Chapter VIII

PROTECTION OF THE ATMOSPHERE

A. Introduction

86. The Commission, at its sixty-fifth session (2013), decided to include the topic "Protection of the atmosphere" in its programme of work, subject to an understanding, and appointed Mr. Shinya Murase as Special Rapporteur.[1204]

87. The Commission received and considered the first report of the Special Rapporteur[1205] at its sixty-sixth session (2014) and the second report[1206] at its sixty-seventh session (2015). On the basis of the draft guidelines proposed by the Special Rapporteur in the second report, the Commission provisionally adopted three draft guidelines and four preambular paragraphs, together with commentaries thereto.[1207]

B. Consideration of the topic at the present session

88. At the present session, the Commission had before it the third report of the Special Rapporteur (A/CN.4/692). The Special Rapporteur, building on the previous two reports, analysed several key issues relevant to the topic, namely, the obligations of States to prevent atmospheric pollution and mitigate atmospheric degradation and the requirement of due diligence and environmental impact assessment. He also explored questions concerning sustainable and equitable utilization of the atmosphere, as well as the legal limits on certain activities aimed at intentional modification of the atmosphere. Accordingly, the Special Rapporteur proposed draft guidelines on the obligation of States to protect the atmosphere, environmental impact assessment, sustainable utilization of the atmosphere, equitable utilization of the atmosphere and geo-engineering. He also proposed an additional preambular paragraph, to be the fourth preambular paragraph, and the renumbering of the draft guideline on international cooperation provisionally adopted by the Commission in 2015.

89. The Special Rapporteur indicated that in 2017 the Commission could deal with the question of the interrelationship between the law of the atmosphere and other fields of international law (such as the law of the sea, international trade and investment law and international human rights law), and in 2018 with the issues of implementation, compliance and dispute settlement relevant to the protection of the atmosphere, with the intention of completing the first reading of the draft guidelines on the topic that year.

90. The Commission considered the third report of the Special Rapporteur at its 3306th, 3307th, 3308th and 3311th meetings, on 27 and 31 May and 1 and 7 June 2016.

91. The debate in the Commission was preceded by a dialogue with scientists organized by the Special Rapporteur on 4 May 2016.[1208] Members of the Commission found the dialogue and the contributions made useful.

92. Following its debate on the report, the Commission, at its 3311th meeting, on 7 June 2016, decided to refer draft guidelines 3, 4, 5, 6 and 7, together with the fourth preambular paragraph, as contained in the Special Rapporteur's third report, to the Drafting Committee.

[1204] At its 3197th meeting, on 9 August 2013 (see *Yearbook ... 2013*, vol. II (Part Two), p. 78, para. 168). The Commission included the topic in its programme of work on the understanding that: "(*a*) work on the topic will proceed in a manner so as not to interfere with relevant political negotiations, including on climate change, ozone depletion and long-range transboundary air pollution. The topic will not deal with, but is also without prejudice to, questions such as liability of States and their nationals, the polluter-pays principle, the precautionary principle, common but differentiated responsibilities and the transfer of funds and technology to developing countries, including intellectual property rights; (*b*) the topic will also not deal with specific substances, such as black carbon, tropospheric ozone and other dual-impact substances, which are the subject of negotiations among States. The project will not seek to 'fill' gaps in the treaty regimes; (*c*) questions relating to outer space, including its delimitation, are not part of the topic; (*d*) the outcome of work on the topic will be draft guidelines that do not seek to impose on current treaty regimes legal rules or legal principles not already contained therein. The Special Rapporteur's reports would be based on such understanding." The General Assembly, in paragraph 6 of its resolution 68/112 of 16 December 2013, took note of the decision of the Commission to include the topic in its programme of work. The topic had been included in the long-term programme of work of the Commission during its sixty-third session (*Yearbook … 2011*, vol. II (Part Two), p. 175, para. 365), on the basis of the proposal contained in annex II to the report of the Commission on its work at that session (*ibid*., p. 189).

[1205] *Yearbook … 2014*, vol. II (Part One), document A/CN.4/667.

[1206] *Yearbook … 2015*, vol. II (Part One), document A/CN.4/681.

[1207] *Ibid*., vol. II (Part Two), pp. 18 *et seq.*, paras. 53–54.

[1208] The dialogue with scientists on the protection of the atmosphere was chaired by Mr. Shinya Murase, Special Rapporteur. Mr. Øystein Hov, President of the Commission for Atmospheric Sciences, World Meteorological Organization (WMO), addressed "Geoengineering—a way forward?"; Mr. Peringe Grennfelt, Chair of the Working Group on Effects, Convention on Long-Range Transboundary Air Pollution, Economic Commission for Europe, considered "Linkages between transboundary air pollution and climate change"; Mr. Christian Blondin, Head of Cabinet of the Secretary-General and Director of the External Relations Department, WMO, analysed the "Scientific aspects of the 2015 Paris Agreement"; Mr. Valentin Foltescu, Head of the Thematic Assessments Unit in the Division of Early Warning and Assessments, United Nations Environment Programme (UNEP), presented "An overview of the latest findings and estimates of the effects of air pollution"; and Mr. Masa Nagai, Deputy Director of the Division of Environmental Law and Conventions, UNEP, discussed "Linking science with law". The dialogue was followed by a question and answer session. A summary of the informal dialogue is available from the website of the Commission.

93. At its 3314th meeting, on 4 July 2016, the Commission received the report of the Drafting Committee. At its 3315th meeting, on 5 July 2016, the Commission considered and provisionally adopted five draft guidelines and a preambular paragraph (see sect. C.1 below).

94. At its 3341st to 3343rd meetings, on 9 and 10 August 2016, the Commission adopted the commentaries to the draft guidelines provisionally adopted at the present session (see sect. C.2 below).

C. Text of the draft guidelines on the protection of the atmosphere, together with preambular paragraphs, provisionally adopted so far by the Commission

1. Text of the draft guidelines, together with preambular paragraphs

95. The text of the draft guidelines on the protection of the atmosphere, together with preambular paragraphs, provisionally adopted so far by the Commission is reproduced below.

Preamble

…

***Acknowledging* that the atmosphere is essential for sustaining life on Earth, human health and welfare, and aquatic and terrestrial ecosystems,**

***Bearing in mind* that the transport and dispersion of polluting and degrading substances occur within the atmosphere,**

***Recognizing therefore* that the protection of the atmosphere from atmospheric pollution and atmospheric degradation is a pressing concern of the international community as a whole,**

***Aware* of the special situation and needs of developing countries,**

***Recalling* that these draft guidelines are not to interfere with relevant political negotiations, including those on climate change, ozone depletion, and long-range transboundary air pollution, and that they also neither seek to "fill" gaps in treaty regimes nor impose on current treaty regimes legal rules or legal principles not already contained therein,**

[Some other paragraphs may be added and the order of paragraphs may be coordinated at a later stage.]

…

Guideline 1. Use of terms

For the purposes of the present draft guidelines,

(*a*) "Atmosphere" means the envelope of gases surrounding the Earth;

(*b*) "Atmospheric pollution" means the introduction or release by humans, directly or indirectly, into the atmosphere of substances contributing to deleterious effects extending beyond the State of origin of such a nature as to endanger human life and health and the Earth's natural environment;

(*c*) "Atmospheric degradation" means the alteration by humans, directly or indirectly, of atmospheric conditions having significant deleterious effects of such a nature as to endanger human life and health and the Earth's natural environment.

Guideline 2.*[1209] *Scope of the guidelines

1. The present draft guidelines [contain guiding principles relating to] [deal with] the protection of the atmosphere from atmospheric pollution and atmospheric degradation.

2. The present draft guidelines do not deal with, but are without prejudice to, questions concerning the polluter-pays principle, the precautionary principle, common but differentiated responsibilities, the liability of States and their nationals, and the transfer of funds and technology to developing countries, including intellectual property rights.

3. The present draft guidelines do not deal with specific substances, such as black carbon, tropospheric ozone and other dual-impact substances, which are the subject of negotiations among States.

4. Nothing in the present draft guidelines affects the status of airspace under international law nor questions related to outer space, including its delimitation.

Guideline 3. Obligation to protect the atmosphere

States have the obligation to protect the atmosphere by exercising due diligence in taking appropriate measures, in accordance with applicable rules of international law, to prevent, reduce or control atmospheric pollution and atmospheric degradation.

Guideline 4. Environmental impact assessment

States have the obligation to ensure that an environmental impact assessment is undertaken of proposed activities under their jurisdiction or control which are likely to cause significant adverse impact on the atmosphere in terms of atmospheric pollution or atmospheric degradation.

Guideline 5. Sustainable utilization of the atmosphere

1. Given that the atmosphere is a natural resource with a limited assimilation capacity, its utilization should be undertaken in a sustainable manner.

2. Sustainable utilization of the atmosphere includes the need to reconcile economic development with protection of the atmosphere.

Guideline 6. Equitable and reasonable utilization of the atmosphere

The atmosphere should be utilized in an equitable and reasonable manner, taking into account the interests of present and future generations.

Guideline 7. Intentional large-scale modification of the atmosphere

Activities aimed at intentional large-scale modification of the atmosphere should be conducted with prudence and caution, subject to any applicable rules of international law.

Guideline 8 [5].*[1210] *International cooperation

1. States have the obligation to cooperate, as appropriate, with each other and with relevant international organizations for the protection of the atmosphere from atmospheric pollution and atmospheric degradation.

2. States should cooperate in further enhancing scientific knowledge relating to the causes and impacts of atmospheric pollution and atmospheric degradation. Cooperation could include exchange of information and joint monitoring.

2. Text of the draft guidelines, together with a preambular paragraph, and commentaries thereto provisionally adopted by the Commission at its sixty-eighth session

96. The text of the draft guidelines, together with a preambular paragraph, and commentaries thereto provisionally adopted by the Commission at its sixty-eighth session is reproduced below.

[1209] The alternative formulations in brackets will be subject to further consideration.

[1210] This draft guideline was renumbered at the current session. Its original number appears in square brackets.

Preamble

***Aware* of the special situation and needs of developing countries,**

Commentary

(1) The fourth preambular paragraph has been inserted having regard to considerations of equity, and concerns the special situation and needs of developing countries. One of the first attempts to incorporate such a principle was the Washington Conference of the International Labour Organization in 1919, at which delegations from Asia and Africa succeeded in ensuring the adoption of differential labour standards.[1211] Another example is the Generalized System of Preferences elaborated under the United Nations Conference on Trade and Development in the 1970s, as reflected in draft article 23 of the Commission's 1978 draft articles on most-favoured-nation clauses.[1212]

(2) The need for special consideration for developing countries in the context of environmental protection has been endorsed by a number of international instruments, such as the Declaration of the United Nations Conference on the Human Environment of 1972 (Stockholm Declaration)[1213] and the 1992 Rio Declaration on Environment and Development (Rio Declaration).[1214] Principle 12 of the Stockholm Declaration attaches importance to "taking into account the circumstances and particular requirements of developing countries". Principle 6 of the Rio Declaration highlights "[t]he special situation and needs of developing countries, particularly the least developed and those most environmentally vulnerable". The principle is similarly reflected in article 3 of the 1992 United Nations Framework Convention on Climate Change and article 2 of the 2015 Paris Agreement.

(3) The formulation of the present preambular paragraph is based on the seventh paragraph of the preamble to the 1997 Convention on the Law of the Non-Navigational Uses of International Watercourses.[1215]

Guideline 3. Obligation to protect the atmosphere

States have the obligation to protect the atmosphere by exercising due diligence in taking appropriate measures, in accordance with applicable rules of international law, to prevent, reduce or control atmospheric pollution and atmospheric degradation.

Commentary

(1) Draft guideline 3 is central to the present draft guidelines. In particular, draft guidelines 4, 5 and 6 flow from this guideline; these three draft guidelines seek to apply various principles of international environmental law to the specific situation of the protection of the atmosphere.

(2) The draft guideline seeks to delimit the obligation to protect the atmosphere to preventing, reducing and controlling atmospheric pollution and atmospheric degradation, thus differentiating the kinds of obligations pertaining to each. The formulation of the present draft guideline finds its genesis in principle 21 of the Stockholm Declaration, which reflected the finding in the *Trail Smelter* arbitration.[1216] This is further reflected in principle 2 of the 1992 Rio Declaration.

(3) The reference to "States" for the purposes of the draft guideline denotes both the possibility of States acting "individually" and "jointly" as appropriate. The draft guideline refers to both the transboundary and global contexts. It will be recalled that draft guideline 1 provisionally adopted in 2015 contains a "transboundary" element in defining "atmospheric pollution" (as the introduction or release by humans, directly or indirectly, into the atmosphere of substances contributing to deleterious effects "extending beyond the State of origin", of such a nature as to endanger human life and health and the Earth's natural environment), and a "global" dimension in defining "atmospheric degradation" (as the alteration by humans, directly or indirectly, of atmospheric conditions having significant deleterious effects of such a nature as to endanger human life and health and the Earth's natural environment).

(4) As presently formulated, the draft guideline is without prejudice to whether or not the obligation to protect the atmosphere is an *erga omnes* obligation in the sense of article 48 of the articles on responsibility of States for

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[1211] On the basis of the third paragraph of article 405 of the 1919 Treaty of Peace between the Allied and Associated Powers and Germany (Treaty of Versailles), which became article 19, para. 3, of the Constitution of the International Labour Organization (labour conventions "shall have due regard" to the special circumstances of countries where local industrial conditions are "substantially different"). The same principle also appeared in some of the conventions approved by the International Labour Organization in 1919 and in several conventions adopted afterwards. See I. F. Ayusawa, *International Labor Legislation* (New York, Columbia University, 1920), chap. VI.

[1212] See article 23 (The most-favoured-nation clause in relation to treatment under a generalized system of preferences) and article 30 (New rules of international law in favour of developing countries) of the draft articles on most-favoured-nation clauses adopted by the Commission at its thirtieth session, in 1978 (*Yearbook ... 1978*, vol. II (Part Two), p. 16, para. 74; see also pp. 11–16, paras. 47–72). See also S. Murase, *Economic Basis of International Law* (Tokyo, Yuhikaku, 2001), pp. 109–179 (in Japanese). And see the earlier exceptions for developing countries specified in article XVIII of the 1947 General Agreement on Tariffs and Trade.

[1213] Adopted at Stockholm on 16 June 1972; see *Report of the United Nations Conference on the Human Environment, Stockholm, 5–16 June 1972* (United Nations publication, Sales No. E.73.II.A.14), Part One, chap. I, p. 3. See also L. B. Sohn, "The Stockholm Declaration on the Human Environment", *Harvard International Law Journal*, vol. 14 (1973), p. 423, at pp. 485–493.

[1214] Adopted at Rio de Janeiro on 14 June 1992; see *Report of the United Nations Conference on Environment and Development, Rio de Janeiro, 3–14 June 1992,* vol. I: *Resolutions Adopted by the Conference* (United Nations publication, Sales No. E.93.I.8 and corrigenda), resolution 1, annex I, p. 3.

[1215] Adopted by the General Assembly in resolution 51/229 of 21 May 1997 (annex). The Convention entered into force on 17 August 2014.

[1216] *Trail Smelter*, UNRIAA, vol. III (Sales No. 1949.V.2), p. 1905 (Award of 11 March 1941), at pp. 1965 *et seq.*; see also the first report of the Special Rapporteur (A/CN.4/667) (footnote 1205 above), para. 43. See further A. K. Kuhn, "The *Trail Smelter* arbitration—United States and Canada", *American Journal of International Law*, vol. 32 (1938), p. 785 and *ibid*., vol. 35 (1941), p. 665; and J. E. Read, "The Trail Smelter Dispute", *Canadian Yearbook of International Law*, vol. 1 (1963), p. 213.

internationally wrongful acts,[1217] a matter on which there are different views. While there is support for recognizing that the obligations pertaining to the protection of the atmosphere from transboundary atmospheric pollution of global significance and global atmospheric degradation are obligations *erga omnes*, there is also support for the view that the legal consequences of such a recognition are not yet fully clear in the context of the present topic.

(5) Significant adverse effects on the atmosphere are caused, in large part, by the activities of individuals and private industries, which are not normally attributable to a State. In this respect, due diligence requires States to "ensure" that such activities within their jurisdiction or control do not cause significant adverse effects. This does not mean, however, that due diligence applies solely to private activities since a State's own activities are also subject to the due diligence rule.[1218] Due diligence is an obligation to make the best possible efforts in accordance with the capabilities of the State controlling the activities. Therefore, even where significant adverse effects materialize, that does not automatically constitute a failure of due diligence. Such failure is limited to the State's negligence to meet its obligation to take all appropriate measures to prevent, reduce or control human activities where these activities have or are likely to have significant adverse effects. States' obligation "to ensure" does not require the achievement of a certain result (obligation of result) but only requires the best available efforts so as not to cause significant adverse effects (obligation of conduct). It requires States to take appropriate measures to control public and private conduct. Due diligence implies a duty of vigilance and prevention. It also requires taking into account the context and evolving standards, of both regulation and technology.

(6) The reference to "prevent, reduce or control" denotes a variety of measures to be taken by States, whether individually or jointly, in accordance with applicable rules as may be relevant to atmospheric pollution on the one hand and atmospheric degradation on the other. The phrase "prevent, reduce or control" draws upon formulations contained in the United Nations Convention on the Law of the Sea[1219] and the United Nations Framework Convention on Climate Change.[1220]

(7) Even though the appropriate measures to "prevent, reduce or control" apply to both atmospheric pollution and atmospheric degradation, it is understood that the reference to "applicable rules of international law" is intended to signal a distinction between measures taken, bearing in mind the transboundary nature of atmospheric pollution and global nature of atmospheric degradation and the different rules that are applicable in relation thereto. In the context of transboundary atmospheric pollution, the obligation of States to prevent significant adverse effect is firmly established as customary international law, as confirmed, for example, by the Commission's articles on prevention of transboundary harm from hazardous activities[1221] and by the jurisprudence of international courts and tribunals.[1222] However, the existence of this obligation is still somewhat unsettled for global atmospheric degradation. The International Court of Justice has stated that "[t]he existence of the general obligation of States to ensure that activities within their jurisdiction and control respect the environment … of areas beyond national control is now part of the corpus of international law",[1223] and has attached great significance to respect for the environment "not only for States but also for the whole of mankind".[1224] The Tribunal in the *Iron Rhine* case stated that the "duty to prevent, or at least mitigate [significant harm to the environment] … has now become a principle of general international law".[1225] At the same time, the views of members diverged as to whether these pronouncements may be deemed as fully supporting the recognition that the obligation to prevent, reduce or control global atmospheric degradation exists under customary international law. Nonetheless, such an

[1217] Article 48 (Invocation of responsibility by a State other than an injured State) provides that: "1. Any State other than an injured State is entitled to invoke the responsibility of another State in accordance with paragraph 2 if … (*b*) The obligation breached is owed to the international community as a whole" (General Assembly resolution 56/83 of 12 December 2001, annex. For the draft articles adopted by the Commission and the commentaries thereto, see *Yearbook … 2001*, vol. II (Part Two) and corrigendum, pp. 26 *et seq.*, paras. 76–77).

[1218] See *Pulp Mills on the River Uruguay (Argentina v. Uruguay), Judgment, I.C.J. Reports 2010*, p. 14, at p. 55, para. 101 ("the principle of prevention, as a customary rule, has its origins in the due diligence").

[1219] United Nations Convention on the Law of the Sea, art. 194.

[1220] United Nations Framework Convention on Climate Change, art. 4.

[1221] Article 3 (Prevention) provides: "The State of origin shall take all appropriate measures to prevent significant transboundary harm or at any event to minimize the risk thereof" (General Assembly resolution 62/68 of 6 December 2007, annex; for the draft articles adopted by the Commission and commentaries thereto, see *Yearbook … 2001*, vol. II (Part Two) and corrigendum, pp. 146 *et seq.*, paras. 97–98). The Commission has also dealt with the obligation of prevention in its articles on responsibility of States for internationally wrongful acts (General Assembly resolution 56/83 of 12 December 2001, annex; for the draft articles adopted by the Commission and commentaries thereto, see *Yearbook … 2001*, vol. II (Part Two) and corrigendum, pp. 26 *et seq.*, paras. 76–77). Article 14, paragraph 3, provides: "The breach of an international obligation requiring a State to prevent a given event occurs when the event occurs and extends over the entire period during which the event continues". According to the commentary to that article: "Obligations of prevention are usually construed as best efforts obligations, requiring States to take all reasonable or necessary measures to prevent a given event from occurring, but without warranting that the event will not occur" (*Yearbook … 2001*, vol. II (Part Two) and corrigendum, p. 62, para. (14)). The commentary described "the obligation to prevent transboundary damage by air pollution, dealt with in the *Trail Smelter* arbitration" as one example of the obligation of prevention (*ibid.*).

[1222] The International Court of Justice has emphasized prevention as well. In the *Gabčíkovo-Nagymaros Project* case, the Court stated that it "is mindful that, in the field of environmental protection, vigilance and prevention are required on account of the often irreversible character of damage to the environment and of the limitations inherent in the very mechanism of reparation of this type of damage" (*Gabčíkovo-Nagymaros Project (Hungary/Slovakia), Judgment, I.C.J. Reports 1997*, p. 7, at p. 78, para. 140). In the *Iron Rhine* case, the Arbitral Tribunal also stated that "[t]oday, in international environmental law, a growing emphasis is being put on the duty of prevention" (*Arbitration regarding the Iron Rhine ("Ijzeren Rijn") Railway between the Kingdom of Belgium and the Kingdom of the Netherlands*, decision of 24 May 2005, UNRIAA, vol. XXVII (Sales No. E/F.06.V.8), p. 35, at p. 116, para. 222).

[1223] *Legality of the Threat or Use of Nuclear Weapons, Advisory Opinion, I.C.J. Reports 1996*, p. 226, at pp. 241–242, para. 29.

[1224] *Gabčíkovo-Nagymaros Project* (see footnote 1222 above), p. 41, para. 53; the Court cited the same paragraph in *Pulp Mills on the River Uruguay, Judgment of 20 April 2010* (see footnote 1218 above), p. 78, para. 193.

[1225] *Arbitration regarding the Iron Rhine ("Ijzeren Rijn") Railway* (see footnote 1222 above), pp. 66–67, para. 59.

obligation is found in relevant conventions.[1226] In this context, it should be noted that the preamble to the Paris Agreement acknowledges "that climate change is a common concern of humankind" and notes "the importance of ensuring the integrity of all ecosystems, including oceans, and the protection of biodiversity".

Guideline 4. Environmental impact assessment

States have the obligation to ensure that an environmental impact assessment is undertaken of proposed activities under their jurisdiction or control which are likely to cause significant adverse impact on the atmosphere in terms of atmospheric pollution or atmospheric degradation.

Commentary

(1) Draft guideline 4 deals with environmental impact assessment. This is the first of three draft guidelines that flow from the overarching draft guideline 3. In the *Construction of a Road in Costa Rica along the San Juan River* case, the International Court of Justice affirmed that "a State's obligation to exercise due diligence in preventing significant transboundary harm requires that State to ascertain whether there is a risk of significant transboundary harm prior to undertaking an activity having the potential adversely to affect the environment of another State. If that is the case, the State concerned must conduct an environmental impact assessment."[1227] In the above-mentioned case, the Court concluded that the State in question "ha[d] not complied with its obligation under general international law to perform an environmental impact assessment prior to the construction of the road".[1228] In a separate opinion, Judge Owada noted that "an environmental impact assessment plays an important and even crucial role in ensuring that the State in question is acting with due diligence under general international environmental law".[1229] Two other judgments, in the cases regarding the *Gabčíkovo-Nagymaros Project*[1230] and the *Pulp Mills on the River Uruguay*,[1231] alluded to the importance of an environmental impact assessment. The Seabed Disputes Chamber of the International Tribunal for the Law of the Sea (ITLOS) rendered its Advisory Opinion on the *Responsibilities and obligations of States with respect to activities in the Area* in 2011, in which the Chamber listed the obligation to conduct an environmental impact assessment as one of the direct obligations incumbent on sponsoring States.[1232]

(2) The draft guideline is formulated in the passive voice—"States have the obligation to ensure that an environmental impact assessment is undertaken" as opposed to "States have an obligation to undertake an appropriate environmental impact assessment"—in order to signal that this is an obligation of conduct and given the broad nature of economic actors the obligation does not necessarily attach to the State itself to perform the assessment. What is required is that the State put in place the necessary legislative, regulatory and other measures for an environmental impact assessment to be conducted with respect to proposed activities. Notification and consultations are key to such an assessment.

(3) The phrase "of proposed activities under their jurisdiction or control" is intended to indicate that the obligation of States to ensure that an environment impact assessment is undertaken is in respect of activities under their jurisdiction or control. Since environmental threats have no respect for borders, it is not precluded that States, as part of their global environmental responsibility, take decisions jointly regarding environmental impact assessments.

(4) A threshold was considered necessary for triggering the environmental impact assessment. The phrase "which are likely to cause significant adverse impact" has accordingly been inserted. It is drawn from the language of principle 17 of the Rio Declaration.[1233] Moreover, there are other instruments, such as the Convention on Environmental Impact Assessment in a Transboundary Context, that use a similar threshold. In the *Pulp Mills* case, the Court indicated that "it may now be considered a requirement under general international law to undertake an environmental impact assessment where there is a risk that the proposed industrial activity may have a significant adverse impact in a transboundary context, in particular, on a shared resource".[1234]

(5) By having a threshold of "likely to cause significant adverse impact", the draft guideline excludes an environmental impact assessment for an activity whose impact is likely to be minor. The impact of the potential harm must be "significant" for both "atmospheric pollution" and "atmospheric degradation". What constitutes "significant" requires a factual determination.[1235]

(6) The phrase "in terms of atmospheric pollution or atmospheric degradation" was considered important as it relates the draft guideline to the two main issues of concern to the present draft guidelines as regards protection of the environment, namely transboundary atmospheric pollution and atmospheric degradation. While the relevant

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[1226] See, for example, United Nations Convention on the Law of the Sea; Vienna Convention for the Protection of the Ozone Layer; United Nations Framework Convention on Climate Change; Convention on Biological Diversity; United Nations Convention to Combat Desertification in Those Countries Experiencing Serious Drought and/or Desertification, Particularly in Africa; Stockholm Convention on Persistent Organic Pollutants; and Minamata Convention on Mercury.

[1227] *Certain Activities Carried Out by Nicaragua in the Border Area (Costa Rica v. Nicaragua)* and *Construction of a Road in Costa Rica along the San Juan River (Nicaragua v. Costa Rica)*, Judgment, *I.C.J. Reports 2015,* p. 665, at p. 720, para. 153.

[1228] *Ibid*., p. 724, para. 168.

[1229] *Ibid*., Separate Opinion of Judge Owada, para. 18.

[1230] *Gabčíkovo-Nagymaros Project* (see footnote 1222 above).

[1231] *Pulp Mills on the River Uruguay, Judgment of 20 April 2010* (see footnote 1218 above).

[1232] *Responsibilities and obligations of States with respect to activities in the Area*, Advisory Opinion, 1 February 2011, *ITLOS Reports 2011*, p. 10, at pp. 44 and 49–52, paras. 122 and 141–150.

[1233] *Report of the United Nations Conference on Environment and Development …* (see footnote 1214 above), p. 6.

[1234] *Pulp Mills on the River Uruguay, Judgment of 20 April 2010* (see footnote 1218 above), p. 83, para. 204.

[1235] The Commission has frequently employed the term "significant" in its work, including in the articles on the prevention of transboundary harm from hazardous activities (2001). In that case, the Commission chose not to define the term, recognizing that the question of "significance" requires a factual determination rather than a legal one (see para. (4) of the general commentary and paras. (4)–(7) of the commentary to article 2, *Yearbook … 2001*, vol. II (Part Two) and corrigendum, pp. 148 and 152–153). See also the commentary to the draft principles on the allocation of loss in the case of transboundary harm arising out of hazardous activities (paras. (1)–(3) of the commentary to draft principle 2, *Yearbook … 2006*, vol. II (Part Two), pp. 64–65).

precedents for the requirement of an environmental impact assessment primarily address transboundary contexts, it is considered that there is a similar requirement for projects that are likely to have significant adverse effects on the global atmosphere, such as those activities involving intentional large-scale modification of the atmosphere.[1236] As regards the protection of the atmosphere, such activities may carry a more extensive risk of severe damage than even those causing transboundary harm, and therefore the same considerations should be applied *a fortiori* to those activities potentially causing global atmospheric degradation. Thus, the Protocol on Strategic Environmental Assessment to the Convention on Environmental Impact Assessment in a Transboundary Context encourages "strategic environmental assessment" of the likely environmental, including health, effects, which means any effect on the environment, including human health, flora, fauna, biodiversity, soil, climate, air, water, landscape, natural sites, material assets, cultural heritage and the interaction among these factors.[1237]

(7) While it is acknowledged that transparency and public participation are important components in ensuring access to information and representation, it was considered that the parts dealing with procedural aspects of an environmental impact assessment should not be dealt with in the draft guideline itself. Principle 10 of the 1992 Rio Declaration[1238] provides that environmental issues are best handled with the participation of all concerned citizens, at the relevant level. This includes access to information, the opportunity to participate in decision-making processes, and effective access to judicial and administrative proceedings. The Convention on Access to Information, Public Participation in Decision-Making and Access to Justice in Environmental Matters also addresses these issues. The Protocol on Strategic Environmental Assessment to the Convention on Environmental Impact Assessment in a Transboundary Context encourages the carrying out of public participation and consultations, and the taking into account of the results of the public participation and consultations in a plan or programme.[1239]

Guideline 5. Sustainable utilization of the atmosphere

1. Given that the atmosphere is a natural resource with a limited assimilation capacity, its utilization should be undertaken in a sustainable manner.

2. Sustainable utilization of the atmosphere includes the need to reconcile economic development with protection of the atmosphere.

Commentary

(1) The atmosphere is a natural resource with limited assimilation capacity.[1240] It is often not conceived of as exploitable in the same sense as, for example, mineral or oil and gas resources are explored and exploited. In truth, however, the atmosphere, in its physical and functional components, is exploitable and exploited. The polluter exploits the atmosphere by reducing its quality and its capacity to assimilate pollutants. The draft guideline draws analogies from the concept of "shared resource", while also recognizing that the unity of the global atmosphere requires recognition of the commonality of interests. Accordingly, this draft guideline proceeds on the premise that the atmosphere is a resource with limited assimilation capacity, the ability of which to sustain life on Earth is impacted by anthropogenic activities. In order to secure its protection, it is important to see it as a resource that is subject to exploitation, thereby subjecting the atmosphere to the principles of conservation and sustainable use. Some members expressed doubts whether the atmosphere could be treated analogously to transboundary watercourses or aquifers.

(2) It is acknowledged in paragraph 1 that the atmosphere is a "natural resource with a limited assimilation capacity". The second part of paragraph 1 seeks to integrate conservation and development so as to ensure that modifications to the planet continue to enable the survival and wellbeing of organisms on Earth. It does so by reference to the proposition that the utilization of the atmosphere should be undertaken in a sustainable manner. This is inspired by the Commission's formulations as used in its 1994 draft articles on the law of the non-navigational uses of international watercourses[1241] and its 2008 draft articles on the law of transboundary aquifers.[1242]

(3) The term "utilization" is used broadly and in general terms, evoking notions beyond actual exploitation. The atmosphere has been utilized in several ways. Likely, most of these activities that have been carried out so far are those conducted without a clear or concrete intention to affect atmospheric conditions. However, there have been certain activities the very purpose of which is to alter atmospheric conditions, such as weather modification. Some of the proposed technologies for intentional, large-scale modification of the atmosphere[1243] are examples of the utilization of the atmosphere.

(4) The formulation "its utilization should be undertaken in a sustainable manner" in the present draft guideline is simple and not overly legalistic, which well reflects a paradigmatic shift towards viewing the atmosphere as a natural resource that ought to be utilized in a sustainable manner. It is presented more as a statement of international policy and regulation than an operational code to determine rights and obligations among States.

(5) Paragraph 2 builds upon the language of the International Court of Justice in its Judgment in the *Gabčíkovo-Nagymaros Project* case, in which it referred to the "need

[1236] See draft guideline 7.

[1237] Protocol on Strategic Environmental Assessment to the Convention on Environmental Impact Assessment in a Transboundary Context, art. 2, paras. 6–7.

[1238] *Report of the United Nations Conference on Environment and Development …* (see footnote 1214 above), p. 5.

[1239] Protocol on Strategic Environmental Assessment to the Convention on Environmental Impact Assessment in a Transboundary Context, art. 2, para. 6.

[1240] See para. (2) of the commentary to the preamble to the draft guidelines on the protection of the atmosphere provisionally adopted by the Commission at its sixty-seventh session, in 2015 (*Yearbook … 2015*, vol. II (Part Two), pp. 19–20).

[1241] *Yearbook … 1994*, vol. II (Part Two), para. 222; see, in particular, draft articles 5 and 6, *ibid*., pp. 96 and 101.

[1242] *Yearbook … 2008*, vol. II (Part Two), paras. 53–54; see, in particular, draft articles 4 and 5, *ibid*., pp. 27 and 28. The articles on the law of transboudary aquifers adopted by the Commission at its sixtieth session are contained in the annex to General Assembly resolution 63/124 of 11 December 2008.

[1243] See draft guideline 7.

to reconcile economic development with protection of the environment".[1244] The Commission also noted other relevant precedents.[1245] The reference to "protection of the atmosphere" as opposed to "environmental protection" seeks to focus the paragraph on the subject matter of the present topic, which is the protection of the atmosphere.

Guideline 6. Equitable and reasonable utilization of the atmosphere

The atmosphere should be utilized in an equitable and reasonable manner, taking into account the interests of present and future generations.

Commentary

(1) Although equitable and reasonable utilization of the atmosphere is an important element of sustainability, as reflected in draft guideline 5, it is considered important to state it as an autonomous principle. Like draft guideline 5, the present guideline is formulated at a broad level of abstraction and generality.

(2) The draft guideline is formulated in general terms so as to apply the principle of equity[1246] to the protection of the atmosphere as a natural resource that is to be shared by all. The first part of the sentence deals with "equitable and reasonable" utilization. The formulation that the "atmosphere should be utilized in an equitable and reasonable manner" draws, in part, upon article 5 of the Convention on the Law of the Non-Navigational Uses of International Watercourses and article 4 of the draft articles on the law of transboundary aquifers. It requires a balancing of interests and consideration of all relevant factors that may be unique to either atmospheric pollution or atmospheric degradation.

(3) The second part of the formulation addresses questions of intra- and intergenerational equity.[1247] In order to draw out the link between the two aspects of equity, the Commission elected to use the phrase "taking into account the interests of future" instead of "and for the benefit of present and future generations of humankind". The words "the interests of", and not "the benefit of", have been used to signal the integrated nature of the atmosphere, the "exploitation" of which needs to take into account a balancing of interests to ensure sustenance for the Earth's living organisms.

Guideline 7. Intentional large-scale modification of the atmosphere

Activities aimed at intentional large-scale modification of the atmosphere should be conducted with prudence and caution, subject to any applicable rules of international law.

Commentary

(1) Draft guideline 7 deals with activities the very purpose of which is to alter atmospheric conditions. As the title of the draft guideline signals, it addresses only intentional modification on a large scale.

(2) The term "activities aimed at intentional large-scale modification of the atmosphere" is taken in part from the definition of "environmental modification techniques" that appears in the Convention on the Prohibition of Military or Any Other Hostile Use of Environmental Modification Techniques, which refers to techniques for changing—through the deliberate manipulation of natural

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[1244] *Gabčíkovo-Nagymaros Project* (see footnote 1222 above), p. 78, para. 140.

[1245] In its 2006 Order in the *Pulp Mills* case, the International Court of Justice highlighted "the importance of the need to ensure environmental protection of shared natural resources while allowing for sustainable economic development" (*Pulp Mills on the River Uruguay (Argentina v. Uruguay)*, Provisional Measures, Order of 13 July 2006, *I.C.J. Reports 2006*, p. 113, at p. 133, para. 80). The 1998 WTO Appellate Body decision in *United States—Import Prohibition of Certain Shrimp and Shrimp Products* stated: "recalling the explicit recognition by WTO Members of the objective of sustainable development in the preamble of the *[Marrakesh] Agreement [establishing the World Trade Organization]*, we believe it is too late in the day to suppose that article XX(*g*) of the [General Agreement on Tariffs and Trade] 1994 may be read as referring only to the conservation of exhaustible mineral or other non-living natural resources" (Appellate Body Report, *United States—Import Prohibition of Certain Shrimp and Shrimp Products*, WT/DS58/AB/R, adopted 6 November 1998, para. 131; see also paras. 129 and 153). In the 2005 arbitral case of the *Iron Rhine*, the Tribunal held as follows: "There is considerable debate as to what, within the field of environmental law, constitutes 'rules' or 'principles'; what is 'soft law'; and which environmental treaty law or principles have contributed to the development of customary international law. … The emerging principles, whatever their current status, make reference to … sustainable development. … Importantly, these emerging principles now integrate environmental protection into the development process. Environmental law and the law on development stand not as alternatives but as mutually reinforcing, integral concepts, which require that where development may cause signify harm to the environment there is a duty to prevent, or at least mitigate, such harm … This duty, in the opinion of the Tribunal, has now become a principle of general international law" (*Arbitration regarding the Iron Rhine ("Ijzeren Rijn") Railway* (see footnote 1222 above), paras. 58–59). The 2013 Partial Award in the *Indus Waters Kishenganga Arbitration* states: "There is no doubt that States are required under contemporary customary international law to take environmental protection into consideration when planning and developing projects that may cause injury to a bordering State. Since the time of *Trail Smelter*, a series of international … arbitral decisions have addressed the need to manage natural resources in a sustainable manner. In particular, the International Court of Justice expounded upon the principle of 'sustainable development' in *Gabčíkovo-Nagymaros*, referring to the 'need to reconcile economic development with protection of the environment'" (*Indus Waters Kishenganga Arbitration (Islamic Republic of Pakistan v. Republic of India)*, Partial Award of 18 February 2013, para. 449, Permanent Court of Arbitration, *Award Series, The Indus Waters Kishenganga Arbitration (Pakistan v. India): Record of Proceedings (2010–2013)*; or ILR, vol. 154, p. 1, at p. 172). This was confirmed by the Final Award of 20 December 2013, para. 111 (Permanent Court of Arbitration, *Award Series* … ; or ILR, vol. 157, p. 362, at p. 412).

[1246] See, for example, J. Kokott, "Equity in international law", *in* F. L. Tóth (ed.), *Fair Weather? Equity Concerns in Climate Change* (London, Earthscan, 1999), p. 173; see also *Frontier Dispute (Burkina Faso/Mali), Judgment, I.C.J. Reports 1986*, p. 554. See, in general, P. Weil, "L'équité dans la jurisprudence de la Cour Internationale de Justice: Un mystère en voie de dissipation?", *in* V. Lowe and M. Fitzmaurice (eds.), *Fifty years of the International Court of Justice: Essays in honour of Sir Robert Jennings* (Cambridge, Cambridge University Press, 1996), p. 121; F. Francioni, "Equity in international law", *in* R. Wolfrum (ed.), *Max Plank Encyclopedia of Public International Law*, vol. III (Oxford, Oxford University Press, 2012), p. 632 (online edition: https://opil.ouplaw.com/home/MPIL).

[1247] See C. Redgwell, "Principles and emerging norms in international law: intra- and inter-generational equity", *in* C. P. Carlarne, *et al.* (eds.), *The Oxford Handbook of International Climate Change Law* (Oxford, Oxford University Press, 2016), p. 185; D. Shelton, "Equity", in D. Bodansky, *et al.* (eds.), *The Oxford Handbook of International Environmental Law* (Oxford, Oxford University Press, 2007), p. 639.

processes—the dynamics, composition or structure of the Earth, including its biota, lithosphere, hydrosphere and atmosphere, or of outer space.

(3) These activities include what is commonly understood as "geo-engineering", the methods and technologies of which encompass carbon dioxide removal and solar radiation management. Activities related to the former involve the ocean, land and technical systems and seek to remove carbon dioxide from the atmosphere through natural sinks or through chemical engineering. Proposed techniques for carbon dioxide removal include soil carbon sequestration, carbon capture and sequestration ambient air capture, ocean fertilization, ocean alkalinity enhancement and enhanced weathering. Indeed, afforestation has traditionally been employed to reduce carbon dioxide.

(4) According to scientific experts, solar radiation management is designed to mitigate the negative impacts of climate change by intentionally lowering the surface temperatures of the Earth. Proposed activities here include: "albedo enhancement", a method that involves increasing the reflectiveness of clouds or the surface of the Earth, so that more of the heat of the sun is reflected back into space; stratospheric aerosols, a technique that involves the introduction of small, reflective particles into the upper atmosphere to reflect sunlight before it reaches the surface of the Earth; and space reflectors, which entail blocking a small proportion of sunlight before it reaches the Earth.

(5) As noted earlier, the term "activities" is broadly understood. There are certain other activities that are prohibited by international law, which are not covered by the present draft guideline, such as those covered by the Convention on the Prohibition of Military or Any Other Hostile Use of Environmental Modification Techniques[1248] and the Protocol additional to the Geneva Conventions of 12 August 1949, and relating to the protection of victims of international armed conflicts (Protocol I).[1249] Accordingly, the present draft guideline applies only to "non-military" activities. Military activities involving deliberate modifications of the atmosphere are outside the scope of the present guideline.

(6) Likewise, other activities will continue to be governed by various regimes. For example, afforestation has been incorporated into the Kyoto Protocol to the United Nations Framework Convention on Climate Change regime and into the Paris Agreement (article 5, paragraph 2). Under some international legal instruments, measures have been adopted for regulating carbon capture and storage. The 1996 Protocol to the Convention on the Prevention of Marine Pollution by Dumping of Wastes and Other Matter, 1972, now includes an amended provision and annex, as well as new guidelines for controlling the dumping of wastes and other matter. To the extent that "ocean iron fertilization" and "ocean alkalinity enhancement" relate to questions of ocean dumping, the 1972 Convention and the 1996 Protocol thereto are relevant.

(7) Activities aimed at intentional large-scale modification of the atmosphere have a significant potential for preventing, diverting, moderating or ameliorating the adverse effects of disasters and hazards, including drought, hurricanes and tornadoes, and for enhancing crop production and the availability of water. At the same time, it is also recognized that they may have long-range and unexpected effects on existing climatic patterns that are not confined by national boundaries. As noted by WMO with respect to weather modification: "The complexity of the atmospheric processes is such that a change in the weather induced artificially in one part of the world will necessarily have repercussions elsewhere … . Before undertaking an experiment on large-scale weather modification, the possible and desirable consequences must be carefully evaluated, and satisfactory international arrangements must be reached."[1250]

(8) It is also not the intention of the present draft guideline to stifle innovation and scientific advancement. Principles 7 and 9 of the Rio Declaration[1251] acknowledge the importance of new and innovative technologies and cooperation in these areas. At the same time, this does not mean that those activities always have positive effects.

(9) Accordingly, the draft guideline does not seek either to authorize or to prohibit such activities unless there is agreement among States to take such a course of action. It simply sets out the principle that such activities, if undertaken, should be conducted with prudence and caution. The reference to "prudence and caution" is inspired by the language of ITLOS in the cases of *Southern Blue Fin Tuna*,[1252] *MOX Plant*,[1253] and *Land Reclamation*.[1254] The Tribunal stated in the last case: "*Considering* that, given the possible implications of land reclamation on the marine environment, prudence and caution require that Malaysia and Singapore establish mechanisms for exchanging information and assessing the risks or effects of land reclamation works and devising ways to deal with

[1248] Convention on the Prohibition of Military or Any Other Hostile Use of Environmental Modification Techniques, art. 1.

[1249] Protocol additional to the Geneva Conventions of 12 August 1949, and relating to the protection of victims of international armed conflicts (Protocol I), art. 35, para. 3, and art. 55; see also Rome Statute of the International Criminal Court, art. 8, para. 2 (*b*) (iv).

[1250] See *Second Report on the Advancement of Atmospheric Sciences and Their Application in the Light of Developments in Outer Space* (Geneva, WMO, 1963), p. 19; see also decision 8/7 (Earthwatch: assessment of outer limits) of the UNEP Governing Council, Part A (Provisions for co-operation between States in weather modification) of 29 April 1980.

[1251] *Report of the United Nations Conference on Environment and Development* … (see footnote 1214 above),

p. 4.

[1252] *Southern Blue Fin Tuna (New Zealand v. Japan; Australia v. Japan)*, Provisional Measures, Order of 27 August 1999, *ITLOS Reports 1999*, p. 280, at p. 296, para. 77. The Tribunal stated: "*[c]onsidering* that, in the view of the Tribunal, the parties should in the circumstances act with prudence and caution to ensure that effective conservation measures are taken to prevent serious harm to the stock of southern bluefin tuna …".

[1253] *MOX Plant (Ireland v. United Kingdom)*, Provisional Measures, Order of 3 December 2001, *ITLOS Reports 2001*, p. 95, at p. 110, para. 84 ("*[c]onsidering* that, in the view of the Tribunal, prudence and caution require that Ireland and the United Kingdom cooperate in exchanging information concerning risks or effects of the operation of the MOX plant and in devising ways to deal with them, as appropriate").

[1254] *Land Reclamation in and around the Straits of Johor (Malaysia v. Singapore)*, Provisional Measures, Order of 8 October 2003, *ITLOS Reports 2003*, p. 10.

them in the areas concerned …".[1255] The draft guideline is cast in hortatory language, aimed at encouraging the development of rules to govern such activities, within the regimes competent in the various fields relevant to atmospheric pollution and atmospheric degradation.

(10) The last part of the guideline refers to "subject to any applicable rules of international law". It is understood that international law would continue to operate in the field of application of the draft guideline.

(11) It is widely acknowledged that such an activity should be conducted in a fully disclosed and transparent manner, and that an environmental impact assessment, provided for in draft guideline 4, may be required for such an activity. It is considered that a project involving intentional large-scale modification of the atmosphere may well carry an extensive risk of severe damage, and therefore that *a fortiori* an assessment is necessary for such an activity.

(12) A number of members remained unpersuaded that there was a need for a draft guideline on this matter, which essentially remains controversial, and the discussion on it was evolving, and is based on scant practice. Other members were of the view that the draft guideline could be enhanced on second reading.

[1255] *Ibid*., p. 26, para. 99.