

## Where Do We Go From Here?

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[background conversations]

**Ken Hodgkins:** I think we'll start now with our final session. We've had a very good day of discussion and a lot of interesting information and views. I think that we'll have the same here for this panel where we kind of wrap things up.

We've had some very good, uh, suggestions at all the panels, in particular the last panel, on what the future holds for our work on long-term sustainability. Uh, but, before we start, I wanna make one announcement, which is, af-, after we adjourn, there'll be a reception out in the reception area. So, you're all invited.

So, today, we have, uh, Gerard Brachet, who is the, the architect of the proposal for the long-term sustainability guidelines. Sergio Marchisio, who's been active in the expert groups, as well as, in the, in the committee, and its legal subcommittee. We have Mazlan Othman, the former director of UNOOSA, who's there at the, at the beginning of the whole process.

And then, Scott Pace, from th-, the GW Space Policy Institute, who's been a, um, he's been a driving force in space policy, in the United States, as well as, internationally. And, has been part of our private sector team, uh, that's been advising us on the long-term sustainability guidelines, as well as, other work being done, uh, in COPUOS.

So, I won't take up any more time. I'll hand the microphone over to Gerard.

**Gerard Brachet:** Thank you, Ken. Well, first of all, Ken, I want to thank, uh, the State Department, and the Secure World Foundation, for, uh, taking the initiative of this [inaudible 2:20] . And also, for inviting me to, to participate.

Of course, for me, it has a special significance, because, uh, I, uh, chaired COPUOS in, uh, 2006, 2007. And, uh, I, I, uh, I actually proposed, uh, that the, uh, COPUOS tackles the issue of long-term sustainability. That was under item, agenda item, which was called, uh, Future Role of COPUOS.

Uh, at the time, I think COPUOS needed little bit of a, of a shake-up, and thanks to, um, Karl Doetsch who had made a very, uh, very insightful speech at the closing of the session of COPUOS...

[phone rings]

**Gerard:** ...in 2005, uh, I, I...

[phone rings]

**Gerard:** ...immediately jumped, uh, and made a series of proposals, and one of them, of course, was the long-term sustainability, and that took some years to, to formalize, uh, and, uh, and start the actual work that Peter Martinez has led so well and successfully over the last six years.

And by the way, I'd like to congratulate, uh, Peter for his, uh, for his work and for his achievement, because I, I think he has spent, uh, a huge amount of time devoted to this, uh, to this working group, maybe about 10 times what you expected in the beginning.

[laughter]

**Gerard:** Or maybe more.

**Audience Member:** Mm-hmm.

**Gerard:** Thank you, Peter. Um, and now of course, when we talk about, uh, best practices and outer space sustainability, uh, you will have noticed that nobody is using the word security. But we all know that security of outer space is part of, uh, sustainability.

Uh, and, uh, when we take a step back and try to have the overall picture of international discussions, uh, then of course we have to take account of the fact that there is the work on long-term sustainability...

**Audience Member:** [coughs]

**Gerard:** ...taking place at COPUOS. There is a item on, uh, Prevention of Arms Race in Outer Space in, uh, in CD. Uh, there is also the initiative taken by the European Union in 2008 to propose a larger code of conduct.

And, uh, also notice that the-, there was the, uh, setting up of the Group of Governmental Experts on TCBMs in Outer Space, uh, which actually was born from, uh, from the, I would say, the CD environment, and in fact it was a Russian proposal, uh, when it started.

So we have an overall picture of many things happening, uh, some of the them have happened and are, are over by now. Uh, and, uh, we have, when we consider what is next step and what, what are the next steps, we need to take account, uh, of the fact that it's difficult to move very far without taking on board the issue of security, even when the word security, uh, is not mentioned.

I see David listening carefully to what I'm saying.

[laughter]

**Gerard:** And know, I will start with a little story. Uh, way back, in 2008, I think it was in early 2008.

I was still the chairman of COPUOS until the beginning of the session in June, and I was invited by the Canadian ambassador to the CD, uh, to, uh, make a presentation to the, uh, delegates at the Conference on Disarmament, um, an informal meeting on the, uh, on the issue of, uh, uh,

prevention of an arms race in outer space, and, uh, the ambassador was more or less the coordinator of discussions on these items.

So, I, um, uh, decided that it would be a good idea to go to Geneva, and, uh, make a presentation to the CD delegates. Uh, my, uh, advice from the UN Office of Outer Space was "Don't go!"

**Audience Member:** [clears throat]

**Gerard:** "Don't go! Don't mix up security issues with what we are discussing at COPUOS." So I therefore did not follow the advice...

[laughter]

**Gerard:** ...and I, I flew to Geneva, and I gave a presentation to the, uh, CD, and I discovered something which was unfortunate, and that is that the delegates to the CD who had interest in Prevention of Arms Race in Outer Space had no idea whatsoever of the work being done by COPUOS.

And yet, we had achieved recently an important milestone, because we had adopted in June of the previous year the, uh, Guidelines on Space Debris Mitigation, and these were endorsed by General Assembly at the end of 2007, so that is two months before.

Um, later on I had the opportunity to, uh, make presentation in UNIDIR, you know, Space Security Conference taking place in Geneva, and, uh, I was therefore, uh, uh, uh...reported on the progress of the, uh, discussion at COPUOS on the inclusion of the new agenda item, uh, Long-term Sustainability of Space Treaties.

And I, uh, actually went as far as saying, um, "I don't see any progress taking place at the CD on the PAROS issue. Uh, on the other hand, at COPUOS I believe that we will be able to make some progress on long-term sustainability. It will take some time, uh, but, uh, it will be more of a, probably more of a bottom-up approach, more of a, of a, uh, progressive, step-by-step approach."

I didn't know at the time, of course, that we would take six years to achieve the first results...

[laughter]

**Gerard:** ...that we are, that we are so happy to celebrate today.

But anyway, I, I expressed my conviction that there was, uh, more progress to be expected, uh, on the COPUOS than there would be, uh, at the CD. Unfortunately, there I was right. Uh, unfortunately for the CD, of course.

[laughter]

**Gerard:** Uh, what is strange to me is that, um, um, the CD had an opportunity, uh, through the establishment of the Group of Governmental Experts in 2012, uh, and the work done by the GGE.

Uh, S-, Sergio and myself, Peter also, we were part of the, uh, of the GGE, and we were quite happy that we were able in 2 years to develop a report which was adopted by consensus, and later endorsed by the General Assembly at the end of 2013. And yet, I haven't seen much taking place at the CD, uh, in, uh, uh, as a result of the successful work of the, of the GGE.

On the other hand, the, some of the, uh, guidelines that were either adopted already or which are being discussed in the Long-term Sustainability Working Group, uh, were actually more or less called for by the GGE report.

By the way, for those of you who are not very familiar with the GGE...

**Audience Member:** [clears throat]

**Gerard:** ...about half of the experts, uh, in the GGE were actually very much involved in the COPUOS discussions. About half, I think, were here.

Um, so this tends to, uh, to show a kind of a disconnect, uh, between the CD, which are mostly disarmament, uh, experts and, uh, and COPUOS, which are more, uh, the, uh, applications and, uh, and technology experts in, in, in civilian activities, uh, including some diplomats who happen to know something about it. [laughs]

[laughter]

**Gerard:** Um. So, um, uh, I would, I would, I would like to know, but maybe my colleagues will, will cover that, whether anything has actually happened, uh, uh, in, uh, as a result, of the, uh, of the GGE report, and a-, as part of the implementation plan which we're supposed to follow.

I haven't seen anything. Uh, apart from, maybe, the, uh, one recommendation that we included in the, in the, uh, GGE report, and that is the establishment of a joint meeting of the First Committee and the Fourth Committee of the General Assembly that took place last year in 2015.

And I understand that another one of these joint meeting, uh, will take place next year, and of course, the idea is to try to bridge the gap between those who are more focusing on disarmament issues and those who are focusing on the, uh, development of space activities as a whole.

I hope that will help in, uh, in making further progress, uh, uh, uh, if it's not in bridging the gap, well at least in, in incorporating useful, uh, guidelines in the work of, uh, the Long-term Sustainability Working Group. Uh, maybe not, uh, specifically mentioning space security, but finding ways to increase space security in any case.

Thank you very much.

[applause]

**Sergio Marchisio:** May I?

**Ken:** Yes.

**Sergio:** Yes, thank you.

**Ken:** Sergio, you have the floor.

**Sergio:** Ken, thank you, uh, for inviting me to this, uh, event. After so many years of collaboration in different fields, I feel real grateful for this invitation and very happy to be here.

And, uh, of course, I followed the exercise concerning, uh, the LTS for three years, co-chairing, uh, Expert Group D with Australia, which was very, very instrumental also to the outcome of this expert group, because we finished, I think, the first in three years' time. Then, other two years went on, with some difficulties coming out.

But I retook my position in the negotiation in September at the intersessional meeting, and I had the pleasure to see that how flexible the delegation were, and co-, how cooperative, and how the process was going on well. Of course, for, uh, uh, maybe this speaks of the chairman and the, uh, flexibility shown by all the delegations.

Uh, I would address this issue, "Where do we go from there?" uh, focusing on three points.

First of all, in, the, the, the fact that we, the work should be completed, of course, before the compendium, uh, to prepare the compendium within June 2018. Second is the implementation of the approved guidelines, which has been, uh, mentioned several times. Then I will make some, uh, comments on the grey issue between the set of guidelines on LTS and the existing legal frameworks.

[inaudible 14:49] before, uh, making a question to one of the, the panelists. Uh, the...It is of course necessary to complete the set of guidelines, and in this regard, I would like to say that if we look at the 14 guidelines that have been already approved, uh, really you, you see reflected in these, uh, guidelines, in the bold language as well as the narrative parts, uh, the, the, the, the qualities that such kind of guidelines should, should have in general.

They should be concise, practical, and I guess, also, proved, which should mean that both the application and the efficacy has been demonstrated in a way or another, and, uh, this is thanks to the bottom-up process of the, uh, guidelines, uh, LTS, uh, process.

Eh, eh, eh, eh, this kind of, of, uh, input for research, like the private sector was very much present during the expert group meetings, I don't know if, uh, can be, in a way or another, uh, taken again into the process, and, uh, I think that, uh, this is, uh, really according to...I remember when we went...

**Audience Member:** [coughs]

**Sergio:** ...both o-, of us, to Moscow, several years ago, to present on one side the LTS process and on the other side the ICoC process. From the EU, we had some difficulties in finding the differences, the line of separation, between them, but, uh, I remember that at the time, there were some words, magic words, for [laughs] distinguishing them. Bottom-up process, LTS, and top-down process for the ICoC.

Um, in the end, I think that, uh, the only danger that, uh, exists in my mind, looking at the other set of guidelines, that have not been approved, is the fact that within these, uh, guidelines, to be,

still to be approved, uh, there are some problems of language and there are also some problems of concept.

Because I think that, uh, the same, uh, assessment, that they should be clear, concise, practical, etc., is not really, uh, proven, huh? They are much more aggressive even, some-, sometimes. Uh, some of them, not all, but some of them, they are really touching upon sensitive issues with, with statements that have no, no, no...real difficult meaning to be understood.

So, I think that this will be a challenge for the chair, but I'm sure that on, uh, these guidelines to the group, the working group, we find it's [inaudible 18:06] also for meeting for...with this kind of, uh, of, uh, problem. The second problem is the problem of the implementation.

Now, it's, it's been said, uh, several times today, that the next, uh, we've been waiting for the conclusion of the process in COPUOS, states should start, uh, the process of implementation of these, uh, guidelines. Now, in the, um, the implementation, uh, is one, uh, one, one problem. That, uh, each state, each state recognize international [inaudible 18:50] in its own way.

You cannot impose to a state how to implement, uh, even legally valued instruments. Because we were talking, uh, before of the article six, uh, concern by the industry. Uh, there are states, uh, where the, uh, article six is taken not, not seriously. It is just there, because it is a text that should be mentioned in the preamble of some regulation.

But, uh, there are other states, [inaudible 19:24] United States, there is a problem here of, uh, article six, how it is organized the authorization [inaudible 19:34] process. And it is more this kind of concern, than a concern about the rule contained in the, in the treaty. So, on the other, uh, side, the national regulatory frameworks [inaudible 19:48] legally binding instruments, such as the guidelines, are to be considered.

And it's a good indication of national [inaudible 19:57] . And we have a liability towards such guidelines. So, it is, uh, the evidence that the state excused the adoption. If there is not a measure of a national level, we, we can say that, that, uh, that the national...the fact that the national instrument has been approved, even by consensus, is, is not in itself a problem.

And in this, uh, line I really much understand the problems raised by Andre, uh, concerning the fact that you should explain at the national level how important such kind of instruments are. But you...it is very difficult to find, to find counterparts that, that really understand these, uh, concerns. If you go to the, uh, members of parliament, for instance, they do not, not think about such kind of issues, uh, like members of the city probably.

And, uh, even, uh, in the space sector there is the technical side, which is not always conducive with regard to this kind of, of instruments. So they are a little bit suspicious. What does it mean? We should, uh, make more efforts. We shouldn't spend, uh, uh, more money, etc. So it is a problem inside, but it is important to, to have this implementation.

I do not think that the set of guidelines causes a lot of pro-, pose a lot of problem. Because...I mean, they are more general in the, uh, they are removable on the internal level. And, uh, of course, there are states like France, and other ones, where such kind of guidelines have been make, make obligatory or mandatory for private operators and IT.

Such as the Space Debris Mitigation Guidelines. Or the safety framework on the nuclear, uh, powers also, as you mentioned [inaudible 22:10] we've been adopting it in COPUOS. Uh, another problem today one would like to, to touch upon is the issue of, uh, the, the linkage between the report, the recommendations contained in the, uh, GG report, and the implementation of the guidelines.

Because, uh, you were asking, uh, just a few minutes ago, uh, Gerard, if there has been, uh, some, uh, work done after the adoption of this report. And I should say that, once again, the COPUOS has been the most diligent one. Because within COPUOS we entered one item, the, the agenda of COPUOS, concerning the implementation of the, uh, the, uh, recommendations contained in the GG Report.

That means that COPUOS took seriously the recommendation addressed by the General Assembly to several organs, mainly to COPUOS and CD, to give effect to the, uh, report. Asking member states to rep-, report, or make reports on their, on the activity, as far as the implementation of this recommendation of the concern.

And I remember that, uh...well, the only comment we can say that, um, is that for the time being a few, only a few states have replied to, to this, uh, recommendation by the COPUOS. But I'm sure that in the future they will grow and more states will take seriously the recommendation of the GG Report.

And probably there could be, and this is a very important task for the working group and for COPUOS and UNOOSA, to show the connections between the implementation of the guidelines on, uh, long-term sustainability, and implementation of the recommendation of the GG Report. Because, uh, in several aspects they are mutually supported.

So you can use one guideline adopted by, um, [inaudible 24:24] to, to, to implement also the recommendation given by the, uh, GG Group. Uh, to do our best work, I think in the future we should also try to improve the relation between the Scientific and Technical Subcommittee and the Legal Subcommittee within COPUOS.

There are no reason to, to take them as, uh, separate entities. We should try to have some, uh, some kind of feedback between them. Uh, because, uh, there is one point that it is, uh, important to say, not only as Peter always mentioned the guidelines, even if they're not legally binding. They have no [inaudible 25:16] value, because they can be domesticated in the legal internal system.

But there is also one important problem into my mind. That they, uh, as other instruments, the Resolution of the General Assembly, the Resolution of [inaudible 25:33], etc. [inaudible 25:37] the same state. They had states do better, abiding by the international obli-, obligations.

Because they can, um, be a sort of, uh, of, uh, a guidance for applying some, uh, provisions contained in the treaty that are no self-executing, that are in letter of general principles, that lack any, any reference to the practice of space and other, uh, space actors. So, this is important to the, um, interpretation they give the guidelines with some interpretation elements. [inaudible 26:19] practice of the space community.

Even in relation with, uh, provisions contained in the five treaties. So, uh, in between this, this is what uh, Gerard was saying a few minutes ago, intervening, making my question to, to, uh, to my goal. And the problem is that, uh, the reasoning, also for the treaty to discuss, uh, which is their role now today, after so many years they have been adopted.

They are, uh, I'm repeating this always not because I am, uh, always repeating the same. But I think that they are aging. The treaty are aging. Here's the problem of the, of the provisions that have been conceived several years ago. Uh, in the '60s, in the '70s. And they, they are now, uh, well, a little bit, uh, uncomfortable with the evolution taken by the space, uh, activities and the space community.

This is why, and I understand well, uh, the private sector is sometimes, um, arising substantive concerns. Relating, uh...just a few time ago, the issue of the article six concern. But there are other concerns, like the issue of the, uh, attribution of liability. The issue of, uh, what it means [inaudible 27:58] the liability convention.

The, even the identification of the [inaudible 28:03] state and the respective role with the registration state. To the state of registry. Uh, the regulation of the space tourism. Where do we have flights? The consequences of [inaudible 28:15] of certain heights. Risks imposed on outer space missions during the operation disposal of such conservation.

The issue of [inaudible 28:27] commercially [inaudible 28:30] , etc. There are many things that you cannot solely making reference only to the treaties. Because it is impossible. And, um, one problem is the problem of the definitions. Uh, the treaties do not define, well, what is a space object?

This is something that is al-, always repeated. I don't think that this is the main program, because space objects are defined in, uh, specific treaties. If you, if you see, for instance, the, uh, the agreement on the international space, space [inaudible 29:06] , space protocol or asset. They have a longer definition, and definitions for what they mean for.

But there are some issues that should be interpreted or reinterpreted. So, in this line I think that it is very, uh, very important what the director of UNOOSA is saying for some time, and is also writing, uh, that among the, the...there is an important focus on some demanding priorities for UNISPACE+50. Uh, and among them, one concerning legal issues.

The legal, uh, issues of regime about the space activities and global space governance and future perspective. The number two priority, [inaudible 30:03] priority. So, in, uh, conclusion, there are many issues concerning the space legal framework [inaudible 30:13] , would require, may require, may I say, may require additional consideration.

We should find a way to, uh, give the possibility to these additional consideration to be discussed. And the other positive point is that the Legal Subcommittee, which was a little bit there to discuss in an academic way issues that were of no relevance in my mind to the real, uh, space ac-, world and now, uh, is now beginning, starting to discuss more practical issue, at least at the level of discussion, of debate.

It is, not for, uh, making other treaties, because this is not the time for treaties, as I understood very well, but for, for, for trying to, to, uh, discuss and to clarify some issues that have, uh, ri-, h-, have been raised in the last year.

So I think that the-, these, uh, forthcoming opportunities -- the continuing discussion of LTS guidelines and the need to approve the remaining, the remaining set of guidelines. Uh, the preparations for the 50th anniversary of the Outer Space Treaty next year, 2017.

The discussion of the thematic priorities defined for, uh, mainly number two, for UNISPACE+50 -- could be instrumental for, uh, clarifying some, some, uh, issues that, uh, for the time being, uh, have been, have been raised at the level of the legal space community. And in this, uh, perspective, I'm sure that...

**Audience Member:** [clears throat]

**Sergio:** ...uh, the next session of thi-, this, uh, working group and, uh, discussions will be very important because there are some guidelines concerning issues that are related to those treaties. For instance, this one concerning legislation, and, uh, we should take really seriously this one because the, the treaty recommendation are, uh, there but I think that there are still problems that need to be, uh, clarified.

Thank you very much.

[applause]

**Ken:** OK. Mazlan. You're next.

**Mazlan Othman:** Sergio, just listening to you makes me nostalgic for my UNOOSA days.

[laughter]

**Mazlan:** I've always thought to myself, "What is an astrophysicist doing listening to space law lectures?" but I came to like space law, to, um...

Anyway, I'd like to thank, uh, Secure World Foundation for making my trip back to the beautiful city of Washington, DC happen. Um, I was here for four months, um, at, um, the Space Policy Institute with, uh, Scott Pace.

Um, yes, it-, um, Gerard, it d-, does seem like just yesterday that, um, I attended the first, uh, informal group meeting in Paris. And, you know, uh, the notion of having to achieve something monumental, like in the guid-, guidelines that we have, through a committee was extremely intimidating.

And, uh, our fears were borne out because I think you know that it was two years before we even got a working group established, another year before we, um, we had a TOR, uh, defined and now it's what, six years? Yes, so...

But six years is not long...

[laughter]

**Mazlan:** ...if you think about the United Nations, and the process in the United Nations.

Um, and I would like to state, because nobody has mentioned him, credit to Ulrich Huth who was then the, um, chairman of the Scientific, Technical, the Scientific and Technical Subcommittee when all of this started, and I remember some occasions when he had to use his own personal clout to get the member states to come around, um, to have, uh, an agreement.

So, I hope Ulrich Huth, uh, coughs a little this afternoon, um, when he, he hears me, because his name needs to be mentioned.

I, what, um...I've been asked to talk about, um, where do we go from here? I, I know the lovely song, um, about where do we go from here [laughs] .

Um, I won't dwell on these matters as a former director of UNOOSA, 'cause you have heard a director here, but more as a former head of space agency of an emerging space actor. Although in Malaysia nowadays, I don't know whether we are emerging or submerging...

[laughter]

**Mazlan:** ...given our political landscape. But I don't have to worry because I know there's another country that's also having dire political landscape.

[laughter]

**Mazlan:** OK. Where do we go from here? So I was, uh, researching, um, what, uh, I was looking at the catalogs 'cause you know, I'd left, uh, OOSA four years ago. Um, and so, it was very interesting for me to read, uh, all those things again.

**Audience Member:** [clears throat]

**Mazlan:** So I wanted to see, if you, if you want to move forward, um, one way of doing that is to commit yourself to an action. I mean you remember, UNISPACE III, we had those action teams, and, um, we charged along merrily, um, to achieve the recommendations of UNISPACE III.

And so I thought, "What would, what would be in this guidelines that would actually provide this commitment?" and I found something, and it was under the guideline for, um, to supervise national activities. I've heard, uh, the panel before wasn't very happy with this topic of their supervision of national activities, but I should, because it's buried in all this, um, text, I should read it to you.

It says that states should ensure that the management of an entity that conducts outer space activities takes on appropriate measures for the management, for its management, and it lists the, those measures.

A, a commitment at the highest level of the entity to promoting LTS. B, establishing and fostering an organizational commitment to promoting LTS, urging to the extent practicable that the entity's commitment to LTS is reflected in its management structure and procedures for planning, developing, conducting outer space activities.

So...

**Audience Member:** [clears throat]

**Mazlan:** ...I was thinking that if the, the entities that are conducting these outer space activities are really committed as the guideline says then that is, that will be a way for moving forward. It's a sense of their self-discipline, um, so you don't have to go, uh, so you don't have to do too much policy, in this case.

Um, t-, the second issue that I want, that when I, I started, when I started reading, uh, the guidelines, um, I saw something interesting, and this is something that I would like to, uh, take up with you, and this was on the issue of safety of space operations.

Um, but, like, uh, I'll read it to you quickly. Um, this is about, um, promoting the collection, sharing, and dissemination of space debris monitoring information, and I said to myself, "Yeah, like that would happen!" because I'm going to tell you a story.

In 2003, BeppoSAX, and Italians still remember BeppoSAX, um, was going to re-ent-, was going to go through an uncontrolled re-entry into the atmosphere, and it was then the trajectory was at the equator, and news broke, uh, in all the media, TV and everywhere, and, um, the public in Malaysia started getting really agitated.

As you know that I had just established the space agency at the time, and of course we were the people they referred to, and so I briefed the minister and we agreed that I would have to prepare, uh, a paper for the cabinet chaired by the prime minister in about two or three days.

And so I immediately, um, contacted the, uh, Italian embassy who of course then connected me with ASI, the, the Italian space agency, and they briefed me, on, uh, what was going to happen. They gave all the data that they had at the time.

But because some of us were keen to monitor the re-entry, because it would be over our skies, we were keen to get the orbital elements so that we can do some calculations and see whether it would pass over Malaysia, but the word that came back to us was that, "Nope. They were not allowed to share that information with us."

I know that was more than a decade ago, but I wonder if things have changed, and are you really going to promote, or going to do this sharing and dissemination of space debris monitoring information. Of course, I'm coming here from a country that has no means of, uh, doing this ourselves.

So, again, uh, to answer to the question, "Where do we go from here?" I'd like to shift the focus from the guidelines to the larger ecosystem where, uh, the space enterprise exists.

In this sense, I am referring to the new space actors. I think we have all defined what new space is, in the year's conferences. I'm talking about those new space actors. And I will shortly talk about the advent of advanced technologies that can disrupt, uh, space business in the future.

So, there's Jeff Bezos, Richard Branson, Robert Bigelow, Elon Musk, rock stars of the new space era, and they are the ones who are inspiring the, the young people today. I'm also talking about

entrepreneurs who are planning to launch hundreds of, uh, small satellites, but it's on a debris-sat area.

[laughter]

**Mazlan:** Debris-sats, OK. Do these people care about LTS? On the other hand, could we make them champions of the sustainable use of outer space, given their, uh, rock star status?

And what do we make of, uh, Lunar Mission 1, an, a non-profit, um, company incorporated in the UK, which set off to get crowdfunding to mine the Moon, and they did get, uh, money for this purpose. The public were begging to, uh, fund them. So how will these people's dreams impact the notion of sustainable use of outer space?

This is not being asked but how does the legalization of the mining of asteroids by the US change the entire landscape? Another question I'd like to ask, in, uh, going to the future is, how does science and technology development affect our space business?

You all have heard about this. This is not even in the future. It is now. 3D and 4D printing, Internet-of-Things, advanced materials, artificial intelligence, learning machines, next-generation genomics, quantum computing. All these things will definitely affect, um, the way, uh, we conduct ourselves.

Um, so will the gap between the countries, the have and the have-not countries, or, you know, the less-developed countries, um, be widened as a result of these, um, advancements?

So, the question is, how, where do we go from here? So I look at it from, you know, that beautiful, that picture of the future with the mountain, and I s-, I suppose, um, that in terms of committing ourselves to action, I think, um, Peter Martinez says, implementation is key.

Um, maybe, we will, uh, again group ourselves into those kind of action teams, 'cause they weren't extremely successful, um, and...

**Audience Member:** [clears throat]

**Mazlan:** ...get the member states themselves to lead, um, the implementation initiatives. So, thank you.

**Ken:** Thank you.

[applause]

**Ken:** OK. For our final speaker, we have Scott Pace from Space Policy Institute. You have four minutes.

**Scott Pace:** OK.

**Ken:** OK. Uh...

**Scott:** So, ob-, obviously, at, at this stage, one of the reminders being, uh, of being toward the end, that everything has been said, but not everyone has said it.

[laughter]

**Scott:** So, uh, maybe that's like a recap. Um, in looking toward, uh, toward the, t-, the future here, uh, well the obvious thing is, is ownership, and we worked, we had a good result. We had a good result in the form of a long-term standard of guidelines and, uh, we should look for more.

Uh, and in pushing for it, uh, and using COPUOS, I think it's important to, particularly on the U-, for the US members, but I think other members as well, to understand why we were here, and it's, it's not simply, uh, that we are concerned about, uh, orbital debris and we want to, uh, you know, keep the environment sustainable for all these important, uh, space activities at these very detailed levels.

Uh, but it's because our deep national interests, uh, are supported by this activity. This is not just a sort of nice-to-have but something that actually is pretty central, uh, to our national interest.

Uh, a lot of the really interesting problems in international affairs today, I would argue, uh, are those in areas beyond traditional sovereignty. So, areas like the high seas, uh, the air above the high seas, uh, cyberspace, polar regions.

**Audience Member:** [clears throat]

**Scott:** Uh, areas where there are shared spaces, shared activities, uh, that states engage in and non-state actors engage in, uh, but that are not subject to claims of direct sovereignty.

And so, how do we work with each other in these sorts of, of environments, uh, particularly in a world that's become more globalized and more technical, and a, a larger number of, of players are in this.

In the, in the space area, uh, coming back from the, uh, the IAC conference in, in Guadalajara which I, I commend the IAC meetings to anyone if, if you have an opportunity to go, uh, particularly, uh, my US government counterparts, uh, because what you get to see there is the reality of space globalization today.

Uh, you know, that here's, here's the Chinese booth. Here's the UAE booth. Here's the Chinese commercial launch booth, here's the Israeli booth, here's the Italians, here's the South Africans, Ukrainians, and so forth.

Uh, so sometimes I think that those of us who are involved around the, uh, the International Space Station, you know, we think of the Europeans, the Japanese, and the Canadians are our space agency counterparts, and we don't get the same sort of visceral sense of the international nature of space activity today.

And, we, we, we intellectually talk about, "We've moved beyond a bipolar world," uh, but we don't really, viscerally, uh, feel it. COPUOS is one of those places where that visceral sense, I think, does come, uh, come to the fore, and in, in, in some ways, in a very positive way, because you, you see there is an alignment, uh, in my view, between US interests and those of developing countries.

The US is one of the most space-reliant countries in the world, economically, security, uh, for all the scientific purposes. Our, even our sort of national identity and self-image, uh, is caught up in that. And so we take a deep interest in it, as we should.

But other countries, developing world countries, who may not have quite the same capacities and technical abilities, also realize that they're very reliant on space, for their economy, for their security, for their engagement with other countries, diplomacy.

Uh, and, I think it's in sort of the, the deep interest of the United States, uh, to work with the developing world, not just out of some sense of, of humanitarian reasons or charity, uh, but because we're all shared members of, of the, uh, determining the future of the, of, of this global space.

Um, in looking at the guidelines that we were, uh, did emerge, uh, I would note that many of them came out of the regulatory group and the space for developing, uh, countries groups. Uh, I think roughly half of those look very familiar, uh, to me, and those were ones where, uh, we achieved, I think, a fair amount of consensus early on.

And what, in the course of doing that consensus, it wasn't just, you know, a bunch of people get around, write it down, and then we wordsmith it, uh, at the end of it. Uh, there actually was an active learning process that occurred that I think was particularly helpful.

Uh, and I wanted to commend, for example, that Secure World Foundation took, uh, the lead in working with a number of Latin American countries, uh, to, uh, uh, promote the work of the group of Latin American countries.

And, uh, I, I guess I'm not a diplomat so I can say these things, uh, the early stages of the Latin American countries, their interventions were not that sophisticated. They were not that on-point. Um, they, they did not, uh, always really help advance, I, I thought, the discussions.

Uh, after the Latin American countries decided that they wanted to play a, a stronger and more effective role, then they had to gather among themselves, and maybe with a little outside assistance, but really on their own, uh, self-organized, taught, uh, and formed themselves into, uh, more of a stronger voting bloc.

And, uh, didn't always agree with the US, so it wasn't always, always fun, um, but they were much more capable, uh, and it performed a very effective role, and they rightly took pride, uh, in the positive role they've had in shaping, uh, what the guidelines were.

**Audience Member:** [clears throat]

**Scott:** And, uh, I thought that was great. Uh, while I might have come out slightly different on this or that opinion, um, I think the overall picture of active engagement and active capacity building that was promoted, uh, by the action of the guidelines, was very constructive.

Again, going back to this idea of having a rules-based international order for space, you can't have that if you just have a few people, uh, who know about it and [inaudible 49:48] . You have to have lots of other people, uh, who know about it and can effectively engage and buy into it.

This is not something that will naturally happen over the next several years. Um, this time, I think, the, the forces in the world, uh, toward disorder, uh, toward regional power blocs, uh, toward spheres of influence, are quite strong.

Uh, parts are of course, what we see in some parts of the world, uh, sorry for the academic phrase but, in retreat to pre-Westphalian forms of, of, of conflict, by countries that don't even recognize what a nation state is.

So, uh, one cannot accept the idea of a globalized, liberal, tolerant world moving toward democracy and market-based forces as something that's inevitable. It's something that has to be fought for, and worked toward, and engaged with, because it will not naturally happen by itself.

So, what does that mean for COPUOS? Uh, it means the need to engage, uh, with non-state, uh, stakeholders, uh, not just the diplomats who show up, and we've heard a lot about that today. Um, I would also say that it needs to engage, uh, with, uh, legislative entities. Uh, not just executive agencies.

Uh, I sometimes, again not unkindly, refer to the UN as a trade-association made up of member states. Uh, and so, the secretary general says he is in the hands of the member states, uh, or the committee chairman notes that I'm in the hands of the member states.

Uh, it's not dissimilar to someone who heads a business association, uh, where they're in the hands of the member companies. Uh, they are servants, uh, of this, of this interest group.

Uh, and so, in working with, uh, the, the numbers of stakeholders they picked one that is not always thought about, uh, is those of legislators.

And, of course, the Congress of the United States that plays a big role, um, the comment about the no appetite for a new international treaty...Uh, partly that's because of lack of trust in the international system, but also it's because of the fact that we couldn't...certainly in the US, we couldn't ratify a treaty or political, domestic-political realities that also, uh, reflect that situation.

And hence, uh, I think, uh, Mr. Brachet [inaudible 52:11] move to go for a bottom-up, uh, approach, uh, within COPUOS even [inaudible 52:15] but it's, I think, strategically sound. Uh, Congress, I would argue, uh, will play an even larger role, uh, in space policy over the next decade. Uh, now as someone who teaches space policy, I find this an unnatural pact.

This is not a normal sort of thing if you look at the history of space policy particularly to the US, and even for other countries, space policy is something that is usually driven by the executive if something comes out.

The Cold War was a central, technocratic, uh, you know, martially [inaudible 52:49] forces toward some high challenge endeavor. Uh, it's not something that's seen as part of, you know, bottom-up, uh, you know, democratic impulses.

But if I think about, uh, the areas that, uh, that are gonna be, uh, interesting for a space activity particularly on the commercial side. We've already mentioned, uh, some of the stuff on property rights that was done. The licensing process for remote sensing systems was created by the Congress and they are followed by US policy. An update is happening now.

Uh, whole idea of separate competing communication systems, uh, the analysts had prioritization in part 'cause of forces that were driven both the White House and Congress. Uh, the Commercial Space Launch Act in 1984, uh, was something that drove, that drove it here. Uh, the interest in commercial space and the interest in international cooperation, uh, I think, is very much, uh, on the Congress.

And so, well, those of us, well, traditional space policy people might reflexively look to say the White House and the President. I would say the momentum and [inaudible 53:55] and, and movement is going more toward the Congress.

I think one of the things that I hope I was hopeful with in the long-term sustainability discussions was in maintaining lines of communication, uh, with members of staff on Hill, to reassure them that, that, uh, Ken didn't have some nefarious plot to sell us out to the UN, um, and then [inaudible 54:21] .

[laughter]

**Ken:** There, there are still people who think that. They're here in the room.

**Scott:** And, uh, and, and so, and the involvement of, of the space industry COMSTAC with Mr. Mike Gold was also one because it was the right thing to do for good policy-making, uh, but also it's important that to reach transparency into the process, because if there isn't, and it goes off track, uh, you know, you know [inaudible 54:47] .

As an example, in, in, in, again, apologies to the people who are in legal subcommittee, of when people back together by themselves in isolation and wrote an agreement without sufficient input, I would submit it's a 1979 Moon Treaty. Uh, there are some useful parts too, uh, that may yet be salvaged in the first future agreement.

But it's a failed treaty not because people weren't smart, uh, and thoughtful and well-intentioned to negotiate it, but they didn't really think about the future and they didn't think about how other political stakeholders will react to that. And so, I think that is also lesson learned we should think about, uh, as COPUOS moves forward.

Um, finally, uh, let me add that there are couple of other [inaudible 55:33] events, uh, that may drive what goes on with, with COPUOS. Uh, first of all, is a US Space Exploration Policy.

Um, if we're going to, uh, engage with other countries and have them take on cost, like making sure that the orbiter satellites and such are in transponder [inaudible 55:52] or care about space situation awareness, it's usually because they see their own self-interest at stake.

I would argue that we got more progress on global degree mitigation guidelines with other countries when we had other countries aboard the United States Space Station. Um, and there's realization of, "Hmm, you mean my people could be hurt? Hmm, maybe I would take it's not just an American or Russian problem. Hmm."

So I take some optimism, for example, in the Chinese Space Station, uh, as a basis of maybe some more practical discussions about how, uh, we could avoid, uh, problems as more countries become, uh, engaged out there. To the extent, we have a space exploration policy that provides

more opportunities, uh, for commercial partnerships and international partnerships and engagement beyond the space station.

I think we will make more progress on rules of the growth, transparency and [inaudible 56:45] measures, and all these other good things to the extent that we have an exploration policy, uh, that is primarily what we use [inaudible 56:53], uh, in only one or two countries and really engage in it. We will make much progress. Um, so even ask me later which program I think might be provide more opportunity for partnerships.

Uh, the other thing which is going to drive, uh, the environment, uh, is what happens in the aftermath of the, uh, the space, International Space Code of Conduct. Um, again, another separate long story, uh, and we can argue about whether or not it's truly dead or only sleeping.

Um, but I would say, all things considered, it's probably good that it's on a pause and the reason I say this is not because I agree, uh, with the, the many, many Russian objections that were raised here, uh, but because I think the Russian, by asking some of those questions force certainly me, to think that, you know, I didn't have answers to everything they were saying.

And if I don't really have good answers to valid questions, I have no business engaging in this discussion.

I really need to do some more thinking and I wanna be very cutting-edge [inaudible 57:59] of thinking that anything will occur in the next few years, uh, is the application of law on conflict in space, application of humanitarian law in space working through a number of very difficult scenarios, uh, not only from a military standpoint but legal and diplomatic standpoint is what we will do.

Now, this is hard because for sure, we have very little experience with conflict in space and on one hand, it's a good thing. On the other hand, it means, uh, we really don't know what would happen. Every single law is we don't really understand how it will apply, and so, I think we have some more thinking going in that area.

Uh, we probably should try to make more progress on some of the more binding on use of force in space, uh, because we can't answer, um, some pretty obvious questions. Uh, let me, uh, also, uh, say that's part of the educational process in engaging more stakeholders. Yet we've all talked about why the industry is really important and should be involved. Industry is not a monolith.

Uh, and as [inaudible 58:59] has said, um, they further provide however in to those people who actually really want regulation and make this in their advantage. Uh, people who, and because it helps make their lives more predictable, uh, maybe some smaller companies who want regulation 'cause that help validate them that they're not crazy, uh, and that, uh, that maybe their activities are, are, are, are possible to think about.

And then we have those companies that don't want any regulation, "Thank you very much. Go away." So, producing consensus and, uh, on areas that are most important to US national security, economic and diplomatic interests and that dialogue with industry, uh, is going to be a complex process. Uh, it's not something that, that, that's just obvious.

Um, so if I will leave with a closing thought that I learned, uh, on the Hill, a very famous saying, uh, for our stakeholders of all kinds to think about, which is, uh, "Either you are at the table or you are on the menu."

[laughter]

**Scott:** So, for those of you who would like not to be on the menu, uh, we encourage you to be at the table. Thank you.

[applause]

**Ken:** Thank you panel members. I just like to make a couple of more comments, and then I'll open the floor to, to questions or comments.

Um, when you say where do we go from here, I think there are several people, uh, panel-type style, this whole idea of outreach to, um, the space community and having events like this where you begin to socialize, for lack of better word, the whole concept of, of, um, space sustain-, sustainability and what that, and what that means in practical terms.

So, you know, one, one thing that we in the US would be doing over the, um, uh, you know, between now and, and the February meeting of the S&T Subcommittee is look at what do we already doing to give effect to the 12, uh, guidelines because we don't necessarily share the view that nothing can be implemented until it's all agreed to, uh, in 2018.

There are things that we can start doing immediately that contribute to the overall goal. So, on the one hand, we'll be engaging them in negotiations of the remaining guidelines, but on the other hand, we'll also be looking at how can we demonstrate to the committee and to the outside world that, A, we take this seriously, and B, we've already done, we're already doing some of the work and maybe, uh, other countries, uh, and other space actors can emulate that.

Um, the whole process of the long term sustainability negotiations is in and of itself a confidence building measure. Because we were able to bridge some longstanding political issues or the, the idea that, that, um, as I think Scott said, that the idea that there's not a transparent, um, uh, process, and therefore the results will be illegitimate.

And it took some time to do that, but through the expert groups, the, the hard work of Peter and then the realization by the members that they actually had a shared interest in this, even though they might not be able to implement all the guidelines, they wanted to make sure those countries that could do.

And I think the, uh, I think that did took a long way in terms of active participation and then eventually reaching the agreements that we did in, uh, in June.

Now, the, the cha-, there are some challenges, uh, in be-, beginning next year. We have a political challenge. Uh, it's no secret to those of you who've been involved in this that, um, Russia has some particular concerns that still need to be addressed. Our ability...that is the US ability to have an impact on it is rather limited, due to the obvious political, uh, situation that we have.

We still have, uh, the, um, challenge of insuring that the guidelines use terminology that's consistent. And we have a working group on terminology. Um, we want to also make sure that the, uh, when the guidelines come out in all official languages, that they mean...they all, they all mean the same thing.

And again, you know, in the case of, of Russia, we had a bilateral meeting with them in February 2014 on SSA information exchange. And one of the...and it's actually fairly useful meeting, but it was evident that we had different terminology that meant, meant different things, even when you translated it from Russian to English or English to Russian.

So, I know those are plenty, those are in the weeds types of things, but they really do make, uh, they really do make a difference in terms of what we want to do with the guidelines and how we want to see them implement.

Then the, the last thing, uh, that I think we, we should be doing is, starting again next year reporting on, reporting to the committee itself or to the S&T Subcommittee what we are doing to promote the guidelines within our own, um, uh, domestic sphere. What we're doing to, to give effect to them. Again, with this, with the intention of continuing our, uh, negotiations of the remaining set of guidelines.

So, with that said, I'd like to open up the floor to any, any questions or comments. Yes? Theresa?

**Theresa Hitchens:** Hi. Um, once again, I'm Theresa Hitchens with the, uh, Center for International Security Studies at the University of Maryland. And I'm also the former director of UNIDIR, um, where I was heavily involved in the GGE process, and as well as in, in the early stages of LTS.

Um, Ken, you talked about the need to continue to implement or start implementing anyway the guidelines while you're trying to negotiate the rest of them. Um, I think that's a really noble aspiration. I'm worried about resources.

Um, even the US has limited resources to throw into these things. You know? How many people from DoD are involved? How many people do you have? How many people, you know, are, are, are [inaudible 65:41] ? I mean, there's like [inaudible 65:43].

Um, and I...we've seen the GGE process reach a good conclusion and essentially sit on a shelf. Those recommendations have not been implemented. Um, and so I wonder from all the panel, what do you do about the resource problem? It's worse in countries like Brazil or other places. How do you implement at the same time when you're continuing to negotiate when you don't have the diplomatic assets?

**Scott:** You want me to...me, yeah?

Well, no. I entirely agree. And again, that's part of the...that's going to be part of the internal process that we have to look at in terms of what is practical to, to be doing now. And what we have to do in the future.

One of the points that's been made during the negotiations and that has been...Andre, you made the point...um, was the fact that, uh, when we have the guidelines, there are going to be some that, that states are not going to be able to implement for a variety of reasons.

So it shouldn't be...so, so a, a member state shouldn't be looked, uh, or frowned upon because they haven't taken the entire set of guidelines and implemented them, because they, they may not be able to do that.

And so we would have to, so, you know, look at what, what is practical, what is not. Now there are some things that we're already doing that are reflected in the, in the current 12 guidelines, so...

But you're right. I mean, it is, it's going to be a challenge. Um, uh, because we don't have...you know, we, we just don't have the horsepower to do everything. So...

**Audience Member:** I'm always happy to defend [inaudible 67:26] for, you know, Ken's office. Um, but let me also suggest as, as a strategy, this is one of the reasons why [inaudible 67:33] in multilateral forums, you know, are really important. I mean, on one hand, we have comprehensive dialogs with our, of course, you know, key allies and so forth. And that takes up a lot of time and effort.

And in some cases, I think we'll probably need to engage in direct bilateral discussions, you know, with other major state powers. China comes to mind, uh, at some point. Russia, I wish, but the political situation isn't there.

But we should emphasize multilateral forums not only because they can be more inclusive and all that, but also they're more efficient, I think, in deploying, uh, people out there.

The second thing you can do is you can augment, uh, with industry the number of people working on these best practices. Uh, technical standards groups, uh, the International Space Exploration Coordination Group, Consultative Committee on Space Data Standards on [inaudible 68:20] messages.

These are all really geeky down in the weeds kind of activities, but you don't need, you know, an assistant secretary to go to these meetings. You need, you know, technical experts or at least technically informed people to go and participate. And you can draw from a larger pool of people. Um, so, that's the way I would think about balancing that model.

**Sergio:** Yes, I agree with, uh, answers that are being given to your question. But I think that when a very simple way for starting the implementation process is to make an assessment at a national level on which best practices are already, there is already applied. And to be [inaudible 69:11] on them, to commend them and to present them to the COPUOS for discussion and for information.

There is also an issue of information. I think that the few states that made reports on the implementation of the GGA reports for the time being, they collected what they already are doing, and not implementing new practices.

So, I think at least this we can start, uh, to do, and to, to, uh, broaden information about this implementation.

**Ken:** Yes. Marcia.

[background conversations]

**Marcia Smith:** Marcia Smith. Space and Technology Policy Group. I'm still a little bit confused about where all of this stands. So, it's clear that you have consensus on the 12 principles, but do you have consensus on whether or not you can go forward in 2018 with just those 12, or if you have to get consensus on the rest of them?

**Audience Member:** [coughs]

**Marcia:** And is there a consensus on whether these are living documents that can be updated as time goes by versus being set in stone?

**Ken:** All right. So...Thi-, I mean this is where, uh, I, I, I can understand the, the confusion, but it's, it's scary there because it's really clear to me. Um, what, what we were able to do in June is come up with a, with a compromise.

And the compromise was, was that we would clo-, we would close work on these 12 guidelines with the understanding that the work plan which was supposed to have, have, uh, ended this year, so with the unde-, understanding that the work plan would be extended for two mor-, two more years, with the view to finishing the work on the other guidelines that we were not, that we did not put aside.

So, now, our, our Russian colleague, um, was very clear that they considered nothing to be done until it's all done, and what we, we and many other del-, uh, c-, countries is suggesting is we can at least be doing something while we're negotiating the rest of them.

So we're, we're kind of obligated under that, um, under that compromise to continue the negotiations on those that were not, uh, we didn't reach consensus on yet, um, with the view that we would, and we'd put them all together in a package that would go to the General Assembly.

Right now, the guide-, th-, the 12 guidelines are an annex to the report, but the, uh, General Assembly resolution is quite clear. It says the commit-, you know, the, the, the General Assembly adopts the report of COPUOS ex-, except for the annex that contains the guidelines that will be submitted in 2018.

Does that...?

**Marcia:** So that's not...There is not consensus? Because the Russian delegation has a different [inaudible 72:13] .

**Ken:** It, [sighs] I don't know. Peter, would it help if you described it?

[laughter]

**Ken:** It, it, it's, what I'm saying is, is that we agreed that we would, we, we would stop working on those 12. So at one level there is a sort of consensus, but it's not consensus enough to take it all the way to the General Assembly.

Yes, Peter.

**Peter Martinez:** Ken, I think that, I think you've summarized the, um, situation in June very well. The Russian delegation, um, and, and also one or two other delegations, just wanted to allow the process some more time, and they, they were a bit reluctant to see a p-, a p-, a product going to the General Assembly already this year.

So, that's part of the, uh, the a-, agreement that we have, uh, reached in COPUOS, as it allows more time for us to finish the negotiation of the other guidelines and combine them all in a single package.

Um, and so, uh, we understand that, uh, as, as Ken mentioned, there may be questions of terminology that needs to be harmonized. Uh, I mean that's, uh, where we will do so, but, uh, the full, um, the agreement that was reached was that there will be one full package of guidelines that will be referred to the General Assembly, and, and not piecewise.

**Ken:** Yes, Peter, go to the other question. Yeah.

**Peter:** Thank you. Um, so, so just a, a, a question. Thank you to the panelists for some very, um, uh, interesting, um, uh, statements which I, I really enjoyed listening to.

Um, in the discussions today, we've generally heard very, um, positive assessments of the, uh, the outcome of, of the COPUOS discussions and, um, uh, and supportive views of the, of the guidelines, uh, both in terms of, uh, substance and, and, um, process and so on. So, I'm, I'm just wondering to what extent are we preaching to the converted here?

And I want to tell you a little story. Um, in 2011, shortly after I was, um, asked to chair the working group, I came across a, um, uh, an online article, uh, and I, I forget which one, which one it was, but it was an online publication, uh, by some group here in the United States.

And they were reporting on the establishment of the LTS working group in COPUOS, and they did this in a very negative light. They were saying that this was a, that they saw this as a, a Machiavellian plot by the UN to restrict US freedom of action in outer space, which I was quite astonished to see.

Now I understand there are many different perspectives but I'm just saying this because clearly there is a view like that out there, and as recently as 2015, there was an article in the Financial Times. Um, a number of you may have seen it. It was a review of space security, and in there, there was a very dismissive reference to COPUOS, essentially, um, predicting the failure of the process.

So, um, so clearly these views are out there, and, uh, of course, um, they arise, I guess, partly because of the, a lack of understanding of COPUOS and its achievements.

So, um, uh, my question I guess is, to what extent, um, are the views that we've hearing today here really typical of the views out there by the public, by policymakers and venture capitalists?

**Ken:** Well, I mean th-, the...T-, this is one of the reasons why we organized this event, was, was to, um, ha-, get, raise more awareness, was to h-, the, the panel that we had with the private sector colleagues was very important to, to us, in order for them to be able to, to, um, carry the message outside of the, outside of the government.

Um, [clears throat] so, I mean, I'm, I'm sure there are some people that, that think that this is not a good idea but I think we've demonstrated that we aren't trying to, to restrict our freedom of action in space part. You know, quite to the contrary, this makes space a better place over the, over the long term.

Uh, but I'm hoping that we'll be able to keep, keep this rather positive view alive, uh, over time, bec-, uh, and that's why it's very important for us in the negotiations next year to demonstrate that we have, uh, you know, we have the handle on this.

**Scott:** I would sort of add...Sorry. I would sort of add that kind of makes my point about why engagement with the Congress is really important, because to the extent that there are some of these other views, you know, sort of out there, obviously you want to counter it with better information.

But where it would really, uh, actually be, have an action, or be really harmful, um, is if a significant portion of the Congress became convinced, uh, that the, either the Administration or State Department or single diplomat was up to something that would be harmful to US national interests as they understood it.

So, this engagement of stakeholders in a democracy, uh, you know, is with all kinds, all kinds of people. To the extent that, uh, those contrary views come forward and, uh, people in Congress, on the staff, or in trade associations and other things go, "Nah, that's not what's going on," um...

**Audience Member:** [coughs]

**Scott:** ...then that's the way of dealing with it. It's, it's, there's no point in having, I think, you know, Ken or other folks trying to, you know, pound down every piece of misinformation. You need other people to kind of say, "No, I understand what's going on, and I have my differences of views, but your idea of what's going on is, is incorrect."

And so, having a larger community that's engaged and aware of this sort of thing to, to deal with misperceptions like that, um, I, I think is the way to go.

**Ken:** Uh, we have a question? No. Oh, I'm sorry. Andre, and then...

**Andre Rypl:** Andre Rypl from the Brazilian Space Agency on Foreign Affairs. Um, first I'd like to say, of, uh, you know, I heard your comments about [inaudible 78:36] . I was not offended, actually, because I think that was a very accurate description, uh, of the situation I found when I started working the issue.

Basically, Brazilian statements are, I can talk about that, from one year to next, we're basically Ctrl-C, Ctrl-V kind of guys, you know, people who are just careful enough to change the years, you know, but, uh...

[laughter]

**Andre:** Basically. Uh, and, and I remember, after I'd been working with COPUOS and we had started discussing this, I went to a meeting and there was an ambassador. He was aging, and when he was talking about Vienna, I had the clear impression he was talking about Metternich and the Congress of Vienna.

[laughter]

**Andre:** You know, and then he asked me about COPUOS, "Ah, so you're going to the COPUOS meetings. Are they still discussing the delimitations?"

[laughter]

**Andre:** You know. [laughs] I said, "Yes." "Oh, so people don't really decide anything there." You know. And, and, and this is the kind of thing you have to put up with, basically, and, but again, you have to be ready to have the right arguments and to make your point and say no.

"OK, we were discussing the delimitation of outer space, etc. but we were discussing a number of other important issues, and we are making progress. You know, it may be slow, but we're making progress."

And, I, I think that's one of the things I wanted to point out this morning, you know, when you say we need to get people engaged, we need to get people involved.

Because, uh, otherwise you tend to have, for example, domestically, in each country, uh, people looking at these guidelines and other processes and other discussions at COPUOS, each from their own perspective, the perspective of defense, the perspective of industry, or diplomacy, and so on. They are not really talking to each other.

And then, I really liked one thing you said, I mean the thing about the example of, um, the International Space Station. You know, that people said, "Oh, OK, we have a shared interest. It's not only [inaudible 80:26], it's, it's, it's us," and that's why I think we have to be creative in a sense and find ways to develop joint initiatives, joint work, and have people working together, in practical terms.

Even in industry and government, but not only industry, let's say American industry with your American government, but we talk about the globalization of trade and commerce, so, we also have to talk about this globalization of trade and commerce, and their relationship with other governments in the world.

And once, you know, if you think about this on the horizon, my feeling is that once you, you, you have a set-up like that where you have industry and different governments working together, uh, the, the processes like the guidelines, LTS guidelines, and other processes at the UN, they

tend to become a reality in practical terms, even though governments come to the meeting and say, "No, we don't really agree with that."

OK. But in practical terms, you cannot really use an ASAT. You can't. So they can't, because now, you know, you have so many objects that if you blow up the satellite, then you'll have so much debris you can't control, you know, how this thing is going to spread.

So, in practical terms, you're not going to have any conflict space, even though you may oppose references to no placement of weapons and no use of weapons and so on.

So, well, I would like to hear some comments on that, you know, if you agree with that kind of view.

**Ken:** Go ahead, Scott.

**Scott:** I'm sorry. Somebody can grab the mic from me, um. Uh, you know, what you're, uh, what you're referring to is, is the reality for example of the Space Station, which I think is, of course, is a technical success.

But I also think it's, uh, been a great diplomatic success, and the diplomatic success of the Space Station is not simply in the agreements, but it's in the thousands of relationships. People-to-people relationships that have been built over decades as people have tried to do things that are very hard, so we have very deep relationships with our European, Canadian, or Japanese, and our Russian colleagues, uh, which I say is still quite good...

**Audience Member:** [clears throat]

**Scott:** ...the political relationship is not terrible but, uh, in terms of the reality of that relationship. So people, people who are friends and talk about the fact they're friends, they talk about doing things together.

And so, to the extent that we do things together, uh, in settings like the, the ISS and, and hopefully others, uh, it lays a broader series of relationships that makes it possible for us to make practical progress, you know, in other areas.

Um, I also want to comment that, uh, prior to getting involved with COPUOS, uh, I was involved for about 10 years with the ITU. Now the ITU is a much more contentious place. Uh, they fight with much heavier weapons and billions of dollars and the entire industry is shy. Uh, it's a fairly serious operation.

Um, and one of things that I came to, uh, appreciate, one is the importance of consensus, uh, in that process, and the importance of technical truth, and also the importance of diversity on the US delegation.

Um, uh, in particular because we would have, uh, scientists, we would have lawyers, we would have engineers, we had defense people. We would have, uh, you know, people working from the agriculture department, who worked GPS issues a lot.

And if you have a wide diversity of people on your delegation, uh, your ability to then engage with other countries at whatever level of interest they're at, uh, was, was much, much better. And so, I think, in other areas like this, t-, to the extent that we get even more diversity of perspectives, uh, that, including dual-use ones, uh, I think we'll make, uh, more progress on this area.

We shouldn't limit it to, you know, just, you know, a few specialists who, who like, you know, Vienna very much. Uh, it's, it's bigger than that.

**Mazlan:** C-, can I...

**Ken:** Yes.

**Mazlan:** I'd like to try and answer, um, from, well, not I, um, Peter's question about "Are we just talking to the converted? Do other groups care?" I see Elliot here and Charity. So, we should ask you, um, in those industry meetings, do they ever refer to the, this guidelines process, or do they ever refer to the Outer Space Treaty?

[background conversations]

**Audience Member:** [coughs]

**Charity Weeden:** I can tell you that there's, there is growing interest in the COPUOS guidelines. Uh, there is growing interest in the activities in the UN, and that, uh, regularly, we have meetings with members. Uh, we, we have a standing item that's called COPUOS.

**Elliot Pulham:** And I would say that it, it kind of varies by the company, uh, and the company's size and area of, uh, of trade. If they are a larger company that's doing business all over the world, they're very interested, and if they're a small company that's just a supplier to other US companies, they don't pay much attention. But at the larger level, I would say yes, it's someth-, it's something that we talk about.

**Ken:** All right, thank you. Oh, you have another question?

**Audience Member:** On, on, on a non-partisan basis, though, let me give you another observation. I'm watching a lot of the emerging new space stuff that you have, uh, you made reference to a little bit earlier as well, and some of that marketplace, I really don't even see there, much recognition at all about the work [inaudible 85:53], that COPUOS goes on.

They are aware of it, but because they are on such a fast pace to implement whatever programs or capabilities they're trying to deploy, it's just kind of a thought. But they are aware of it, but I just don't see it influencing a lot.

**Ken:** OK. Any other questions or comments?

[background conversations]

**Audience Member:** We all can see.

**Audience Member:** Seems OK. Can, can you all see me OK? With the light?

**Ken:** Yeah.

**Audience Member:** Um, so I think it goes without saying that long-term sustainable, uh, development requires adherence to the Universal Declaration of Human Rights. Um, I'm going to take this the opposite way, as far as property rights, uh, as I did before.

One thing that still went on contrary to article 17-B of the UDHR, where it says that nobody should be arbitrarily deprived of their right to property -- and I wanna thank Mr. Mike for bringing this up -- is the 1979 Moon Agreement which, uh, article 11, paragraph three directly forbids property rights for natural persons and a whole host of other entities.

Um, now, this treaty is still an open and acti-, it's a treaty in force, uh, in my book, and it's still open and active within every session of the, uh, the COPUOS that, that I researched. Uh, adherence to this is still, uh, an, an item agenda.

And, uh, so with it being, that being said, I've seen about three countries -- I believe it's Kuwait, uh, Saudi Arabia, and Turkey -- within the last five years adhere to the Moon Treaty.

Um, now, [sighs] this, to, to have this as an open and active, uh, item within the COPUOS where one of the provisions directly violates, uh, article seventeen-, article 17-B of the UDHR, um, is that really...

Th-, that, that really needs some discussion here, so, um, I offered three ways forward, that I offered up. Of course, one by one encouragement of withdrawal, um, of each state from the Moon Treaty. Um, I could take that one up.

Um, the other two, the items that I think should be worked on within COPUOS is, a clear discussion of what it means to adhere to the Moon Treaty. Uh, it, you know, it being a, uh, uh, prohibition of property rights directly, and, uh, and...

Last but not least, this is the reason I wanna see it, a definition or, uh, some kind of a, uh, a, s-, some type of, some type of COP-, COPUOS action on defining the outer space treaties, the difference between the Outer Space Treaty and the Moon Treaty.

So as to say that, uh, article 11, paragraph three of the Moon Treaty does not equal, uh, the, the function of all the other articles of the Outer Space Treaty, that the two are completely separate, and that a forward discussion needs to be had about, uh, violation of the Moon Agreement with, uh, the UDHR.

Um, do you think those two options are likely?

**Ken:** Yes, Scott.

**Scott:** Um, so first of all, um, I, I confess to being very, uh, sympathetic with that. I got my start early on at Space Policy, uh, helping campaign against the submission of the, uh, Moon Agreement t-, to, to the Senate, and why it was a bad idea, in the Carter administration, so I am a card-carrying member of that, that crowd.

Um, but I'm also, I would say, part of, uh, what Mike Gold was saying earlier, there's some things that we really need to deal with sooner, uh, rather than, rather than later.

And, uh, I'm basically pretty happy with sort of leaving the Moon Treaty as it is, in, in abeyance, and maybe academics can discuss it, but it's not something that I think, uh, we should spend a lot of time on, given the range of other things, uh, that we have to deal with.

Now for an example of something that relates, uh, to the Moon particularly, um, there was a proposal in the US Congress, uh, that we should declare all the lunar landing sites, uh, to be national parks.

[laughter]

**Scott:** Um, and, to prevent people from, you know, driving over them and so forth. Well, first of all, all kinds of problems with this, including the '67 Outer Space Treaty, you know, on not claiming sort of sovereignty, and so we convinced the staff that this was a bad idea for the bill, and good violation of international law if we should do this.

But there is this point that we're going to have more and more people, uh, companies, who are gonna be operating on the Moon, who are gonna be driving around, and they may not be just driving over Neil Armstrong's footprints, they may be driving over, you know, Russian or Chinese facilities.

S-, so, my colleague [inaudible 90:20] who was here this morning, uh, we proposed, uh, within a context of, of the existing '67 treaty, that we should have an agreement that says, you know, if we've landed here, let's have a bilateral agreement with, say, the Russians or, and now, the Chinese.

Uh, that we won't drive over your areas, uh, with people that we've licensed, if you kind of reciprocally don't drive over ours, and we'll discuss this, and once another country reaches the Moon, um, they're welcome to join this agreement, uh, reciprocal with each other, because we all retain ownership of the objects that we have on the Moon.

So this sounds, you know, in some sense, it might sound a little trivial or silly, but, what it would do is deal with, uh, actually a, a technically possible and nearer-term event, uh, where we have more people operating in and around the Moon.

Uh, we have a deal with those entities that are capable of reaching the Moon. We implement it through, uh, article six oversights, and, uh, we do not make any claims about sovereignty or property rights or anything like that. We simply say, "This is how we operate with each other," in simple, simplistic analogy to how we deal with, with the geosynchronous arc.

No one claims the geosynchronous arc, but we all coordinate as through national entities, through the ITU, through the treaty convention, uh, to deal with it. So, something like that which sounds a little science-fictionist is a nearer-term entity that I would rather talk about, and I would, like, leave the Moon Treaty kind of in t-, in the locker where it currently is.

**Ken:** Yeah. Good. OK.

**Sergio:** If I...

**Ken:** Yes?

**Sergio:** ...just add one word to what Scott said that I, uh, I agree with. Uh, the point is there are 16 countries that are parties to the Moon Agreement, so the problem is, of those states, are they able to make their behaviors compatible with the fact of being at the same time members of the Out-, parties to the Outer Space Treaty?

Is there any contradiction between what is required by being member, party to the Moon Treaty and being party to the Outer Space Treaty? Uh, uh, I think that if the regime, uh, provided for by the Moon Treaty, uh, would be, uh, implemented in its entirety, there will be some, uh, problems of, uh, consistency between the two treaties.

So I several time ask states that are parties to the Moon Treaty, like Belgium, Austria, Mexico, how they will deal in the future with the fact that this treaty says the state parties to the Moon Treaty will, uh, adopt a regime for the international governance of the Moon?

How will they deal with the Moon Treaty and the Outer Space Treaty? Is ther-, is there any inconsistency? I see some problems in being at the same time parties to both treaties. This is a problem for, for the others, is [inaudible 93:36] . Let me quote the full article, but this is the, the, the, the, the, the article wordings...

**Scott:** It's a problem for those parties. Not for us who are not a party.

**Sergio:** Yes. Yeah. Exactly. [laughs]

**Ken:** OK, we have another question.

**Chris Johnson:** Hi, it's Chris Johnson from the Secure World Foundation.

I want to get the views from the panelists on the f-, kind of future role of COPUOS when we [inaudible 94:03] , um, when we think about proposed activities in space, that people are planning for the future, whether it's everything from the successor to the ISS, to commercial space stations, to, um, swarms, small satellites that are swarms and clusters, and, um, all the really big ambitious plans that we have for, for space.

I know that there is a reticence in the UN to discuss things, uh, you know, the security side of, asp-, of space within the COPUOS, but when we look at everything that's proposed in outer space, and the growth in the number of new countries and new actors in space, um, I kind of think, uh, well, how can we deal with this, in, in the future of COPUOS?

With, uh, you know, uh, new members joining COPUOS, new agenda items, the possible removal of agenda items, um, what kind of, um, future do you see for COPUOS in being responsive to allowing everything that we want to do in space to happen, and also, to really, uh, uh, efficiently address these security concerns that people will have?

**Ken:** OK.

**Gerard:** Um, let me give some, at least some partial answer, based on, on my own experience in, uh, how you int-, introduce new agenda item on the agenda of COPUOS.

It took two years to convince the delegations that it would be a good idea to look at the problem of long-term sustainability, because there was so much suspicion that this was some kind of a hidden, uh, hidden, uh, uh, way of preventing them from developing their own space activity, and, uh, I feel it was not the case.

Um, I think they... Well, one has to be careful when you talk about the whole of COPUOS. You have to, you have to cope with the fact that, uh, it's a very conservative body. Uh, it's very conservative body, and introducing new items takes a lot of effort, and you have to, uh, therefore, think in-depth w-, w-, what you expect from COPUOS in the end.

Uh, right now, I would tend to support what Sergio said in his segment, and that is, there is progress to be made, in a, a more interactive, uh, cooperation between the Legal Subcommittee and the Scientific and Technical Subcommittee which have over the years [inaudible 96:48] as two legal and separate entities.

Uh, there is, real progress can be made. Uh, I, I don't know exactly how to do that, but, uh, I think there is progress to be made.

Rather than trying to introduce a number of new agenda items, I think the COPUOS has a full plate, with preparing for the UNISPACE+50 in 2018, finishing the work on LTS, uh, doing some work on space weather, and all of that stuff.

I think right now the internal working of the COPUOS could be improved, and that's, that's what I think is the best thing we could, they could do.

**Ken:** Yeah. OK. Anybody else want to add something? Mazlan?

**Mazlan:** I think that the, the role of the UN body evolves, like it has, uh, up to now. Um, the member states will decide how this will evolve, and I, I'm actually quite optimistic that the UN finally will have to respond to some of these issues, the way the UN has responded to long-term sustainability issues. I, I'm optimistic.

[background conversations]

**Ken:** Yes.

**Sergio:** Just a, a, a note. Uh, I, I think that the structural, um, uh, th-, th-, that COPUOS should be strengthened from the institutional point of view, as the, uh, LTS exercise has proven.

Because, uh, we are talking about one meeting of the main committee for 10 days in June, one meeting of the, uh, Scientific and Technical Comm-, Subcommittee in February, and one meeting of the Legal Subcommittee in April, March, etc.

So, i-, it is, uh, not a permanent body, like others body that, uh, carry out functions in the field of regulatory, uh, regimes and technical rules, because since some time COPUOS is carrying out

such kind of function, adopting the space debris guidelines, adopting the, uh, long-term sustainability guidelines.

But we should have always intersessional meetings, because there is no place for, for such kind, to, to, to, uh, to, uh, bring ahead such kind of, of new functions.

So, uh, i-, i-, i-, if I look at the other, other models, like ICAO, which are always, um, adopting regulatory frameworks, uh, recommendations, standards, etc., they work in a very different way.

COPUOS is a, is a, an irregular body that meets three times a, a year and faces in my mind some, uh, weaknesses, so it is a problem to try to strengthen a little bit its way of, of working.

**Ken:** Do you have...? Scott, did you want to add anything or?

**Scott:** I, I think that, of course, what, what Sergio has said is, is quite right. I would [sighs] try to be hesitant about adding, uh, more meetings to something which is not really a regulatory body. You know, the ITU has meetings around the clock. The ICAO has meetings around the clock.

Um, I think that, uh, while I agree with the value, in the context of LTS, of more intersessional meetings, and how that would be useful, um, the level of work that you would need to have at, at COPUOS, uh, that then justifies those kinds of meetings is a very different kind of, kind of COPUOS, and I think one of the reasons it's done well in recent years is, it got out of New York, and it's not a regulatory agency.

Uh, to the degree to which it becomes more politicized, uh, or higher shakes start coming up that are not consensus-based, um, I, I think you pose great risks.

Uh, the, the question I asked, uh, uh, Samantha the other day, uh, you know, about boundary conditions on what kind of work the committee takes up, the boundary conditions are not only driven by the member states and their conservative nature, but they're also determined by concern as to not damaging, uh, the kind of, the technical-based, consensus-based, expert-based, uh, approach that COPUOS has taken.

And so, that's a very delicate edge to walk.

**Ken:** [laughs] Yes, it is. OK. One last question. We have to do five. Five minutes.

**Larry:** Uh, thank you very much. Uh, Larry [inaudible 101:44] , State of California, State University at Long Beach, and I wanna thank t-, this panel, and all the other panels for really excellent, uh, presentations today.

Looking ahead, though, um, as satellites increasingly become a part of the Internet-of-Things, I want to go back to what Scott was talking about, in terms of the ITU, and in particular, one of the proposed guidelines, guideline number nine, which talks about, uh, cybersecurity and the hacking of satellites.

And I was wondering, how do you see this long-term trend of the entire space infrastructure being integrated within the Internet, for all the pluses and minuses that that portends? How does this affect then the future, or the possibility that guideline nine might be adopted eventually?

**Ken:** Scott.

**Scott:** Well, um, first of all, I think, don't think COPUOS should try to do anything that infringes upon the ITU, um, much as some people occasionally advocate. Um, interestingly enough, the cybersecurity issue is an area, I think, I could see some areas with common ground with the Russians on it, uh, who are also concerned, uh, with the drone, drone infrastructure and so I could see some, some, uh, fruitful discussions there on the guideline per se.

But I think the actual implementation of it is gonna be driven more by technical standards bodies, for example, when I mentioned the consultative [inaudible 103:15] standards, you know.

There was one that was proposed long ago, uh, but I don't know the name of the country, uh, not us, that was talking about the control of satellites by giving satellite commands directly from the Internet and other people jumped on that and said, "No, no, no. Never. Never. Don't do that." Uh, and here's why.

Uh, so the actual implementation and security on cyber issues in case it needs to happen, at least technical bodies, but the, but be driven by top level best practice towards the guidelines. And this is the scenario where COPUOS is gonna have to work to say, "This is what we do, this is what I [inaudible 103:52] , this is what these other technical standards bodies can go do.

I wouldn't wanna drag the technical standards bodies into COPUOS. I want them to come in the technical presentations, I want them to talk, I'd like to do some education, 'cause I never want the work to go back down closest toward the people who actually know [inaudible 104:10] .

**Ken:** OK, OK. Well, thank you very much. Um, that wraps up our, uh, last panel. We can all give them a round of applause.

[applause]

**Ken:** So, we've now reached the, the end of the day. I just wanna make a few closing remarks and then invite you all to join us, uh, for a reception. It's Friday now. I know it's not past 5:00 but it's, it's past 5:00 somewhere.

[laughter]

**Ken:** Um, I first wanna thank Secure World, uh, Foundation for, uh, co-hosting this event with us. It was a real success in my view.

Uh, I want to also, um, thank Amber Charlesworth, Victoria Samson, uh, Stephanie Wan...I don't know where Stephanie is. Yeah. And, uh, and Chris [inaudible 105:04] for orga-, organizing this and doing a, a great job putting the agenda together, um, answering questions that you all have about the, about the event. Uh, so I'd like to thank them very, very much.

[applause]

**Ken:** And I also thank all the speakers, uh, who traveled from various parts of the world to join us and also thank you, the, the audience for joining us today. Uh, I think this is a very, um, uh, very useful, uh, event. There's a lot of information, a good exchange of, of views and a lot of good ideas for the, for the work that we want to do in the future.

Uh, as I said, uh, this morning, uh, for, for, um, COPUOS this is a, um, uh, a big achievement, uh, because we brought together a civil society, industry, and technical experts to put, to, to put something together that hasn't been done before. And next year, our challenge will be to continue that momentum and to hopefully wrap things up in 2018.

And we look to, uh, we look to you to provide us with, with further advice, and you know where to find us now. If you have any questions or, or thoughts on what, on what's happening in the, uh, in the committee on long-term sustainability as well as, uh, on other issues that are, that are being taken up there.

So with that, uh, I'd like to say again, thank you. Have a good weekend, and join us for, uh, for a drink and, um, some food.

[applause]