

Summary of the Informal Meeting of the International Law Commission: Dialogue with Atmospheric Scientists (Third Session), 4 May 2017, 15:00-18:00; Palais des Nations, Room XXI, Geneva

Summary of the Informal Dialogue

Introduction

1. “Informal Meeting of the International Law Commission: Dialogue with Atmospheric Scientists (Third Session)” [*hereinafter* Informal Dialogue] was held under the chairmanship of **Mr. Shinya Murase**, Special Rapporteur on the topic Protection of the Atmosphere, in order to facilitate a discussion in the International Law Commission [*hereinafter* Commission] on the topic. The Commission decided to include the topic Protection of the Atmosphere in its programme of work at its sixty-fifth session (2013), and so far provisionally adopted 8 draft guidelines as well as the commentaries thereto.¹ The First Session of the Informal Dialogue was held during the sixty-seventh session (2015) of the Commission, and contributed to deepening the understanding of Commission Members on the scientific background of the topic.²
2. The Second Session of the Informal Dialogue was held during the sixty-eighth session (2016) of the Commission, and five presentations were given by prominent scientists and experts from various fields, followed by a discussion with Commission Members.³ Members of the Commission found the dialogue and the presentations very useful.⁴

¹ Report of the International Law Commission: Sixty-seventh session (4 May-5 June and 6 July-7 August 2015), A/70/10, paras. 45, 51-52 (2015); Report of the International Law Commission: Sixty-eighth session (2 May – 10 June and 4 July – 12 August 2016), A/71/10, para. 90 (2016).

² UN ILC’s Dialogue with Scientists on the Protection of the Atmosphere (Charles Wharton), <http://www.unep.org/delc/Portals/119/documents/montevideo/ilc-dialogue-wharton.pdf>.

³ Informal Meeting of the International Law Commission: Dialogue with Atmospheric Scientists (Second Session), 4 May 2016, Palais des Nations, Room XXI, Geneva, http://legal.un.org/ilc/sessions/68/pdfs/informal_dialogue_4may2016.pdf.

⁴ Report of the International Law Commission: Sixty-eighth session (2 May – 10 June and 4 July – 12 August 2016), A/71/10, para. 90 (2016).

Main points of the presentations

3. The Chair, **Mr. Shinya Murase**, made opening remarks with special reference to Article 16(e) of the Statute of the Commission which authorizes the Commission to “consult with scientific institutions and individual experts” for the progressive development of international law. The chair explains that he asked the experts to speak on the linkages between the oceans and the atmosphere as well as some of the issues from the previous Dialogues mainly for the new members of the Commission.
4. The first presentation was given by **Mr. Øystein Hov**, President of the Commission of Atmospheric Sciences, World Meteorological Organization (WMO), under the title of “**Overview: Ocean and the Atmosphere.**”
5. He extends his gratitude to the Commission by noting that atmosphere is a common good for mankind and the globe. He provides an overview of the interactions of the oceans and the atmosphere. He then adds that the exchanges are not only pollutants, but also water vapor, sensible and direct heat. He notes that water vapor is natural and not considered as pollutant. The water cycle is modified under climate change.
6. He also points out that there are biogeochemical cycles between oceans-atmosphere-land surfaces. He presents some important ocean components, that is, carbon dioxide, methane, BVOC (Biogenic Volatile Organic Compounds), AVOC (Anthropogenic Volatile Organic Compounds), reactive nitrogen, nitrous oxide, sulfur cycle, aerosols, phosphorus, trace metals, organic toxic species. He holds that they are all characterized by sources, sinks and lifetimes. Their anthropogenic and natural branches of cycles may be atmospheric, marine or terrestrial. Whereas all of these cycles have strong anthropogenic components, components are different from cycle to cycle.
7. Mr. Hov presents that the oceans play a part to the environmental issues, like global warming, acidification, eutrophication and ozone formation. . He sketches the lifetime of chemical compounds. Short lifetime compounds are not well mixed in the atmosphere. If the atmosphere heats up, it holds more water vapor. He shows the trends and increase of water vapor over ocean surfaces over twenty years. Since late 1980s to present, typical growth of water vapor can be seen, and the more water vapor we have, the more forceful the hurricanes may become.
8. He then shows global water distribution. Atmospheric “rivers” may carry as much water as the Amazonas. When an atmospheric “river” hits land, heavy precipitation and flooding may follow. An ocean temperature above 28 degrees increases the

likelihood of hurricanes. If the warm water surface gets deeper, the source of water vapor to the atmosphere increases.

9. According to Mr. Hov, since around 1970s, the globe has not been in thermal equilibrium. He shows that atmosphere has little heat capacity, and the heat goes into land and the oceans. Especially the oceans absorb extra heat since they have a much higher heat capacity. The widespread phenomenon of coral bleach and the reduction of the Arctic summer sea ice are examples of phenomena where the slight rise of ocean temperatures play a role.
10. He further describes that water molecules have different residence times, short in the atmosphere, longer or much longer in the oceans and in groundwater reservoirs.
11. He explores that the reactive nitrogen cycle is totally dominated by mankind, and this relates to environmental problems changing the atmosphere, freshwater quality and biodiversity. shipping changes the aerosol content over the sea, and contribute to changes in the water cycle.
12. He concludes that most of the biogeochemical cycles have important natural marine branches within them, while man-made pollutants, like sulfur and nitrogen, are deposited to the oceans from the land sources through precipitation and direct deposition. The balance between anthropologic and natural sources are different among the different cycles, but they act together in modifying the atmosphere both over the oceans and the land.
13. The second presentation, entitled “**Transboundary Air Pollution, UN Economic Commission for Europe**” was made by **Mr. Peringe Grennfelt**, former Chairperson of the Working Group on Effects, The Convention on Long-range Transboundary Air Pollution (CLRTAP), United Nations Economic Commission for Europe (UNECE).
14. Mr. Grennfelt begins by showing that transboundary issue of pollution following last year’s Dialogue session. He commemorates this year of the 50th year since the first alarm on the transboundary acid rain issue was raised in autumn 1968. He begins his presentation by explaining that transboundary air pollution involves acid deposition, eutrophication and threats to biodiversity, health effects from particles, ground level ozone. It was firstly put on the table as UN agenda at Stockholm conference in 1972. He notes that the efforts of the international community towards air pollution resulted in the Convention on Long-Range Transboundary Air Pollution of 1979.

15. He commends international collaboration of air pollution for successful outcomes of reducing some pollutants. Substantial success can be seen within the ECE region as the memorable decrease of sulfur between 1990 and 2012, as is the case with North America. He notes that the acid deposition was at the highest in Europe in 1980s. He refers to some improvements in the decrease of acidification in Europe after 2000s by showing that the numbers and reproduction of salmon in rivers in Norway make a recovery.
16. Nonetheless, he takes note of the fact that millions of people die due to air pollution and its main issue is due to particulates. He warns that in addition to large control in industrial countries, additional measures are necessary. He illustrates that WHO and other organisations have estimated the total mortality due to outdoor air pollution to 3-4 million people annually. He estimates that this may shorten their lives by a decade.
17. He gives caution against regional pollution alongside the urban area pollution. Although the successful efforts in improving air quality, tireless efforts are still necessary both for urban and regional areas. While there are some regional air pollution initiatives including CLRTAP (the Convention on Long-range Transboundary Air Pollution) for the ECE region and EANET (Acid Deposition Monitoring Network) in East Asia, he thinks that much less is done than desired. Yet, he welcomes the issuance of the report called “Towards Cleaner Air, Scientific Assessment Report 2016” published in May 2016 by UNECE, which he announced at the last year’s Dialogue.
18. He explains that mercury and POPs are compounds with regional and global dimensions so that they are both treated by global conventions such as Minamata Convention on Mercury and Stockholm Convention on Persistent Organic Pollutants. The regional convention of the oceans, for instance the Baltic Marine Environment Protection Commission (HELCOM) also regulates such compounds.
19. He regrets that shipping is an area with less progress so far, though the emission from shipping is regulated mainly by IMO (International Maritime Organization). The compounds of particular concern are NO_x (nitrogen oxides), SO₂ and PM (particulate matter). He compares emissions of CO₂, NO_x, SO₂ and PM10 among different transports, and concludes that the amounts of emissions of NO_x are almost the same for road traffick and shipping, while CO₂ emission is slightly higher in road traffick than those of aviation and shipping. After all, he points out that shipping is an important source for health effects and atmospheric deposition in areas close to the sea. For instance, international shipping results in a number of

premature deaths. However, he welcomed the decision taken by IMO to implement a global sulfur fuel oil limit of 0.50% by 2020 as very promising.⁵

20. Mr. Grennfelt concludes by showing a new data that emissions from the imported production may cause health effects in the country where they are produced. He underlines that such a data implies that the effect of this type of transboundary pollution is larger than that of transport in the atmosphere.
21. The third speaker, **Mr. Tim Jickells**, Co-chair, Working Group 38 of the Joint Group of Experts on the Scientific Aspects of Marine Environmental Protection (GESAMP), WMO, made a presentation on the topic of “**Linkages between the Oceans and the Atmosphere.**”
22. Mr. Jickells first gives an overview of impact of the atmosphere on the oceans. He points out that the oceans take up material from the atmosphere and also inject material into the atmosphere. Human activity affects not every transfer but some of these transfers.
23. Secondly, he notes that one of the main roles of the oceans is taking up about a quarter of human carbon dioxide emissions as well as some other gasses so that they mitigate the greenhouse gas induced climate change issue. Whereas the oceans continue to take up carbon dioxide, he thinks its capacity will reduce and the carbon dioxide taken up by the oceans drives ocean acidification.
24. Third, he continues that Sea spray emitted from the oceans contributes to the atmospheric particulate burden, which affects atmospheric chemistry and the reflectance of sunlight and climate system.
25. Fourth, he notes that the air pollution on the land is an input to the oceans as well. Echoing with Mr. Hov, the first speaker, Mr Jickells notes that the time scale in the distances over which activities on land affect the oceans depends very much on how long that materials survive in the atmosphere. To begin with, there are some compounds of very short life times, for only minutes, and they are only carried by winds for around tens of meters or kilo meters. Such short-life compounds do not really reach the oceans. There are other compounds, like ozone, travelling days or weeks so that they will certainly reach the oceans with very strong gradients due to lack of time to mix with the atmosphere. Lastly, there are long lived gases (CFCs

⁵ Regarding the contribution of air pollution from cruisers in relation to industrial shipping (cargos, tankers, bulk shipping, etc.), cruisers make up about 5% of the emissions of CO₂ and it is probably less for ordinary pollutants (SO₂, NO_x, particulates).

and carbon dioxide) which are mixed well and distributed globally. Their inputs to the oceans are relatively uniform.

26. Fifth, he also makes a remark of shipping as important source of pollution, agreeing with the last two speakers.
27. Sixth, he describes that there are two parts of atmospheric impacts on the oceans. On the one hand, some components act as nutrients to enhance ocean productivity acting as fertiliser especially the microscopic plants (called phytoplankton) that dominate the productivity of the oceans. On the other hand, there are persistent pollutants posing a threat to life in the oceans and those who consume its products.
28. Seventh, he senses that there are two key nutrients supplied to the ocean from the atmosphere. The first is iron associated entirely with the soils, essentially desert dust storm. The other is nitrogen. He notes that dust is a key emission from land and deserts that are almost all in the Northern hemisphere, while the Southern hemisphere oceans receive very little dust and iron. Nitrogen coming mainly from combustion processes and agriculture and has a relatively long lifetime in the atmosphere. There is plenty of time to transport it from the oceans, but not enough time to mix it uniformly around the planet. Therefore, very strong gradient's of depositions are found away from the industrial parts of the world, especially Northern Europe, Northern America and Asia, and less in the Southern hemisphere. It has a modest benefit as extra nitrogen increases the productivity of the oceans and carbon dioxide uptake, though our carbon dioxide emission is a worst problem for the greenhouse gas issues. If we reduce nitrogen, then we have compensatory effects of reducing depositions of the oceans.
29. Eighth, he shows three pollutants, namely, mercury, PCBs and leads. He explains their features and environmental effects. While the Western Europe controls mercury and its amount decreases, the high latitude regions see no change of mercury amount due to recycling of some of the legacy emitted over the last few decades from the ocean and land back into the atmosphere and then with re-deposition at high latitudes. PCBs has some of the same features as mercury with both a legacy from earlier production and emission and a tendency to recycle back into the atmosphere from the ocean and land and ultimately reach the high latitude regions. Lead is persistent, but rather rapidly removed to sediments. He says it is promising that the ocean chemistry responds to our lead control relatively quickly.
30. To conclude his remarks, he emphasizes that atmosphere is a major route of transport from land to the oceans, providing both nutrients and contaminants. He

warns that some contaminants can be recycled between land, ocean and atmosphere. Atmospheric transport, particularly coupled to recycling, can effectively transport persistent pollutants into remote environments.

31. The fourth and final speaker, **Mr. Arnold Kreilhuber**, Head of International Environmental Law Unit, Law Division, United Nations Environmental Programme (UNEP), presented “**Linking Science with Law for the Protection of Atmosphere.**” As a lawyer he was pleased to be able to have a dialogue with the Commission members.
32. Mr. Kreilhuber first holds that pollution is a global issue, that affects everyone, rich or poor, living in a developed or developing country. It is also an environmental problem has an inter-generational aspect. For him, pollution is therefore a great equalizer among environmental threats, though pollution exacerbates the existing inequalities at the same time. The third UN Environment Assembly [*hereinafter*, UNEA3] will meet in December of 2017. Its theme is ‘Towards the Pollution Free Planet’ where the United Nations tries to indeed link science, policy and law together to combat pollution. He poses a question whether the Commission could contribute to the UNEA 3.
33. He emphasizes the Sustainable Development Goals in the context of the UNEA 3. The UN Member States have agreed to implement sustainable development goals by the year of 2030. He speaks that almost all of 17 goals are associated with the problems of pollution, enumerating a few among others, goal number 1 (no poverty), goal number 3 (good health and well being), goal number 6 (clean water and sanitation), goal no. 10 (reduced inequalities).
34. The UNEP conducted recently a midterm review of the fourth 10-year programme for the development and review of environmental law (Montevideo Programme) and collaborated with the Commission’s work in relation to its work on the protection of atmosphere. Senior government officials and international stakeholders identified pollution as one of the priorities within Montevideo Programme going forward. He holds that the 2nd UNEA States approved these priorities, and air pollution as a priority.
35. As for pollution, he states that the UNEP also looks into pollution related issues from policy and legal perspectives, such as marine litter, air quality, ‘sand and dust storms’ and ‘lead in paint’. He alerts us of sand and dust storms, knowing them as a regional problem, which could easily turn to be a global problem.
36. He thinks that taking science and precaution seriously is very important. Sometimes this is not very well received by States, however, for example, with

regard to asbestos. However, success stories are there and progress can be made such as in reducing tobacco and protecting ozone layer reflected in policies and legislations, where scientists, lawyers and policymakers successfully go hand-in-hand.

37. There are two aspects of environmental rule of law, which are perhaps different from the classic notion of rule of law. The first aspect is scientific uncertainty. The second aspect is future generation. In order to advance environmental rule of law, he thinks that there are increasing role of citizens to task governments for environmental problems. UNEP will launch a report on climate change litigations around the world later in May. For example, last week nine year old girl sues Indian government for lack of action against climate change. She demands Indian government to take science-based action to tackle with climate change. He also introduces an example of Pakistan High Court of Lahore where judges created a commission to monitor the government's action against climate change. In his home country Austria, the Highest Administrative Court of Austria denied the permission to build another runway at Vienna airport by the government, citing the federal and State's constitutional provisions in addition to international obligations.
38. In his concluding remarks, he highlights a potentially significant new trend at the national level in recognizing cultural or natural object's legal personality. For instance, Ganges and Yamuna rivers were given legal personalities by an Indian court with a reference to the precedence of New Zealand's recognition of a river's legal personality.

Discussion with Commission Members

39. Following the presentations, Commission Members asked the following questions.
40. **Ms. Nilüfer Oral** poses a question on ocean acidification, which increasingly becomes a big challenge and she asks this question from both scientific and legal viewpoints.
41. **Mr. Hassan Ouazzani Chahdi** asks how to compensate victims of pollution related issues. He also asks how to govern such issues in the future, and whether the UNEP has already considered the compensation issue or any other international reflections since it harms the whole of humanity in the future.
42. **Mr. Aniruddha Rajput** has one question and one comment. His question is what is the technical definition of 'environment', 'ozone', 'atmosphere' and 'climate change'? He especially asks whether these four terms are distinguishable by definition. He wonders whether they are related or inter-twined. If a single source

of pollution, such as burning fossil fuels, results in one single polluting act, then he questions whether its consequences on these four terms are distinguishable or not. Single source of pollution?

43. He also makes a comment on the statement made by Mr. Kreilhuber from UNEP. He is very much intrigued by his comment of noncooperation and responsibilities on the part of States. He asks whether Mr. Kreilhuber's comment is the official position of the UNEP. If the comment is made in his personal capacity, he would like to know how far Mr. Kreilhuber goes on this issue of Ganges. For Mr. Kreilhuber's information, he clarifies that the Indian government has spent 200 billion INR (Indian rupee) last two years, equivalent to 3115 billion US dollars, in order to rejuvenate Ganges. He questions whether UNEP is aware of this and other efforts made by the Indian government. Against these backgrounds, he asks whether one may criticize Indian government for carelessness about Ganges.
44. **Mr. Jickells** responds to the question of ocean acidification by holding that it is a fundamental effect from the discharge of CO₂ dissolving into the oceans. CO₂ has to acidify the oceans, and the question is rate and extent. He says that there is no fundamental argument with the fact it will happen. He notes that it is a measurable phenomenon. In terms of effect, he describes that it primarily affects organisms with shells made of limestone/calcium carbonate. It especially affects microscopic phytoplankton, which underpins the productivity of the oceans and corals. According to his answer, the challenge is that corals in particular are facing multiple stresses at the same time with acidification and rising temperatures. The Great Barrier Reef may become non-viable, but the timing is unpredictable. In the case of open ocean phytoplankton, he identifies that there are losses of certain kind of planktons and replacement by others, and these losses may or may not lead to the long-term effect. One of the examples may be more jellyfish than at present and this change in species may affect other species that feed on these communities. The strategy to mitigate ocean acidification is to reduce CO₂. If the Paris Agreement is fully implemented, he thinks there would be beneficial effect both on climate change and ocean acidification.
45. **Mr. Kreilhuber** responds to the question of compensation by noting that compensating citizens for pollution is ultimately a national issue, citing recent examples in the US regarding the Deep Water Horizon oil spill and Volks Wagen. He takes notes that the starting point is the law and UNEP supports countries in reinforcing their laws regarding pollution. He says he does not put any value judgment on a particular case or court decision but referred to a trend towards

increased litigation in environmental matters. He thinks that there is a role of courts to play, but at the same time he stresses that these are judicial decisions one may agree or disagree with. .

46. **Mr. Jickells** answers the question of litigation. One of the challenges is long-live pollutants, such as mercury. Some mercury pollution is local, such as Minamata itself. He says then it would be easy to attribute cause and consider compensation. However, much of mercury found in remote oceans come from multiple sources probably emitted decades ago. In that case, he thinks that it is not easy to link causal attributor to one particular case. He concludes that the issue of compensation gets very challenging in this respect.
47. **Mr. Hov** responds to the question from Mr. Rajput. He thinks they are distinguishable. He says we have discussed the atmosphere at length, and it is a geographical domain limited by the earth surface. Ozone is a trace chemical in the atmosphere, and ozone is ubiquitous. Environment in his view comprises of the atmosphere, ecosystems, the oceans and ice. He also reminds that the two terms 'built environment' and 'managed environment' require different definitions respectively. He simply defines climate changes as a phenomenon where temperature increases over the average. He says that burning fossil fuels affect all four in different ways and on different time scales. With respect to litigation, he specifically mentions the case of *Juliana vs the US*, accusing the federal government of failing to protect future generation from climate change. The case is quite interesting for him in that the American Petroleum Institute, the American Fuel & Petrochemical Manufacturers and the National Association of Manufacturers intervene to block the case by holding that there is no evidence that CO₂ has passed 400 ppm. He further explains that the experts were called in that case and assured that each CO₂ data point is calibrated against high quality standards.
48. **Mr. Grennfelt** answers to the question of the definition of ozone. From the chemical point of view, there is only one definition that ozone is oxygen molecules with three atoms. Nonetheless, he shows that the chemical compound is sometimes mixed up with the ozone problems. He notes that we are eager to protect the ozone layer in the Stratosphere, and we are concerned about the increase of ozone in the Troposphere.
49. **Mr. Chris Maina Peter** poses a question to Professor Jickells which type of ship pollutes the oceans more, cargo ships or cruise ships. He also asks further explanation of the difference between pollutions caused by aviation and ship

trafficking. His second question is the impacts of dumping of toxic waste particularly into the high seas.

50. **Mr. Charles Chernor Jalloh** asks Mr. Kreilhuber about what role the Commission could play, given its mandate of a technical body.
51. **Mr. Marcelo Vázquez-Bermúdez** thanks Mr. Kreilhuber's talk about legal consequences of pollution. He took the opportunity to note that we still have a lot to learn from the world view of indigenous peoples in terms of living in harmony with nature, which is inspiring the adoption of new environmental legislation in this regard by some States. He refers to geo-engineering and intentional large scale modification of the atmosphere, such as solar radiation management, and asks about the risks and possible unintended negative consequences involved, considering, among other things, the effects that such activities carried out in one region may have in other regions. He also asks if within UNEP there are initiatives of States to regulate such activities.
52. **Mr. Claudio Grossman Guiloff** puts a question of the possibility of international litigation in this respect, and he reminds that World Bank establishes a system to evaluate environmental impacts when they invest. He thinks that some of these elements are important for victims who would like to go to an international tribunal. In the Inter-American system, he elaborates that there are environmental cases involving Ecuador and Guatemala for instance.
53. **Mr. Georg Nolte** asks Mr. Kreilhuber whether he really can evade making a value judgment. He asks Mr. Kreilhuber about the relationship between facts and their evaluations, their significance in law. As a lawyer, he alerts that one cannot jump from facts to law. He emphasizes the importance of taking into account the consequences in the application of the law to the facts. He refers to contestations consisting in quasi-scientific alternative facts, and asks how serious scientists deal with such contestations. He also refers to the challenge which consists in indifferent attitudes towards precautions against environmental problems, and he would like to know how scientists deal with those indifferent attitudes.
54. **Mr. Yacouba Cissé** responds to Mr. Jickell's answer on the question of compensation. He recalls a well-established system of compensation in oil pollution caused by shipping, namely IOPC funds (FIPOL: Les Fonds internationaux d'indemnisation pour les dommages dus à la pollution par les hydrocarbures) of 1992. At the same time, he notes that such compensation system of international law is without prejudice to domestic systems.

55. **Mr. Grennfelt** answers the question of the pollutions derived from cruising ships and cargo ships. Although he does not have an exact figure in front of him, he thinks that the pollutions from cargo ships is between 10-100 times larger than the cruising ships. Aviation also emits pollutants. He posits that aviation pollution has a dimension that it is difficult to replace ordinary way of running aircrafts with the others. The dimension of aviation pollutions relates our own way of living, which connects to the air transport, not only for business. He gives the figure that CO₂ emission by using a car in a year is about same as international return trip.
56. **Mr. Jickells** reminds that toxic waste dumping as such is illegal. He says they should not dump substantial amounts of toxic waste that are bound to be deleterious. He reminds that there is a large dilution capacity in the ocean, and all waste could be toxic. Still one should not dump large amounts of apparently toxic waste. Other than toxic waste dumping, deep sea mining or large oil spills, for instance, would effectively discharge toxic into the environment.
57. **Mr. Hov** responds to Mr. Nolte's question on independence of scientific advice. He thinks there is rising discussion, as we all know, and scientists try to produce principled discussion. He introduces a book named *The Honest Broker* by R.A.Pielke Jr published by the Cambridge University Press which illustrates four roles of scientists: (1) honest broker working with policy makers in actively solving problems by developing policy alternatives, (2) issue advocates, (3) science arbiter answering policymakers' questions but never assisting them beyond that (4) pure scientists who do not like to communicate the facts in a political context. He thinks this concept is useful for scientists to clarify scientists' roles and how to face moral judgment, because this is what is at stake at this moment.
58. **Mr. Jickells** responds to Mr. Vázquez-Bermúdez's question by talking about geo-engineering. He speaks about a proposal of active attempt of removal of carbon dioxide, which is a primary driver of climate change. He says that another approach is reflecting sunlight to leave carbon dioxide to go up. The latter approach does not benefit for ocean acidification, while it may stop temperature rise. He notes that there are a number of scientific researches in that area, and the Royal Society in London published the one. He thinks that many scientists share a concern with Mr. Vázquez-Bermúdez. He tells that the UK government announces, yesterday, the research programme essentially dealing with simpler approaches, but they do not even think about dealing with difficult problems, such as space reflections.
59. **Mr. Kreilhuber** also answers to Mr. Vázquez-Bermúdez's question of climate engineering which could be a potential area to look at in the next Montevideo

Programme. At the moment, the UNEP is engaged with the ongoing scientific discussions, while being also aware of potential legal questions arising from climate engineering. The UNEP closely listens to scientists on this issue. There are *pros* and *cons* as per the previous speaker's comment. He also answers the question on climate change litigation posed by Mr. Grossman. He reminds us that principle 10 of Rio Declaration is about an access to justice on environmental matters. So of course the role of courts is very important and must be applauded. He thinks the question by Mr. Rajput was specifically about the mentioned case in India and that he would not wish to discuss a particular case and place judgment on the judges or the Indian government.

60. He reiterates the encouraging trends that citizens are concerned about the environment. Green tribunals and green benches have been created all over the world whom the UNEP supports by disseminating as much environmental information as possible. He sees that international litigation has a role to play too of course and ideally compliments the trends of environmental litigations at the national levels. He says that there is a trend to integrate more environmental responsibility into trade agreements. Another interesting dimension is that the Chief Prosecutor of the International Criminal Court has published a statement last year indicating that they would look into more closely at environment related crimes under the Rome Statute. Lastly, he responds to the question by Mr. Jalloh on the role of the Commission during UNEA3. He speaks that there is no specific idea from the viewpoint of the UNEP. He reminds the Commission that the UNEP invite all kinds of stakeholders to think about their contributions to UNEA3. He asks whether the Commission could contribute to it by making a brief at the UNEA3 on the work on the protection of atmosphere as a start. He hopes that the Commission substantially continues the current work and concludes its work very quickly. He believes that not only the UNEP but the entire international community could benefit from finalization of the Commission's topic of the protection of atmosphere very soon.
61. In concluding the session, **Mr. Shinya Murase**, chair of the session, thanked the experts for their excellent presentations, which he believed that the members of the Commission would consider very seriously in the course of deliberations on the topic scheduled to begin next week.

Drafted by Hitomi Takemura under the supervision of Mr. Shinya Murase