee and the Action Team on Near-Earth Objects, that is Action Team 14, in preparing a preliminary draft report on the draft Protocol on a response that governments could undertake in the case of detecting an asteroid with possible impact with the Earth.

My delegation is happy to inform you that in January 2010, the Mexican campus of CRECTEALC, and D. G. Ono(?), started the organization of a Workshop on the Special Characteristics of a Network of Information Analysis and Alert, IAWN, could eventually have for the use of countries around the world. This was organized by the Safe World Foundation.

Also in January 2010, the University of Nebraska completed its study of the legal aspects of a possible response to the impact threat from an asteroid. The study was carried out with the sponsorship of the Safe World Foundation and the Association of Space Explorers.

Mr. Chairman, as delegations are well aware, in the margin of the current COPUOS session, the Action Team on Near-Earth Objects has held a number of meetings to continue its intersessional works to prepare a preliminary draft report on a draft project on the possible response of governments in case of detecting the likelihood of an asteroid impact. Action Team 14 is now considering the Executive Summaries of the Workshop in Mexico and the University of Nebraska and the delegation of Mexico fully supports this work and hopes for further progress.

On the same subject, the Mexican delegation reiterates that the National Institute of Astrophysics, Optics and Electronics attaches great importance to promoting the international use of the large Millimetrical Telescope, GTM(?), in their ceramical(?) studies of frontier areas and its possible adaptation as a radar for use as part of the International Programme to defend humankind in case of possible impact.

This would make it possible to characterize in detail asteroids that approach the Earth through the precise situation of the for these asteroids, their orbits, their composition, whether or not they are rotating or swerving in the trajectory. This knowledge would make it clear whether these asteroids are a real threat to the Earth and should be put on the list as such or in the opposite case, could be eliminated from the list of possible risks.

Mr. Chairman, my delegation welcomes the agreements reached the most recent session of the Subcommittee on the subject, Long-Term Sustainability of Outer Space Activities. This delegation appreciates the fact that the Subcommittee has set up a Working Group on this subject and pledges its cooperation to Mr. Peter Martinez of South Africa in his position as Chairman of the Working Group.

We would also like to express our appreciation of the document prepared for the Working Group, A/AC.105/L.277, regarding the Terms and Reference and methods of work for the Working Group. The Mexican delegation will take an active part in all discussions on this subject, both during sessions of the Scientific and Technical Subcommittee and through other possible media or modalities.

Thank you very much Mr. Chairman and distinguished delegates.

The CHAIRMAN: I thank distinguished representative of Mexico for his statement.

Is there any other delegation wishing to speak under this agenda item at this morning's meeting?

I see none.

I therefore now would like to give the floor to the Chair of the Working Group of the Scientific and Technical Subcommittee on this item to report on the outcome of the work of the Group yesterday afternoon. Mr. Peter Martinez, you have the floor.

Mr. P. MARTINEZ (South Africa): Thank you Mr. Chairman. Mr. Chairman, thank you for giving me the opportunity to report on the progress made in the Working Group on the Long-Term Sustainability of Outer Space Activities, of the Scientific and Technical Subcommittee.

In accordance with the recommendations of the Subcommittee at its forty-seventh session, and in agreement with the Committee at its present session, the Working Group met on 14 June 2010, I would like to thank the Committee and you, Mr. Chairman, for availing this opportunity to the Working Group to meet with interpretation services in the six languages of the United Nations.

The Working Group met with a view to further developing its Terms of Reference and method of work. The Working Group considered document A/AC.105/L.277, which contained a proposal for the Terms of Reference and the method of work.

The Working Group had a very rich exchange of view on the long-term sustainability of outer space activities in all its aspects and in relation to the proposals contained in document A/AC.105/L.277.

The Secretariat took note of all the requests for clarification and the specific amendments that were suggested during the exchange of views. I will work with the Secretariat to address the comments as best as possible with a view to issuing a revised version of the document.

Member States were also encouraged to draw the Secretariat's attention to any translation issues that might need to be considered before issuing a revised version of this document.

I look forward to working with those delegations that provided comments to improve the text.

I am pleased to inform the Committee that the Working Group agreed on three pragmatic actions to take place in the period between June 2010 and the next session of the Scientific and Technical Subcommittee in February 2011.

Firstly, the Working Group agreed to invite member States of the Committee to submit their views and comments on document A/AC.105/L.277/Rev.1 to be issued with specific emphasis on the Terms of Reference, thematic areas, methods of work and work plan.

Secondly, the Working Group agreed to invite the permanent observers of the Committee, as well as the entities referred to in paragraph 184 of the report of the forty-seventh session of the Scientific and Technical Subcommittee to present information on their activities pertaining to the long-term sustainability of outer space activities for consideration by the Working Group at the forty-eighth session of the Scientific and Technical Subcommittee.

Thirdly, the Working Group agreed to invite member States to nominate their points of contact to facilitate further intersessional programmes towards developing the Terms of Reference and method of work of the Working Group in preparation for the forty-eighth session of the Scientific and Technical Subcommittee in February 2011.

These actions represent small but pragmatic and consensus-based steps in the direction towards accomplishing the Work Plan for 2010, as agreed by this Committee in 2009.

I would like to thank member States for their very constructive engagement during our deliberations yesterday.

I would also like to thank the Secretariat and our interpreters for supporting our discussions.

The next meeting of the Working Group will take place at the forty-ninth session of the Scientific and Technical Subcommittee in February 2011.

This concludes my brief report.

Thank you Mr. Chairman.

The CHAIRMAN: Thank you Mr. Martinez for your report.

Distinguished delegates, if there are no objections, may I take it that the Committee agrees that member States, permanent observers and relevant entities be invited to provide the information outlined by the Chairman in this regard?

I see no objections.

It is so decided.

The United States please, you have the floor.

Mr. J. HIGGINS (Mr. K. HODGKINS?) (United States of America): Thank you Mr. Chairman. Mr. Chairman, before we reach a final decision, I would like to say a couple of words and make another suggestion regarding the work on long-term sustainability of space activities.

First, I would like to thank our colleague, Peter Martinez, for the outstanding job that he did yesterday. It only reaffirmed in our minds the decision

that we had made by making Peter, or asking Peter to be our Working Group Chair. He demonstrated that he is quite capable of handling what is turning out to be a very difficult task.

During the course of the discussions yesterday, the Working Group considered several proposals in the paper, in L.277, particular the question of holding workshops and my delegation had made a suggestion in the course of the discussions that perhaps at the next session of the Scientific and Technical Subcommittee, the Symposium that COSPAR, I think, would be organizing, we suggested that the topic be changed from, the topic is "Planetary Protection", that we change the topic to the question of long-term sustainability of space activities. In our delegation's view the advantage here is that we could have a workshop or a symposium, bringing in experts to share their views on long-term sustainability of space activities and we could do this within the existing budget, within the existing timeframe of the Scientific and Technical Subcommittee and it would also allow us to consider this topic with full interpretation.

Now, it was correctly pointed out that the decision regarding the Symposium had been made by the Working Group of the Whole and that decision had been endorsed by the Scientific and Technical Subcommittee, which is all well and good. Our suggestion, however, as the full Committee, to ask that we re-consider the decision on the topic for the Symposium because of the priority that we have set on long-term sustainability and the need to move forward. So what I would like to do, Mr. Chairman, then is to make the following suggestion that we ask the Secretariat to confer with COSPAR to see if it would be acceptable to them to change the topic for the Symposium and if they have no objection and feel that they are up to the task, that we then agree that the topic for next February in the Symposium would be the "Long-Term Sustainability of Space Activities".

Now we could leave this question open until the end of our session to give time for the Secretariat to confer with COSPAR and see if this is a possibility, that is, of course, if our suggestion is acceptable to the member States.

Thank you.

The CHAIRMAN: Thank you distinguished representative of the United States for your comments.

Are there any other comments on this subject?

Venezuela.

Mr. R. BECERRA (Bolivarian Republic of Venezuela) *(interpretation from Spanish)*: Thank you Chairman. I would like to make a comment on the last piece of information that you have transmitted to us. You referred to interaction with NGOs, with social groups and entities, and my delegation, during the last meeting, we had flagged that it was very important to listen and hear out the comments made and the suggestions tendered by these groups and organizations. However, things must be very clear. Once again, here we are working within an intergovernmental forum and decisions are decisions that must be taken by State alone and the Secretariat and Working Groups must take this comment into due consideration.

Here we are working amongst States and it is States that take decisions on these matters so we can listen to and hear out the suggestions made by these other organizations and entities but it is up to States to take the decisions on these matters.

Thank you.

The CHAIRMAN: Thank you distinguished representative of Venezuela. In my opinion, it was no misunderstanding. We asked for information concerning the subject. The decisions are taken by the member States.

Are there any other questions or comments?

I see none.

We have, therefore, concluded our consideration of agenda item 8, Report of the Scientific and Technical Subcommittee on its Forty-Seventh Session.

The United States?

Mr. J. HIGGINS (Mr. K. HODGKINS?) (United States of America): Thank you Mr. Chairman. Just a point of clarification. What we have made is a very specific proposal on how to proceed regarding the Symposium. Do I take it then that we have agreed to have the Secretariat, before the end of our session, raise this with COSPAR or do we need to have further discussions?

The CHAIRMAN: Yes, distinguished representative of the United States. Your proposal is accordingly taken into account and the Secretariat will deal with COSPAR to see what arrangements could be done.

The distinguished representative of China has the floor.

Mr. Y. XU (China): Thank you Mr. Chairman. Thank you for giving me the floor. Although we are quite happy to receive any new suggestions on the agenda of next year's Scientific and Technical Subcommittee, the problem for us is that the proposal made by the United States delegation is quite new for us so with the only instruction from our capital. Since we have postponed the decision until the end of the session with the Secretariat to approach COSPAR for whether it is possible to have a change of name for next year's Symposium, I ask you to give some indulgency to postpone the decision(?) for the member States until the end of the session whether we can support this new proposal just to give us the flexibility to consult other colleagues in the capital because it changes the agenda for the next year's Scientific and Technical Subcommittee.

Thank you Mr. Chairman.

The CHAIRMAN: Thank you distinguished delegate of China for your intervention. For sure, the Secretariat will interact with COSPAR and will see what COSPAR could do or not with regard to the Workshop next year. So then you will be informed about COSPAR's decision.

Are there any other comments?

Saudi Arabia please.

Mr. M. A. TARABZOUNI (Saudi Arabia): Thank you Mr. Chairman. I really would like to ask you did we close 8 or can we add something to it?

The CHAIRMAN: Could you repeat that? There was no translation for some delegations.

Mr. M. A. TARABZOUNI (Saudi Arabia): Well I speak English. I would like to ask you did you close 8 or do we still have other time.

The CHAIRMAN: Now we close 8 and at the end of the session you will just have an answer about the interaction between the Secretariat and COSPAR.

Mr. M. A. TARABZOUNI (Saudi Arabia): No, I mean 8 by itself not the decision of the United States of America.

The CHAIRMAN: We conclude now the item number 8.

Mr. M. A. TARABZOUNI (Saudi Arabia): Could I have something to say in this regard?

The CHAIRMAN: Please.

Mr. M. A. TARABZOUNI (Saudi Arabia) *(interpretation from Arabic)*: *(interpreter: there is no relay from the Arabic unfortunately. There is a technical problem again).*

The CHAIRMAN: Unfortunately we have a problem with the translation from Arabic. Unfortunately this is not the first time, it is the third time with Arabic.

Just a moment please.

(interpreter: The problem is probably settled. Could the delegate please speak now).

Mr. M. A. TARABZOUNI (Saudi Arabia) *(interpretation from Arabic)*: My delegation would like to endorse the view expressed by the representatives of Russia, Nigeria and Mexico. And we would like to reiterate the importance of international cooperation to reinforce international law including the standards and norms governing the activities in outer space as well as all of the agreements and treaties in this regard which strengthen the peaceful use made of outer space in order to counter and respond to the new challenges arising and to protect and defend the requirements and needs of developing nations and to prevent an arms race in outer space and this in accordance with Article 4 of the Treaty on the Principles Governing the Use of Outer Space of the Moon and Other Celestial Bodies.

States, with no exception, especially the nuclear power States, must commit themselves most strongly to preventing an arms race in outer space.

Thank you very much Chairman.

The CHAIRMAN: Thank you distinguished representative of Saudi Arabia for your interventions.

Are there any other comments on this agenda item 8?

I see none.

Pending the decision on the Symposium at the Scientific and Technical Subcommittee in 2011, the

Secretariat will contact COSPAR and we consider now the agenda item 8 suspended until the end of the session until we have an answer concerning this Symposium, on for this reason.

Do you agree? Are there comments?

I see none.

It is so decided.

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

Distinguished delegates, I would like now to continue and hopefully conclude our consideration of agenda item 9, Report of the Legal Subcommittee on its Forty-Ninth Session.

The first speaker on my list on agenda item 9 is the distinguished representative of the Russian Federation, Mr. Sergey Shestakov.

Mr. S. SHESTAKOV (Russian Federation) *(interpretation from Russian)*: Thank you very much Chairman. Mr. Chairman, I would like today to make some brief comments about the work of the Legal Subcommittee which is playing a very important role in the development, the progressive development, of international outer space law. And in the agenda of the Legal Subcommittee, there is an important issue which is the status and implementation of the five United Nations outer space treaties. Indeed, the Legal Subcommittee's work on this is very important. It last sat in March and April at its forty-ninth session. During this session, a discussion took place with regard to the prospects of adherence to the Treaty on the Activities of States on the Moon and Other Celestial Bodies. It is important for us to continuing strengthening the international legal regime regulating outer space activity.

We also support the idea that if possibly the Treaty should be adapted to present day needs and to the new level of development of international law.

There are also issues having to do with definition and delimitation of outer space which are important, as well as issues having to do with the nature and use of the geostationary orbit. Here, Russia is in favour of continuing consideration of issues having to do with the delimitation and definition issues relating to outer space and we believe it is important indeed to determine international legal criteria on how to delimit air space and outer space and here we would like to refer your attention to the statement made by the Russian delegation at the Legal Subcommittee session on the substance of initiatives moved by the USSR in 1983 and 1987, and here I am referring to a boundary between air space and outer space at an altitude of 110 kilometres with a right of fly-through air space of other States in order to gain access to near-Earth orbit activities or to de-access this orbit.

Thank you very much.

The CHAIRMAN *(interpretation from Russian)*: Thank you very much Russian Federation for that statement.

(Continued in English) Are there any other speakers, any other delegations wishing to speak under this agenda item at this morning's session?

I see none.

We have, therefore, concluded our consideration of agenda item 9, Report of the Legal Subcommittee on its Forty-Ninth Session.

Space and society (agenda item 11)

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

I now turn to the list of speakers.

The first speaker on my list is the distinguished representative of the Syrian Arab Republic, Mr. Osama Ammar.

Mr. O. AMMAR (Syrian Arab Republic) *(interpretation from Arabic)*: Thank you Mr. Chairman. We in Syria and through the General Authority for Remote Sensing have been trying to use remote sensing technologies in all fields of development and we would like to have the young men acquainted with those technologies. We have received the students and pupils from the schools in Syria in order to make them aware of these technologies and the methods of work of our authority. We present them with films and presentations so that we can all make use of space sciences.

In cooperation with the Ministry of Education in Syria, we have been able to introduce some technical equipment in the elementary schools and in the secondary schools. Last year, we cooperated with UNESCO in the organizing of three workshops on remote sensing for the young. The first one was held in Damascus, the second was in Homs which is in the

central Syrian part, and the third one was is on the coastal area.

We issued a special booklet to be distributed to all the schools so that students and pupils have been able to attend the workshops can get acquainted with the material.

A number of secondary school students, as well as the universities, attend those workshops. Some professors also attend those workshops.

I would like to thank here UNESCO, especially Ms. Yoland Berenguer, for the huge effort they exerted in the organization of these workshops. They offered us some international experiences that was shown to the young people from schools and universities.

We have a five-minute film that we will present here within the framework of this item.

The booklet that we also issued is available for those who would like to take a copy in Arabic.

I hope you allow us this five-minute film about those workshops.

Thank you very much.

Video

Mr. Chairman, I think the film should be translated.

(interpreter: the interpreters cannot translate films or interpret films of which there is no text. We have to have text in the booth in order for us to be able to translated those firms. Without it, we cannot do it. Thank you.)

The CHAIRMAN: Maybe the representative of Syria will give us some explanation about the text of the film.

Mr. O. AMMAR (Syrian Arab Republic) *(interpretation from Arabic)*:

Video (Continued) – in Arabic – no translation)

(English) This Workshop aims to stimulate, encourage and raise the interest of students in space-related subjects such as astronomy, rocket science, all these different fields in space. Our overall objective is to prepare the next generation of space scientists, astronauts.

(Continued in Arabic – no translation)

End of video

Thank you Mr. Chairman. I now would have liked that the film would have been accompanied with interpretation in to English. However, I think it was clear.

Thank you very much.

The CHAIRMAN: Thank you distinguished representative of Syria.

I ask all delegations who provide videos to have them with subtitles in one of the languages of the United Nations because the translators cannot translate films. They ask especially to have subtitles because they cannot translate films so we had just images to try to understand what it is about but we did not have any translation. Thank you.

The next speaker on my list is the distinguished representative of Canada, Mr. David Kendall. You have the floor.

Mr. D. KENDALL (Canada): Thank you Mr. Chairman. Let me first congratulate Japan on the successful recovery of the HAYABUSA Sample Canister. This is a great accomplishment and we look forward with anticipation to the analysis of the returned material that promises significant new information relating to the early solar system.

Mr. Chairman, as nations prepare for the future, it is critical that we collectively focus on the following priorities. One, to listen to what the next generation has to say. Two, to waken the curiosity of our youth. And three, to help young people acquire the knowledge and skills they need to contribute to society and have successful careers.

Space continues to have a particular fascination for young people and in Canada, as in other countries, we are working to use the appeal of space in order to engage their youth in connecting to and developing an understanding of our technologically complex world.

The year 2009 proved to be historic for both the Canadian Space Agency as well for the Agency's Space Learning Programme. The year marked the first time that Canada had two astronauts in space at the same time, as Dr. Robert Thirsk, Canada's first expedition astronaut on the International Space Station, was joined on-orbit by fellow CSA astronaut, Julie Payette, during Mission STS-127.

In support of these missions, the Canadian Space Agency's Space Learning Programme developed a series of pedagogical products that included our first foray into the world of three-dimensional immersive learning. Combined, these resources were requested by over 100,000 classrooms across Canada, reaching over three million students.

The CSA's Space Learning Programme is equally committed to ensuring that Canadian students have the opportunity to meet and interact with their peers on an international level in order to foster a further spirit of collaboration among the next generation of leaders. To this end, the CSA is proud of its role in developing such opportunities through its position as a founding member of the International Space Education Board that welcomed this year the addition of Australia's Victorian Space Society as an associate member, joining the space agencies of Canada, France, Europe, the United States of America and Japan.

In 2009, 2,546 Canadian students were able to partake in space-related national and international learning initiatives, having received space learning grant funding from the Canadian Space Agency. Students from primary schools, two doctorals candidates were awarded funding by the CSA in order to facilitate their participation in a wide range of learning opportunities, including international robotic competitions, and both national and international conferences, including the International Astronautical Congress held in Daejeon, Republic of Korea, and in which the International Space Education Board collaborated in the development and implementation of a full complement of student targeted programming that was offered in addition to the regular sessions already offered in such a venue.

During the summer of 2009, Canadian students at both the under-graduate and graduate levels were able to take advantage of an exchange programme with the Norwegian Space Agency, participating in a rocketry course held at Andoya Rocket Range. As a result of the success of this initial venture, additional Canadian and Norwegian students are expected to benefit from an expanded version of this initiative beginning this year.

Canadian students, supported by the Canadian Space Agency, will also be very active in several other high-profile programmes during 2010 including COSPAR, being held next month in Bremen, Germany, the International Space University's Space Studies Programme, being held this year in Strasbourg, France, and the IAC to be held in late September, early October in Prague.

Finally, Canada is proud to continue the support the United Nations-led World Space Week held annually in early October, encouraging and supporting the Canadian education community as they embark on their journey to inspire the next generation of space leaders.

We are dedicated to trying to ensure that our programmes remain relevant to our youth and to working with other nations to engage in collaborative programmes for the benefit of our next generation as they develop a place in and understanding of our ever-more connected world and the challenges that we collectively face now and in the future.

Thank you Mr. Chairman.

The CHAIRMAN: I thank the distinguished representative of Canada for his statement.

The next speaker on my list is the distinguished representative of India.

Mr. V. S. HEGDE (India): Thank you Mr. Chairman. Mr. Chairman, the Indian delegation would like to emphasize the fact that taking the benefits of space technology to mankind and society has been the driving force behind the success of the Indian Space Programme. Several application programmes such as tele-education, tele-medicine, disaster management support, search and rescue, Village Resource Centres, etc., have been carried out in India to fulfil these objectives of the Indian Space Programme and to bring the benefits of space technology to man and society.

The Indian delegation would like to brief this Committee on the specific activities taken by India in addressing the issue of promoting the greater participation of young people in space science and technology.

Mr. Chairman, the Indian Space Research Organization continuously carries out many programmes to attract young people to the field of

space by making them appreciate the importance and significance of space technology as well as the inherent thrills associated with that.

Space exhibitions are conducted regularly in many parts of the country showcasing the models of satellites and launch vehicles as well as panels detailing the programme elements. In the last one year, 23 such exhibitions were organized.

Mr. Chairman, last year, two Water Rocket Workshops to teach and encourage students to design and build water rockets and launch competitions are conducted at Mumbai and Mysore(?) cities. These events encourage students to understand the basic laws of physics and challenges involved in building even small rockets and inspire them to have a practical bent of mind.

Students from higher primary to university level are regularly encouraged to visit various ISRO Centres, to have first-hand experience of the exciting activities going on there, as well as their significance. Many ISRO Centres have permanent exhibitions detailing the growth of space technology in India. The ISRO Centres regularly celebrate the event like National Science Day and World Space Week and encourage students to participate in a wide-spectrum of activities like model-making, _____(?) competitions, innovative games, science _____(?), debates and physic programmes in large numbers to become aware of contemporary issues related to science in general and space, as well as India's Space Programme in particular.

Video capsules detailing various projects and programmes of ISO, especially on the applications of space technology for finding suitable solutions to many of the down-to-Earth problems associated with national development, are periodically made and distributed to educational institutions, voluntary organizations, museums as well as journalists.

Mr. Chairman, last year ISRO brought out a book entitled "Chandrayaan-1: India's Giant Leap to the Moon" with illustrations and lucid text targeting mainly the young people. Many such printed materials are published in many regional languages for better outreach across the country.

In addition, scientists of ISRO regularly visit various schools and colleges and conduct interactive session along with presentations on the beneficial aspects of space. They also participate in teachers conclaves to keep them abreast with the latest developments in the field of space and astronomy.

Special career counselling are also conducted for students at crucial stages of their academic career. Webcasting of important events like the launch of Chandrayaan-1 were undertaken, to reach the interested people in India and abroad. ISRO regularly encourages and sponsors participation of students from India with accepted papers at the International Astronautical Congress since ISE 2006 at Valencia.

Mr. Chairman, in conclusion, the Indian delegation is making all efforts to attract young people to space science technology and its applications.

Thank you Mr. Chairman.

The CHAIRMAN: I thank the distinguished representative of India for his statement.

The next speaker on my list is the distinguished representative of Colombia, Ambassador Ciro Arévalo Yepes.

Mr. C. ARÉVALO YEPES (Colombia) *(interpretation from Spanish)*: Thank you very much Mr. Chairman. Mr. Chairman, the theme "Space and Society" is essential. It is fundamental to all space activities carried out by my country, Colombia, obviously with a view to civilian benefits for all of society, not only with regard to space activities as such but also the National Government has a policy of promoting technology throughout the spectrum of fundamental research using such important institutions as MELOCA issuing guidelines for promoting technologies among students, young people, and there is a large number of planetariums and specialized centres for that purpose.

This is perhaps one of the most important conclusions that came out of UNISPACE III, due priority in our country through the Colombian Space Commission, CCE, to develop a strategy to promote the participation of young people in the exploration, research, studies that have to do with the peaceful uses of outer space. And the Executive Secretariat has been promoting the idea of international participation in projects such as the Space Generation Advisory Council which has meetings in various countries around the world and brings together large numbers of highly-motivated young people and they feed this Committee with their ideas and their enthusiasm.

I should also note that Colombia has been taking ownership of geo-space technologies in an increasingly effective way through various institutions under the Colombian Space Commission.

Mr. Chairman, what I would like to particularly emphasize is the fact that space agencies should work with important international organizations such as UNESCO in terms of providing support to young people, students who would like to become more involved in this work now and in the future.

We greatly appreciate also the support of the Japanese Space Agency of NASA(?), of the European Space Agency in this regard. They have initiated a number of programmes with the purpose of helping young people become involved in this work.

In Colombia in particular, we appreciate the support of the Latin American Scientific DIASPORA throughout the world, the support directly targeting our continent and Colombia in particular. We have had an opportunity to work with some of our expatriate scientists and it was recognized that bringing progress and technology with regard to outer space to young people, to children, is key to promote these areas in the future. This is something that is part of what we call a holistic approach to environmental protection and we promote among the young people and students a commitment to the environment which involves also outer space not just the Earth as such and the young people have reacted very well to this.

Because of the availability of space technologies offered by the COMPATERRE(?) Programme which is to share knowledge provided by satellites. Recently a tele-medicine programme, a pilot programme, was launched for IRIMODE's region, the Eastern Plains of Colombia, which made it possible for such remote areas to transmit relevant and urgent information in real time to centres that have greater technical capabilities and high-level experts which could process this information and take decisions in a very effective way.

Also in connection with the programme of eradication of illicit crops in our country, we have used the technology capability provided by SIMSI(?) in terms of providing remote sensing images of illicit crops in various parts of the country. The Presidential Agency for Social Action and International Cooperation has taken an active part in these processes, monitoring those areas where such illicit crops have been eradicated and providing alternative development options to society, allowing progress towards sustainable development in the regions affected.

The process of land management and infrastructure planning has also been strengthened by satellite information. Large amounts of information should make it possible to develop infrastructures in a much more effective way, such as aquaducts and drainage systems, motorways, electrical networks, pipelines, oil pipelines and so forth. All of this can be done in short periods of time. Of course, a major contribution towards sustainable development for Colombia as a whole.

These are some of the examples of the applications of space technology in our society.

Mr. Chairman, we have focused on education, the educational aspect of this work. We believe that this is extremely valuable because it is about young people, it is about the future and we hope that our contribution has been important.

Thank you.

The CHAIRMAN: I thank the distinguished representative of Colombia for his statement.

The next speaker on my list is the distinguished representative of China.

Ms. S. ZHANG (China) *(interpretation from Chinese)*: Thank you Mr. Chairman. Space exploration has greatly expanded human knowledge of the Universe and generated plentiful scientific results, thus advancing the development of science and technology in space-related fields. What is more, it has inspired the human spirit of exploration and nurtured generations of young scientific entrepreneurs. It is essential to strengthen space education and disseminate space knowledge since its contribution to human civilization is invaluable.

For several decades, China has not only made tremendous achievements in the field of space technology development but also been actively engaged in popularizing the knowledge of space science in order to inform more people of the Universe and attract more young people to the great cause of space exploration. EXPO 2010 in Shanghai, has a Space Home Pavilion which carries the slogan of harmonious city, human and space by means of exhibits as well as interactive and physical experiences along the theme of human visitors are exposed to the splendour of space achievements in China that entrepreneurship of those dedicated to space exploration and the contributions of space technology and applications to human life.

Space science and technology camp is an effective way to carry out space science outreach to young people and nearly 30 such camps have been

organized in China in the past few years for around 10,000 middle and primary school students and pupils with approximately 1,000 of them coming from Japan, the Republic of Korea, Singapore, Malaysia, Russia, Ukraine, Belarus, Kazakhstan, United States and other countries.

In spring 2010, the first Science and Technology Innovation Contest, the Bado(?) Cup was organized jointly by the Ministry of Education and the China Satellite Navigation System Office which was opened to amateurs of satellite navigation, space science and technology and applications, and the purpose of which is to promote the knowledge of the Bado System and encourage the active participation of young people in science innovation, particularly the application of satellite navigation systems.

After six months of preparation, 262 projects from 87 groups were submitted and three submissions won first place awards in the college students category, including a design of a mobile navigation position terminal using the Bado System. Three submissions won first place awards in the high school students category featuring a creation of an artificial intelligence walk stick which has ultrasound probe and GPS function. The submissions are creative, scientific, attractive and artistically demonstrates the outstanding wisdom and boundless creativity of young people in the scientific research and innovation fields.

Over the past few years, Chinese Society of Astronautics and the Hineline(?) Prize Trust held three space exploration innovation contests entitled “Flying into the Future in China and Other Asian Countries”. The purpose is to provoke and expand the imagination and the creativity of young scientists and students, to encourage them to be more innovative and think about bright ideas that can be explored in commercial space activities, so that future commercial space activities will be more effective and beneficial for mankind.

XW-1, the first satellite for science education for young people in China was designed and launched by the China Aerospace Science and Technology Corporation and the China Association for Science and Technology. On 2 June 2010, Chinese President, Ma Ying-jeou, joined the students in the event of experiencing science and growing up with delight in China Science and Technology Museum and witnessed the announcement of the results of the experiment of the five-colour Earth payload on the XW-1 science education satellite.

Since the inception of the XW-1 project in May 2008, various events were organized such as soliciting payload proposals, creating a lunar base online, experiencing Chinese space activities by visiting Xichang satellite launch site and watching the launch of the XW-1 satellite.

Mr. Chairman, space exploration is one of the greatest undertakings of humankind. Its sustainability depends on letting more young people and take part in space science and technology.

Along with the international community, the Chinese Government is ready to dedicate itself to disseminating space knowledge and attracting more and more young people to space exploration and innovate to contribute to the peaceful use of outer space for the benefit of humanity.

Thank you Mr. Chairman.

The CHAIRMAN: I thank the distinguished representative of China for her statement.

The next speaker on my list is the distinguished representative of the United States, Mr. James Higgins.

Mr. J. HIGGINS (United States of America): Mr. Chairman, my delegation is pleased to address the special theme of space and education at COPUOS. We acknowledge the important role space education for inspiring students to pursue careers in science, technology, engineering and mathematics, to increase the number of professionals entering those fields, to strengthen national capabilities in the fields of science and industry and to enhance educational opportunities using distance learning technology such as tele-education and e-learning.

The United States Civil Space Programme continues to emphasize the importance of space education and education to space. Let me highlight several NASA Programmes to illustrate the types of projects we have under way.

First, the International Space Station continues to play an important role in education in reaching out to international educational communities. For example, the Amateur Radio on the International Space Station, or ARISS Programme, inspires students worldwide to pursue careers in science, technology, engineering and maths to amateur radio contacts with the on-orbit crew of the ISS. The Programme is maintained by a dedicated group of international amateur radio operators who have helped millions of people from around the world interact with astronauts and cosmonauts.

Likewise, the NASA-sponsored ISS EarthCam Programme, which stands for Earth Knowledge Acquired by Middle School Students, allows students and teachers to directly benefit from the International Space Station's tremendous educational potential. During EarthCam missions, periods when the EarthCam camera is operational, middle school students from across the globe use the World Wide Web to direct a camera onboard the ISS to photograph specific locations on the Earth. Over 10,000 students from 164 different schools took part in the most recent EarthCam mission.

The International Space Station is also playing an important role as a research platform for students and educators of all ages.

Under the United States/ISS National Laboratory Concept, NASA continues to pursue a strategy to which available ISS resources can be used as a National Education Centre, accessible to teachers, students in kindergarten through post-doctoral studies and university and college faculties.

NASA's Mission Directorates and its Centre and Education Offices also provide a variety of educational programmes and resources for NASA's elementary, secondary, higher education and informal education partners, both in the United States and abroad.

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

In 2009, NASA and the Arab Youth Venture Foundation in Dubai, UAE, partnered to provide three to 12 UAE engineering students each year the opportunity to work with United States students, scientists and engineers on NASA missions. Beginning this summer, the first group of UAE students in the programme will work alongside their United States peers on an internship project at the AIMS Research Centre in California.

Earlier this year, 70 teams from 18 US States, Puerto Rico, Canada, Germany, India and Romania competed in NASA's seventeenth Annual Great Moon Buggy Race at the Marshall Space Flight Centre. The Race challenges students to design, build and race lightweight human-powered buggies that tackle many of the same engineering challenges dealt with by an Apollo-era Lunar Rover Developers at Marshall in the late 1960s.

The NASA Explorer Schools Programme is another key initiative designed to strengthen science, technology, engineering and mathematics education in the United States. Since 2003, the NASA Explorers School Programme has partnered with schools in diverse and under-served communities across the country to provide greater access to NASA's educational resources. The international counterpart to the NASA Explorers Schools, the Delta Researcher Schools in the Netherlands, has also been a successful platform for enhancing international educational collaboration.

NASA is proud of the cultural and educational exchange made possible with the European Space Agency and the Netherlands Ministry of Education, Culture and Science through the Delta Researcher Schools Programme in the NASA Explorer Schools. Delta Researcher School educators and students have participated in unique learning opportunities including professional development at NASA Centres and live in-flight communications with astronauts and cosmonauts onboard the ISS.

NASA is also leading a number of projects designed to educator post-secondary students in space-related careers and prepare them for future employment. During this summer, students from across the United States as well as from Australia, Canada, France, Italy and Japan will work directly with NASA scientists on cutting-edge research as part of the NASA Academy Internship Programme. The NASA Academy's unique combination of scientific, career and internship training makes it a viable platform for cultivating the next generation of international leaders in space science and exploration.

NASA is once again sponsoring United States graduate student researchers to make presentations at the Committee on Space Research, or COSPAR, Scientific Assembly, and the Annual International Astronautical Congress, the IAC, which will be held this September in Prague, the Czech Republic.

During these events, NASA will co-host a series of educational programmes at the International Space Education Board's International Student Zone. Students from around the globe will visit the

International Student Zone at COSPAR or the IAC will have a unique opportunity to share and learn from each other.

Exposing our students to the activities of international scientific conferences and allowing them to be active in presenting their own space-related research will open new doors for these prospective space professionals. Our next generation of researchers and engineers will increasingly need global perspectives and experiences to solve the challenges we face as space explorers.

One challenge to using the unique environment of space to inspire students to study science and technology in all nations is the availability of resources. NASA continues to welcome opportunities for international collaboration where resources can be leveraged and where collaboration supports NASA's education strategic goals and objectives.

Mr. Chairman, I presented a number of examples of ways in which my country is working hard to inspire the next generation of explorers and to strengthen our national education posture by using content, materials and applications unique to space activities.

We look forward to sharing ideas and experiences with the Committee and to learning more about the successes achieved by other member States.

Thank you Mr. Chairman.

The CHAIRMAN: I thank the distinguished representative of the United States of America for his statement.

The next speaker on my list is the distinguished representative of Japan, Mr. Akiko Hashimoto.

Ms. A. HASHIMOTO (Japan): Thank you. Mr. Chairman, distinguished delegates, on behalf of the Japanese delegation, I am pleased to have the opportunity to address the fifty-third session of COPUOS.

Our delegation would like to express its satisfaction with the fact that the Committee continues concerning space and education as a special theme because we believe this is a very important topic.

Having chosen the Action Team on Capacity-Building in implementing the recommendations of UNISPACE III, Japan continue to assign great importance to enhancing education, training and capacity-building in space-related areas and has contributed to various initiatives in this regard following the UNISPACE III + 5 Review.

Japan supports a lot of this Committee and its subsidiary bodies in providing the global framework for the systematic exchange of experience and information and the coordination of capacity-building efforts are stipulated in the Plan of Action endorsed at the General Assembly in its resolution 59/2.

We noted with satisfaction that in the Scientific and Technical Subcommittee and the various agenda items members States in _____(?) of the United Nations system and other organizations having permanent observer status in the Committee have continued to share information and experiences with capacity-building opportunities and initiatives in various areas of space science and technology and their applications.

We also support the recommendation by the Subcommittee that we continue to report on our efforts to promote education and opportunities for greater participation of youth in space-related activities.

On social aspects, our delegation notes with satisfaction the request made by the Legal Subcommittee to the United Nations Office for Outer Space Affairs to prepare a report setting out our recommendations relating to capacity-building in space law _____(?) and the status of their implementation and proposing ways and means of giving particular effect(?).

We support the Subcommittee's recommendations that member States should continue to inform the Subcommittee of any action taken or planned on national, regional or international levels to prepare capacity-building in space law.

This Committee and its subsidiaries have not only provided the forum for discussion on capacity-building efforts but have also played an important role in supporting a global framework for action around the world. One such example is the annual celebration of World Space Week. Numerous educational activities for young people take place each year during this special week. Japan carries out numerous activities to support this global initiative while strengthening international cooperation.

Japan also continues to provide the national framework for cooperation in space education through

the Asia-Pacific Regional Space Agency Forum, or APRSAF. Through it Space Education and Awareness Working Group, APRSAF has been taking concrete action to offer opportunities for school children, teachers and educators to participate in space education activities, such as an annual Regional Water Rocket event and a Poster Contest.

The next step for education efforts at APRSAF is to contribute to enhancing interregional cooperation. Initial steps have already been taken towards the collaboration between APRSAF and Latin American countries. In 2009, children from Ecuador and Colombia participated in the APRSAF Water Rocket event for the first time.

In addition, in the Latin American region, the JAXA Space Education Centre has been supporting space education initiatives undertaken by the Government of Ecuador through collaboration with UNESCO. The Latin American Regional Space Camp and Space Education Workshop, which were held in Ecuador and the UNESCO Space Camp which was held in Peru, were supported by the Centre in organizing their Water Rocket Launch Competition.

Furthermore, the Centre shared its experience relating to the dissemination of space education through its activities in Asia. The educational materials used _____(?) were created by JAXA and have been sent to Colombia, Peru, Chile and Ecuador in order to enrich their space education.

In Asia, the JAXA Special Education Centre initiated and co-organized a Space Education Seminar held in Sri Lanka in September 2009 and another Seminar is planned in Bangladesh in 2011.

The Centre also supported a Space Education Workshop in the Philippines through coordination with UNESCO in February 2010.

In addition, space educational materials have been sent to the Philippines, Malaysia, Nepal and Sri Lanka.

As for Africa, the JAXA Space Education Centre has continued to _____(?) groups of science teachers from African countries in 2006 and has provided an introductory space education teaching materials and methods.

Space education materials have been provided to Nigeria(?).

Last year, the new educational activities were held in view of the International Year of Astronomy. In July 2009, JAXA initiated a live transmission via Internet of an impressive high-definition video of a total solar eclipse from Iwo Jima Island located 1,200 kilometres south from Tokyo using JAXA's communication satellite named KITINA(?). Under the Japanese organization were also in this project which aimed at stimulating the extra curiosity of the general public and contributing to enhanced scientific literacy.

Turning to university and graduate students, various educational and training efforts continue in Japan to support their participation in space activities. JAXA works together with NASA, ESA, CSA and CNES within the framework of the International Space Education Board to increase opportunities for university and graduate students to participate in and contribute to international space meetings and to work on hands-on projects and training programmes in space engineering.

Mr. Chairman, our delegation is pleased that new aspects on educational initiatives have been presented in this agenda item over the past six years and while such an exchange of information and experiences on the various initiatives relating to space education is very important and should continue, it is might also be useful to focus our efforts to this Committee on identifying the few specific priority areas to have a greater impact on enhancing space education.

In this regard, in addition to presenting the good practice of our efforts, we would also welcome to share challenges suddenly encountered in expanding and promoting space education activities. Through this question in this Committee, we believe that we can find a possible solution to overcoming the challenge based on each others experiences.

Thank you very much for your attention.

The CHAIRMAN: Thank you distinguished delegate of Japan for your contribution.

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

Technical presentations

Now, we start the technical presentations.

I would like now to give the floor to Ms. Anne-Marie Lan Phan of Canada for her presentation

entitled “Bridging Space to Canadian Classrooms”. You have the floor.

Ms. A.-M. L. PHAN (Canada): Mr. Chairman, distinguished delegates, on behalf of the Canadian Space Agency, I am pleased to present an overview of the Space Learning Programme.

The Canadian Space Agency’s Space Learning Programme was established in 1995 and is mandated to increase the scientific literacy of youth, students and educators across Canada. Furthermore, programme initiatives are meant to equip and encourage students to pursue higher education and eventually a career in the areas of science and technology in Canada.

The Programme covers five main areas of activity that we will discuss in brief detail today which are as follows, pedagogical resource development, student workshops, in-service and press office educator professional development, special projects, funding opportunities for student and educator learning.

Our resources developed by the Canadian Space Agency are developed to meet the curriculum requirements of educators and students at the elementary and secondary levels so that it can be integrated seamlessly into classrooms by educators across the country. Each resource provides students with information and opportunities to engage in hands-on and mind_____(?) problem solving.

Educators are provided with background information on the science concepts to be covered in the resource as well as the space _____(?) space context they can use to bring relevancy to the teaching of the science content.

Resources are all available in either CD or DVD format or online via the Educators Section of the CSA’s website.

In all cases, there is never any cost to the educator in order to integrate the use of these resources into their courses.

In 2009, an esoric(?) year for the Canadian Space Agency with Robert Thirsk becoming Canada’s first expedition astronaut and Julie Payette joining him on the International Space Station during the summer, the CSA’s Space Learning Programme developed a series of pedagogical resources in support of these two space missions.

The Rover Math Resource which were developed in support of the STS-127 used the context of performing the robotic task of the mission in order to allow students to learn mathematics concepts at the primary and second levels. This resource also marked the CSA’s first foray into the world of 3-D immersive learning.

In support of Bob Thirk’s expedition mission, science focus resources were developed again at both the primary and secondary levels which focused on air quality in a close environment. Combined these resources were requested by 100,000 classrooms across Canada reaching over three million students.

The Space Learning Programme additionally strives to bring Canadian scientists, engineers and astronauts directly into the classroom to explore science and space concepts and engage in live, interactive and hands-on problem-solving opportunities with students and their teachers.

This is achieved through a number of media be they by hosting student groups at the CSA Headquarters by sending our experts out to the education community through our Tele- and Distance-Learning Programme.

The underlying idea behind this Programme is not to replace the educator but to enhance and provide greater depth of the learning-wide establishing a relationship between the education and the science community.

Scientists and engineers that support this element of the Programme are all required to participate in the Space Learning Programme Speaker Training which provides them with the tools and background necessary to deliver quality learning opportunities to the student audience.

The professional development element of the Space Learning Programme provides educators across Canada with the opportunity to learn or refresh their knowledge of science concepts, become familiar with the space context and learn how to use the lay term to teach science effectively while upgrading students interest in the topic.

The CSA not only hosts an annual three-day National Space Educator Conference at the CSA Headquarters, but also work with school boards, science teacher associations and Ministries of Education in the country in order to ensure that the educators have sufficient opportunity to develop their own skills to the point that they are comfortable using

space in their classrooms, not only to teach their space unit but the idea being that they could use the captivating context of space in order to teach a wide range of curriculum concepts.

Providing students with the opportunity to engage in hands-on space-focused science learning which mirrors similar research taking place within the Canadian Space Programme is imperative in developing a skill and motivated student population. As such, the Canadian Space Agency develops collaborations with other Government departments, post-secondary academic institutions, non-profit organizations and private sector organizations to offer unique learning experiences.

One examples of this is the Tomatosphere(?) Project. This Programme, a collaborative venture between the CSA, members of industry and academia, engages primary and secondary students in authentic science learning by providing a problem-solving opportunity that reflects issues when research in Canadian space laboratories.

More than 306,000 students in elementary and secondary schools participate annually in this project which challenges them to become Canada's first generation of space farmers and how to _____(?) and researchers committed to understanding the role of plans in support of life of the planet.

A further example of specialist projects are two initiatives developed in 2009 in support of Canada's first expedition mission to the International Space Station. These included a menu-designed challenge whereby Canadian students at the primary and secondary school levels are tasked with proposing viable menus for consumption on the ISS that will quite consider the myriad of unique conditions associating with transporting and eating food in the freefall environment.

Last but not least, with regard to special projects pertaining to Canada's first expedition missions, 1,950 students across Canada participated in a live, interactive downlink with Dr. Thirsk and his crewmates while an additional 8,000 students viewed these events online via the webstreaming.

Finally, the CSA offers financial support for non-profit organizations which are engaged in the development and delivery of Canadian space-focused learning programmes, materials and events for youth.

In 2009, about 3.4 million Canadian students increased their awareness and knowledge of space-focused content by participating in projects funded through the CSA's Space Learning Contribution Programme that were developed by science centres, museums, schools and other non-profit organizations.

Finally, an additional 2,546 Canadian students were able to partake in space-related learning initiatives through the CSA's Space Learning Grants Programme. Students from primary school up to doctoral candidates were awarded funding by the CSA in order to facilitate their participation in a wide-range of learning opportunities from secondary school, international robotic competitions to post-secondary students participating in international conferences such as the IAC.

Thank you Mr. Chairman.

The CHAIRMAN: I thank the distinguished representative of Canada for her presentation.

The second presentation that we will hear this morning will be by Mr. Doug Comstock of the United States, NASA, will give a presentation entitled "NASA Technologies for the Benefit of all Mankind".

Mr. D. A. COMSTOCK (United States of America): Thank you Mr. Chairman. It is my pleasure and honour to be here to address the fifty-third general session of the United Nations COPUOS and to talk about NASA technologies and how those technologies are being applied around the world for the benefit of all mankind.

To begin with, NASA has had a long history of applying technologies for public benefit. It goes back to the very creation of NASA and the space-active-created NASA in 1958 where it says "The Congress hereby declares that it is the policy of the United States that activities in space should be devoted to peaceful purposes for the benefit of all mankind." And the Act went on to further state that NASA should provide for the widest practicable and appropriate dissemination of information concerning its activities and the results thereof.

And today I would like to talk about some of the specific examples of technologies that are being across the planet for the benefit of the developing world and there are many important areas where this is occurring and I will give some examples related to clean drinking water, to improved agricultural and food distribution and tele-medicine and wireless networks and environmental monitoring and management,

disaster warning and relief, educational resources, energy storage and hazard reduction.

Each year NASA documents 40 to 50 of the best examples of this transfer of technology or spin-offs in our spin-off publication. I believe each of you have received a copy of our 2009 spin-off publication and there is information available on the Internet where you can search all of these examples and there have been over 1,650 documented so the examples that I will give today are just represented to be illustrative of these kinds of benefits but not exhaustive.

To start off with I would like to give some examples of clean drinking water. When astronauts live in space, it is very important that they have clean drinking water in the Space Shuttle and the Space Station and NASA developed a technology to ensure that the astronauts have safe drinking water called the Microbial Check Valve. This technology was developed by some small businesses working with NASA and it has been used now on all Shuttle missions.

And there are some very real problems on Earth with over one billion people not having access to clean water. This very technology that we developed for space has now been applied to help many of these people on Earth with clean drinking water. The MCV technology has been deployed in rural areas and in many developing countries around the world. A few of the images shown here are from some of those examples. In Malaysia, there is a pedal-powered unit, this providing safe drinking water to a community of 600 people and opportunities are being pursued in a number of other South-East Asia countries.

In Kendala in Northern Iraq, there is a system that has been mounted on a truck that serves multiple Kurdish villages, cleaning well water that would otherwise be unfit to drink. This is done in partnership with a non-profit organization called Concern for Kids and they are providing the service for many organizations in Iraq.

In Chiapas, Mexico, we show a system here that is deployed in a small remote village and is the only source of potable water.

Another example in Mexico was in Vera Cruz providing flood relief in October 2008. And there are many other examples of this application.

The next example I would like to show is regarding improving agriculture and food distribution. And to provide safe food for astronauts in space, it is very important to do research on food safety. The image shown here is of the Expedition 20 crew members as they are sharing a meal in the Unity Node but there is a lot of work that goes into making sure that the food that they have in space is safe. And this research also yields important benefits that can have application in developing countries.

One of the examples here is a product called AiroCide which is based on ethylene reduction from NASA research and it allows food to be preserved much more effectively and avoids rotted crops in fields helping farmers get their crops to market and it has been in India and other places.

Another example is NASA research in growth chambers for growing food in space that has yielded, what I call, minitubers, small potatoes that can be used to resist disease and increase crop yield and the application of these minitubers is also improving agriculture in many places in the world.

The next example I would like to give is related to tele-medicine and wireless networks. To keep astronauts healthy in space, NASA needs tele-medicine for remote delivery of medical care and for monitoring astronaut health. The same technology has many applications on the ground. One example is a company that developed this technology for NASA called Intelesense. They are working with mini-networks on the ground to provide public health monitoring. The image on the left shows the networks in Viet Nam, Thailand and Iraq. On the right is another example in Ethiopia where the network is used to link 126 remote medical clinics to five hospitals to improve the availability of healthcare. The image in the upper left is the astronauts on the Space Station doing ultrasound scans that can then be diagnosed on the ground. It is the Advanced Diagnostic Ultrasound in Microgravity Experiment which has many other applications as well and there has been some work with the United Nations Millennium Project on application of this technology.

The next example is environmental monitoring and health management. NASA has a network of many Earth observing spacecraft that have many applications. Two particular examples I would like to talk about are the Famine Early Warning Systems Network, or FEWS NET in Africa, which provides early warning on emerging food security issues and the South-Asia Drought Monitor which supplies timely information on drought onset progression and areal extent.

The images shown here are images from the website for these two projects. And there are important information from spacecraft that can help with agri-prediction of important issues related to agricultural shortfalls or bumper crops, agricultural irrigation demand, epidemics of vector-borne diseases, such as malaria, West Nile Virus or wild fire danger as well.

Another example for environmental monitoring and management is a NASA called SERVIR where we partnered with the United States Agency for International Development to establish this network of capabilities and NASA is applying this to help countries in Central America with the Satellite Visualization System that monitors weather and climate. SERVIR is used to help track and combat wildfires, improve land use and agricultural practices and respond faster to natural disasters. And one example of how it has been applied is helping the Dominican Republic's response to extensive flooding from Tropical Storm Noel.

The second application of SERVIR is in Africa, in Nairobi, Kenya. This Programme is used to integrate satellite resources into a web-based Earth information system and helps address natural disasters, disease outbreaks, biodiversity and climate change and, as the Deputy Administrator mentioned yesterday, there is increased funding for SERVIR in the budget request this year so we anticipate additional applications in the future.

The next example is in disaster warning and relief and in one area with regard to tsunami warnings, NASA has been doing some interesting research there. Conventional systems for providing tsunami warnings can result in false alarms that may have negative societal and economic effects. Researchers at the Jet Propulsion Laboratory had developed a system based on GPS measurements that can precisely measure the deframations of the Earth associated with an earthquake and lead to global tsunami warning systems that can reduce false alarms and help improve lives. And NASA just issued a press release yesterday that validated the approach that the JPR researchers have been developing based on data from the recent Chilean earthquake that validated the model and the approach. So this method of tsunami warning looks very promising.

And data from NASA's spacecraft and NASA research are also used in partnership with NOAA and others to improve the accuracy of forecasting landfall, tracking the intensity of hurricanes and this allows for increased lead time for warnings of both hurricanes and floods.

Some examples here of disaster warning and relief. There was a devastating earthquake in Balakot, Pakistan, in 2005, and this is one example where the Microbial Check Valve Water Purification System was used on-site to provide drinking water to that village in the aftermath of the earthquake.

And additional NASA spin-off that came into play after that earthquake was the use of space blankets. There was an individual in Seattle, Richard Berger, who was very moved by the plight of the people and he worked with relief organizations to deliver tens of thousands of space blankets to the victims of that earthquake.

Some more recent examples with the devastating earthquake that was in Haiti earlier this year. There was an application of a NASA spin-off technology for what is called a GATR inflatable antenna. This is based on technology developed by NASA for deploying inflatable antennas in space. This company has commercialized it for applications on Earth. These antennas were used to recreate the communication infrastructure in Haiti in response to the devastation from that earthquake.

Additionally, there is software that NASA has developed for scanning and measuring different space vehicles and the software has been licensed at Purdue University and they are now on-site in Haiti using this software to measure buildings to assist their structural integrity.

I would like to talk now about some examples of how NASA is supporting educational resources.

GLOBE, the Global Learning and Observations to benefit the environment is a worldwide student-teacher-scientists partnership and one of the very interesting things about globe is that it allows students to directly participate in the research by helping to collect the global data. So they are not just learning about the research but they are actually participating and directly contributing to it. Since 1995, GLOBE has grown to 110 countries and 20,000 schools around the world.

Another example is the Global Connection Project. This is joint project of Carnegie Mellon University, NASA, Google and National Geographic and this is a project that develops software tools and technologies and to use images to connect, inform and inspire people around the world. And they have been working with UNESCO, distributed a NASA spin-off technology called the Gigapan Camera which can take

gigapixel images and they have been applying that in South Africa and the Republic of Trinidad and Tobago.

Another example now, an energy storage that is very important in space to have advanced energy systems and NASA does a lot of research in energy systems for space. One of these systems led to a commercial application that was developed by a company called Deeya Energy and it is an iron-chromium hybrid flow battery that was initially commercialized in 2004. The company Deeya is now installing systems in rural areas in the developing world that can provide for improved communications and significant emission reductions. Some of the plans for this system include power-station-in-a-box that can help villages with electrification combining solar and wind generation sources.

Another example of a NASA spin-off is hazard reduction. Each year around the world, thousands of people are injured or killed from the millions of active landmines that are still around the world and Thiokol Propulsion, the builder of NASA's rocket booster for the Space Shuttle is using some of NASA's surplus rocket propellant to produce a flare that destroys landmines safely and easily. Using this solidified rocket fuel is an incendiary. This device uses a flare that burns a whole in the landmine's case and safely ignites the explosive contents and with the explosive material burnt away, the mine is then disarmed and no longer poses a threat. And this device has been deployed in Kosovo and Jordan, among other places.

Now I would like to talk about a new activity that NASA has begun partnering with the United States Agency for International Development, with the State Department and private entities such as Nike. It is a new initiative to identify and support innovative and disruptive work that is poised to contribute to a sustainable future for life on planet Earth. And LAUNCH was convened by NASA in partnership with the USAID, as I mentioned, and many other partners including the Department of State and Nike. And what LAUNCH intends to do is leverage the collective expertise networks and influence a diversity of community of leaders to identify support and accelerate innovative and often disruptive approaches towards critical sustainability challenges.

The first LAUNCH event was focused on water and that occurred in March at NASA's Kennedy Space Centre and some of the innovations that were addressed at that event included affordable soil moisture sensors, electro-chemical arsenic remediation, a floating sensor network, low-cost bacterial water tests, energy projects in Rwanda, and sub-surface vapour transfer irrigation. There is a lot of follow-up underway from that LAUNCH event that was focused on water and we are working with USAID to identify future LAUNCH events in areas that could address issues such as food.

So an example of how NASA is working with others to try to apply technology to address some of these important challenges.

So in summary, I would like to say that these examples provide a representative sample of the kinds of public benefits that are coming from NASA and that are being applied around the world. NASA is indeed delivering on the mandate it received from Congress more than 50 years ago to broadly disseminate the results of our research for the benefit of all mankind. And NASA stands ready to contribute to continue its progress of innovation and exploration that can inspire and enlighten and NASA's work will undoubtedly in the future to continue to yield amazing results and scientific discoveries and technological breakthroughs. And as we pursue these challenges, we will continue to seek opportunities to apply what we learn to help address the needs of the developing world for the betterment of the human condition and our planet.

That concludes my remarks and I would be happy to take any questions.

Thank you.

The CHAIRMAN: Thank you Mr. Comstock for your presentations.

Are there any questions or comments?

I see none.

The third presentation for this morning will be made by Mr. Horikawa of Japan and will make a presentation entitled "Building Peace in Young Minds Through Space Education: Contributions of JAXA's Space Education Centre for Human Development".

Mr. Y. HORIKAWA (Japan): Thank you Mr. Chairman On behalf of the Japanese delegation, I am honoured to have the opportunity to address the fifty-third session of COPUOS under the agenda item of Space and Society.

Our Education Centres uses space subjects and materials to get young people more interested not only in science and technology but also in many other things in our lives. We want young people to see the

links between space and the natural life, history, culture, civilizations and our future. We stress the spirit of 'never give up" and preciousness of life as the core of our space education principles and we continue to follow these principles in carrying out our activities.

Preciousness of life continues to be the most important message that we want to get across to our young generation through our activities.

As we study more and more about the origin and evolution of the Universe and life and as we continue our search for Earth-like planets, we come to appreciate more all forms of life on our planet Earth. This is something that we always stress in our educational activities for young people.

The spirit of 'never give up' is another important message that we always stress as this is essential for almost everybody who wants to achieve something significant in this challenging world.

We also want our young people to understand how important and how rewarding it is to be part of the society to build a better future together.

Through the Space Education Centre, JAXA has been carrying out various hands-on activities for primary and second school children to learn about space activities and their relevance to our history and future as well as our society. We provide kinds of support to school teachers to carry out their unique classroom activities that address space subjects. It covers a wide-range of disciplinary fields taught at school, including social science, Japanese language, arts and so on. We work very closely with them because we believe that they have a better understanding of young people's needs and feelings through their daily interactions.

JAXA's Space Education Centre developed its own unique programmes and materials to support educational activities carried out by other entities rather than schools outside the formal curricula normally during off-school days.

Our hands-on activities are mainly provided as part of what we call Cosmic College which targets on the primary school to high school students. We share educational materials and programmes that we develop for the cosmic college courses with the school and teachers that we support. We also provide other activities such as key mission _____(?) and so on.

At the same time, the Space Education Centre provides training and support for instructors and leaders of voluntary groups to carry out space educational activities to enhance the local community environment for children. The Centre has been offering space education leaders seminars as part of its support to the instructors and leaders who have completed the space education leaders seminar in the past three years. The Special Space Education Centre operates a rental system for its education materials and equipment for use during their space educational activities.

The Space Education Centre has increased its efforts to bring space home in the past few years and organized a programme called Space Schools for Families through collaboration with a non-profit organization Kumar. This programme is designed to the participating parents and children drawn together about various space-related subjects and conduct basic experiments and the homework to be done between the class or schooling to enhance their knowledge but also strengthen their family bond. As a result, the number of hosts for the Space Schools for Families have been increasing compared with the last year.

This graph shows our achievement of domestic educational support. As you see, a number of school supports and Cosmic College have been increasing every year. We will continuously promote and support space education among the young generations.

Our objectives of international objectives are to expand space education activities using the existing framework space cooperation such as APRSAF, United Nations, International Space Education Board, International Space University and ODA.

As we expand our partnerships to entities of other countries and the international organizations, we use as much as possible the existing framework for cooperation.

This slide tries to summarize the strategies that we take in expanding space education through international cooperation.

In the next few slides, I would like to show some of those examples.

In the region of Asia and the Pacific, we use the framework provided by APRSAF. It works within the framework of APRSAF that we introduced the idea of the Water Rocket Competition and Poster Contest as a regional event for secondary school children.

After a few regional events, the number of participating countries and international organizations increased to 23. To further promote the water rocket as educational activities in the region, we are widely distributing the Educators Manual and DVD for water rocket activities for any interested teachers and educators.

When we organize a space education seminar and workshop for school teachers, those seminars and workshops give them opportunities to learn about various subject related to space activities and also to take part in hands-on activities within the framework of APRSAF. JAXA's Space Education Centre initiated a Space Education Seminar held in Sri Lanka in September 2009 as a co-organizer and plans to be held in Bangladesh in January 2011.

We intend to organize those workshops in cooperation with UNESCO in accordance with the Agreement of APRSAF. We consider it important to work with entities of the United Nations system such as the Office for Outer Space Affairs and UNESCO as they provide opportunities for cooperation that benefit a larger number of countries and people than we could possibly do by ourselves.

We appreciate the opportunity provided by UNESCO to participate in its space education activities held in multiple cities in Colombia, Viet Nam, Tanzania, Philippines and Ecuador in the past few years to introduce the water rocket as an educational activity. We are happy to support the hands-on session with a water rocket planned for a teachers in many countries.

While we provide assistance to teachers and educators in developing countries, they help us to improve the content of our teaching methods and materials by giving us their feedback. For us, this is a mutual beneficial way of cooperation.

In addition, the JAXA Space Education Centre has been supporting space education initiatives and that a combined Ecuador through collaboration with UNESCO. The Regional Space Camp and the Space Education Workshop held in Salinas and Santa Cruz, Ecuador, and UNESCO's Space Camps held in multiple cities in Peru. JAXA's Space Education Centre also supported the Space Education Workshop in Cebu and Hirohiro(?) in the Philippines through collaboration with UNESCO in February 2010.

The Centre also introduced the experiences of space educational activities and educational materials created by JAXA to Latin America and Asia. Those educational materials had been sent to Colombia, Peru, Chile and Ecuador, Philippines, Malaysia, Nepal and Sri Lanka to enrich their space education.

As for other regions, we consider it is important to work with those entities that serves as the focal point for cooperation in the region. For example, in Europe, cooperation with ESA is very important for us and we use the Annual ESA/JAXA Meeting as the well-established framework for cooperation for more than 30 years.

In Latin America and the Caribbean, we try to maximize opportunities to work with those countries serving as Pro Tempore Secretariat of the Space Conference of the Americas in the past, present and the future.

We also take opportunities to work with other regions as offered by the developing agencies of Japan.

For Africa, JAXA's Space Education Centre continues its collaboration with the Japan International Cooperation Agency, JICA. One of such examples is the introductory training session in space education that we provide to a group of science teachers of secondary schools from nine African countries to share space education teaching materials and methods.

Furthermore, we sent space education material to Nigeria to enhance their educational activities. Recently, we have received a positive report from them introducing their space educational activities of which they have developed their own water rocket materials and educational kits.

We are invited to participate in any intergovernmental meetings. We share our successful examples of regional initiatives.

We have translated the Educators Manual for Water Rocket and DVD in English and Spanish. We also provide the Wiki site for water rocket information materials and discussions that anyone can access.

This is the map that shows distribution of the supporting water rocket in the Asia-Pacific, Latin America and African regions.

Last year, there were numerous educational activities held in view of the International Year of Astronomy, IYA. IYA held a number of activities last year such as sending small telescopes to children in Asia having a Book Fair, workshops, an astronomical education symposium and so on. At JAXA we

contributed to support their activities, especially in the total solar eclipse special education event.

JAXA initiated to hold a live transmission of high-definition images of the total solar eclipse on 22 July 2009 from Iwo Jima using JAXA's communications satellite KISUNA.

Following organization such as the National Astronomical Observatory, the National Institute of Information and Communications Technology, JAXA went on the National Science Museum and HK, a public broadcasting organization involved in this project to stimulate intellectual curiosity of the general public and to contribute to enhancing scientific literacy.

One of the frameworks that we support is the International Space Education Board, called ISEB. The membership is open to any public organization carrying out space activities and pursuing educational programmes. There are several joint activities currently pursued by ISEB under the Chairmanship of ESA.

As for university and graduate students, JAXA works together with NASA, ESA, the Canadian Space Agency and the French Space Agency, CNES, within the framework of ISEB to increase opportunities to participate in and contribute to international space meetings as well as a hands-on project and training programmes in space engineering. Such examples are sending students to IAC, COSPAR and NASA Academy supporting the GENSO Project and CanSat activities and using the ISS as a learning platform.

To some extent, we, in our Space Education Centre, are trying to establish a network of space education efforts at various levels through various Cooperation Frameworks and through organizations as well as individuals who share our goals and principles. This house(?) is a standing example of how committed and dedicated individuals could have significant positive impacts on the cooperation in space activities through the accumulation of extra efforts that they make over years.

As far as the space education is concerned, we value what each individual can do to have a positive impact on the development process of the young people.

Mr. Chairman, in our efforts to highlight the importance of space activities for the society, we have stressed the benefit of space science and technology and their applications to enhance safety, security, predictability, responsiveness, stability and convenience at the societal level aiming for the enrichment of the society as a whole.

Our attempt to establish a network of space education efforts create a coalition of forces around the world who want children to leave them full of happiness and joy of living.

Through our interactions, particularly with teachers and educators in developing countries, we have gained confidence that we are doing will eventually bear fruit in the future. In this regard, in addition to presenting successful results of our efforts, we could also share challenges that we have encountered in expanding and promoting space education activities and shift the focus of our efforts in this Committee to suggesting possible solutions to overcome these challenges based on each other's experience.

So thank you for your attention.

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

Are there questions or comments on this presentation?

I see none.

The fourth presentation of this morning is made by Ms. Erna Sri Adiningshi of Indonesia who will make a presentation entitled "The Application of Satellite Remote Sensing on Climate Change and Food Security in Indonesia".

Ms. E. S. ADININGSHI (Indonesia): Thank you Mr. Chairman. First of all, on behalf of the Indonesian delegation, I would like to thank you for the opportunity for us to give a presentation relating to space and climate change. And I am the Director of the Aerospace Analysis and Information Centre of Lapan.

The outline of my presentation will consist of first the importance of climate change and food security. And second is the climate change studies using satellite data, and third is remote sensing satellite for food security for the satellite development for remote sensing and other applications.

Firstly, international cooperation related to the above themes and the last I will finish with some concluding remarks.

First, I will begin with a question. Why climate change and food security is very important for Indonesia? The reason is that climate change has been a fact based on a long-term observation and climate change, and also its variability, has profound impacts on various sectors. Among those are agriculture, fisheries, forestry, water management, health, water-related disasters like floods, droughts, landslide, coastal environments and many others. And among those, agriculture is the most vulnerable sector in which food supply will be affected under increasing demand due to population growth as well as climate change and this would threaten food security.

And according to UN OCHA, Indonesia is the second biggest prone country to natural disasters. And water-related hazards are among those.

Floods happen also happen every year, as in 2007 and continued in 2008, and 2009, not only in big cities but also in agricultural areas.

Some impacts of climate change are prolong drought due to rainfall pattern change, increasing fire risk, more frequent climate extremes and food crop production in which this will influence the food security as well.

And here are examples of climate change and impact studies that have been done in Indonesia. Based on a 100-year record, the time service of the annual air temperature of Jakarta, for example, indicated a significant temperature increase over the last century.

Therefore, the studies on climate change impacts for more than 20 years including impacts on rainfall pattern, fire risk, food crop production, terrestrial eco-systems, coastal zone eco-systems and water-related hazards. And certainly remote sensing data from existing satellites are very essential for these purposes of studies.

Prolonged droughts on one side could trigger higher land fire risks but on the other hand, they contribute increasing greenhouse gases emissions into the atmosphere. As we experienced in Central Kellimantan during a prolonged drought.

Another example is climate impact on fire risk using various types of satellite data. Space-based geo-spatial data was processed and analyzed to come up with some statistical research on fire risk and we see on the table and also some graphs.

In climate change mitigation actions, the President first announced Indonesia's plans for emissions reduction at the G20 Summit in Pittsburgh, September 2009 then reiterated at the COP 15 in Copenhagen, December 2009. In his speech, Indonesia will reduce the emissions by 26 per cent by 2020 although Indonesia is a non-Annex I country of the United Nations as you will see. This indicates a strong will to actively participate in global climate change mitigation and to achieve this, Indonesia will change the status of the forest from that of a net emitter sector to a net carbon sink sector by 2013. And in this regard, of course, remote sensing satellites could provide better spatial information on greenhouse gases and forest status.

Therefore, there will challenges for the satellite development and applications to address these issues.

Next is about carbon accounting projects and some climate change impact studies, including the food security using remote sensing data.

Indonesia has just begun a national project on a carbon accounting system in collaboration with Australia. The aim of the project is to develop a robust methodology for carbon stock monitoring based on forest _____(?) to produce accurate and continuous information for the purpose of climate change mitigation actions particularly under the mechanism of RED, Reduction of Emissions through the Deforestation and forest Degradation, all RED plants as well.

These are the steps that we have done so far. And next is another example of the use of remote sensing for snow cover change over the top of Mountain Jayawijaya in Papua.

And there is evidence that the snow cover is too significantly from 1992-2003.

With regard to the use of remote sensing satellites for food security purposes, there are some examples on how MODIS data is used for such purposes.

Since rice is the main staple food, Indonesia has concerns in how to monitor rice fields areas under the _____(?) of land use change into other land use types and also how to monitor food crop reduction, particularly of a food crop reduction central areas in Indonesia as we see for the Java Islands in this slide.

And to achieve this, it is important also to map rice yield standard areas all over Indonesian areas. These are the results and it is important also to monitor floods and droughts in these rice crop areas.

And the other example is the use of satellite imagery to address land management optimization in the sense of how the crop-growing season could be planned and implemented to achieve a maximum yield. This effort is aimed to enhance the capability in the use of space technology and information for precision farming.

This is an example for an area in Lampung Province off Sumatra Islands.

And similarly, for planning and monitoring could be done also for peanut crops in the Lampung Province of Sumatra.

These are our experience and the use of existing satellites, there are some problems and challenges. Since the climate in Indonesia is very dynamic seasonally, first, high-cloud cover in Indonesia for almost all the year for certain areas will produce very few cloud-free images from existing polar orbital satellites, both optical and radar due to temporal ray solutions.

In the second, there are many geostationary satellites that could provide high-temporal resolution but low in spatial resolutions.

On the other hand, ,we need adequate spatial resolution as well as temporal resolutions and this zone is near equatorial orbital satellites since most existing remote sensing satellites are having polar orbits.

And lastly, a satellite development programme is necessary for Indonesia to fulfil those kind of needs.

Indonesia has also increased its efforts towards national capacity in satellite development and beginning with collaboration with the University of Bremen, Germany, we developed our first remote sensing satellite, named Lapan Tubsat. Now it is still operating with a video camera. And Lapan is continuing the development of data processing with ability to process the video tape into imageries, including for land cover mapping.

And Indonesia 2014, _____(?) will continue to develop various microsatellites including Lapan-82 or Lapan-Orari which has combined optical and multi-spectral sensors and radio communication which is hopefully going to be launched in 2011 and planned to be launched with the Indian Equatorial Satellite MONSOON.

And several other developments also include near-equatorial orbital satellites as well as low-Earth orbital satellites to fulfil our needs.

Based on Indonesia's experience, what are the needs for future efforts in addressing climate change and other global environmental issues, particularly for developing countries?

First, we need more space-based observation, more repetitive times to produce cloud feed data. And secondly how to access the existing Earth observation satellites which have spatial characteristics for better observations such for climate perameters, greenhouse gases and biomass observations as well.

Thirdly, the data in real time conditions such as GPM or GSMap satellite data observation will be necessary.

And fourth, we need also enhanced capacity-building through educational programmes or training courses for satellite meteorology or climatology, also hyper-spectral data processing and analysis.

And the last is that we need more international collaborations.

And, Mr. Chairman and distinguished delegates, finally I will finish my presentation with some concluding remarks.

First, climate change and food security are important issues in Indonesia to address and space technology, particularly remote sensing satellites are very beneficial for observation related to climate change perameters, impact and mitigation actions as well as adaptation to climate change. However, there is still a limitation in the use of remote sensing satellites. Therefore, satellite development programmes in Indonesia will be enhancing and challenging. And the last, we need all the international cooperation which needs to be strengthened for better access to existing satellite data and enhanced capacity-building.

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

The CHAIRMAN: Thank you Ms. Adiningshi for your presentation.

Are there any questions or comments?

I see none.

Distinguished delegates, I will shortly adjourn this meeting of the Committee. Before doing so, I would like to inform delegates of our schedule of work for this afternoon.

We will reconvene promptly at 3.00 p.m. At that time, we will continue our consideration of agenda item 18, Space and Society, agenda item 12, Space and Water, agenda item 13, Space and Climate Change, and we will begin also, only by the demand of one delegate who has to leave Vienna, we will hear a presentation under agenda item 14.

Time permitting, we will also begin our consideration of agenda item 16, Other Matters, as procedural, organizational matters only.

There will be four technical presentations this afternoon. The first one by the representative of the United States NOAA entitled "50 Years of Operational Environmental Satellites: the United States Experience", the second one by the Moscow State Engineering Physical Institute of the Russian Federation entitled "Gamma Ray Astronomy on the Way to Uncover the Mystery of Dark Matter of the Universe", the third one by Chile on "Space in Chile: Past, Present and Future", and the fourth one by UNESCO on "Achievements of the IYA: its Legacy and the Way Forwards".

I would like to invite all delegates to the Austrian Heurigen event which will take place tonight at 7.30 p.m. Delegates have received invitations in their pigeonholes. And also I want to remind delegations of the informal consultations on the 2011 in Room M07 at 2.00 p.m. today.

Are there any questions on this proposed schedule?

The distinguished delegate of Venezuela.

Mr. R. BECERRA (Bolivarian Republic of Venezuela) *(interpretation from Spanish)*: Thank you very much Chairman. Just one point of clarification if I might.

Have we amended the agenda? Is there some re-ordering going on? I did not quite get that point.

Thank you.

The CHAIRMAN: Distinguished representative of Venezuela, we will open, begin this afternoon in addition to the agenda items already opened the agenda item 14 for one delegation who has to leave Vienna, to have a statement. And then we will continue our considerations on the agenda items already opened. We will start with 16 also, Other Matters, for organizational matters only. And then we will continue with agenda item 14 tomorrow in the afternoon.

Please, the distinguished delegate of Colombia.

Mr. C. ARÉVALO YEPES (Colombia) *(interpretation from Spanish)*: Thank you Chairman. I am part of that delegation that is very grateful for accommodating us. Tomorrow, at the end of the day, I hope we will have an opportunity to make a presentation on our space policies. It was just a gesture of courtesy and if that can be accommodated.

Thank you very much.

The CHAIRMAN: Today, this afternoon? Yes.

Thank you Ambassador Ciro Arévalo Yepes for your comments.

Are there any other comments?

I just want to remind delegations that we have use every morning the three-hour duration of the session so every morning I am at 10.00 a.m. sharply here but most of the delegations they come at 10.15 a.m. or 10.20 a.m. and we have to use the three-hours time so we finish a little bit later every time. This is the reason that we finish later. I hope there are no comments. If you come sharply at 10.00 a.m., we finish at 1.00 p.m. sharply. Thank you.

I will adjourn the meeting until 3.00 p.m.

The meeting adjourned at 1.16 p.m.