

INTERNATIONAL COURT OF JUSTICE

**CASE CONCERNING
AERIAL HERBICIDE SPRAYING**

**ECUADOR
V.
COLOMBIA**

MEMORIAL OF ECUADOR

VOLUME I

28 APRIL 2009

VOLUME I

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CHAPTER I.

INTRODUCTION AND OVERVIEW OF THE CASE

1.1 On 31 March 2008 Ecuador instituted proceedings against Colombia to protect its rights under international law in respect of the aerial spraying by Colombia of toxic herbicides and other chemicals at locations near, at and across their shared border. As the Application makes clear, Ecuador is deeply concerned that the aerial spraying has caused serious damage to people, to crops, to animals, and to the natural environment on the Ecuadorian side of the frontier, and poses a grave risk of further damage over time. Ecuador is equally concerned that despite repeated and sustained efforts to negotiate an end to the aerial sprayings, such negotiations have proved unsuccessful. Accordingly, the objective of Ecuador's case is to establish responsibility for Colombia's past actions and to ensure that Colombia takes no actions at any time in the future that are inconsistent with its obligations under international law.

1.2 Ecuador's Application is based on Article 36, paragraph 1 of the Statute of the Court and Article XXXI of the American Treaty on Pacific Settlement of Disputes, signed in Bogotá on 30 April 1948 ("the Pact of Bogotá"). Ecuador ratified the Pact on 7 March 2008 and Colombia has been a party since 6 November 1968. The Court also has jurisdiction over the present case in accordance with Article 32 of the 1988 United Nations Convention against Illicit Traffic in Narcotic Drugs and Psychotropic Substances ("1988 Narcotics Convention").

1.3 By its Order of 30 May 2008, the Court fixed 29 April 2009 as the date for submission by Ecuador of its Memorial. This Memorial, together with the accompanying Annexes, is submitted in accordance with that Order.

1.4 The dispute between Ecuador and Colombia raises important issues across a number of distinct but related areas of international law. Ecuador is concerned

to ensure that Colombia acts in accordance with all of its obligations under international law, recognising that Colombia is a well-developed country that has the means to seek to eradicate coca plants in a manner that is internationally lawful. Ecuador does not seek to give priority to any of the causes of action on which it relies. Ecuador invites the Court to deal with all aspects raised by the case, having regard to their interrelated nature. Ecuador is bound to point out, however, that like every State, it is particularly concerned to ensure that its sovereignty and territorial integrity are fully respected by its neighbours. With its significant and harmful transboundary effects, Colombia's aerial spraying programme is self-evidently inconsistent with respect for Ecuador's sovereignty. Such respect is closely connected to the distinct obligations that Ecuador is taking steps to protect in this case: these are obligations of fundamental importance relating to the law concerning transboundary harm and environmental protection, the law of human rights and the law concerning protection of the rights of indigenous people¹. Ecuador's Application made clear the interrelated nature of the distinct obligations that Colombia has violated.

1.5 As set out in detail in the Chapters that follow, the case arises from aerial fumigations that Colombia has carried out since along the Ecuadorian border since 2000, with the intention of eradicating coca plants in an area of extraordinary biological diversity that is also home to a large number of indigenous people; these are factors that impose on Colombia a special duty to respect the highest standards of care and diligence. These fumigations have caused extensive, long-lasting and widespread harm to Ecuador, to its people and to its environment. They have been carried out in blatant violation of Colombia's

¹ Ecuador reserves its rights in relation to any argument that Colombia may make under the rules of international humanitarian law, which in Ecuador's view have no relevance to this case and which cannot, in any event, be relied upon to justify any of the acts in which Colombia has engaged and which are the subject of these proceedings.

international legal obligations, under general international law and under a wide range of international conventions to which Colombia and Ecuador are parties. These conventions comprise a range of distinct international legal obligations, including those relating to human rights, the environment and the rights of indigenous peoples. A singular feature of this case is precisely the fact that it emphasizes the interrelationship between various norms of international law, providing the Court with an opportunity to underscore their importance.

1.6 In this regard, Ecuador has at all times been acutely aware of the Court's jurisprudence, particularly in relation to principles pertaining to sovereignty, the protection of human rights and the protection of the environment. The Court has not previously had occasion to pronounce on obligations relating to the rights of indigenous peoples. In relation to respect for sovereignty, Ecuador has at all times, in responding to Colombia's actions, been guided by the Judgment given as long ago as 1949, in the *Corfu Channel* case, when the Court observed, "[b]etween independent States, respect for territorial sovereignty is an essential foundation of international relations"².

1.7 In relation to the environment, Ecuador has been guided by the Court's opinion of 1996, on the *Legality of the Use of Nuclear Weapons*, when it ruled that:

"The existence of the general obligation of States to ensure that activities within their jurisdiction and control respect the environment of other States or of areas beyond national control is

² *Corfu Channel (United Kingdom v. Albania), Judgment, I.C.J. Reports 1949*, p. 4, p. 35.

now part of the corpus of international law relating to the environment.”³

1.8 Ecuador has also been guided by the Court’s approach to the importance of the respect for fundamental human rights. Human rights obligations are largely considered as *erga omnes* obligations, *i.e.* “obligations of a State toward the international community as a whole”⁴. The Court has emphasised the importance of respect for fundamental human rights: most recently in the *Case Concerning Application of the International Convention on the Elimination of All Forms of Racial Discrimination*, for example, the Court ordered Provisional Measures seeking to ensure respect for rights to freedom from discrimination, freedom from violence and bodily harm, freedom of movement and other human rights⁵. Although the Court has not yet had occasion to address the protection of the rights of indigenous peoples, Ecuador recognizes that the principles and concerns that have inspired the Court on matters relating to human rights and the environment are equally applicable in relation to the rights of indigenous peoples.

1.9 In bringing this case, Ecuador emphasizes that it is strongly committed to international efforts aimed at the eradication of the scourge of narcotic substances. It retains an equally strong commitment, however, to the principle that all such efforts must be carried out in a manner that respects the international rule of law and the rights of neighbouring States. Whatever legitimacy Colombia’s actions may have in regard to their underlying objective, the fact is

³ *Legality of the Threat or Use of Nuclear Weapons, Advisory Opinion, I.C.J. Reports 1996*, p. 226, para. 29.

⁴ *Barcelona Traction, Light and Power Co., Lmtd. (Belgium v. Spain), Judgment, I.C.J. Reports 1970*, p. 3, paras. 33 – 34.

⁵ *Case Concerning Application of the International Convention on the Elimination of All Forms of Racial Discrimination (Georgia v. Russian Federation), Order of 16 Oct. 2008*, p. 39, para. 142.

that they have been carried out in blatant disregard of the rights of others, including the rights of Ecuador and its population.

1.10 Colombia's actions have had a particularly devastating impact on Ecuador's rich, protected environment, on plants, animals and wildlife, as well as on the communities that are dependent on the long term well-being of that environment. The populations in the areas of concern have been greatly harmed, both in terms of immediate damage to their health, crops and livelihood and the longer term consequences to their health and environment. The fragile equilibrium prevailing between these communities and their environment, which is a constitutive part of their specific culture, has been severely endangered and, in some cases, destroyed; this has forced indigenous and other local residents to abandon their areas of settlement. In all affected provinces of Ecuador, long term detrimental effects of the sprayings have been reported on crops as well as on domestic and wild animals. These effects have had severe consequences for all the populations affected, but in particular for indigenous peoples, whose livelihoods are intimately connected to their surrounding environments. Colombia's actions have therefore affected not only basic needs, but also the very fabric of the social and cultural life of populations living on Ecuador's side of the border.

1.11 This case therefore raises issues of great importance for Ecuador. Ecuador is aware of the approach that is taken by the Court: as it stated recently in the case concerning *Armed Activities on the Territory of the Congo*, the Court

“will first make its own determination of the facts and then apply the relevant rules of international law to the facts which it has found to have existed”⁶.

1.12 The findings of fact necessarily entail an assessment of the evidence, whereupon the Court has “not only the task of deciding which of those materials must be considered relevant, but also the duty to determine which of them have probative value with regard to the alleged facts”⁷. As with the substantive law, in preparing this case Ecuador has been guided by the Court’s approach to issues of evidence⁸.

1.13 Having regard to the approach taken by the Court, Ecuador relies on evidence drawn from a range of sources. It relies extensively on contemporaneous evidence from persons with direct knowledge on both sides of the border. It also relies on independent sources associated with United Nations inquiries, including the valuable reports prepared by no less than four United Nations Special Rapporteurs that consistently and persuasively raise concerns about Colombia’s programme of aerial spraying. It also relies on sources drawn from within Colombia, including “evidence acknowledging facts or conduct unfavourable” to Colombia⁹. Likewise, it relies on independent sources of scientific evidence that are both contemporaneous and prepared in the context of these proceedings. The Colombian Government itself — notably the Ministry of Environment, the Office of the Comptroller General, and the National Ombudsman (*Defensoría del Pueblo*) — have confirmed the widespread harm

⁶ *Armed Activities on the Territory of the Congo (Democratic Republic of the Congo v. Uganda)*, Judgment, I.C.J. Reports 2005, p. 201, para. 57.

⁷ *Ibid.*, p. 201, para. 58.

⁸ *Ibid.*, p. 201, para. 61.

⁹ *Ibid.*

caused by the aerial fumigation programme and has recommended urgent changes which have not been acted upon. Reports from the affected populations throughout the frontier region¹⁰ and from neutral and reliable third parties, including individuals and organizations of high international repute, support Ecuador's arguments. It is notable that the descriptions of the harm done to human, animal, and plant health are strikingly consistent, and that the accounts of harm in Ecuador are entirely congruous with accounts of similar harms endured by Colombian populations, who have also been victims of Colombia's aerial spraying programme.

Section I. The Structure of the Memorial

1.14 This Memorial is presented in ten Chapters. Following this Introduction, **Chapter II** presents the *Factual Background* necessary to understanding the dispute, and in particular the context in which Colombia's fumigations have taken place. A first section addresses Ecuador's affected border region, describing the geographical setting, the natural environment and the people who inhabit the region. Of particular importance for this case are the indigenous peoples, namely the Awá, Cofán and Kichwa peoples, and the Afro-Ecuadorian communities in Esmeraldas, all of whose rights have been gravely violated. A second section addresses Colombia's aerial sprayings. This fumigation programme was implemented on a large scale in 1999 in order to eradicate illicit coca and poppy plantations by chemical means, through the aerial spraying of herbicides across large swaths of Colombian territory, including right up to, along, and in some

¹⁰ In the *Bosnian Genocide Case* the Court heard oral testimony from witnesses directly involved and made reference to facts evidenced by decisions of the ICTY, by contemporaneous resolutions of the United Nations Security Council and General Assembly, and by the reports of the United Nations Secretary-General, a Commission of Experts, and United Nations Special Rapporteurs, *I.C.J. Reports 2007*, paras. 211-230.

cases, over the border with Ecuador. The stated goal of Colombia's illicit crop eradication strategy was to reduce the amount of coca cultivated in the country by 50% in six years, and in this and other respects it has failed to meet its objectives. Remarkably, despite the emphasis given to the aerial spraying programme and exponential increases in fumigations between 1999 and 2007, the number of hectares under coca cultivation actually *increased during this period*¹¹. This section also describes in detail the chemical content of the spray mixture used by Colombia, to the extent possible in light of Colombia's persistent refusal to provide full information to Ecuador or its own population. The Chapter also provides an account of the national and international criticism that has been levelled at Colombia's aerial fumigations.

1.15 **Chapter III** examines the *History of the Dispute*, from the first sprayings in the vicinity of the Colombia-Ecuador border in 2000, right up to the filing of the Application to the Court by Ecuador on 31 March 2008. The Chapter describes Ecuador's numerous diplomatic protests over a seven year period, starting with the first diplomatic note that was communicated to Colombia on 24 July 2000, as well as the many bilateral meetings that took place at the highest political levels in an unsuccessful effort to resolve the dispute. The Chapter proceeds to describe Colombia's persistent refusal to halt the aerial sprayings in the face of clear evidence of their transboundary consequences, or to provide Ecuador with the full details of the chemicals being used in the fumigations. It charts the unsuccessful history of efforts to establish joint scientific commissions. The Chapter also describes Colombia's unilateral efforts to engage with the Inter-American Drug Abuse Control Commission of the Organization of American States, and the report that body produced, as well as the efforts undertaken by

¹¹ See *infra* Chap. II, paras. 2.52 *et seq.*

various organs of the United Nations, including the reports prepared by Mr. Paul Hunt, Special Rapporteur on the Right of Everyone to the Enjoyment of the Highest Attainable Standard of Physical and Mental Health (“UN Special Rapporteur on the Right to Health”), Mr Rodolfo Stavenhagen, Special Rapporteur on the Situation of Human Rights and Fundamental Freedoms of Indigenous People (“UN Special Rapporteur on the Rights of Indigenous People”), and Mr. Okechuwku Ibeanu, Special Rapporteur on the Adverse Effects of the Movement and Dumping of Toxic and Dangerous Products and Wastes on the Enjoyment of Human Rights. Despite the clear findings of these reports and the efforts by Ecuador over a period of seven years, Colombia persisted in continuing its aerial sprayings. On 27 July 2007 Ecuador sent a diplomatic note to Colombia declaring that the diplomatic process had been exhausted, and reserved its right to take such other steps as it deemed necessary to protect its rights under international law.

1.16 **Chapter IV** addresses the *Jurisdiction of the Court*, which is based upon Article 36(1) of the Court’s Statute, the Pact of Bogotá and the 1988 Narcotics Convention. Ecuador’s case falls squarely within Article XXXI of the Pact of Bogotá, which provides for the jurisdiction of the Court: the case concerns a longstanding “dispute” of a “juridical nature” as to the effects of Colombia’s aerial spraying programme, the resolution of which requires the Court to interpret and apply numerous treaties – on a range of questions of international law – to facts which, once established by the Court, will give rise to breaches of numerous international obligations owed by Colombia to Ecuador. There are no other provisions of the Pact of Bogotá to preclude the exercise of jurisdiction. The Court also has jurisdiction under the 1988 Narcotics Convention, the scope of which is very broad and covers all aspects of the dispute, including obligations in

relation to the respect for sovereignty and territorial integrity, protection of the environment and respect for fundamental human rights.

1.17 **Chapter V** sets out the scientific and technical materials, in examining the *Dangers Presented by Colombia's Aerial Spraying*. In this Chapter, Ecuador demonstrates the inherent danger posed by the chemical spray used by Colombia. A principle component is glyphosate, a powerful herbicide specifically designed to kill all plants upon contact (even in very small quantities). The Chapter shows how the combination of glyphosate with other chemical agents—some of which Colombia refuses to disclose—makes the spray even more lethal, not only to plants but to humans, animals and the environment. This Chapter also addresses Colombia's national experience, which establishes the toxicity of the chemical mixture used in connection with the aerial fumigations, causing significant damage to people, to plants and to animals located in Colombia itself.

1.18 **Chapter VI** describes the devastating *Impact of Colombia's Fumigations in Ecuador*. The Chapter proceeds in four substantive sections. Following the introduction, Section II describes the harms Colombia's fumigations have caused to Ecuadorian people living throughout the frontier region. From the moment fumigations along the border began in late 2000, people across the northern zone began experiencing a number of adverse health effects, including, among others, fever, eye and skin irritation, nausea, vomiting and diarrhea. Section III addresses the damage the sprayings have inflicted on crops and wild plant species in Ecuador. Innumerable hectares of the subsistence crops upon which the impoverished border population depends have withered and died as a result of exposure to Colombia's herbicidal mix, as has an as-yet unmeasured amount of the area's abundant natural flora. Section IV describes the injuries endured by wild and domestic animal species in Ecuador. Lastly, Section V addresses the

special harm that Colombia's programme of aerial spraying has caused to Ecuador's indigenous peoples living in the northern zone, including the Awá, the Kichwa and the Cofán peoples. By disturbing the natural balance in the area, Colombia's fumigations have torn the very fabric of the unique cultural world the indigenous communities inhabit.

1.19 There then follow three chapters that describe in detail Colombia's serious and wide-ranging violations of international law. **Chapter VII** addresses the violation of Ecuador's sovereignty and territorial integrity, describing the manner in which Colombia's actions and their deleterious transboundary consequences have breached Ecuador's most basic rights under international law. In this Chapter, Ecuador explains how, by allowing the deposit and dispersal of harmful chemicals over Ecuador's territory, Colombia has failed to respect Ecuador's sovereignty and violated its international legal obligations arising both under general international law and Article 2 of the 1988 Narcotics Convention.

1.20 **Chapter VIII** addresses Colombia's violation of the obligation to prevent transboundary harm and to protect the environment. It is divided into three parts. The first part addresses Colombia's failure to respect its duty to prevent significant harm to persons, property, natural resources and the environment in Ecuador, and its patent failure to take adequate – or any – precautionary measures notwithstanding the real risk of harm that is inherent in the chemicals it has chosen to spray at, on and across its border with Ecuador. The second part addresses Colombia's failures to cooperate in managing the transboundary effects of the aerial sprayings of herbicides. Colombia's failures are distinct, numerous and cumulative under international law: it has failed to comply with its general obligation to cooperate; it has failed to assess the potential transboundary effects of aerial sprayings; it has failed to provide information to, or consult with,

communities in Ecuador likely to be affected by the aerial sprayings; it has failed to cooperate in the control of transboundary risks arising from aerial sprayings; and it has failed to cooperate with Ecuador in accordance with the requirements of Article 14 of the 1988 Narcotics Convention.

1.21 **Chapter IX** addresses Colombia's violations of the rules of international law in relation to the protection of fundamental human rights, the protection of indigenous peoples and the right to a healthy environment. It is divided into two parts. The first part stresses the critical importance of the human rights of indigenous peoples in the present case and addresses the manner in which Colombia's actions have violated the obligation to protect the rights of indigenous peoples as provided by special treaty provisions. The second part addresses the violation of fundamental human rights held by the members of the concerned Ecuadorian population, whether they belong to an indigenous people or not. It describes Colombia's violations of the right to *life*, the right to *health*, the right to *food*, the right to *water*, the right to *property*, the right to a *healthy environment*, the right to *humane treatment*, the right to *private life*, and the right to *information*.

1.22 Finally, **Chapter X** deals with issues of *International Responsibility*. This Chapter sets out the principles governing Colombia's responsibility and liability for the multiple, continuing violations of international law resulting from its aerial spraying programme along the border since 2000. Specifically, these violations have caused grave, continuing and long-lasting harms to Ecuador, its sovereignty, its property and people, including indigenous peoples, and its environment. In accordance with established principles of international law, Ecuador seeks declaratory relief in relation to past and continuing illegalities occasioned by Colombia's actions, as well as relief to prevent Colombia from

engaging in similar actions in the future, in the form of orders to cease and desist from taking any actions that would violate its obligations to respect the sovereignty and territorial integrity of Ecuador and to protect human rights, the environment and the rights of indigenous peoples. In accordance with established practise before the Court in relation to damages, at this stage of the proceedings Ecuador seeks only a judgment from the Court that will identify the applicable heads under which injury has been suffered and for which reparation arises. Ecuador invites the Court to leave the assessment of monetary damages which are due to Ecuador to a subsequent phase of the proceedings.

1.23 The Memorial also includes Annexes which set out (i) relevant international instruments and other documents, (ii) the diplomatic correspondence between the parties, (iii) legislative and administrative acts under national law, (iv) the relevant scientific and technical materials, and (v) witness statements, verification mission reports, media reports and other contemporaneous documents.

1.24 The Memorial concludes by setting out the relief sought by Ecuador in its Application. This relief requested falls under three heads: first, a declaration that Colombia has violated its obligations under international law by causing or allowing the deposit on the territory of Ecuador of toxic herbicides damaging to human health, property and the environment; second, an order that Colombia must indemnify Ecuador for all losses or damage caused by its internationally unlawful acts; and third, a declaration that Colombia shall in the future respect Ecuador's sovereignty and territorial integrity and not repeat any of the acts that have violated its international obligations.

CHAPTER II.
FACTUAL BACKGROUND

2.1 This Chapter introduces the factual background necessary to understand the setting in which the fumigations and the ongoing dispute with Colombia have occurred.

2.2 Ecuador is a small country of approximately 14 million people located on the northwest Pacific coast of South America. It is bordered to the north by Colombia, with which it shares a land border of 717 kilometres, and to the south and east by Perú.

2.3 Ecuador's population is ethnically mixed; it is comprised of indigenous peoples, caucasians, mestizos of mixed indigenous-caucasian descent, and Afro-Ecuadorians. According to the United Nations, the country is home to 14 officially recognised indigenous nationalities that together make up as much as 30 percent of the total population¹². These indigenous communities play a vital role in the life of Ecuador, and some of their populations have been disproportionately affected in a negative way by Colombia's aerial spraying.

2.4 Ecuador's natural environment is also diverse. Indeed, it has the world's highest concentration of biological diversity¹³. This natural wealth is particularly great in the northern regions bordering Colombia, the area in which Colombia's aerial sprayings have occurred, much of which consists of dense tropical ecosystems untouched by humankind.

¹² *Report of the Special Rapporteur on the Situation of Human Rights and Fundamental Freedoms of Indigenous People, Rodolfo Stavenhagen, Mission to Ecuador (25 April-4 May 2006)*, (hereinafter "Report of the Special Rapporteur on the Rights of Indigenous People") U.N. Doc. A/HRC/4/32/Add.2 (28 Dec. 2006), p. 2. EM, Vol. II, Annex 30.

¹³ Ecuadorian Scientific Commission, *The Plan Colombia Aerial Spraying System and its Impacts on the Ecosystem and Health on the Ecuadorian Border* (hereinafter "Ecuadorian Scientific Commission Report") (Apr. 2007), p. 23. EM, Vol. III, Annex 157.

2.5 The settlements along the border are inhabited almost entirely by poor subsistence farmers and indigenous communities, including the Kichwa, Awá and Cofán peoples, many of whom continue to reside on their ancestral lands located in the area that is sprayed by Colombia.

2.6 Since 2000, life along the northern border with Colombia has changed dramatically as a consequence of Colombia's actions. That year, the Government of Colombia intensified its controversial aerial spraying of chemical herbicides as its principal means of attempting to reduce the illegal cultivation of coca plants, the raw material used to produce cocaine. The increased aerial fumigations by Colombia have been concentrated in Colombia's southernmost provinces, Putumayo and Nariño, which together make up the Respondent State's border with Ecuador. In Nariño Province alone, the area aerially sprayed with herbicides increased over 600 percent from 6,442 hectares in 2000, to 36,275 hectares in 2007¹⁴.

2.7 The specific ingredients and concentration levels of the chemical spray mixture have never been revealed by Colombia. Colombia has persistently refused to disclose the formulation of the individual ingredients of the spray mixture. What is known is that the herbicidal compound contains a glyphosate-based product the capacity of which to kill plants is fortified by other chemicals known as surfactants or adjuvants. The spray has been designed to meet one goal -- killing coca plants. It is, however, equally lethal to all plants. It cannot and does not discriminate between illicit and licit plants; nor does it distinguish

¹⁴ United Nations Office on Drugs and Crime (UNODC), *Coca Cultivation in the Andean Region, A Survey of Bolivia, Colombia and Peru* (hereinafter "UNODC Report on the Andean Region 2008") (June 2008), p. 105. EM, Vol. II, Annex 25.

between the two sides of an international frontier. Wherever it falls, the spray kills -- that is its purpose.

2.8 In addition to their effects on plants, the chemicals in Colombia's spray mixture are widely recognised to cause damage to human and animal life. Indeed, the product labels of commercially available forms of glyphosate-based herbicides specifically warn of the dangers posed to human and animal health, including the risk of skin and eye irritation, respiratory distress and gastrointestinal illness. All these dangers have repeatedly been recognised by observers both within and outside Colombia, including by organs of the Colombian government itself. Nonetheless, Colombia persists with its policy of conducting aerial fumigations with this toxic mixture.

* * *

2.9 **Section I** of this Chapter describes Ecuador's northern border region, including the geography, the natural environment and the people who inhabit the area most affected by Colombia's aerial fumigations. **Section II** describes Colombia's aerial sprayings, including the Respondent State's increased reliance on them, the nature of the chemicals sprayed, internal and international criticisms levelled against their use, and their ineffectiveness in reducing coca crops in Colombia.

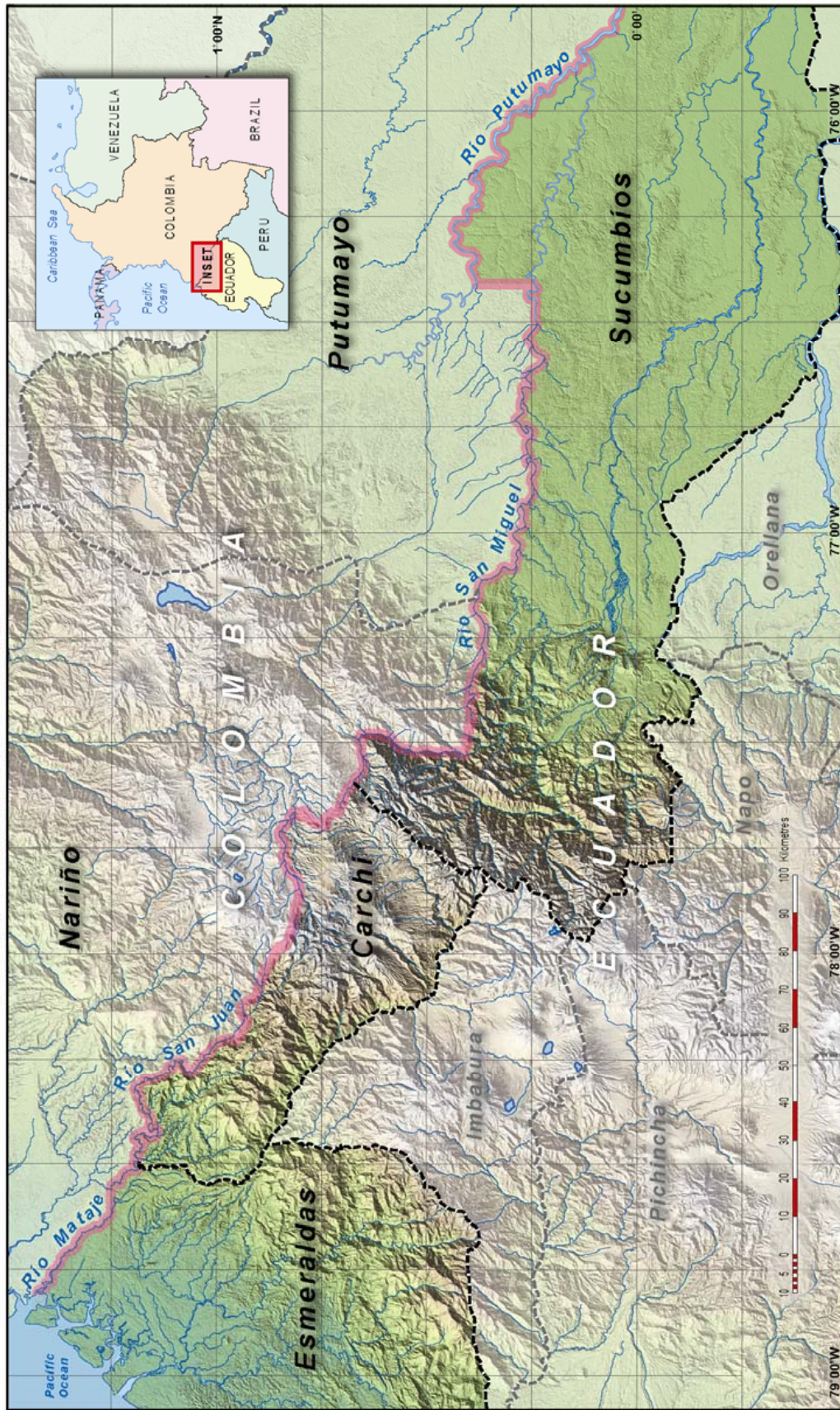
Section I. Ecuador's Border Region

A. THE GEOGRAPHICAL SETTING

2.10 Ecuador and Colombia share a 717 kilometre land boundary running from the northwest Pacific coast of South America deep into the tropical rain forests of Amazonia where the borders of Ecuador, Colombia and Perú meet. The border

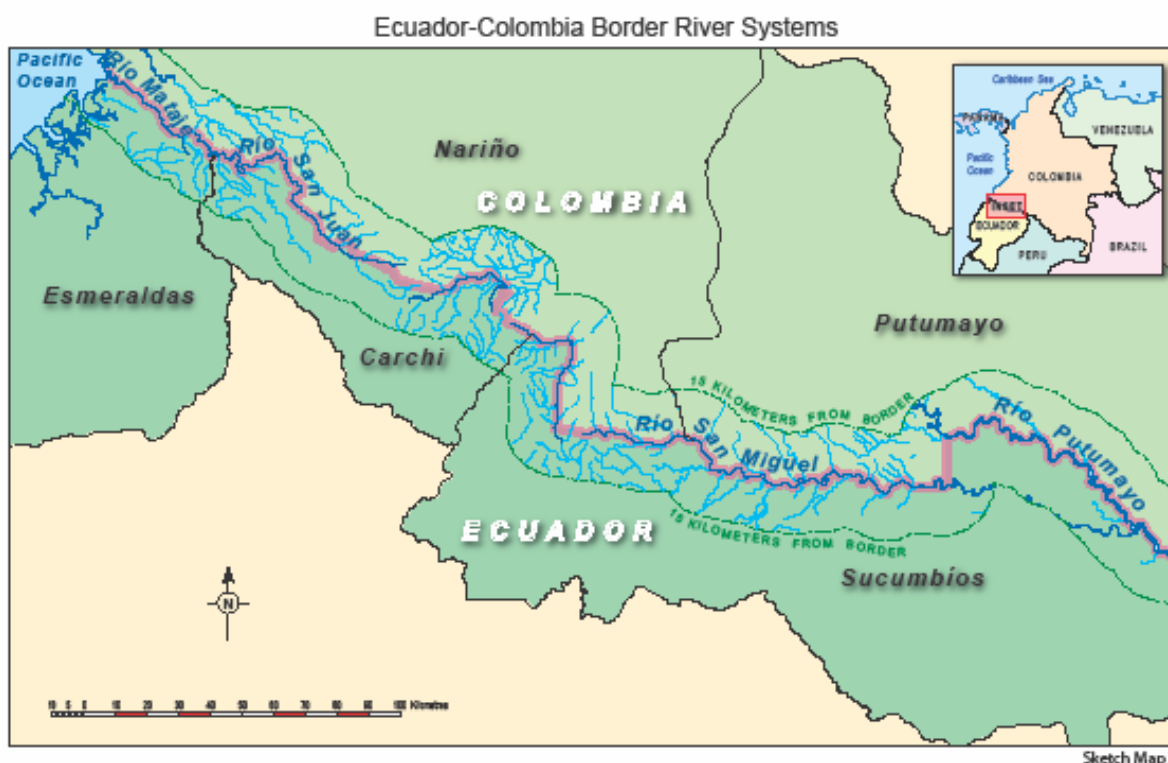
region is comprised of three distinct geographic zones. The western coastal area is characterised by dense mangroves abutting the sea and the Chocó rainforests immediately inland. The central region is dominated by the Andes Mountains, covered in its foothills by subtropical rainforests. To the east lie the tropical jungles of Amazonia. On the Ecuadorian side, from west to east, lie the three northern border provinces of Esmeraldas, Carchi and Sucumbíos. These are the areas of Ecuador that have been affected most adversely by Colombia's fumigations. On the Colombian side, also from west to east, are the two border provinces of Nariño and Putumayo. A map depicting the areas immediately adjacent to the Ecuador-Colombia border is set forth on the following page.

Border Provinces in Ecuador and Colombia



Sketch Map 1

2.11 The Ecuador-Colombia land boundary is characterised by the significant influence of water. For virtually all of its length, the frontier that divides Ecuador and Colombia follows a series of rivers, including the Mataje, the San Juan, the San Miguel and the Putumayo Rivers. These are shown in Sketch Map 2 below. The border follows the erratic and sinuous path that the rivers themselves trace. Along the rivers' courses, dozens of tributaries from both the Colombian and Ecuadorian sides flow into them. None of the border rivers are very wide; the distance between the Ecuadorian and Colombian banks can be as little as fourteen metres. Thus, when Colombia's planes spray up to the border with Ecuador, they are just metres from the Ecuadorian jungle and border communities on the other side. They also deposit poisonous chemicals into the rivers, which then transport them great distances. The chemicals thus cause serious harm to drinking water supplies and freshwater sources used by people, animals and wildlife.



B. THE NATURAL ENVIRONMENT

2.12 Ecuador boasts a tremendous diversity of ecosystems, including coastal rainforests, Andean peaks and Amazonian rain forests. It is one of only 17 countries in the world designated as “megadiverse” by the World Conservation Monitoring Centre of the United Nations Environment Programme¹⁵. Although it occupies just 0.17% of the Earth’s land area, Ecuador possesses a disproportionately large share of the world’s biodiversity¹⁶. It has the world’s highest concentration of biological diversity; *i.e.*, on average, there are more species per square kilometre in Ecuador than anywhere else in the world¹⁷.

2.13 According to the World Resources Institute, Ecuador has no fewer than 302 mammal species, 19,362 plant species, 640 breeding bird species, 415 reptile species, 434 amphibian species and 246 fish species¹⁸. Many of these species are endemic. Among the over 400 known species of amphibians in Ecuador, for

¹⁵ United Nations Environmental Programme, *Glossary of Terms for Negotiators of Multilateral Environmental Agreements* (2007), p. 60, available at http://www.unep.org/DEC/PDF/Glossary_terms%20for_Negotiators_MEAs.pdf (last visited on 12 Apr. 2009).

¹⁶ Ecuadorian Scientific Commission Report, *op. cit.*, p. 23. EM, Vol. III, Annex 157.

¹⁷ *Ibid.*

¹⁸ World Resources Institute, “Biodiversity and Protected Areas – Ecuador”, available at <http://earthtrends.wri.org/text/biodiversity-protected/country-profiles.html> (last visited on 31 Mar. 2009). EM, Vol. IV, Annex 243. Some of these figures may actually be *understatements*. According to one authoritative source, for example, there are over 1600 bird species in Ecuador. R. Ridgely and P. Greenfield, *The Birds of Ecuador* (2001).

For comparison, the United Kingdom, which is roughly equivalent in size to Ecuador, has 50 mammal species, 1623 plant species, 229 breeding bird species, 15 reptile species, 12 amphibian species, and 427 fish species. World Resource Institute, “Biodiversity and Protected Areas – United Kingdom”, available at <http://earthtrends.wri.org/text/biodiversity-protected/country-profiles.html> (last visited on 31 Mar. 2009). EM, Vol. IV, Annex 244.

instance, some 40% are found nowhere else in the world¹⁹. Much of this wildlife lives in the area that is being sprayed by Colombia.

2.14 Many of these species are also endangered. For example, approximately 40% of Ecuador's amphibian species and 200 of its plant species are currently endangered²⁰. Well over half of the threatened amphibians in the world reside in the corridor that includes Ecuador's border with Colombia²¹. Ecuador's unique wealth of amphibian species is particularly important, given amphibians' and other aquatic species' heightened vulnerability to the known ingredients in the chemical spray Colombia uses, as will be addressed in Chapter V.

2.15 The environmental wealth of Ecuador's northern border region, the area in which Colombia's toxic spraying has occurred, is particularly rich. Overall, some 40% of the land in the border provinces of Esmeraldas, Carchi and Sucumbíos is covered by native forest²². Two of the world's biodiversity hotspots identified by Conservation International encompass large portions of Ecuadorian territory²³.

¹⁹ The International Union for Conservation of Nature, Red List of Threatened Species, "Amphibian Assessment, Geographic Patterns", *available at* http://www.iucnredlist.org/amphibians/geographic_patterns (last visited on 31 Mar. 2009).

²⁰ *Ibid.*; World Resource Institute, "Biodiversity and Protected Areas – Ecuador", *op. cit.* EM, Vol. IV, Annex 243.

²¹ The International Union for Conservation of Nature, Red List of Threatened Species, "Amphibian Assessment, Geographic Patterns", *op. cit.*

²² See Colombian and Ecuadorian Ministries of Foreign Affairs, *Integration Zone for the Colombian-Ecuadorian Border: Binational Characterization Study* (hereinafter, Binational Characterization Study) (Sep. 2003), p. 24. EM, Vol. IV, Annex 238.

²³ Conservation International, "Biodiversity Hotspots, Tropical Andes", *available at* <http://www.biodiversityhotspots.org/xp/hotspots/andes/Pages/default.aspx> (last visited 31 Mar. 2009); Conservation International, "Biodiversity Hotspots, Tumbes-Chocó-Magdalena", *available at* http://www.biodiversityhotspots.org/xp/hotspots/tumbes_choco/Pages/default.aspx (last visited 31 Mar. 2009). According to Conservation International, "[t]o qualify as a hotspot, a region must meet two strict criteria: it must contain at least 1,500 species of vascular plants (> 0.5 percent of the world's total) as endemics, and it has to have lost at least 70 percent of its original habitat."

Taken together, the two hotspots -- Tumbes-Chocó-Magdalena and Tropical Andes -- occupy well over half of Ecuador's total land area. Both areas are home to an abundance of animal and plant life that has yet to be fully documented by science, and both overlap considerable portions of the Ecuador-Colombia border²⁴. Both areas have been affected by Colombia's chemical sprayings.

2.16 Ecuador has made substantial investments to preserve its vast natural wealth. Approximately one quarter of its territory is made up of national parks and protected areas²⁵. The three border provinces impacted by Colombia's aerial spraying contain a significant number of protected ecological reserves²⁶. A map showing the location of these protected areas is depicted below at Sketch Map 3.

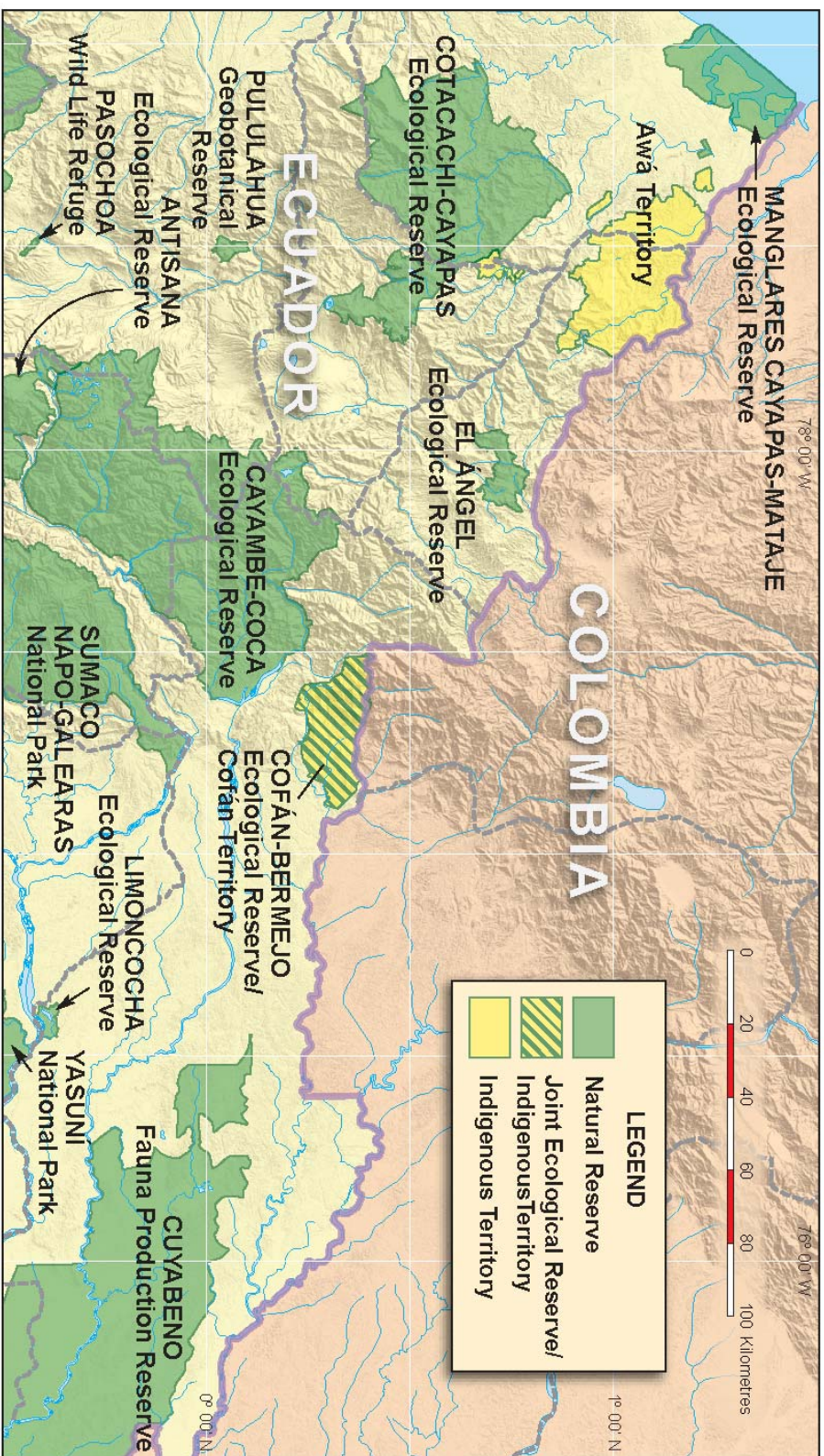
Conservation International, "Biodiversity Hotspots, Hotspots Defined", *available at* http://www.biodiversityhotspots.org/xp/Hotspots/hotspotsScience/pages/hotspots_defined.aspx (last visited on 31 Mar. 2009).

²⁴ Conservation International, "Biodiversity Hotspots, Tropical Andes", *op. cit.*; Conservation International, "Biodiversity Hotspots, Tumbes-Chocó-Magdalena", *op. cit.*

²⁵ World Resource Institute, "Biodiversity and Protected Areas – Ecuador", *op.cit.* EM, Vol. IV, Annex 243.

²⁶ Binational Characterization Study, *op. cit.*, pp. 32, 34, 36, 37. EM, Vol. IV, Annex 238.

Location of Protected Areas in Northern Ecuador



C. THE PEOPLE

2.17 Ecuador's population of some 14 million comprises a large and diverse mixture of peoples and cultures. The people living along the Ecuador-Colombia border represent a particularly diverse and vulnerable spectrum of Ecuador's population, and include Afro-Ecuadorian communities near the coast, subsistence farmers of mixed descent and a significant number of indigenous communities.

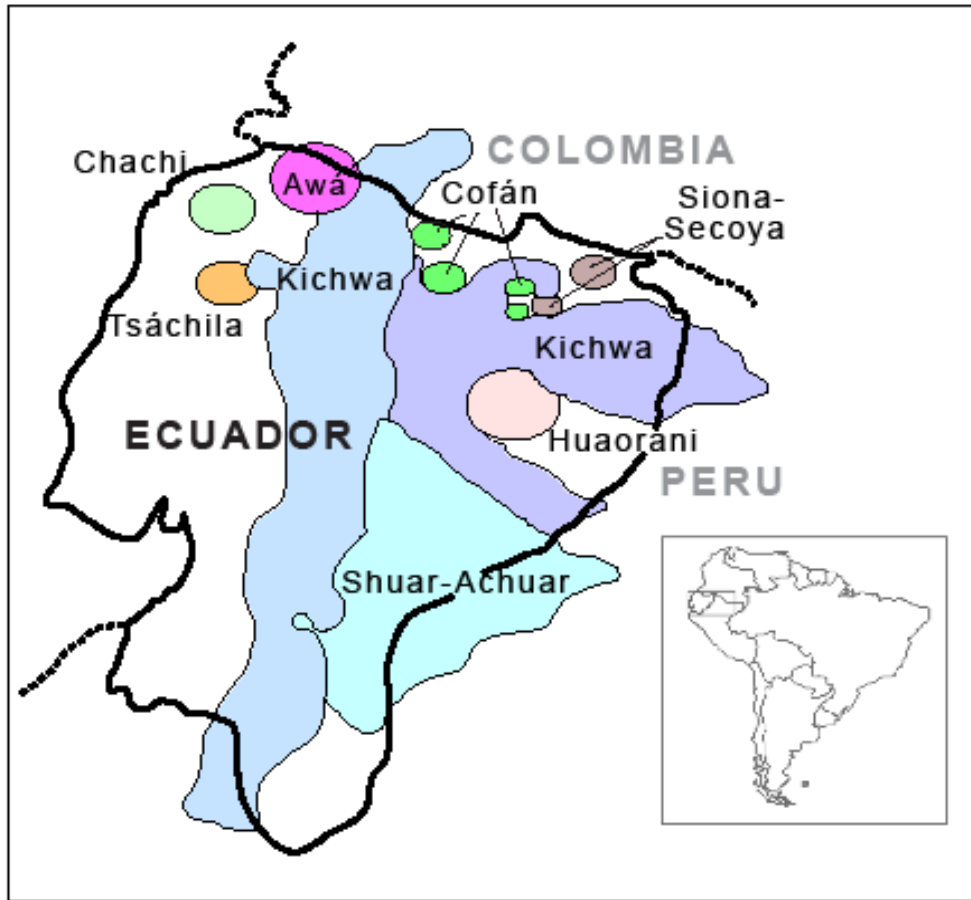
2.18 Ecuador is among the five Latin American countries with the largest indigenous populations, some of whom have lived for generations along the Ecuador-Colombia border²⁷. According to a 2006 report of the UN Special Rapporteur on the Rights of Indigenous People, Mr. Rodolfo Stavenhagen, Ecuador has 14 officially recognised indigenous nationalities constituting up to 30 percent of its total population²⁸. Sketch Map 4 on the following page draws from a 1989 illustration by the Confederation of Indigenous Nationalities of Ecuador ("CONAIE" per the Spanish initials)²⁹; it depicts the geographic distribution of indigenous groups throughout the country, including those found in the northern border zone.

²⁷ World Bank, *Indigenous People Still Lag Behind Despite Increased Political Power*, No. 2005/469/LAC (2005), available at <http://go.worldbank.org/8EWGSMLWZ0> (last visited 1 Apr. 2009).

²⁸ Report of the Special Rapporteur on the Rights of Indigenous People, *op. cit.*, p. 2. EM, Vol. II, Annex 30.

²⁹ Available at, <http://abyayala.nativeweb.org/ecuador/pueblos.php> (last visited 6 Apr. 2009).

Location of Indigenous Populations in Ecuador



Sketch Map 4

2.19 As the sketch map shows above, a number of the indigenous groups, including the Awá, the Kichwa, and the Cofán, occupy areas immediately abutting the Ecuador-Colombia border. Indeed, the Awá and Kichwa communities overlap the border, reflecting the reality that indigenous communities are not defined by international boundaries. Some indigenous peoples live in specially-protected indigenous territories that abut the international frontier, including the Awá Territory which straddles the Esmeraldas-Carchi border and the Cofán Territory in Sucumbíos, both of which are depicted on Sketch Map 3.

2.20 These indigenous groups have inhabited the border region for many generations, and they are deeply connected to their lands and the rivers that unite them. Indeed, these communities' relationships with the landscape, including the border rivers and their innumerable tributaries, predate the establishment of modern States. Despite their specific cultural differences, the indigenous peoples along the border share an abiding respect for and reliance on the natural environment in which they live, in this case the tropical jungles of northern Ecuador and the waters of the Mataje, San Juan, Putumayo and San Miguel Rivers, among others.

2.21 Indigenous communities not only rely on the local plants, animals and water for their physical survival, they also rely on them for their cultural well-being and survival as communities. Plants are used as medicine to heal the sick and as sacred elements used by spiritual leaders to carry out their work and protect their communities. Rivers are considered sacred, as it is understood that the water they give makes it possible for the communities to survive and prosper in complex conditions. A leader of CONAIE, herself Kichwa, has described this special relationship between land and people:

“for the indigenous people, the bond with Mother Earth prevails in their lives. The land, the river, the natural forest are their sacred places where they can be in contact with the plants. Their relationship with the land, animals and the environment of their territory is part of their being. Having to abandon their land is like killing a part of the indigenous person, he loses his centre”³⁰.

Colombia's sprayings have had disastrous consequences. As described in Chapter VI, some indigenous people have been forced to leave their ancestral

³⁰ Declaration of María Blanca Chancosa Sánchez (14. Jan. 2009), para. 6. EM, Vol. IV, Annex 187.

homes due to the effects of Colombia's aerial sprayings on plants, animals and water resources.

2.22 In recent decades, the indigenous communities along Ecuador's northern border with Colombia have been joined by small, scattered settlements of poor farming families. These farmers have come from the interior of Ecuador, as well as Colombia, in search of new lands to cultivate. While some communities have been established with the support of the Ecuadorian government, others have been developed by the people themselves, often in very difficult circumstances. The region remains undeveloped and lacks infrastructure. The scattered villages are comprised largely of one and two-story hand-built houses with no windows and dirt floors. Poverty is common among indigenous and non-indigenous residents alike. According to Ecuadorian government statistics, the majority of the residents in Esmeraldas, Carchi and Sucumbíos live on less than US\$2 a day³¹, and about one-third of the residents in the three affected provinces survive on less than US\$1 a day³². According to a 2006 United Nations report, "[i]n the provinces of Esmeraldas and Sucumbíos, there are cantons and precincts with poverty levels above 90%, particularly in the rural area."³³

2.23 The poverty is especially severe in the rural communities abutting the border with Colombia, since they are even further removed from the basic resources available to the inland population centres. The dominant economic activities are subsistence agriculture and artisanal fishing. The residents are

³¹ National Government of the Republic of Ecuador, "Plan Ecuador," Section 3, Table 2 (citing INEC, ENEMDU 2005; Census of Population and Housing 2001, ODNA), *available at* http://www.mmrree.gov.ec/mre/documentos/pol_internacional/plan_ecuador/plan_3.htm. EM, Vol. IV, Annex 235.

³² *Ibid.*

³³ United Nations, *Report on the Preliminary Technical Mission of the United Nations* (April 2006), p. 14. EM, Vol. II, Annex 28.

dependant on the crops and animals they raise themselves. Typical subsistence crops include yucca, maize, plantains, coffee and other basic foodstuffs. For most people along the international frontier, the only source of cash is selling whatever may remain after the family has been fed. Often, that is nothing. A 2001 Ecuadorian government study found that nearly one-third of all the residents in rural areas of Esmeraldas, Carchi and Sucumbíos, including children, suffered from chronic malnutrition³⁴.

2.24 As noted, basic infrastructure in the affected area is minimal. Electricity is rare. Roads are usually no more than hardened dirt paths and, where it exists at all, public transportation (via an occasional bus) is scarce and infrequent. Communication with the outside world, and even other villages in the region, is generally limited to periodic radio contact.

2.25 This lack of infrastructure is particularly serious in relation to water. Access to running water is scarce³⁵. Residents of the border area depend heavily on clean water from the rivers -- the Mataje, the San Juan, the San Miguel and the Putumayo -- that together comprise most of the border. The rivers are used for an array of purposes ranging from drinking and cooking, to fishing, bathing, washing clothes and recreation. The rivers also afford a means of transportation in a region characterised by dense jungles and few roads. As such, the rivers constitute an essential element of daily life. Thus, when Colombia's spray planes drop their herbicidal mixture over and adjacent to the rivers which form the border, the chemicals are dumped in the local population's only source of fresh

³⁴ *Ibid.*, p. 24.

³⁵ National Institute of Statistics and Censuses (INEC), *Data on Running Water* (2001). EM, Vol. IV, Annex 234.

water. They are then carried downstream to additional communities and ecosystems, affecting wildlife, fisheries and subsistence agriculture.

2.26 Those who fall ill in these remote areas along the border have only limited access to medical facilities³⁶. Even the most rudimentary medical centres, not to mention hospitals, are located hours away. The areas of Sucumbíos affected by Colombia's aerial sprayings are typical of the entire region. The closest hospital is located in the provincial capital, Nueva Loja (also commonly known as "Lago Agrio"), which is more than an hour's bus ride away from even the nearest communities along the international frontier. Yet, even that overstates the hospital's accessibility. The round-trip bus fare is US\$4-5 per person, a prohibitive sum for people surviving on less than a dollar per day. Most indigenous communities are even more isolated; they are frequently located several hours by motorised canoe away from population centres of any size. The result is that border residents, indigenous and non-indigenous alike, only go to urban clinics or hospitals in the most dire cases.

2.27 Given these realities, the primary means of treatment is medication with local plants. In keeping with their traditions, the indigenous communities in particular rely on local medicinal plants, which their healers have used to treat the sick for centuries. In recent years, however, even this care has been harder to obtain. As described in Chapter VI, many traditional medicinal plants have been harmed or killed by Colombia's chemical sprayings.

³⁶ According to a 2004 United Nations report: "In terms of health services, human and service indicators, both for inpatient and outpatient service, show values of less than the national and regional averages. The situation in some cases is critical: the supply of beds (for patients) for each 1,000 inhabitants is half the national average, and in the case of Sucumbíos it is one-third, with the aggravating factor that the majority of attention centers are private." United Nations, *The Northern Border of Ecuador: Evaluation and Recommendations of the Interagency Mission of the United Nations System in Ecuador* (July 2004), p. 18. EM, Vol. II, Annex 27.

2.28 These already precarious conditions in the border zone have been exacerbated by the effects of the long-standing civil conflict between the Government of Colombia and opposition guerrillas, including the Revolutionary Armed Forces of Colombia (“FARC”, per the Spanish initials). Colombia’s southern zones, particularly the remote areas abutting Ecuador, have long been viewed as FARC strongholds. According to the Netherlands Interdisciplinary Demographic Institute, the flow of refugees seeking to escape the violence in Colombia has been considerable: “In its recently prepared operational plan for 2007 and beyond (UNHCR, 2006), the United Nations High Commissioner for Human Rights notes that there could be as many as 450,000 Colombians in Ecuador and that those in need of international protection and assistance could be as high as 250,000.”³⁷ By December 2008, Ecuador had received more than 68,500 applications for refuge from Colombians. The refugees are concentrated in the Ecuadorian border provinces of Esmeraldas, Carchi and Sucumbíos, as well as Imbabura and Pichincha further to the south. The Government of Colombia's aerial sprayings have been a major contributing factor to the recent increase in flow of displaced persons to Ecuador³⁸.

³⁷ Richard E. Bilsborrow and CEPAR, *The Living Conditions of Refugees, Asylum-seekers and other Colombians in Ecuador*, Ecuador Country Report (Oct. 2006), p. 7. EM, Vol. IV, Annex 240.

³⁸ See, e.g., Consuelo Ahumado Beltrán and Alvaro Moreno Durán, “Priorities of the New World Order and Forced Displacement of Colombians towards Ecuador,” *Cadernos PROLAM/USP*, Year 3, Vol. 1 (2004), pp. 46, 47, 54, available at http://www.usp.br/prolam/downloads/2004_01_03.pdf. EM, Vol. IV, Annex 239; see also Government of Putumayo, Government of Nariño, et al., *Declaration of Puerto Asís* (8-9 Sept. 2000), available at <http://asamblea.atarraya.org/documentos/Paz-Colombia5-PUTUMAYO.html> (“[t]he fumigations...promote displacement”). EM, Vol. II, Annex 89; Declaration of Colombia Witness 3, 20 Feb. 2009. EM, Vol. IV, Annex 227; Declaration of Witness 3, 17 Jan. 2009. EM, Vol. IV, Annex 191.

2.29 This is the geographical, environmental and social context in which Colombia has implemented its programme of aerial spraying. It is to the details of this programme that the next section of this Chapter now turns.

Section II. Colombia's Aerial Sprayings

A. BACKGROUND

2.30 Over 55% of the world's coca (*Erythroxylum coca*), the plant from which cocaine is made, is grown in Colombia³⁹. Colombia is also one of the world's largest producers of opium poppy (*Papaver somniferum*) and a significant source of marijuana (*Cannabis sativa*). According to the 2008 World Drug Report published by the United Nations Office on Drugs and Crime ("UNODC"), more than 99,000 hectares of Colombian territory were dedicated to coca cultivation in 2007, an increase of nearly 30% over 2006⁴⁰. By contrast, coca was cultivated on fewer than 100 hectares of Ecuador's territory⁴¹. Ecuador has prevented the proliferation of coca cultivation on its territory without resort to aerial spraying.

2.31 The Government of Colombia has, over time, employed a variety of tactics in its efforts to combat illicit narcotics crops, including manual eradication (by which the coca plant is extracted from the ground by hand and destroyed), alternative development programs (by which farmers are given incentives to replace coca with legal crops) and aerial fumigation.

³⁹ United Nations Office on Drugs and Crime, *World Drug Report* (2008), p. 13. EM, Vol. II, Annex 26.

⁴⁰ *Ibid.*, p. 8. EM, Vol. II, Annex 26.

⁴¹ UNODC Report on the Andean Region 2008, *op. cit.*, p. 7. EM, Vol. II, Annex 25.

2.32 Aerial fumigation involves spraying chemical herbicides over coca fields from airplanes designed or retrofitted for this purpose. The constituent ingredients of the spray compound are mixed on-site at Colombian airfields where they are then loaded onto the aircraft⁴². After take off, the spray planes locate coca fields and target them with the herbicidal mist⁴³, as shown in the photograph below, which was provided by Colombia's Narcotics Police Force to the UNODC. According to official sources, sprayings are conducted when the airplanes are as high as 50 metres or more above the ground⁴⁴ and travelling at speeds of up to 200 miles per hour (322 km/hr)⁴⁵. Owing to the remoteness of the regions in Colombia where many of the fumigations are carried out, together with the fact that many of these same regions have a significant FARC presence, the spray planes are frequently accompanied by military helicopters to provide security⁴⁶.

⁴² See United States Department of State, Bureau for International Narcotics and Law Enforcement Affairs, *Report on Issues Related to the Aerial Eradication of Illicit Coca in Colombia: Chemicals Used in the Aerial Eradication of Illicit Coca in Colombia and Conditions of Application* (hereinafter "Chemicals Used") (Sep. 2002), p. 2, available at <http://www.state.gov/p/inl/rls/rpt/aeicc/13234.htm> (last visited 2 Apr. 2009). EM, Vol. III, Annex 144.

⁴³ See United States Department of State, Bureau for International Narcotics and Law Enforcement Affairs, *Report on Issues Related to the Aerial Eradication of Illicit Coca in Colombia: Updated Report on Chemicals Used in the Aerial Eradication Program* (hereinafter "Updated Report on Chemicals Used") (Dec. 2003), p. 1, available at <http://www.state.gov/p/inl/rls/rpt/aeicc/26581.htm>. EM, Vol. III, Annex 148.

⁴⁴ See Republic of Colombia, *Environmental Management Plan for the Illicit Crop Eradication Program Using Aerial Spraying with the Herbicide Glyphosate (ICEPG)* (2003), p. 2, available at <http://www.state.gov/p/inl/rls/rpt/aeicc/27399.htm> (last visited 2 Apr. 2009). EM, Vol. II, Annex 95.

⁴⁵ See United States Department of Agriculture, *April 2001 Colombia Coca Eradication Verification Mission Trip Report* (13 June 2001). EM, Vol. III, Annex 140.

⁴⁶ See Keith R. Solomon et al., *Environmental and Human Health Assessment of the Aerial Spray Program for Coca and Poppy Control in Colombia*, prepared for the Inter-American Drug Abuse Control Commission (CICAD), Organization of American States, (hereinafter "CICAD Report") (31 Mar. 2005), p. 30. EM, Vol. III, Annex 151.

Aerial Spraying over Colombian Coca Fields



Source: United Nations Office on Drugs and Crime (UNODC), Colombia Coca Cultivation Survey (June 2005), p. 64 (Photo provided by the Colombian Government).

2.33 Aerial fumigations were first employed by Colombia in the 1980s. From the outset, the practice met opposition from affected populations, policy-makers, international observers and scientists. As early as 1984, the Government of Colombia, through its National Health Institute, convened a group of herbicide experts to consider the potential harms from aerial spraying. The experts strongly opposed aerial spraying, especially spraying with glyphosate, a powerful herbicide that kills all plants upon contact, and whose effects on human health have not been fully documented. The experts stated:

“Glyphosate: It is not recommended for aerial application to destroy marijuana and coca crops. Data obtained in animal experiments show low acute toxicity; little is known of its acute toxicity in humans. There is no information, in the literature

consulted, about chronic toxicity in humans. Nor is there information regarding mutagenic and teratogenic effects....”⁴⁷

2.34 The experts subsequently reiterated their opposition stating:

“[T]he Committee reiterates its opposition of not recommending the use of glyphosate or any other herbicide by aerial application for the destruction of marijuana crops ... the implementation of the program is advised against because it would be accepting experimentation on humans.”⁴⁸

2.35 Notwithstanding the recommendations of its own experts, Colombia adopted and continued the practice. Until the late 1990s, however, it remained a secondary tool in the struggle against illegal narcotics.

2.36 A significant change occurred in late 1999 when, in response to the growth in coca crops, the Government of Colombia decided to make aerial fumigations its *primary* means of combating illicit coca cultivation. Colombia’s stated goal was to reduce the amount of coca cultivated in the country by 50% in six years⁴⁹. In fact, between 2000 and 2006 the coca cultivation in Colombia *increased* by 15%, despite persistent and widespread aerial spraying of coca

⁴⁷ Ecuadorian Ministry of Environment, et al., *Impacts in Ecuador by the Fumigations Carried Out in the Putumayo Department under Plan Colombia* (July 2003), p. 2. EM, Vol. III, Annex 166.

⁴⁸ *Ibid.*

⁴⁹ See United States Government Accountability Office, *Plan Colombia: Drug Reduction Goals Were Not Fully Met, but Security Has Improved; U.S. Agencies Need More Detailed Plans for Reducing Assistance* (hereinafter “Plan Colombia: Drug Reduction Goals Were Not Fully Met”) (Oct. 2008), pp. 1, 4. EM, Vol. IV, Annex 242.

crops, including in the border region⁵⁰. Independent observers have concluded that Colombia's aerial spraying program has not been effective⁵¹.

2.37 Colombia has refused to provide the full details of its aerial spraying programme, including dates, locations and quantities of chemicals used. What is known is that a large proportion of the aerial sprayings have been concentrated in the two provinces bordering Ecuador, Putumayo and Nariño. As illustrated in figure below, Nariño and Putumayo provinces have received nearly half of all chemical spraying in Colombia⁵². By comparison, the combined land area of Putumayo and Nariño make up barely five percent of Colombia's total land area. According to official Colombian statistics, the Respondent State fumigated 4,980 hectares in Putumayo in 1999, the year before aerial fumigation along the Ecuadorian border began⁵³. Over the following years, that number increased by as much as twenty fold. In 2002, Colombia sprayed 71,891 hectares in Putumayo (equal to approximately 140,000 football pitches)⁵⁴. Nariño is similar. In 1999, no fumigations were conducted in the province; in 2000, 6,442 hectares were fumigated; and in 2006 the number rose to 60,000 hectares⁵⁵.

⁵⁰ *Ibid.*, p. 18. EM, Vol. IV, Annex 242. Coca cultivation estimates from United Nations and United States agencies vary widely due to technical and methodological differences. United Nations estimates show that in 2006 coca cultivation had decreased to under 100,000 hectares. UNODC Report on the Andean Region 2008, *op. cit.*, p. 64. EM, Vol. II, Annex 25.

⁵¹ See *infra* Chap. II, Sec. II.C. "Internal and International Criticisms." See also generally, International Crisis Group, Latin America Report No. 25 *Latin American Drugs I: Losing the Fight* (14 Mar. 2008), available at <http://www.crisisgroup.org/home/index.cfm?l=1&id=5327>.

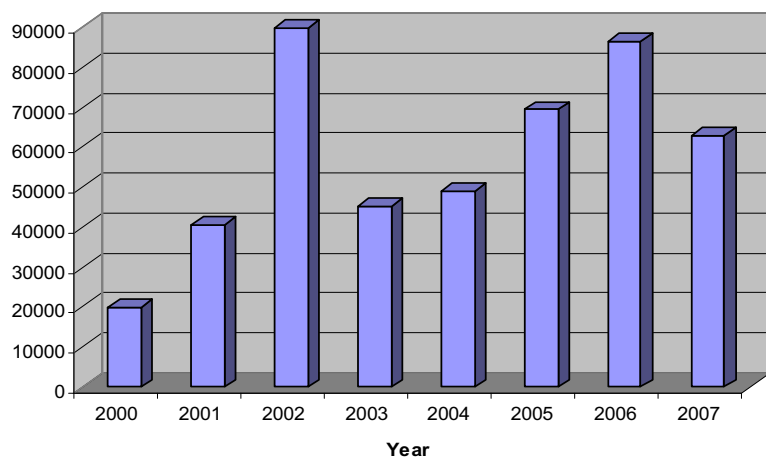
⁵² See UNODC Report on the Andean Region 2008, *op. cit.*, p. 102. EM, Vol. II, Annex 25.

⁵³ See *ibid.*

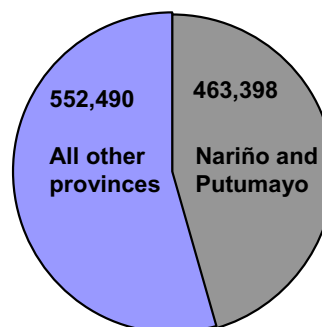
⁵⁴ *Ibid.*

⁵⁵ *Ibid.*

Aerial Spraying of Coca Crops in Putumayo and Nariño, Colombia (Ha), 2000-2007



Aerial Spraying of Coca Crops in Colombia (Ha), 2000-2007



B. THE SPRAY MIXTURE

2.38 Colombia has consistently refused to disclose the full details of the chemicals that it uses in the spray. What is known is that the spray used by Colombia is a mixture of a chemical herbicide and other ingredients designed to maximise its toxicity to plants. As early as 16 February 2001, soon after the first fumigations were carried out in the border area, Ecuador requested information concerning the composition of the spray⁵⁶. Colombia refused to provide it then, and has refused to provide the information ever since. To this date, despite repeated requests, Colombia has refused to disclose to Ecuador (or to make public) the precise composition of the spray mixture or to identify all of the ingredients⁵⁷.

⁵⁶ See *infra* Chap. III, para. 3.9.

⁵⁷ See *e.g.*, *infra*, Chap. III, paras. 3.2, 3.9-3.10, 3.68, 3.78.

2.39 The nature of the coca plant is such that powerful herbicides are required. Coca is a hardy plant that is difficult to kill. Its natural defences include a waxy surface coating on its leaves and a woody stem. Although Colombia has refused to detail the precise contents of its spray mix, it is known that the primary “active” ingredient is glyphosate, a chemical that is widely used -- under strictly regulated conditions -- as a weed killer⁵⁸. Glyphosate enters plants through their leaves and kills them by inhibiting an essential biological mechanism common to all plants⁵⁹. It is desirable as an herbicide precisely because of its non-selective, broad-spectrum characteristics. It kills virtually any plant it touches.

2.40 Colombia claims that the aerial spray mixture is harmless to humans and to food crops. These claims are contradicted by the manufacturer of the most widely-used glyphosate-based chemical herbicide, which bears the brand name “Roundup.” Colombia has not disclosed which, if any, of the various Roundup-based products it has been using. Official sources indicate that, at least for some time, one of the most toxic formulations available was used⁶⁰. Roundup products marketed around the world contain explicit warnings and their use is heavily regulated. An example of a label taken from a Roundup product produced in the United States and marketed throughout the world is depicted below.

⁵⁸ See United States Department of State, Chemicals Used, 2002, *op. cit.*, p. 1. EM, Vol. III, Annex 144; United States Department of State, Updated Report on Chemicals Used, *op. cit.*, p. 1. EM, Vol. III, Annex 148.

⁵⁹ See Keith R. Solomon et al., CICAD Report, *op. cit.*, p. 21. EM, Vol. III, Annex 151; United States Environmental Protection Agency, Office of Prevention, Pesticides and Toxic Substances, *Report on Issues Related to the Aerial Eradication of Illicit Coca in Colombia, Response from EPA Assistant Administrator Johnson to Secretary of State*, (hereinafter “EPA 2002 Analysis”) (19 Aug. 2002), p. 5, available at <http://www.state.gov/p/inl/rls/rpt/aeicc/13237.htm> (last visited 26 Mar. 2009). EM, Vol. III, Annex 143; *United States Roundup Pro Label*, p. 2, Sec. 5.0. EM, Vol. III, Annex 128.

⁶⁰ EPA 2002 Analysis, *op. cit.*, p. 8. EM, Vol. III, Annex 143.

“Hazards to Humans and Domestic Animals

Keep out of reach of children.

DANGER!

CAUSES IRREVERSIBLE EYE DAMAGE.

HARMFUL IF SWALLOWED OR INHALED.

MAY CAUSE SKIN IRRITATION.

Do not get in eyes, on skin or on clothing.

Wear goggles or face shield.

Avoid breathing vapour or spray mist. ...

FIRST AID:

IF IN EYES, immediately flush with plenty of water for at least 15 minutes. Get medical attention.

IF ON SKIN immediately flush with plenty of water. Remove contaminated clothing. Wash clothing before reuse.

IF SWALLOWED, this product will cause gastrointestinal tract irritation. ... Get medical attention. ...

IF INHALED, remove individual to fresh air. Get medical attention if breathing difficulty develops.

ATTENTION

AVOID DRIFT. EXTREME CARE MUST BE USED WHEN APPLYING THIS PRODUCT TO PREVENT INJURY TO DESIRABLE PLANTS AND CROPS.

Do not allow the herbicide solution to mist, drip, drift or splash onto desirable vegetation since minute quantities of this product

can cause severe damage or destruction to the crop, plants or other areas on which treatment was not intended.”⁶¹

2.41 Roundup’s toxicity is derived not only from the active ingredient glyphosate but also from other chemicals known as surfactants or adjuvants that are added to the chemical mix to enhance the herbicide’s ability to kill plants⁶². It is known that surfactants are especially important in Colombia’s aerial fumigation program because they help the mixture penetrate the waxy leaves and woody stems of the coca plant⁶³. Surfactants not only make the spray more toxic to coca plants, they also enhance the danger to humans and animals, and to food crops, as described in more detail in Chapter V. Ecuador believes -- but does not know for certain -- that the Roundup product that Colombia uses in its aerial sprayings contains at least one surfactant known as polyethoxyethylene alkylamine (“POEA”)⁶⁴. POEA is widely known to be harmful, not least because it is corrosive to the eyes and causes skin irritation. POEA has also been linked to even more serious health effects⁶⁵.

⁶¹ *United States Roundup Export Label*. EM, Vol. III, Annex 125.

⁶² CICAD Report, *op. cit.*, pp. 23–24. EM, Vol. III, Annex 151; EPA 2002 Analysis, *op. cit.*, p. 5. EM, Vol. III, Annex 143.

⁶³ See Chemicals Used, *op. cit.*, pp. 1–2. EM, Vol. III, Annex 144; Updated Report on Chemicals Used, *op. cit.*, p. 3. EM, Vol. III, Annex 148.

⁶⁴ EPA 2002 Analysis, *op. cit.*, p. 10. EM, Vol. III, Annex 143; United States Environmental Protection Agency, Office of Pesticide Programs, *Details of the 2003 Consultation for the Department of State: Use of Pesticide for Coca and Poppy Eradication Program in Colombia* (hereinafter “EPA 2003 Analysis”) (June 2003), p. 13, available at <http://www.state.gov/documents/organization/27516.pdf> (last visited 26 March 2009). EM, Vol. III, Annex 146.

⁶⁵ Republic of Colombia, National Health Institute, *Evaluation of the Effects of Glyphosate on Human Health in Illicit Crop Eradication Program Influence Zones* (2003), p. 5, available at <http://www.state.gov/p/inl/rls/rpt/aeicc/57013.htm> (last visited 26 Mar. 2009). EM, Vol. II, Annex 96; EPA 2003 Analysis, *op. cit.*, p. 13. EM, Vol. III, Annex 146.

2.42 Reports indicate that the herbicidal mixture Colombia uses includes another surfactant known as Cosmo-Flux 411F -- a product that is believed to be manufactured only in Colombia⁶⁶. The chemical composition of Cosmo-Flux411F is unknown to Ecuador and Colombia has refused to disclose the formula, despite Ecuador's requests⁶⁷. What is known is that Cosmo-Flux enhances (perhaps by a factor of four) the biological effects of glyphosate, thereby making the spray even more toxic to its intended target as well as off-target plants and those humans who are unfortunate enough to come into contact with it⁶⁸. Despite a decade of mass fumigations, the Roundup/POEA/Cosmo-Flux combination has not been subjected to a verifiable, independent study for safety to humans or animals⁶⁹.

2.43 Various governmental reports (including from the United States, a financial backer of Colombia's aerial fumigation programme) indicate that additional substances have been included in the spray mixture, including formaldehyde, a pathogenic fungus called *Fusarium oxysporum*, and others⁷⁰. Adding to the uncertainty, different spray mixtures appear to have been used over

⁶⁶ Chemicals Used, *op. cit.*, p. 2. EM, Vol. III, Annex 144; EPA 2003 Analysis, *op. cit.*, pp. 13–14. EM, Vol. III, Annex 146.

⁶⁷ EPA 2003 Analysis, *op. cit.*, pp. 13-14. EM, Vol. III, Annex 146; Comptroller General of the Republic of Colombia, *Plan Colombia: Fourth Evaluation Report* (hereinafter "Comptroller General Fourth Evaluation Report") (July 2003), p. 35. EM, Vol. II, Annex 98; *see e.g. infra*, Chap. III, paras. 3.2, 3.9-3.10, 3.68.

⁶⁸ Cosmoagro, S.A., *Cosmo-Flux 411F*, available at <http://www.cosmoagro.com> (last visited 1 Mar. 2009). EM, Vol. III, Annex 112.

⁶⁹ EPA 2003 Analysis, *op. cit.*, p. 37. EM, Vol. III, Annex 146.

⁷⁰ *Report of the Special Rapporteur on the Right to Food, Jean Ziegler, Addendum: Communications Sent to Governments and Other Actors and Replies Received*, (hereinafter "Special Rapporteur on the Right to Food, Communications") U.N. Doc. A/HRC/4/30/Add.1 (18 May 2007), para. 17. EM, Vol. II, Annex 33; "Fumigation with Fungus Confirmed", LA HORA (Quito, Ecuador, 23 Aug. 2000). EM, Vol. IV, Annex 173; United States Department of Agriculture, *April 2001 Colombia Coca Eradication Verification Mission Trip Report* (13 June 2001). EM, Vol. III, Annex 140.

time. For example, a 2002 report from the Environmental Protection Agency (“EPA”) of the United States of America suggested that the spray mixture should be adjusted in order to reduce the substantial toxicity to humans of the mix that was previously utilised. The U.S. EPA report states that

“due to the acute eye irritation caused by the concentrated glyphosate formulated product and the lack of acute toxicity data on the tank mixture the Agency recommends that DoS [Department of State] consider using an alternative glyphosate product with lower potential for acute toxicity in future coca and/or poppy aerial eradication programs”⁷¹.

Exactly what adjustments have been made to the spray mixture over time are unknown, because Colombia has consistently refused to publicly disclose or advise Ecuador as to the composition of the spray, or of any modifications to it. What is known, as detailed in Chapters V and VI, is that whatever the contents of the spray may be, it has caused extensive harm to people, to animals and to crops in both Colombia and Ecuador wherever and whenever it has been used.

C. INTERNAL AND INTERNATIONAL CRITICISMS

2.44 Colombia’s increased reliance on the aerial fumigation of coca plants has been the subject of strong and persistent criticisms. It suffices for present purposes to provide a few illustrative examples of the nature and force of the objections.

2.45 Some of the strongest opposition to the sprayings has come from within Colombia, including from public authorities and officials of the Respondent State itself. On 12 February 2001, for example, the Colombian Ombudsman’s Office

⁷¹ EPA 2002 Analysis, *op. cit.* p. 8. EM, Vol. III, Annex 143.

(“*Defensoría del Pueblo*”)⁷² issued a resolution recommending that the National Narcotics Directorate immediately suspend the fumigations then taking place in Putumayo Province. The Ombudsman’s Office stated that:

“As it has been shown, the fumigations condemned by this resolution destroyed not only the illicit crops – the target of manual eradication – but also other species necessary for the household subsistence of the beneficiaries of the pacts. Now, these people and communities are facing both the ruin of their household finances as well as a severe food security problem. Given the precarious conditions of this group of people, the action by the State gives rise to a violation of their right to subsistence, which translates into a serious harm to the physical integrity and dignity of the family and its members.”⁷³

2.46 Also in February 2001, the Colombian Ombudsman’s Office published a report entitled “Fumigations and Alternative Development Projects in Putumayo”. It stated:

“The Office of the Ombudsman has repeatedly solicited from the Government a review of the Policies of the War on Drugs and, particularly, the suspension of the Aerial Eradication of Illicit Crops strategy throughout the country ... In effect, the form in which the strategy of aerial fumigation of illicit crops has been carried out, in addition to having demonstrated its ineffectiveness – with the constant expansion of these crops within the country – has disregarded principles and norms which aimed at ensuring public health, protection and conservation of the environment, and the special protection which the State must provide to the most vulnerable. ...

⁷² In both Colombia and Ecuador (and, indeed, throughout Latin America) the Office of the Ombudsman (“*Defensoría del Pueblo*”) is a public authority of vital importance, the structure and functions of which are established by the Constitution (Arts. 281-284 of the Colombian Constitution; Arts. 214-216 of the Ecuadorian Constitution). Its primary objective is to protect the people’s individual and collective human rights from any acts by governmental agencies or, in certain cases, private persons, that may violate those rights.

⁷³ Republic of Colombia, Office of the Ombudsman, *Ombudsman Resolution No. 4* (12 Feb. 2001), p. 4. EM, Vol. II, Annex 92.

In such circumstances, among others later to be mentioned, in the judgment of this Institution, the execution of the Program for the Eradication of Illicit Crops does not comply with constitutional norms”.⁷⁴

2.47 The Ombudsman’s Office was joined by another state organ, the Comptroller General of Colombia⁷⁵ (“*Contraloría General de la República*”), in opposing the Government’s aerial spraying program. In December 2001, the Office of the Comptroller General submitted a report entitled “Plan Colombia: Second Evaluation Report,” which stated:

“Those responsible for implementing the eradication policy say that there is no scientific certainty with regard to its effects on human health and ecosystems; however, there are documents, university investigations, and environmental audits, in our country, on the effects on human health that report that glyphosate inhalation causes irritation to the nose and throat; moreover, contact causes skin irritation. At the same time, oral ingestion produces nausea, vomit, abdominal pain and epigstralgia.”⁷⁶

The Comptroller General’s report continued:

“The profound differences of opinion mentioned above, concerning the type and magnitude of the effects of glyphosate on ecosystems and human health; in addition, to doubts on the exact composition of the mixture sprayed, make credible the existence of a real danger due to the spraying in question. Suspicion that is

⁷⁴ Republic of Colombia, Office of the Ombudsman, *The execution of the strategy for aerial eradication of illicit crops, with chemicals, from a constitutional perspective*, pp. 1-2. EM, Vol. II, Annex 102.

⁷⁵ The General Comptroller of the Republic (“*Contraloría General de la República*”) is the Colombian public authority in charge of monitoring the correct use and administration of public funds by governmental agencies or private entities that manage public funds. Accordingly, all public officers are answerable to the Comptroller General for the lawful use of public funds. Its organization and functions are established by Articles 267 *et seq.* of the Colombian Constitution.

⁷⁶ Comptroller General of the Republic of Colombia, *Plan Colombia: Second Evaluation Report* (10 Dec. 2001), p. 43. EM, Vol. II, Annex 94.

reinforced when considering that no authority exercises control over the nature and consequences of said sprayings.”⁷⁷

2.48 In June 2003, the Colombian Ministry of the Environment sanctioned the National Narcotics Directorate (“DNE” per the Spanish initials), the agency responsible for carrying out the aerial fumigations, for failing to evaluate the potential environmental damage caused by the fumigations and for refusing to conduct environmental impact studies during spray campaigns⁷⁸.

2.49 Also in June 2003, the Administrative Tribunal of Cundinamarca (the province in which Bogotá is located) issued an order mandating the suspension of the aerial fumigations. The Administrative Tribunal further ordered the Colombian Ministry of Social Security and the National Institute of Health to conduct cohort studies on the effects of the aerial spraying on the health of Colombians, as these effects had not been previously studied. In response to the Administrative Tribunal’s order, the Government of Colombia announced that it would not obey, and that aerial fumigations would continue.⁷⁹ President Álvaro Uribe stated: “Let’s be honest, I will not stop the sprayings and as long as I am President, we will not agree on that issue.”⁸⁰

2.50 The objections of the Colombian authorities have strong support amongst international observers, including governments and international organisations.

⁷⁷ *Ibid.*

⁷⁸ Republic of Colombia, Ministry of Environment *Resolution No. 0670, Whereby a sanction is imposed and other decisions are made* (19 June 2003), paras. 2, 5, 3.1, 3.2. EM, Vol. II, Annex 19.

⁷⁹ “Colombia: Spraying Suspended”, BBC (26 June 2003). EM, Vol. IV, Annex 175.

⁸⁰ Interamerican Association for Environmental Defense (AIDA), *The Plan Colombia Aerial Eradication Program for Illicit crops – An analysis of the 2003 Dept of State Certification to Congress* (25 Feb. 2004), p. 17. EM, Vol. IV, Annex 168.

A number of United Nations Special Rapporteurs have visited affected areas and voiced strong objections to the aerial spraying programme. Following his visit to Ecuador in April and May 2006, for example, the UN Special Rapporteur on the Rights of Indigenous People, Mr. Rodolfo Stavenhagen, issued a strongly worded report which noted that: “International studies indicate that this practice [aerial fumigations] has negative effects on environmental resources and the health of people and animals.” Based on his observations, Mr. Stavenhagen recommended that “Colombia *definitively* halt the aerial spraying of illicit crops in the border region with Ecuador.”⁸¹

2.51 In an open letter submitted to the United States Congress in November 2001, the World Wildlife Fund stated its strong opposition to the sprayings:

“The damage caused by drift, spraying on non-target areas, and misapplication of the pesticide is a significant concern, and is one of the reasons that the manufacturer does not recommend aerial application of glyphosate. ...

Additionally, widespread aerial fumigation is a concern. Very little concrete information and few data are available comparing conditions subsequent to aerial fumigation to pre-spraying conditions. Tropical soils treated with glyphosate are likely to be altered. Further, defoliated areas will be subject to increased erosion under the heavy rainfall conditions common to the sprayed areas, and river systems may carry glyphosate to non-target regions, even neighbouring countries.

As a result of all of these issues we remain alarmed about the potential, long-term, devastating consequences on the Colombian environment, one of most biologically rich places on the planet.”⁸²

⁸¹ Report of the Special Rapporteur on the Rights of Indigenous People, *op. cit.*, paras. 85-86 (emphasis added). EM, Vol. II, Annex 30.

⁸² World Wildlife Fund, “Letter from World Wildlife Fund Regarding Herbicide Spraying in Colombia” (21 Nov. 2001), available at <http://www.ciponline.org/colombia/112101.htm>. EM, Vol. IV, Annex 236.

2.52 A 2002 report prepared by the United States-based Institute for Science & Interdisciplinary Studies stated:

“1) Aerial spraying has a significant negative impact on the lives of large numbers of people, particularly the rural poor, in Colombia. There is strong evidence linking the spraying with serious human health effects; large-scale destruction of food crops; and severe environmental impacts in sensitive tropical ecosystems. There is also evidence of links between fumigation and loss of agricultural resources, including fish kills and sickness and death of livestock.

“2) Many of the reported effects are consistent with the known effects of the chemicals used and with the manner in which they are applied. Reports of even more serious effects highlight the need for further study of hazards posed by the particular mix being used in Colombia.

“3) Criticisms and complaints are based on sound facts and come from a wide range of respected national and international individuals and organizations -- not from unreliable or self-interested sources as U.S. government sources often suggest”.⁸³

2.53 The objections are widespread and consistent. Even so, Colombia has persisted in its approach notwithstanding the apparent failure of the programme over the past nine years.

D. AERIAL FUMIGATIONS HAVE BEEN INEFFECTIVE

2.54 Despite political commitment at the highest levels of government and the vast resources Colombia has invested in aerial fumigations over the past decade, it is clear that they have been ineffective as a means of stemming the cultivation of coca. As noted earlier, the original goal of Colombia’s eradication program

⁸³ Jim Oldham & Rachel Massey, *Health and Environmental Effects of Herbicide Spray Campaigns in Colombia*, The Institute for Science & Interdisciplinary Studies (18 Mar. 2002), p. 2. EM, Vol. IV, Annex 164.

was to reduce the amount of coca cultivated in the country by 50% in six years (by 2006)⁸⁴. According to UNODC statistics, just over 100,000 hectares of coca were cultivated in 1998, the year before intensive aerial sprayings began⁸⁵. In 2007 (the last year for which UNODC information is available), the figure was virtually identical: 99,000 hectares⁸⁶. This latest figure may actually be understated; according to statistics from the United States Department of State, the number of hectares of coca actually *increased* since wide-scale sprayings were first implemented from 136,200 hectares in 2000 to 157,200 hectares in 2006, an increase of some 15 percent⁸⁷.

2.55 The increase occurred even as the amount of land that was subjected to aerial spraying increased dramatically. In 1998, before massive aerial sprayings began, Colombia reportedly fumigated some 66,000 hectares of coca in just six of its 32 provinces⁸⁸. In 2007, it sprayed 153,000 hectares (1,530 km²) in 14 different provinces⁸⁹. Thus, over a ten-year period, Colombia increased aerial sprayings by 100,000 hectares/year, without reducing coca cultivation. To the contrary, according to the United States, the area dedicated to coca cultivation

⁸⁴ United States Government Accountability Office, *Plan Colombia: Drug Reduction Goals Were Not Fully Met*, *op. cit.* pp. 1, 4. EM, Vol. IV, Annex 242.

⁸⁵ UNODC Report on the Andean Region 2008, *op. cit.*, p. 13. EM, Vol. II, Annex 25.

⁸⁶ *Ibid.*

⁸⁷ United States Department of State, *International Narcotics Control Strategy Report* (2008), p. 129. EM, Vol. IV, Annex 241.

⁸⁸ UNODC Report on the Andean Region 2008, *op. cit.*, p. 102. EM, Vol. II, Annex 25.

⁸⁹ *Ibid.* According to the U.S. statistics, Colombia sprayed 153,133 hectares in 2007. United States Department of State, *International Narcotics Control Strategy Report* (2008), p. 129. EM, Vol. IV, Annex 241.

increased by 15% despite the more than 250% increase in areas subjected to aerial fumigation⁹⁰.

2.56 Colombia persists in its adherence to this failed program and claims a continued right to implement it. It persists in spite of the objections of organs of its own government, and in spite of the complaints of many of its own citizens in the affected areas who have documented the harms to human health, to animals and to licit crops necessary to the subsistence and survival of indigenous and other local communities. And, as detailed in the following chapter, Colombia has persisted in the face of long-standing and repeated objections by the Government of Ecuador, based on harms caused to humans, animals, and plants on Ecuador's side of the border, all in violation of the international obligations that Colombia owes to Ecuador.

⁹⁰ *Ibid.*

CHAPTER III.

THE DIPLOMATIC HISTORY OF THE DISPUTE

3.1 This Chapter presents a chronological account of the diplomatic exchanges between Ecuador and Colombia concerning Colombia's aerial fumigation programme in the border area. From the moment Ecuador became aware of Colombia's aerial spraying of herbicides at, along and across its northern border zone in 2000, and for seven years thereafter, Ecuador repeatedly voiced its concerns about the impacts of these activities on Ecuador. It was equally persistent in asking for detailed information about Colombia's fumigation programme, including (but not limited to) the dates and locations of spray events; the chemical composition of the herbicidal mix Colombia employs; an environmental impact assessment ("EIA"); and other scientific studies concerning the potential impacts of the spray on people, animals and non-target plant species.

3.2 Despite Ecuador's frequent requests, Colombia not only refused to end its aerial fumigations in the border area, it failed to provide the essential information Ecuador sought. Not once has Ecuador received advance notice of aerial sprayings along its borders. Nor has it ever received a copy of Colombia's EIA, assuming one exists at all. To this day, nearly nine years after aerial fumigations began, Ecuador still does not even know the chemical composition of the herbicide mixtures Colombia has been spraying along its border.

3.3 During the seven years of diplomatic exchange, Ecuador and Colombia pursued a variety of mechanisms in an attempt to advance their dialogue. They exchanged diplomatic notes; they held face-to-face talks, including at the Presidential level; they convened two special joint scientific and technical commissions for purposes of examining the impacts of the aerial fumigations in Ecuador; and they sought the assistance of multi-lateral institutions, including the Organization of American States ("OAS") and the United Nations ("UN"). At various moments, it has appeared that the Parties were making some progress. In

August 2004, for example, Colombia at last agreed that it would inform Ecuador of fumigations along the border in advance so that Ecuador could take appropriate steps to mitigate and measure their effects. This promise was quickly broken when, just three months later, Colombia conducted sprayings in the area without appropriate notice to Ecuador. Nor did it notify Ecuador in advance of any subsequent fumigations. In December 2005, Colombia agreed to suspend aerial sprayings within 10 kilometres of the international border. Yet, just a year later, it resumed the practice claiming it simply “had no option but to resume the spraying it had traditionally carried out on the Colombian side of the border”⁹¹.

3.4 In the end, none of the Parties’ efforts resolved the persistent differences between them. Ultimately, following the collapse of the second (and final) meeting of the second joint scientific commission in 2007, Ecuador was compelled to recognize the obvious: the diplomatic process had been exhausted. Accordingly, it sent Colombia a diplomatic note informing it that: “Ecuador believes that the dialogue process it has maintained with Colombia over seven years with the goal of finding a final solution to the issue of sprayings has been exhausted without results”⁹². Ecuador’s Application instituting proceedings in this Court followed on 31 March 2008.

* * *

3.5 This Chapter presents the diplomatic history in four sections. **Section I** relates to the period between July 2000 and the end of 2002, and describes Ecuador’s early protests to Colombia and its repeated requests for information, all

⁹¹ See *infra* para. 3.64.

⁹² See *infra* para. 3.78.

of which went unsatisfied. **Section II** discusses the period between early 2003 and August 2004 during which the Parties convened the first joint scientific and technical commission without meaningful result. **Section III** addresses the period from November 2004 to early January 2007, during which Ecuador's mounting frustration with Colombia's actions, including Colombia's breach of its December 2005 commitment to stop fumigations on the border, led Ecuador to submit complaints both to the United Nations and to the Permanent Council of the Organization of American States. Finally, **Section IV** covers the period between the middle of January 2007 and March 2008, and discusses the failure of the second joint scientific commission, as a consequence of which Ecuador filed its Application on 31 March 2008.

Section I. Ecuador's Early Protests and Requests for Information: 2000-2002

3.6 As discussed in Chapter II, Colombia intensified its programme of aerial fumigations in 1999; sprayings in the vicinity of the Colombia-Ecuador border followed. Ecuador expressed its concerns promptly. On 24 July 2000, Ecuador's Ministry of Foreign Affairs sent a diplomatic note to the Embassy of Colombia in Quito expressing:

“the concern of the Government of Ecuador regarding the upcoming fumigations of coca crops in Colombian territory with toxic and/or biological substances that may cause serious impacts on human health and the environment, with possible repercussions for Ecuador, on the fragile ecosystems of the Amazon region and on the health and livelihoods of local populations”⁹³.

⁹³ Diplomatic Note 12437-47 SP/DGA/DTANC, sent from the Ministry of Foreign Affairs of Ecuador to the Embassy of Colombia in Quito (24 July 2000). EM, Vol. II, Annex 36.

3.7 In the same note, Ecuador requested information about the fumigations and their potential impacts. In particular, Ecuador asked Colombia if it had conducted environmental impact studies before beginning the fumigations and what measures it had taken to mitigate the sprayings' effects:

“THE MINISTRY OF FOREIGN AFFAIRS considers it important and would appreciate receiving information regarding the environmental repercussions of the possible use of toxic and/or biological substances. Of special importance is learning whether environmental impact studies and/or mitigation measures have been planned and carried out before the realization of the aforementioned spraying activities in the areas that may possibly be affected.”⁹⁴

No environmental impact assessment was forthcoming, however. Indeed, to this day, Ecuador has not received a proper environmental impact assessment from Colombia.

3.8 In December 2000, with fumigations along the border between Colombia's Putumayo and Ecuador's Sucumbíos Provinces on-going, a bilateral meeting to discuss the implementation of Plan Colombia, the new Colombian policy initiative pursuant to which the aerial sprayings were being conducted, was proposed. By note dated 19 December 2000, Colombia rejected the idea summarily, calling it both “inappropriate” (“*improcedente*”) and “inconvenient” (“*inconveniente*”)⁹⁵.

3.9 Two months later, on 16 February 2001, with fumigations continuing along the frontier, Ecuador sent another diplomatic note again asking for

⁹⁴ *Ibid.*

⁹⁵ Diplomatic Note E-1766, sent from the Embassy of Colombia in Quito to the Ministry of Foreign Affairs of Ecuador (19 Dec. 2000). EM, Vol. II, Annex 37.

information. This time, Ecuador asked Colombia to advise it of the composition of the chemicals used and the areas where the sprayings were scheduled to take place. In particular, Ecuador sought

“within the shortest possible time, all the information available regarding the type of substances that are being used in the fumigations, as well as on the specific areas where these operations are being conducted and where they are expected to be conducted in the future”⁹⁶.

3.10 As with Ecuador’s July 2000 information request, Colombia again chose not to provide the requested information either about the substances employed or the specific areas in which fumigations were being conducted. By note dated 12 March 2001 from the Colombian Embassy in Quito to Ecuador’s then-Foreign Minister Heinz Moeller, Colombia specifically took note of the fact that “[i]n recent weeks, the Government of Ecuador has repeatedly voiced its concern with regards to the potential adverse effects arising from the execution of Plan Colombia”⁹⁷. Yet, in response to those concerns, Colombia stated only that:

“It is worth reiterating that Plan Colombia constitutes the central strategy adopted by the Colombian Government to address the serious problems that affect our society, aiming, above all, at the progressive eradication of illicit crops and combating related activities

Furthermore, Plan Colombia is precisely the most effective method of protecting the fraternal country of Ecuador from the perverse effects of drug trafficking and armed conflict, as it is

⁹⁶ Diplomatic Note 21085 SSN/DGST, sent from the Ministry of Foreign Affairs of Ecuador to the Embassy of Colombia in Quito (16 Feb. 2001). EM, Vol. II, Annex 38.

⁹⁷ Diplomatic Note E-297, sent from the Embassy of Colombia in Quito to the Ministry of Foreign Affairs of Ecuador (12 Mar. 2001). EM, Vol. II, Annex 39.

aimed at preventing them from continuing to strengthen and to spread into Ecuador.”⁹⁸

3.11 Ecuador responded promptly by note dated 27 March 2001 in which it made clear that it had no interest in interfering in Colombia’s internal affairs, only in protecting its own safety and that of its people:

“It is not up to the Government of Ecuador, respectful of the principle of non-intervention and non-interference in the affairs of other States, to become involved in the internal affairs of Colombia, but it does have the right to adopt the measures it deems appropriate to preserve its security and that of its citizens.”⁹⁹

3.12 Notwithstanding Colombia’s non-responsiveness to its detailed information requests, Ecuador continued to press its concerns about the aerial fumigations. In a diplomatic note dated 2 July 2001, Ecuador stated:

“The Government of Ecuador has followed closely the actions that the Illustrious Government of Colombia is conducting in the framework of the application of the so-called ‘Plan Colombia’, particularly those that are involved in the spraying of illicit crops on Colombian territory neighbouring Ecuador.

My country’s attention is warranted, among other reasons, by the possibility that atmospheric phenomena or other causes may eventually cause the sprayings in the south of Colombia to produce harmful effects on human health, on crops or on the environment of the Ecuadorian territory bordering that country.”¹⁰⁰

⁹⁸ *Ibid.*

⁹⁹ Diplomatic Note 31036/2001 SG/SSN, sent from the Ministry of Foreign Affairs of Ecuador to the Embassy of Colombia in Quito (27 Mar. 2001). EM, Vol. II, Annex 40.

¹⁰⁰ Diplomatic Note 55416/2001- GM/SOI/SSN, sent from the Ministry of Foreign Affairs of Ecuador to the Ministry of Foreign Affairs of Colombia, (2 July 2001). EM, Vol. II, Annex 41.

3.13 In the same note, Ecuador expressed its concerns about the reported contents of Colombia's spray mixture and the absence of a risk assessment:

“For this reason, my Government is concerned by information regarding the use in Colombia of the chemical formulation Roundup Ultra, whose active ingredient is glyphosate and contains a substance called POEA, which is much more toxic than glyphosate, combined with a product called Cosmoflux 411F, which substantially increases the product's action.

According to data available to Ecuador, there are not sufficient studies regarding the safety of using inert substances such as Dioxane and other ingredients that are part of the formula currently used to spray coca crops in southern Colombia. Furthermore, the fact that the doses applied are four times higher than those recommended must also be taken into account, as this increases the risk of damaging the vegetation as a result of the drift.

Renowned institutions such as the WWF (World Wildlife Fund) have warned of the risks of using Roundup, and have recommended making assessments on the potential short-term environmental impacts of this product.”¹⁰¹

3.14 In light of the risks mentioned, Ecuador's note concluded with two requests:

“In view of the foregoing, and without prejudice to the precautions surely considered in the planning of the sprayings by Colombian authorities, my Government deems it necessary to ask the Illustrious Government of Colombia that applications of the chemical formulations in its territory are made at least 10 kilometres away from the border with Ecuador, in order to prevent the drift caused by winds from reaching Ecuadorian territory and producing harmful effects on the people and the vegetation.

My Government also believes that, among the alternatives contemplated by Colombia to put an end to illicit crops in its territory, the most adequate and effective one is concerted manual

¹⁰¹ *Ibid.*

eradication, and I very respectfully urge the Illustrious Government of Colombia to intensify it.”¹⁰²

3.15 Colombia responded by note dated 14 July 2001 in which it stated that “[T]he Government of Colombia is aware of the effects that the inappropriate use of herbicides can have.”¹⁰³ It insisted, however, that:

“In light of [Ecuador’s] concern, I wish to inform Your Excellency that the Government of Colombia has assumed, in a responsible way, the commitment to eradicate illicit coca crops, and to do so, it is conducting a program of spraying of illicit industrial crops in a technical, programmed and controlled way. This eradication program is carried out in accordance with parameters that minimize any risk that may affect the environment and human and animal health.”¹⁰⁴

3.16 The Colombian response purported to assure Ecuador that Colombia “uses products which have been demonstrated to have no harmful effects...”¹⁰⁵. Colombia did not, however, provide any support for its claim. Nor did Colombia identify the chemicals used in the spray, the formula of the chemical mixture, the quantity of spray discharged on the target areas, or other parameters affecting the spray application or its spread to Ecuador.

3.17 Undeterred by Ecuador’s concerns and repeated requests for information, Colombia carried out a new round of fumigations along the border in October and November of 2001. Ecuador was given no advanced notice.

¹⁰² *Ibid.*

¹⁰³ Diplomatic Note DM/AL No. 25009, sent from the Minister of Foreign Affairs of Colombia to the Minister of Foreign Affairs of Ecuador (14 July 2001). EM, Vol. II, Annex 42.

¹⁰⁴ *Ibid.*

¹⁰⁵ *Ibid.*

3.18 In February 2002, at the invitation of the Colombian government, several Ecuadorian officials, including the Ambassador of Ecuador in Bogotá and representatives of Ecuadorian Ministry of the Environment, attended a workshop in Bogotá ostensibly designed to allay Ecuador's concerns about Colombia's aerial sprayings along the border. According to the joint report prepared following the meetings, however, the workshop did not achieve its intended goal. The executive summary of the report states: "We can categorically conclude that it cannot be assured that the aerial sprayings with chemical formulations employed do not carry risks for the ecosystem..."¹⁰⁶.

3.19 In contradiction of Colombia's 14 July 2001 diplomatic note in which it had assured Ecuador that it uses only products that "have been demonstrated to have no harmful effects", Colombian officials attending the workshop indicated that:

"are conscious of and agree with Ecuador in that objective and impartial scientific research to study the short- and long-term impacts to the environment and to health, as well as the chemical formulations used to eliminate illicit crops, such as those chemicals used in the crop and processing the same, are lacking"¹⁰⁷.

3.20 In light of these uncertainties, and consistent with Ecuador's 2 July 2001 request, the Colombian participants in the seminar assured their Ecuadorian counterparts that:

¹⁰⁶ Republic of Ecuador, Ministry of Environment, *Joint Report from the Workshop: Eradication of Illicit Crops*, Bogotá, Colombia (13-15 Feb. 2002). EM, Vol. IV, Annex 163.

¹⁰⁷ *Ibid.*

“they are leaving a safety margin of 8 to 10 kilometres from the San Miguel River, the international boundary, within Colombian territory...”¹⁰⁸.

3.21 This assurance was, however, quickly broken. Between July and December 2002, Colombia carried out additional spraying in close proximity to the international border¹⁰⁹. Once again, Colombia provided Ecuador no prior notice and did not invite consultations.

3.22 As before, Ecuador continued to voice its concerns to Colombia. By note dated 18 October 2002, the Ecuadorian Foreign Ministry sent the Colombian Embassy in Quito a copy of a communication from the prefect of Sucumbíos and the Agricultural Centre of Nueva Loja (also known as “Lago Agrio”) complaining of the negative effects of the fumigations on crops in the border area¹¹⁰. Five days later, the Ecuadorian Foreign Ministry sent Colombia:

“a summary of the report sent by the Governor of the Province of Sucumbíos related to accusations and complaints made by Ecuadorian peasants who live on the riverbanks of the San Miguel River as a result of the spraying operations that are being conducted as part of Plan Colombia. The damages have been verified by this local authority, who reports that he has been able to confirm the damages suffered in crops of *orito*, plantain, bananas, maize, yucca and other vegetation. He has also found

¹⁰⁸ *Ibid.*

¹⁰⁹ See Note SARE-142, sent from the National Directorate of Narcotics of the Ministry of Interior and Justice of Colombia to the President of the Scientific- Technical Commission of Ecuador (14 Apr. 2004) (hereinafter “Note SARE-142”). EM, Vol. II, Annex 62.

¹¹⁰ Diplomatic Note 47839 DGAF, sent from the Ministry of Foreign Affairs of Ecuador to the Embassy of Colombia in Quito (18 Oct. 2002). EM, Vol. II, Annex 45.

dead farm animals and fish in various ponds, products that are staple foods of this population”¹¹¹.

Section II. The First Joint Scientific Commission and Colombia’s Continued Failure to Provide Information: 2003-2004

3.23 Faced with the growing evidence of harm to humans, animals and plants in border areas of Ecuador, representatives of the Ecuadorian and Colombian governments met at Ecuador’s initiative on 26 February 2003 and agreed to create a joint scientific commission to evaluate the effects of the fumigations¹¹². The proposed commission was to be an inter-disciplinary working group comprised of technical experts from the Parties’ Ministries of Environment, Health, Agriculture and Foreign Affairs.

3.24 Complaints from the border continued to pour in. In response, on 10 April 2003, Ecuador’s then-Foreign Minister, Dr. Nina Pacari Vega, wrote the Colombian Ambassador in Quito to encourage Colombia to move promptly to appoint its members of the commission¹¹³. At the same time, she sent a draft of a proposed Memorandum of Understanding in which:

“The Parties acknowledge the need to eliminate illicit coca crops and other plants used in the manufacturing of narcotic substances, elimination that must be carried out by each one of the Parties within the limits of their respective territories and based on procedures compatible with the protection of human health and the environment.

¹¹¹ Diplomatic Note 48975-2002/DGPB, sent from the Ministry of Foreign Affairs of Ecuador to the Embassy of Colombia in Quito (23 Oct. 2002). EM, Vol. II, Annex 46.

¹¹² See Diplomatic Note 23205/GM, sent from the Ministry of Foreign Affairs of Ecuador to the Embassy of Colombia in Quito (10 Apr. 2003). EM, Vol. II, Annex 47.

¹¹³ *Ibid.*

In the event that one of the Parties is required to conduct aerial spraying operations aimed at the elimination of illicit crops, these shall be undertaken at a distance of no less than ten kilometres from the line marking the border between the two countries. In order to prevent harm or inconveniences to border towns of the other Party, the aircrafts shall not spray during aerial manoeuvrings involving over-flights of the aforementioned buffer safety zone.”¹¹⁴

3.25 Colombia did not respond to the proposed Memorandum of Understanding for more than five months. In the interim, beginning in May 2003, it carried out another round of aerial sprayings along the border between Putumayo Province in Colombia and Sucumbíos Province in Ecuador¹¹⁵. As before, Ecuador received no advanced notice.

3.26 When Colombia finally responded to the proposed Memorandum of Understanding, its answer was negative. In a 23 September 2003 note from the Colombian Foreign Ministry to the Ecuadorian Ambassador in Bogotá, Colombia rejected the idea of a buffer zone stating: “The establishment of an aspersion-free strip along the common border, as proposed by the Government of Ecuador in the referenced Memorandum, is unacceptable to the Government of Colombia for multiple reasons.”¹¹⁶ Curiously, even as it rejected the idea of a buffer zone, Colombia expressly acknowledged that it was bound to observe “the

¹¹⁴ *Ibid.*

¹¹⁵ See Note SARE-142, *op. cit.* EM, Vol. II, Annex 62.

¹¹⁶ Diplomatic Note VRE 32759, sent from the Ministry of Foreign Affairs of Colombia to the Embassy of Ecuador in Bogotá (23 Sep. 2003). EM, Vol. II, Annex 48.

precautionary principle enshrined in the 1992 Rio Declaration on the Environment and Development”¹¹⁷.

3.27 The same day that Colombia rejected Ecuador’s proposed Memorandum of Understanding, it sent another note identifying its participants in the joint scientific and technical commission first discussed seven months earlier. Although the commission had originally been conceived as an inter-agency undertaking of top scientists, the Colombian delegation was dominated by members of its law enforcement community. Of the 13 members of Colombia’s team, nine came either from the national police or the National Anti-Narcotics Agency (“DNE”, per the Spanish initials)¹¹⁸.

3.28 The special joint scientific and technical commission met for the first time on 14 October 2003 in Bogotá. At that meeting, the Ecuadorian delegation formally requested information concerning existing environmental impact studies pertaining to the fumigations, the locations of aerial spray events, epidemiological studies, and any other information relevant to the impacts of the spray on human and animal health, and on the environment. The Colombian delegation agreed to provide the information requested¹¹⁹.

3.29 On 23 October 2003, Ecuador’s then-Minister of Foreign Affairs, Mr. Patricio Zuquilanda Duque, reiterated these requests for information:

¹¹⁷ *Ibid.*

¹¹⁸ Diplomatic Note, DBR/CAL 37677 sent from the Ministry of Foreign Affairs of Colombia to the Embassy of Ecuador in Bogotá (23 Sep. 2003). EM, Vol. II, Annex 49.

¹¹⁹ *See* Diplomatic Note 68934/2003-GM, sent from the Ministry of Foreign Affairs of Ecuador to the Ministry of Foreign Affairs of Colombia (23 Oct. 2003). EM, Vol. II, Annex 52.

“... I have the honor to request that, in order to further the proposed process of scientific and technical research, you instruct that the information requested by the Ecuadorian Scientific-Technical Commission concerning fumigation zones, existing environmental impact studies, epidemiological studies, reports subsequent to sprayings, and all scientific records available and deemed appropriate be sent to the Foreign Ministry of Ecuador, to allow the CCTE [Ecuadorian Scientific-Technical Commission] to conduct an analysis as thorough as possible”¹²⁰.

3.30 Very little of the information Ecuador sought was provided by Colombia. On 12 November 2003, the Colombian Foreign Minister sent Ecuador four documents of limited scope, none of which was an environmental impact assessment¹²¹.

3.31 Noting the continued failure to provide an environmental impact assessment, Ecuadorian Foreign Minister Zuquilanda wrote to his Colombian counterpart, Ms. Carolina Barco, on 21 November 2003 reiterating Ecuador’s request for an EIA¹²². By return note dated 15 December 2003, Foreign Minister Barco replied that no such document existed. She stated that:

“after making the relevant consultations, none of the competent entities reported having in their possession the document entitled

¹²⁰ *Ibid.*

¹²¹ Diplomatic Note VRE/DBR 40153, sent from the Ministry of Foreign Affairs of Colombia to the Ministry of Foreign Affairs of Ecuador (12 Nov. 2003). EM, Vol. II, Annex 50. The documents Colombia sent were: (a) “Toxicity studies in laboratory animals”; (b) “Final Report: A study of reports on health damage related to aerial eradication in Colombia”; (c) “Retrospective study on potential effects on human health due to exposure to glyphosate in aerial spraying”; and (d) “Executive Summary of Analysis: Impacts in Ecuador of sprayings in Putumayo under Plan Colombia.”

¹²² Diplomatic Note 75204/2003-GM, sent from the Ministry of Foreign Affairs of Ecuador to the Ministry of Foreign Affairs of Colombia (21 Nov. 2003). EM, Vol. II, Annex 51.

‘Environmental Impact Assessment conducted prior to sprayings of Glyphosate’”¹²³.

3.32 Instead of an EIA, Colombia sent a significantly more limited document entitled “Determination of Residues of the Herbicide Glyphosate and its Metabolite AMPA in Water”¹²⁴. This cursory document was not a substitute for the environmental impact statement that Ecuador had long been seeking. It merely described a methodology for collecting water samples and testing them for the residues of glyphosate and its metabolites. It did not present any study results, and did not predict the environmental effects of the spraying programme, or compare those effects to alternatives to the programme.

3.33 On 14 January 2004, Colombia sent Ecuador an additional document entitled “Environmental Risk of the Herbicide Glyphosate” obtained from DNE¹²⁵. Even if Colombia considered this report -- included as an annex to this Memorial¹²⁶ -- to be an EIA, it is a wholly inadequate assessment of the risks of the aerial spraying program. Among other major flaws, the report only discusses glyphosate and does not consider other components of the spray mixture, some of which are more toxic than glyphosate itself. It also does not take into account the operational parameters of Colombia’s aerial sprayings or the unique tropical ecosystems where they are conducted. Additionally, and of crucial significance, the report does not even consider the potential of the sprayings by Colombia to cause harm in Ecuador.

¹²³ Diplomatic Note DM/DBR 47356, sent from the Ministry of Foreign Affairs of Colombia to the Ministry of Foreign Affairs of Ecuador (15 Dec. 2003). EM, Vol. II, Annex 53.

¹²⁴ *Ibid.*

¹²⁵ Diplomatic Note DBR/CAL 1405, sent from the Ministry of Foreign Affairs of Colombia to the Embassy of Ecuador in Bogotá (14 Jan. 2004). EM, Vol. II, Annex 54.

¹²⁶ Republic of Colombia, *Environmental Risk of the Herbicide Glyphosate* (date unknown). EM, Vol. II, Annex 101.

3.34 The second meeting of the special joint Scientific and Technical Commission took place on 9 February 2004 in Quito. In response to Ecuador's request, the Colombian delegation agreed to provide all available information about prior fumigations, including mission parameters like flight paths, altitude, wind and other factors, but it never did so. The Ecuadorian delegation also once again reiterated its longstanding, unsatisfied request for evidence that a proper EIA had been carried out. By this point, some four years had passed since aerial fumigations had begun¹²⁷.

3.35 These requests were reiterated the next day in a diplomatic note from Ecuadorian Foreign Minister Zuquilanda to Colombian Foreign Minister Barco. The importance Ecuador attached to the environmental impact assessment in particular was highlighted:

“The CCTE [Ecuadorian Scientific-Technical Commission] again requested the CCTC's [the Colombian Scientific-Technical Commission] report on environmental impact. This report has been deemed essential since the beginning of the inquiries, and it was raised during the [Second] Meeting.”¹²⁸

3.36 Even as the Parties were discussing a joint, bilateral study of the sprayings, Colombia issued a press release on 13 February 2004 announcing that it had entered a separate memorandum of understanding with the Inter-American Drug Abuse Control Commission (“CICAD” per the Spanish initials) of the Organization of American States to study the effects of the sprayings¹²⁹.

¹²⁷ See Diplomatic Note 4820/2004-GM, sent from the Ministry of Foreign Affairs of Ecuador to the Ministry of Foreign Affairs of Colombia (10 Feb. 2004). EM, Vol. II, Annex 55.

¹²⁸ *Ibid.*

¹²⁹ Ministry of Foreign Affairs of Colombia, Press Release, *Memorandum of Understanding is signed for the study of the effects of the fumigation of illicit crops* (13 Feb. 2004). EM, Vol. IV, Annex 176.

According to the press release, the memorandum of understanding between Colombia and CICAD had grown out of a request Colombia had initially submitted to CICAD in 2001¹³⁰. Neither in 2001 nor early in 2004 was Ecuador informed about Colombia's unilateral initiative, much less given an opportunity to participate in the proposed CICAD study.

3.37 Invoking the precautionary principle, Ecuador proposed on 16 February 2004 that Colombia formally agree to suspend fumigations in the border region¹³¹. Colombia rejected the proposal. By note dated 23 February 2004 to Ecuadorian Foreign Minister Zuquilanda, Colombian Foreign Minister Barco responded:

“In this sense, I would like to point out that, for reasons of the schedule of sprayings for this year, at present the Anti-Narcotics Police is not carrying out aerial sprayings in areas near the border line with Ecuador. However, in case aerial surveillance conducted over these areas provides information on new crops, the program of sprayings will continue, in application of the national policy of eradication of illicit crops and in compliance with the international commitments to fight the drug problem assumed by Colombia.”¹³²

3.38 Foreign Minister Zuquilanda replied on 9 March 2004 by reiterating Ecuador's request that Colombia take steps to avoid any further aerial spraying along the border:

“In this sense, the Government of Ecuador kindly requests the Illustrious Government of Colombia to monitor and reinforce to the maximum extent its controls over its southern border region

¹³⁰ *Ibid.*

¹³¹ Diplomatic Note 10181/2004-GM, sent from the Ministry of Foreign Affairs of Ecuador to the Ministry of Foreign Affairs of Colombia (16 Feb. 2004). EM, Vol. II, Annex 56.

¹³² Diplomatic Note DM/DBR 8092 sent from the Ministry of Foreign Affairs of Colombia to the Ministry of Foreign Affairs of Ecuador (23 Feb. 2004). EM, Vol. II, Annex 57.

neighboring Ecuador, as well as to take all steps deemed appropriate in its territory to prevent new illicit crops and the resumption of possible aerial sprayings in the aforementioned zone.”¹³³

3.39 The following day, 10 March 2004, Ecuador sent Colombia a note again requesting the information that Colombia had agreed to provide at the second meeting of the joint Scientific and Technical Commission the previous month. In particular, Ecuador reminded Colombia of its promise to provide information concerning (a) the methodologies of the sprayings, (b) the scientific basis for any investigations conducted by Colombia, (c) information concerning the companies that had conducted any toxicological studies, and (d) the environmental impact assessment which, it noted, had already been requested on multiple occasions¹³⁴. Colombia did not provide the promised information.

3.40 Thereafter, the Presidents of Ecuador and Colombia met in Bogotá on 16 and 17 March 2004. At the end of their meetings, the Presidents issued a Joint Declaration in which, among other things, Colombia reiterated its promise to provide Ecuador with adequate information:

“The Government of Colombia will give the Government of Ecuador explanations and scientific support that demonstrate that the fumigation of illicit crops is not harmful to human beings or to the environment.”¹³⁵

¹³³ Diplomatic Note 15715/2004-GM, sent from the Ministry of Foreign Affairs of Ecuador to the Ministry of Foreign Affairs of Colombia (9 Mar. 2004). EM, Vol. II, Annex 58.

¹³⁴ Diplomatic Note 15839/2004-GM-VM, sent from the Ministry of Foreign Affairs of Ecuador to the Ministry of Foreign Affairs of Colombia (10 Mar. 2004). EM, Vol. II, Annex 59.

¹³⁵ Presidential Joint Declaration between Ecuador and Colombia, Bogotá (17 March 2004). EM, Vol. II, Annex 60.

3.41 In light of Colombia's renewed commitment to deliver to Ecuador the scientific support and other information on the impacts of the aerial spraying program on human health and the environment, Ecuadorian Foreign Minister Zuquilanda sent a note to Colombian Foreign Minister Barco on 31 March 2004 once again requesting the long-promised environmental impact assessment and other documents. He wrote:

“Furthermore, as offered by President Alvaro Uribe during the State Visit, and as set forth also in the Joint Declaration, I would appreciate it if you would arrange for the information and the studies on the sprayings made in Colombia, particularly the environmental impact study, to be sent [to Ecuador].”¹³⁶

3.42 In response, on 14 April 2004, the Director of Colombia's DNE sent Ecuador very minimal information in which, among other things, Colombia confirmed a series of past spray campaigns that were conducted in the border region during 2002 and 2003¹³⁷. Although Colombia claimed that it kept records of flight and spray path data, no such information was -- or ever has been -- shared with Ecuador. Nor did Colombia offer any information about its plans for future spray events. Once again, no environmental impact assessment was provided.

3.43 The joint Scientific and Technical Commission met for the third time on 26 May 2004 in Nueva Loja, Sucumbíos, about an hour's drive from the Ecuador-Colombia border. Little was accomplished, however, and no joint minutes could be agreed upon. According to a contemporaneous report by the Ecuadorian delegation members, they emphasized their dissatisfaction with the information

¹³⁶ Diplomatic Note 20434/2004-GM, sent from the Ministry of Foreign Affairs of Ecuador to the Ministry of Foreign Affairs of Colombia (31 Mar. 2004). EM, Vol. II, Annex 61.

¹³⁷ Note SARE-142, *op. cit.* EM, Vol. II, Annex 62.

provided by the Colombian delegation¹³⁸. For its part, Colombia reiterated the position that it would continue to utilize aerial fumigations as a tool for eradicating coca crops wherever they might be located¹³⁹.

3.44 At Ecuador's insistence, the fourth (and, as it turned out, final) meeting of the joint Scientific and Technical Commission took place on 2 August 2004 in Quito. At the meeting, Colombia indicated that there would be no change in its position and that it would continue aerial spraying right up to the border with Ecuador. In the joint minutes adopted and signed by both sides, however, Colombia did undertake two commitments regarding the way the spraying would be conducted. First, Colombia specifically agreed that it

“shall notify, by the fastest means, at the moment that such sprayings are being conducted in the border area, so that the Ecuadorian [Scientific and Technical] Commission may take samples and conduct the respective analyses, in a timely manner”¹⁴⁰.

In addition,

“The Colombian Delegation, reiterating absolute respect for Ecuadorian sovereignty, declares that, should sprayings along the border continue, the technical conditions necessary to prevent the spray from reaching Ecuadorian territory shall be guaranteed.”¹⁴¹

Neither commitment satisfied Ecuador's demand to halt aerial spraying near the border, or its repeated requests for information and an environmental impact assessment and other scientific studies on the impacts of the spraying. In any

¹³⁸ *Report of the Ecuadorian Delegation to the Third Meeting of the Joint Scientific and Technical Commission* (26 May 2004). EM, Vol. II, Annex 63.

¹³⁹ *Ibid.*

¹⁴⁰ Minutes of the Fourth Meeting of the Joint Scientific and Technical Commission (2 Aug. 2004). EM, Vol. II, Annex 64.

¹⁴¹ *Ibid.*

event, neither commitment was fulfilled by Colombia: Colombia did not notify Ecuador in advance of future fumigations, and the chemical spray from the fumigations continued to reach and impact Ecuadorian territory.

Section III. Colombia's Adherence to Its Fumigation Programme Over Ecuador's Continued Opposition and the Involvement of Multilateral Organizations: 2004-2007

3.45 On 4 November 2004, Colombia's Foreign Ministry informed Ecuador that "the Anti-Narcotics Police has notified us of the re-initiation of aerial spraying with glyphosate in the border area, which shall last until the end of the month of December"¹⁴². It was not clear from this communication whether the aerial sprayings had already recommenced. Colombia's note also failed to provide any information about where fumigations were being conducted, or on what dates, as would have been necessary in order to permit Ecuador to "take samples and conduct the respective analyses, in a timely manner." The note therefore fell short of Colombia's promise to inform Ecuador "by the fastest means, at the moment that such sprayings are being conducted in the border area".

3.46 Four days later, by note dated 8 November 2004 and marked "urgent", Ecuador reminded Colombia that appropriate steps should be taken "in order to guarantee that the drift generated by the sprayings does not reach Ecuadorian territory"¹⁴³. Colombia chose not to respond. Instead, it continued to carry out aerial sprayings, including in the border areas, in December 2004 without further

¹⁴² Diplomatic Note DPM/CDR 65881, sent from the Ministry of Foreign Affairs of Colombia to the Embassy of Ecuador in Bogotá (4 Nov. 2004). EM, Vol. II, Annex 65.

¹⁴³ Diplomatic Note 4-2-439/2004, sent from the Embassy of Ecuador in Bogotá to the Ministry of Foreign Affairs of Colombia (8 Nov. 2004). EM, Vol. II, Annex 66.

notice or information to Ecuador. Several weeks afterwards, representatives of Ecuador's Foreign Ministry visited the communities of El Afilador and Santa Marianita in northern Sucumbíos in an effort to collect evidence of the sprayings' impact. They were unable to do so. Four months later, in April 2005, Colombia conducted yet another round of fumigations in the border region, this time without notice to Ecuador of any kind.

3.47 By diplomatic note dated 6 May 2005, Colombia sent Ecuador a copy of the report prepared by CICAD entitled "Environmental and Human Health Assessment of the Aerial Spray Program for Coca and Poppy Control in Colombia"¹⁴⁴ that had been under preparation since 2001¹⁴⁵. Colombia claimed the report proved that its aerial spraying operations did not present significant risks to human health or the environment, either in Colombia or Ecuador. Ecuador did not agree. In fact, as will be discussed further in Chapter V, the report itself acknowledged significant known risks of the fumigations to both human health and the environment. The Ecuadorian Scientific and Technical Commission observed that the CICAD report was methodologically flawed; that its conclusions were based only on bibliographic compilations and inadequate existing studies rather than field testing; and that it ignored witness testimonies of actual harms¹⁴⁶. The report's methodology and conclusions were the subject of

¹⁴⁴ Solomon, K. R. et al., *Environmental and Human Health Assessment of the Aerial Spray Program for Coca and Poppy Control in Colombia*, A Report Prepared for the Inter-American Drug Abuse Control Commission (CICAD), Organization of American States (OAS) (31 Mar. 2005), *available at* http://www.cicad.oas.org/Desarrollo_Alternativo/ENG/Projects%20By%20Country/Colombia/OAS%20Panel%20Report%20Final.pdf (last visited 15 Apr. 2009). EM, Vol. III, Annex 152.

¹⁴⁵ Diplomatic Note DAA/CAL 23927, sent from the Ministry of Foreign Affairs of Colombia to the Ministry of Foreign Affairs of Ecuador (6 May 2005). EM, Vol. II, Annex 67.

¹⁴⁶ Ecuadorian Scientific-Technical Commission, *Technical Report from the CCTE on the CICAD Document on the Study of the Effects Produced by Spraying Glyphosate (within the coca crop*

sustained scientific criticisms by other parties as well, notably including the National University of Colombia¹⁴⁷.

3.48 Nevertheless, Colombia considered the debate closed upon its delivery of the CICAD report to Ecuador, despite Ecuador's rejection of it.

3.49 On 25 July 2005, at Ecuador's initiative, the two States' then-Ministers of Foreign Affairs, Ms. Carolina Barco of Colombia and Mr. Antonio Parra Gil of Ecuador, met in Quito to discuss Colombia's aerial sprayings. Foreign Minister Parra reiterated Ecuador's standing complaints about Colombia's failure to fulfil existing agreements on the subject. Once again, however, no meaningful results were achieved¹⁴⁸.

3.50 In the face of this diplomatic stalemate, in September 2005 Ecuador's then-President Alfredo Palacio proposed to the 60th meeting of the United Nations General Assembly the creation of a UN study group to analyze the effects of

eradication program) on the Border Between Ecuador and Colombia (2 June 2005). EM, Vol. III, Annex 153.

¹⁴⁷ National University of Colombia, Institute of Environmental Studies, *Observations on the "Study of the effects of the Program for the Eradication of Unlawful Crops by aerial spraying with glyphosate herbicide (PECIG) and of unlawful crops on human health and the environment* (10 May 2005), available at http://www.cicad.oas.org/Desarrollo_Alternativo/ENG/Projects%20By%20Country/Colombia/National%20University%20Recommendations.doc (last visited 15 Apr. 2009). EM, Vol. III, Annex 152.

See also Inter-American Drug Abuse Control Commission, *Some Comments on the Study of the Impact of Glyphosate used in the Eradication of Illicit Crops in Colombia*, available at http://www.cicad.oas.org/Desarrollo_Alternativo/ENG/Projects%20By%20Country/Colombia/Comments%20about%20the%20study.asp (last visited 15 Apr. 2009).

¹⁴⁸ See "Parra Gil Demanded Colombia's Compliance With Agreements From Barco," EL UNIVERSO (Guayaquil, Ecuador, 25 July 2005). EM, Vol. IV, Annex 177. See also "Imperturbable, Barco Listened to Parra," EL COMERCIO (Quito, Ecuador, 26 July 2005). EM, Vol. IV, Annex 178.

Colombia's aerial fumigations on the inhabitants and the environment of the border region. In his speech to the General Assembly on 18 September 2005, President Palacio stated:

“[T]he incorporation of biology into the new international order obliges the United Nations to transfer its focus from man to biology. The presence of this new factor -- biology -- brings with it the need to raise the level of ethics and international law to the highest degree of respect for biodiversity and the preservation of all forms of life. Ecuador attaches particular importance to this topic and is therefore concerned at the controversial spraying of glyphosate as an herbicide to eliminate illegal crops along border areas between Colombia and Ecuador. Studies on this substance suffer from technical and methodological shortcomings. Ecuador therefore calls upon the United Nations system to promote a comprehensive, reliable and credible study on the actual impact of this spraying. Ecuador considers that it is essential to apply the precautionary principle that has been recognized in many international agreements and other instruments, in particular the Rio Declaration on Environment and Development. Consequently, Ecuador has asked its neighbouring Government of Colombia to suspend aerial-spraying activities in a 10-kilometre strip north of our border”¹⁴⁹.

3.51 President Palacio's invitation was formalized in a letter from Ecuador's Permanent Mission to the UN to the Secretary General the next day¹⁵⁰. The Secretary General subsequently agreed to send a mission to Ecuador to assess the viability of the proposed study¹⁵¹.

¹⁴⁹ Address of President Alfredo Palacio to the General Assembly of the United Nations, Sixtieth Session, 11th Plenary Meeting (18 Sep. 2005), U.N. Doc. A/60/PV.11. EM, Vol. II, Annex 68.

¹⁵⁰ Diplomatic Note 4-2-108/2005, sent from the Permanent Mission of Ecuador to the U.N. to the General Secretariat of the U.N. (19 Sep. 2005). EM, Vol. II, Annex 69.

¹⁵¹ Note from the Department of Political Affairs of the U.N. to the Permanent Mission of Ecuador to the U.N. (29 Nov. 2005). EM, Vol. II, Annex 71.

3.52 The following month, on 17 October 2005, Colombia's President delivered a speech at a summit of antinarcotics chiefs of Latin American and Caribbean States, during which he reconfirmed his government's policy of continuing aerial fumigations in all areas of the country:

“...What we need to say to the world is: Colombia is free of drugs, and for this we have to strengthen fumigation and eradication efforts... How important it is, that we can everyday strengthen, further and further, the manual eradication program, and continue strengthening the fumigation program!”¹⁵²

3.53 On 7 December 2005, the Foreign Ministers of Ecuador and Colombia met in Quito to discuss the main items on the bilateral agenda, including the aerial fumigations. According to the Joint Communiqué issued after the meeting:

“18. The Ecuadorian Foreign Minister reiterated his country's request to the Colombian Government that aerial spraying be suspended along a 10-kilometre band from the common border, and that manual eradication be used instead.

19. The Colombian Foreign Minister confirmed that, in response to the issues raised by the Ecuadorian Government, and having reviewed its aerial spraying schedule, her country has decided to temporarily suspend spraying in the area of the border with Ecuador, starting in January 2006.”¹⁵³

3.54 Ecuador subsequently learned that the Colombian Foreign Minister's pledge to suspend aerial fumigations in January 2006 was empty. Historically, most of Colombia's aerial fumigations along the border had taken place during the final months of one year and the beginning of the next. Thus, by “the month

¹⁵² Colombian President Alvaro Uribe, *Remarks at the Summit of Antinarcotics Chiefs of Latin America and the Caribbean*, Casa de Nariño, Secretaría de Prensa (17 Oct. 2005). EM, Vol. II, Annex 70.

¹⁵³ Joint Declaration of the Ministers of Foreign Affairs of Ecuador and Colombia (7 Dec. 2005). EM, Vol. II, Annex 72.

of January 2006”, the sprayings during the 2005/2006 cycle were largely completed. No further spraying would have been planned until the end of 2006. In fact, Colombia resumed aerial spraying in the border zone in December 2006, exactly on schedule.

3.55 In the Foreign Ministers’ Joint Communiqué of December 2005, Colombia also agreed to participate in and cooperate with the UN study proposed by Ecuador and agreed to by the Secretary General:

“20. Bearing in mind that both Governments have not reached an agreement on the innocuousness of the herbicide glyphosate and its coadjuvant on health and the environment, the Colombian Government has duly noted the request made by the Ecuadorian Government to the United Nations for a prospective study on this issue and has agreed to participate in the definition of the terms of reference of the study. Colombia further agreed to review the results of the study and to evaluate the adoption of the relevant measures.”¹⁵⁴

3.56 In February 2006, the Secretary General sent a preliminary technical mission to Ecuador to lay the groundwork for the planned study. Colombia was given prior notice of the visit so that it could participate as agreed¹⁵⁵. Despite its December 2005 commitment to do so, however, Colombia chose not to participate.

3.57 The UN mission produced a report entitled “Report on the Preliminary Technical Mission of the United Nations Proposing that Studies be Conducted on the Impact of Aerial Sprayings and Complementary Actions on the Northern

¹⁵⁴ *Ibid.*

¹⁵⁵ Diplomatic Note 2854/06/SSNDF/DGRFC, sent from the Ministry of Foreign Affairs of Ecuador to the Embassy of Colombia in Quito (20 Jan. 2006). EM, Vol. II, Annex 73.

Border of Ecuador”¹⁵⁶ which Ecuador communicated to Colombia on 2 May 2006¹⁵⁷. In it, the authors of the report proposed five specific scientific studies to evaluate the effect of Colombia’s fumigations in Ecuador. They were: (a) an epidemiology study comparing the health of people within five kilometres of the border exposed to the spraying with those not exposed; (b) a toxicity study, looking at the particular spray mix used; (c) an analysis comparing exposed vs. unexposed water, soil and plants; (d) a study comparing soil pathologies in sprayed vs. non-sprayed areas; and (e) a study of crop productivity in sprayed vs. non-sprayed areas¹⁵⁸.

3.58 Colombia expressed strong opposition to all of these studies, and it was not possible to carry them out.

3.59 In December 2006, Ecuador learned that Colombia had begun spraying in the border area once again, in apparent violation of its commitments (a) of August 2004 to notify Ecuador in advance of any such sprayings, and (b) of December 2005 to suspend further sprayings altogether¹⁵⁹. Ecuador reacted to the news by summoning the Colombian Ambassador in Quito to the Foreign Ministry to take personal delivery of a protest note dated 14 December 2006. In it, Ecuador stated:

“As that Honorable Diplomatic Mission is aware, since 2001 Ecuador has asked Colombia to abstain from conducting sprayings

¹⁵⁶ United Nations, *Report on the Preliminary Technical Mission of the United Nations* (hereinafter “U.N. Report on Studies to Be Conducted”) (Apr. 2006). EM, Vol. II, Annex 28.

¹⁵⁷ Diplomatic Note 17533/GM, sent from the Ministry of Foreign Affairs of Ecuador to the Ministry of Foreign Affairs of Colombia (2 May 2006). EM, Vol. II, Annex 74.

¹⁵⁸ U.N. Report on Studies to Be Conducted, *op. cit.* EM, Vol. II, Annex 28.

¹⁵⁹ Official email C.E.No. /2006-MECUCOL, sent from the Embassy of Ecuador in Bogotá to the Ministry of Foreign Affairs of Ecuador (11 Dec. 2006). EM, Vol. II, Annex 75.

in the area 10 kilometres from the border between both countries, with the purpose of preventing damages to human health, to the environment and to the flora and fauna of the border zone of Ecuador.

...

The Joint Communiqué signed in Quito on 7 December 2005, in the framework of the official visit of the Minister of Foreign Affairs of Colombia to Ecuador, reflects the commitment of that country to suspend temporarily aerial sprayings and to allow manual eradication operations.

...

Based on the foregoing, THE MINISTRY OF FOREIGN AFFAIRS expresses its strongest protest to the Government of Colombia for its decision to resume aerial sprayings near the border area with Ecuador, dismissing all the requests made by Ecuador to maintain their suspension, at a time when it is essential to have clear and unequivocal signs of the political will of the Colombian Government to advance along the path of constructive dialogue in order to overcome any difficulties that both countries may face in their common border.”¹⁶⁰

The following day, Ecuador recalled its Ambassador to Colombia for consultations on this issue.

3.60 Ecuador also submitted a protest note to the Secretary General of the OAS, Mr. José Miguel Insulza, in which it asked to have Colombia’s actions brought to the attention of the Permanent Council¹⁶¹. In addition, Ecuador sent a note to the UN High Commissioner for Human Rights, Ms. Louise Arbour,

¹⁶⁰ Diplomatic Note 52025-GM/SSNDF/DGSN sent from the Ministry of Foreign Affairs of Ecuador to the Embassy of Colombia in Quito (14 Dec. 2006). EM, Vol. II, Annex 76.

¹⁶¹ Diplomatic Note 52284/06/-GM, sent from the Ministry of Foreign Affairs of Ecuador to the Secretary General of the Organization of American States (15 Dec. 2006). EM, Vol. II, Annex 77.

inviting Mr. Paul Hunt, UN Special Rapporteur on the Right to Health, to visit Ecuador and verify the effects of Colombia's aerial fumigations¹⁶².

3.61 On 28 December 2006, the UN Special Rapporteur on the Rights of Indigenous People, Mr. Rodolfo Stavenhagen (who had visited Ecuador for nearly two weeks in April and May 2006), issued a report in which he stated, among other things:

“Currently, the region's most serious problem is the aerial spraying of illicit crops on the Colombian side of the border, using glyosphate [sic] mixed with other products, under the auspices of Plan Colombia (see the report of the Special Rapporteur on Colombia, E/CN.4/2005/88/Add.2). Damage caused by this practice has affected Ecuador, particularly its indigenous communities, and has given rise to complaints by the Ecuadorian Government and to bilateral negotiations between the two countries. International studies indicate that this practice has negative effects on environmental resources and the health of people and animals. Skin and other diseases, pollution of rivers and aquifers, and other damage have been reported. Furthermore, spraying has been seen as having serious effects on banana plantations and varieties of tuber crops, the local staple. In addition, the population often uses untreated water from the river forming the border between the two countries.”¹⁶³

3.62 On 9 January 2007, Ecuador's then-Foreign Minister, Dr. Francisco Carrión Mena, appeared before the OAS Permanent Council to present Ecuador's views on Colombia's aerial sprayings along the border. Characterizing Colombia's reinitiation of fumigations as “unfriendly”, Foreign Minister Carrión:

¹⁶² Ministry of Foreign Affairs of Ecuador, Press Release No. 1121, *Ecuador Presents Protest Note to Colombia over the Resumption of Fumigations* (15 Dec. 2006). EM, Vol. IV, Annex 179.

¹⁶³ *Report of the Special Rapporteur on the Situation of Human Rights and Fundamental Freedoms of Indigenous People, Rodolfo Stavenhagen: Mission to Ecuador (25 April-4 May 2006)*, U.N. Doc. A/HRC/4/32/Add.2 (28 Dec. 2006). EM, Vol. II, Annex 30.

- insisted that Colombia’s sprayings violated the spirit of the December 2005 Joint Communiqué;
- denounced Colombia’s decision not to cooperate with the UN scientific study mission;
- delivered 34 different scientific studies from around the world addressing the dangers of glyphosate;
- invited the Inter-American Commission on Human Rights to carry out a field mission to evaluate the effects of the sprayings on the frontier region; and
- asked Colombia to agree to the creation of a new bi-national scientific commission to address the issue, including matters of State responsibility and indemnification¹⁶⁴.

3.63 Responding to Foreign Minister Carrón’s statements, Colombia’s Vice-Minister of Foreign Affairs, Mr. Camilo Reyes, stated that the subject of aerial spraying was not open for discussion:

“This [the decision to reinstate aerial spraying] is a sovereign decision of the Government of Colombia, and, therefore, an internal affair of Colombia, which this Forum is not competent to discuss.”¹⁶⁵

3.64 With respect to his country’s decision to abrogate its prior commitment to suspend aerial fumigations along the border, the Colombian Vice-Minister dismissed that undertaking as both unilateral and temporary, and contended that

¹⁶⁴ Speech of Ecuadorian Minister of Foreign Affairs in the OAS Permanent Council (9 Jan. 2007). EM, Vol. II, Annex 78.

¹⁶⁵ Speech of Colombian Vice Minister of Foreign Affairs in the OAS Permanent Council (9 Jan. 2007). EM, Vol. II, Annex 79.

Colombia simply “had no option but to resume the spraying it had traditionally carried out on the Colombian side of the border”¹⁶⁶.

Section IV. The Second Joint Scientific Commission and the Collapse of Negotiations: 2007-2008

3.65 Following the meeting of the OAS Permanent Council, on 10 January 2007, Ecuador and Colombia agreed in principle to the creation of a new scientific commission, which would establish precise terms of reference for a study of the health effects of Colombia’s aerial spraying, including the collection of testimonies from both sides of the border. The agreement was reached by Ecuador’s then-President-elect, Rafael Correa (who took office five days later) and Colombia’s President Alvaro Uribe, on the occasion of the inauguration of Nicaragua’s new President in Managua¹⁶⁷. Later that month, in Río de Janeiro, the Foreign Ministers of Ecuador and Colombia met to implement the Presidents’ agreement¹⁶⁸.

3.66 The first meeting of the new bi-national scientific commission took place on 10 April 2007 in Quito. The delegations expressed conflicting views on the purpose of the commission. Ecuador proposed to focus on issues relating to human well-being, the multi-dimensional nature of the problem and the principle of precaution. Colombia disagreed. It stated that the commission’s only purpose

¹⁶⁶ *Ibid.*

¹⁶⁷ “Correa and Uribe reach an agreement”, EL COMERCIO (Quito, Ecuador, 11 Jan. 2007). EM, Vol. IV, Annex 181.

¹⁶⁸ See “Ecuador will remain an associated member State with Mercosur”, EL COMERCIO (Quito, Ecuador, 20 Jan. 2007). EM, Vol. IV, Annex 184; Ministry of Foreign Affairs of Ecuador, Press Release No. 040, *Bilateral Progress in the Meeting Between the Foreign Ministers of Ecuador and Colombia* (19 Jan. 2007). EM, Vol. IV, Annex 183.

was to examine the technical issues relating to the potential of the spray to drift off-target from Colombia into Ecuador¹⁶⁹.

3.67 According to a contemporaneous *Aide Mémoire* prepared after the meeting by the Ecuadorian delegation:

“Ecuador stated the need, as part of the methodology, to carry out field visits to San Francisco I and II, Santa Marianita, Puerto Mestanza and Lago Agrio [all in Sucumbíos, Ecuador], an idea which was not accepted by Colombia, as they believed that this would be to accept that glyphosate falls into Ecuadorian territory, which would contradict the official position that they maintained ...”¹⁷⁰.

3.68 The Ecuadorian delegation requested, for the purpose of determining the health impacts of the spraying program, that Colombia provide it with the precise chemical formulation used in the spray mixture, which still had not been provided. Ecuador also suggested that the commission determine the implications of the precautionary principle for the spraying program. Colombia rejected both proposals:

“Two other important issues considered in the meeting were related to the chemical composition used for the eradication of illicit crops and the precautionary principle. In the first case, Colombia expressed that this was a decision of its government that was not to be discussed at that table, and that it considered it an intervention into the internal affairs of Colombia; and, regarding the precautionary principle, they believed that it should first be proved that glyphosate crosses into Ecuador to be able to enter into

¹⁶⁹ Minutes of the First Meeting of the Bi-National Scientific-Technical Commission (10 Apr. 2007). EM, Vol. II, Annex 80.

¹⁷⁰ Ecuadorian Scientific-Technical Commission, *Aide Mémoire on the First Meeting* (11 Apr. 2007). EM, Vol. II, Annex 81.

another type of consideration and to make a claim for the purposes of eventual reparations.”¹⁷¹

3.69 To the surprise of the Ecuadorian delegation, the Colombian delegation stated that the Colombian Ministry of the Environment had conducted an environmental impact study. When asked that Ecuador be given a copy, the Colombian delegation was non-committal; it offered only “to make the necessary efforts to obtain them from the pertinent institutions and to send them in a timely fashion, so long as they were not classified”¹⁷². The study was never provided to Ecuador.

3.70 From 14 to 18 May 2007, the UN Special Rapporteur on the Right to Health, Mr. Paul Hunt visited the border areas of Ecuador affected by Colombia’s fumigations pursuant to Ecuador’s December 2006 invitation. In his closing remarks to the press on 18 May in Quito, the Special Rapporteur stated:

“In my opinion, there is an overwhelming case that the aerial spraying of glyphosate along the Colombia-Ecuador border should not re-commence. ...

There is credible, reliable evidence that the aerial spraying of glyphosate along the Colombia-Ecuador border damages the physical health of people living in Ecuador. ...

This evidence is sufficient to trigger the precautionary principle. Accordingly, the spraying should cease until it is clear that it does not damage human health.”¹⁷³

¹⁷¹ *Ibid.*

¹⁷² *Ibid.*

¹⁷³ U.N. Press Release, “U.N. Special Rapporteur on the Right to the Highest Attainable Standard of Health, Paul Hunt, Ends Visit to Ecuador” (18 May 2007). EM, Vol. IV, Annex 185.

3.71 On 28 May 2007 the Foreign Ministers of Ecuador and Colombia met in Quito to discuss bilateral matters, including the fumigations. Ecuador expressed the view that, in the absence of reliable scientific studies on the impacts of the aerial spraying program on human health and the environment (which Colombia still had not provided), the precautionary principle mandated that the spraying be suspended in the border area. Colombia's Foreign Minister Fernando Araújo, responded with the statement that:

“Colombia believes the aerial spraying does not reach Ecuador, and that in any case the effects are not grave. All of this was framed in an emphatic declaration in which he stated that there is not room for too much caution before the ‘Demon of Drug Trafficking.’”¹⁷⁴

3.72 Colombia's Foreign Minister concluded by communicating his government's position that it would not suspend aerial spraying operations in the border area:

“Colombia was not in the position to make a commitment regarding the fumigation question, nor could it predict what decisions would be made in the future regarding this issue.”¹⁷⁵

3.73 The second -- and last -- meeting of the bi-national scientific commission was convened on 9 July 2007 in Bogotá. According to an Ecuadorian *Aide Mémoire* prepared immediately after the meeting, the Colombian delegation took the position that the aerial spray did not cross over into Ecuador and could not be the cause of any harmful transboundary effects:

“[F]or the Government of Colombia, aerial sprayings with a mixture of Glyphosate, CosmoFlux and water for the eradication

¹⁷⁴ Minutes of Ecuador's and Colombia's Foreign Ministers Meeting (28 May 2007). EM, Vol. II, Annex 82.

¹⁷⁵ *Ibid.*

of illicit coca crops do not enter Ecuadorian territory, and therefore, do not produce harmful effects, either to communities or to the natural environment of Ecuador. Accordingly, they cannot be the source or cause of the eventual harmful effects alleged by Ecuador”¹⁷⁶.

The Colombian delegation also declared that “they lacked the competence to recommend to their government that the fumigations be suspended, given that they considered this issue to be a political one, and for that reason to be outside of their scientific-technical character”¹⁷⁷.

3.74 The Ecuadorian delegation noted that the purpose of the commission was to study and evaluate the very questions which their Colombian counterparts, without benefit of the contemplated study and evaluation, had just purported to answer; namely, whether the spray reached Ecuadorian territory, and if so, whether it caused human or environmental harm. The Ecuadorian delegation set forth its position as follows:

- glyphosate is not innocuous either to human health or to the environment;
- the problem is not limited just to narrow technical questions of drift;
- given the state of scientific uncertainty, the precautionary principle should be applied; and
- during the pendency of the scientific dialogue, the fumigations should be suspended in areas of Colombia located within 10 kilometres of the border¹⁷⁸.

¹⁷⁶ Ecuadorian Scientific-Technical Commission, *Aide Mémoire on the Second Meeting* (9 July 2007). EM, Vol. II, Annex 84.

¹⁷⁷ Ecuadorian Scientific-Technical Commission, *Report on Second Meeting* (9 July 2007), p. 1. EM, Vol. II, Annex 83.

¹⁷⁸ *Ibid.*, p. 2.

The meeting ended without agreement. Joint minutes were not agreed, and no further meetings were scheduled or held.

3.75 Following the failure of this meeting to reconcile the Parties' positions, which remained fundamentally unchanged after nearly seven years of dialogue, Ecuador's President Correa stated during a State visit to Spain on 11 July 2007 that Ecuador was considering instituting proceedings against Colombia in this Court¹⁷⁹.

3.76 Colombia reacted strongly to the mention of litigation, calling the idea of proceedings before the Court "absurd"¹⁸⁰. In response, Ecuador's Foreign Ministry issued a press release, dated 12 July 2007 in which it ratified

"the national position that there exist objective facts and scientific proof confirming the damage caused by said aerial sprayings, to the health, crops, and environment of the border populations, as has been corroborated by studies, international expert missions, and Special Rapporteurs from the United Nations. It was made clear that Ecuador has every right to consider the opening of a new international case to deal with this controversy"¹⁸¹.

3.77 In an effort to stave off the litigation signalled by Ecuador's President and Foreign Ministry, Colombia issued a statement that the second meeting of the bi-national scientific commission had achieved progress by identifying the need to conduct additional field work¹⁸², notwithstanding the fact that no agreements

¹⁷⁹ "For Colombia, the Ecuadorian Position on the Lawsuit in The Hague is Absurd", EL UNIVERSO (Guayaquil, Ecuador, 11 July 2007). EM, Vol. IV, Annex 182.

¹⁸⁰ *Ibid.*

¹⁸¹ Ministry of Foreign Affairs of Ecuador, Press Release No. 547, *Ecuador Expresses Surprise at Declarations of High-Ranking Colombian Official* (12 July 2007). EM, Vol. IV, Annex 186.

¹⁸² Diplomatic Note DM/VRE 35868, sent from the Ministry of Foreign Affairs of Colombia to the Ministry of Foreign Affairs of Ecuador (18 July 2007). EM, Vol. II, Annex 85.

were reached, even on the minutes of the meeting, and no further meetings of the Commission were scheduled.

3.78 On 27 July 2007, Ecuador sent Colombia a note declaring the diplomatic process to be exhausted:

“After seven years of permanent and insistent attempts to reach an understanding that would allow the halting of harmful impacts resulting from the use of a broad-spectrum herbicide package that contains glyphosate, unfortunately, all these actions have failed to reach the expected results.

I have outlined below the main efforts deployed by Ecuador to reach an understanding on this matter:

- In July 2001, the Ministry of Foreign Affairs requested that Colombia refrain from making aerial sprayings in a 10-km strip from the borderline, in application of the precautionary principle.
- By Note No. VRE/32759 dated 23 September 2003, the Foreign Ministry of Colombia offered to provide all the available information on the aerial sprayings conducted on the border with Ecuador, an offer that was not fulfilled.
- On 3 August 2004, Ecuador and Colombia signed the Minutes of the IV[th] Meeting of their Scientific and Technical Commissions, in which Colombia agreed to notify Ecuador, through the most expeditious channel, the moment when sprayings would be made, in order to allow the Ecuadorian immediate response team to take samples and make the relevant technical and scientific analysis in an appropriate way. Colombia also failed to fulfill these commitments.
- On 7 December 2005, the Ministers of Foreign Affairs in office at that time signed a joint statement whereby Colombia committed to suspend sprayings, a commitment that was breached soon thereafter. Since then, an indefinite number of spraying flights have been conducted, increasing the negative effects of this practice.

Unfortunately, the [Second] meeting of the Scientific Commissions, held in Bogota on 9 July, 2007 failed to produce any results or understandings, and this is overwhelming evidence that the path of dialogue has been exhausted.

In view of the above, Ecuador believes that the dialogue process it has maintained with Colombia over seven years with the goal of finding a final solution to the issue of sprayings has been exhausted without results.”¹⁸³

3.79 Soon thereafter, Ecuador began preparing the case it later filed in this Court. In early 2008, aware that this lawsuit was imminent, Colombia’s then-Foreign Minister, Mr. Fernando Araújo Perdomo, asked Ecuador’s then-Foreign Minister, Ms. Maria Isabel Salvador, what could be done to avoid litigation. Ecuador’s Foreign Minister replied that Ecuador required a binding, written agreement that Colombia would refrain from further aerial spraying within 10 kilometres of the common border, and that it would pay compensation to Ecuador for harms caused to Ecuadorian territory and nationals as a result of past fumigations. The Colombian Foreign Minister rejected both requests. On 25 February 2008, he offered only that, with respect to the issue of compensation, Colombia would: “[attend] to the complaints of Ecuadorian citizens, with the purpose of paying indemnification for real and ascertainable damages, and through the most expedient mechanism possible, for what the corresponding legal analyses are being done, taking into account what was noted on said occasion”¹⁸⁴. The Colombian Foreign Minister made no commitment to stop or suspend aerial spraying in the border region. He wrote only that Colombia would give “special

¹⁸³ Diplomatic Note 35224/GM/2007, sent from the Ministry of Foreign Affairs of Ecuador to the Ministry of Foreign Affairs of Colombia (27 July 2007). EM, Vol. II, Annex 86.

¹⁸⁴ Diplomatic Note DM/VRE/DSF 7649, sent from the Minister of Foreign Affairs of Colombia to the Minister of Foreign Affairs of Ecuador (25 Feb. 2008). EM, Vol. II, Annex 87.

emphasis” to manual eradication of coca plants in the border area, without committing to halt, alter or reduce aerial spraying:

“the Colombian Government, in consideration of its promise to combat the world drug problem, as well as the threat that this problem represents to our national security, shall continue and strengthen actions directed at the elimination of illicit crops present in its territory, placing special emphasis on the manual eradication program in the area close to our common border”¹⁸⁵.

3.80 Ecuador pointed out the inadequacy of Colombia’s position in a diplomatic note of 24 March 2008:

“The note [from Colombia of 25 February] does not accept the demands of the Government of Ecuador that the Government of Colombia sign a formal agreement and make an obligatory commitment to definitively and permanently cease aerial spraying within 10 kilometres from the border between Ecuador and Colombia. Nor does the note accept in satisfactory terms the demand that the Government of Ecuador be indemnified by the Government of Colombia. ...

The Government of Ecuador considers the position of the Government of Colombia as reflected in the aforementioned note to be fundamentally the same as that which the Government has always maintained, and not reflective of any substantial change.

With this background, the Government of Ecuador reiterates what it expressed in note No. 35224/GM/2007 dated 27 July 2007, in the sense that it considers the diplomatic route in relation to this issue to be finished and without any possibility of success, and shall heretofore take steps through other peaceful resolution mechanisms established by international law”¹⁸⁶.

¹⁸⁵ *Ibid.*

¹⁸⁶ Diplomatic Note 14087/GM/GVMRE/SSNRF/2008, sent from the Ministry of Foreign Affairs of Ecuador to the Embassy of Argentina in Bogota (24 Mar. 2008). EM, Vol. II, Annex 88.

3.81 Ecuador's Application instituting these proceedings was filed on 31 March 2008.

CHAPTER IV.

JURISDICTION

4.1 The Court’s jurisdiction in relation to Ecuador’s Application is based upon Article 36(1) of the Court’s Statute, the 1948 American Treaty on Pacific Settlement, usually referred to as the “Pact of Bogotá”, and the 1988 United Nations Convention Against Illicit Traffic in Narcotic Drugs and Psychotropic Substances (“1988 Narcotics Convention”)¹⁸⁷.

4.2 Article 36(1) of the Court’s Statute provides that:

“The jurisdiction of the Court comprises all cases which the parties refer to it and all matters specially provided for in the Charter of the United Nations or in treaties and conventions in force.”

4.3 In the present case the “treaties and conventions in force” relied upon by Ecuador are the 1948 Pact of Bogotá and the 1988 Narcotics Convention.

4.4 Ecuador’s actions in referring this dispute to the Court are premised on the obligation of States to settle their differences through peaceful means, as reflected in Article 33 of the United Nations Charter, which provides that:

“The parties to any dispute, the continuance of which is likely to endanger the maintenance of international peace and security, shall, first of all, seek a solution by negotiation, enquiry, mediation, conciliation, arbitration, judicial settlement, resort to regional agencies or arrangements, or other peaceful means of their own choice.”¹⁸⁸

¹⁸⁷ American Treaty on Pacific Settlement, “Pact of Bogotá” (hereinafter “Pact of Bogotá”) 30 UNTS 55 (30 Apr. 1948). EM, Vol. II, Annex 1; United Nations Convention Against Illicit Traffic in Narcotic Drugs and Psychotropic Substances, (hereinafter “1988 Narcotics Convention”), U.N. Doc. E/CONF.82/15 (20 Dec. 1988), reprinted in 28 I.L.M. 493 (1989). EM, Vol. II, Annex 3.

¹⁸⁸ Charter of the United Nations (1945), Art. 33.

Section I. The Pact of Bogotá

4.5 The Pact of Bogotá was adopted on 30 April 1948, by 21 members of the Organization of American States¹⁸⁹. At the present time fourteen states are parties to the Pact of Bogotá¹⁹⁰. Colombia and Ecuador signed the Pact on the day it was adopted. Colombia ratified the Pact on 14 October 1948; Ecuador ratified the Pact on 3 March 2008 and deposited its instrument of ratification four days later¹⁹¹. Colombia has made no declaration or reservation in relation to the Pact¹⁹². At the time of signature, Ecuador entered a reservation with respect to Article VI of the Pact, which is of no relevance to this case¹⁹³.

4.6 The purpose of the Pact of Bogotá was to put in place a unified system for the peaceful settlement of disputes¹⁹⁴. The Court has recognised the significance of this approach, recently noting that:

¹⁸⁹ Pact of Bogotá, Signatories and Ratifications, *available at* <http://www.oas.org/juridico/english/sigs/a-42.html> (last visited 27 Mar. 2009). EM, Vol. II, Annex 2.

¹⁹⁰ The current fourteen State parties are: Brazil, Chile, Colombia, Costa Rica, Dominican Republic, Ecuador, Haiti, Honduras, Mexico, Nicaragua, Panama, Paraguay, Peru and Uruguay. El Salvador was a party but denounced the Pact on 24 Nov. 1973. Pact of Bogotá, Signatories and Ratifications, *op. cit.* EM, Vol. II, Annex 2.

¹⁹¹ *Ibid.*

¹⁹² *Ibid.*

¹⁹³ The reservation provides: “The Delegation of Ecuador, upon signing this Pact, makes an express reservation with regard to Article VI and also every provision that contradicts or is not in harmony with the principles proclaimed by or the stipulations contained in the Charter of the United Nations, the Charter of the Organization of American States, or the Constitution of the Republic of Ecuador.” *Ibid.*

¹⁹⁴ Pact of Bogotá, *op. cit.*, Chap. I. EM, Vol. II, Annex 1. In 1938, the Eighth International Conference of American States considered that in view of the fact that “legal provisions to prevent wars in America were dispersed throughout numerous Treaties, Conventions, Pacts and Declarations, it is necessary to systematize them in a harmonic and well organized collection” and initiated a process to reconcile these instruments. International Conference of American States, Perfecting and Coordination of International Peace Instruments (21 Dec. 1938), Art. XV,

“The importance attached to the pacific settlement of disputes within the inter-American system is reflected in Article 2(c) of the OAS Charter, which declares that one of the essential purposes of the organization is ‘to ensure the pacific settlement of disputes that may arise among the Member States’”¹⁹⁵.

4.7 Article XXIII of the original 1948 OAS Charter called for the creation of a special treaty to establish the procedures for addressing international disputes, so that “no dispute between American States shall fail of definitive settlement within a reasonable period of time”¹⁹⁶. The Pact of Bogotá established these procedures, as reflected in its preamble¹⁹⁷.

4.8 Under Article I of the Pact of Bogotá, the parties reaffirmed their pre-existing commitments to “refrain from the threat or the use of force, or from any

available at http://biblio2.colmex.mx/coinam/coinam_1_suplemento_1938_1942/base2.htm (last visited 27 Mar. 2009). EM, Vol. II, Annex 5.

Referring to the Eighth Inter-American Conference, the Inter-American Conference on Problems of War and Peace, held in Mexico City in 1945, further emphasized the need to “systematize in an organized and harmonized group the Inter-American instruments for the prevention and pacific settlement of controversies.” The Mexico City Conference resolved to “[r]eaffirm the principle of Law that all international controversies should be settled by peaceful means” and to “[r]ecommend that the Inter-American Juridical Committee immediately prepare a draft of an ‘Inter-American Peace System’ in order to coordinate all continental instruments for the prevention and peaceful settlement of disputes, in such a manner that the gradual and progressive application of this system will mandatorily lead to securing the desired goal.” Inter-American Conference on Problems of War and Peace (21 Feb. - 8 Mar. 1945), Art. XXXIX, available at http://biblio2.colmex.mx/coinam/coinam_2_suplemento_1945_1954/base2.htm (last visited 27 Mar. 2009). EM, Vol. II, Annex 6.

¹⁹⁵ *Territorial and Maritime Dispute (Nicaragua v. Colombia)*, Preliminary Objections, Judgment, *I.C.J. Reports* 2007, para. 54.

¹⁹⁶ *Charter of the Organization of American States*, UNTS I-1609 (1948), entered into force 13 Dec. 1951. EM, Vol. II, Annex 9. Article 23 of the original 1948 OAS Charter has become Article 27 in the current 1997 OAS Charter, available at <http://www.oas.org/juridico/english/charter.html> (last visited 27 Mar. 2009). The 1948 OAS Charter has been amended by the Protocol of Buenos Aires in 1967, the Protocol of Cartagena de Indias in 1985, the Protocol of Washington in 1992, and the Protocol of Managua in 1993.

¹⁹⁷ Pact of Bogotá, *op. cit.*, Preamble. EM, Vol. II, Annex 1.

other means of coercion for the settlement of their controversies, and to have recourse at all times to pacific procedures”¹⁹⁸.

4.9 Article XXXI of the Pact of Bogotá provides for the jurisdiction of the Court to settle certain international disputes. It provides:

“In conformity with Article 36, paragraph 2, of the Statute of the International Court of Justice, the High Contracting Parties declare that they recognize, in relation to any other American State, the jurisdiction of the Court as compulsory *ipso facto*, without the necessity of any special agreement so long as the present Treaty is in force, in all disputes of a juridical nature that arise among them concerning:

1. The interpretation of a treaty;
2. Any question of international law;
3. The existence of any fact which, if established, would constitute the breach of an international obligation;
4. The nature or extent of the reparation to be made for the breach of an international obligation.”¹⁹⁹

4.10 There can be no question but that the case submitted to the Court by Ecuador falls squarely within the requirements of Article XXXI of the Pact. The case relates to a longstanding “dispute” concerning the effects of Colombia’s aerial spraying programme, and it is of a “juridical nature”. The resolution of the dispute requires the Court to interpret treaties and to address a range of questions of international law. There can be no doubt that the facts alleged by Ecuador

¹⁹⁸ *Ibid.*, Art. I.

¹⁹⁹ *Ibid.*, Art. XXXI.

would, once established by the Court, constitute breaches of numerous international obligations owed by Colombia to Ecuador, and would give rise to questions regarding the nature and extent of the reparation owed by Colombia.

4.11 Article VI of the Pact provides that the dispute settlement procedures set out in the Pact “may not be applied to matters already settled by arrangement between the parties ... or which are governed by agreements or treaties in force on the date of the conclusion of the present Treaty.”²⁰⁰ The subject matter of this dispute is the legality of the aerial spraying that has been conducted by Colombia since 2000. It is plain that Article VI cannot preclude the Court’s exercise of jurisdiction in this case: the matters raised by Ecuador which establish the subject matter of the dispute have not been “settled by arrangement between the parties” and they are not “governed by agreements or treaties in force” in 1948.

4.12 The Court has, by now, a well-established jurisprudence in relation to the Pact of Bogotá, and a number of cases are pending before the Court in which Article XXXI of the Pact has been invoked as a basis for jurisdiction. In the *Dispute regarding Navigational and Related Rights*, Costa Rica’s Application in the case it brought against Nicaragua relied *inter alia* on Article XXXI as a basis for jurisdiction²⁰¹. Nicaragua did not object to the Court’s jurisdiction. For its part, Colombia will be familiar with this basis for the Court’s jurisdiction, as it is a party to the most recent case in which the Court recognised its jurisdiction

²⁰⁰ *Ibid.*, Art. VI.

²⁰¹ Costa Rica’s Application states: “The Court also has jurisdiction over the present dispute in accordance with the provisions of Article 36, paragraph 1, of its Statute, by virtue of the operation of the American Treaty on Pacific Settlement of Disputes, Bogotá, 30 Apr. 1948, Article XXXI (the Pact of Bogotá). The Parties have expressed their commitment to the Pact of Bogotá through the Pact of Amity, Washington, 21 Feb. 1949, Article III.” *Dispute regarding Navigational and Related Rights (Costa Rica v. Nicaragua)*, Application, I.C.J. Reports 2005, para. 3 (footnotes removed).

pursuant to Article XXXI of the Pact. In its Judgment of 13 December 2007, in the case concerning the *Territorial and Maritime Dispute*, the Court found unanimously that it had jurisdiction on the basis of Article XXXI of the Pact to adjudicate upon the dispute concerning sovereignty over certain maritime features and the dispute concerning the maritime delimitation between Nicaragua and Colombia, rejecting Colombia's preliminary objections to the contrary²⁰². The Court declined to exercise jurisdiction in relation to just one aspect of the dispute, namely the question of sovereignty over the islands of San Andrés, Providencia and Santa Catalina²⁰³. It did so on the grounds that it was "clear on the face of the text" of Article I of an earlier 1928 Treaty that the matter of sovereignty over those islands had "been settled by the 1928 Treaty within the meaning of Article VI of the Pact of Bogotá"²⁰⁴. No such argument can be raised in the present case.

4.13 There is no other basis upon which Colombia might object to the Court's jurisdiction. As described in Chapter III, sustained efforts made by Ecuador over many years to resolve the dispute by diplomatic means were not successful. Article II of the Pact of Bogotá encourages parties to resolve controversies "by direct negotiations through the usual diplomatic channels", and recognizes that where these are unsuccessful the parties to the Pact "bind themselves to use the procedures established in [the Pact]"²⁰⁵. Moreover, the Pact of Bogotá generally, and the terms of Article XXXI in particular, impose no temporal limitation on the Court's exercise of jurisdiction. For its part, the Court has consistently adopted the position -- following the approach adopted by its predecessor, the Permanent

²⁰² *Territorial and Maritime Dispute (Nicaragua v. Colombia)*, I.C.J. Reports 2007, *op. cit.*, paras. 97, 104, 120.

²⁰³ *Ibid.*, para. 90.

²⁰⁴ *Ibid.*, para. 88.

²⁰⁵ Pact of Bogotá, *op. cit.*, Art. II. EM, Vol. II, Annex 1.

Court of International Justice -- that acceptance of the jurisdiction of the Court will have a retroactive effect unless this is specifically excluded by the terms of the provision granting jurisdiction or a reservation to such general acceptance of jurisdiction²⁰⁶. Colombia has made no reservation to limit the scope of Article XXXI and, unlike Argentina for example, has not expressed any desire to temporally limit the exercise of jurisdiction under Article XXXI²⁰⁷.

4.14 It follows from these considerations that the Court has jurisdiction over the subject matter of the dispute in accordance with Article XXXI of the Pact of Bogotá.

Section II. The 1988 Narcotics Convention

4.15 The Court also has jurisdiction under the United Nations Convention Against Illicit Traffic in Narcotic Drugs and Psychotropic Substances. Ecuador signed the treaty on 21 June 1989 and deposited its instrument of ratification on 23 March 1990. Colombia signed the treaty on 20 December 1988, and deposited

²⁰⁶ *Mavrommatis Palestine Concessions (Greece v. United Kingdom)*, Judgment 1924, PCIJ Series A, No. 2, p. 35; *Anglo-Iranian Oil Co. (United Kingdom v. Iran)*, Preliminary Objections, Judgment, I.C.J. Reports 1952, pp. 93, 106; *Application of the Convention on the Prevention and Punishment of the Crime of Genocide (Bosnia and Herzegovina v. Serbia and Montenegro)*, Preliminary Objections, Judgment, I.C.J. Reports 1996, para. 34.

²⁰⁷ Where a state has wished to make such a reservation it has done so in express terms. For example, the reservation entered by Argentina states: "Arbitration and judicial procedure have, as institutions, the firm adherence of the Argentine Republic, but the Delegation cannot accept the form in which the procedures for their application have been regulated, since, in its opinion, *they should have been established only for controversies arising in the future and not originating in or having any relation to causes, situations or facts existing before the signing of this instrument.*" Pact of Bogotá, Signatories and Ratifications, (emphasis added). EM, Vol. II, Annex 2.

its instrument of ratification on 10 June 1994. The treaty entered into force on 11 November 1990²⁰⁸.

4.16 Article 32 of the 1988 Narcotics Convention provides:

“1. If there should arise between two or more Parties a dispute relating to the interpretation or application of this Convention, the Parties shall consult together with a view to the settlement of the dispute by negotiation, enquiry, mediation, conciliation, arbitration, recourse to regional bodies, judicial process or other peaceful means of their own choice.

2. Any such dispute which cannot be settled in the manner prescribed in paragraph 1 of this article shall be referred, at the request of any one of the States Parties to the dispute, to the International Court of Justice for decision.”²⁰⁹

4.17 Ecuador has made no reservations to the 1988 Narcotics Convention²¹⁰. Colombia has made certain reservations, but they are not relevant to the subject matter of the present dispute as they relate to Article 9 of the Convention, which deals with law enforcement actions to suppress the commission of certain offences and a specific provision of Article 5 regarding proof issues related to the confiscation of drugs and associated proceeds²¹¹. It is noteworthy, however, that Colombia made one declaration upon ratification that is not relevant to the issue of jurisdiction but that is significant in reflecting Colombia’s recognition of the importance given to the protection of the environment and the rights of

²⁰⁸ United Nations Convention Against Illicit Traffic in Narcotic Drugs and Psychotropic Substances, Status of Treaty Adherence (hereinafter “1998 Narcotics Convention Status of Treaty Adherence”) (1998). EM, Vol. II, Annex 4.

²⁰⁹ 1988 Narcotics Convention, *op. cit.*, Art. 32. EM, Vol. II, Annex 3.

²¹⁰ 1998 Narcotics Convention Status of Treaty Adherence, *op. cit.* EM, Vol. II, Annex 4.

²¹¹ *Ibid.*

indigenous communities in the context of drug control. Specifically, the declaration stresses that:

“It is the view of Colombia that treatment under the Convention of the cultivation of the coca leaf as a criminal offence must be harmonized with a policy of alternative development, taking into account the rights of the indigenous communities involved and the protection of the environment. In this connection it is the view of Colombia that the discriminatory, inequitable and restrictive treatment accorded its agricultural export products on international markets does nothing to contribute to the control of illicit crops, but, rather, is a cause of social and environmental degradation in the areas affected. Further, Colombia reserves the right to make an independent evaluation of the ecological impact of drug control policies, since those that have a negative impact on ecosystems contravene the Constitution.”²¹²

4.18 The 1988 Narcotics Convention has a broad scope, imposing obligations in relation to the respect for sovereignty and territorial integrity, protection of the environment and respect for fundamental human rights. Two of the most important provisions of the 1988 Narcotics Convention are its Articles 2 and 14, which indicate that the 1988 Narcotics Convention imposes obligations that cover the entire subject matter of the dispute that is before the Court.

4.19 Article 2 addresses the scope of the Convention. It provides in relevant part:

“1. The purpose of this Convention is to promote co-operation among the Parties so that they may address more effectively the various aspects of illicit traffic in narcotic drugs and psychotropic substances having an international dimension. In carrying out their obligations under the Convention, the Parties shall take necessary measures, including legislative and administrative

²¹² *Ibid.*

measures, in conformity with the fundamental provisions of their respective domestic legislative systems.

2. The Parties shall carry out their obligations under this Convention *in a manner consistent with the principles of sovereign equality and territorial integrity of States and that of non-intervention in the domestic affairs of other States.*²¹³

4.20 Article 14 deals with measures to eradicate illicit cultivation of narcotic plants. In relevant part it provides that:

“2. Each Party shall take appropriate measures to prevent illicit cultivation of and to eradicate plants containing narcotic or psychotropic substances, such as opium poppy, coca bush and cannabis plants, cultivated illicitly in its territory. *The measures adopted shall respect fundamental human rights* and shall take due account of traditional licit uses, where there is historic evidence of such use, *as well as the protection of the environment.*”²¹⁴

4.21 These provisions vest the Court with jurisdiction over the subject matter of the entire dispute in accordance with Article 32 of the 1988 Narcotics Convention.

²¹³ 1988 Narcotics Convention, *op. cit.*, Art. 2 (emphasis added). EM, Vol. II, Annex 3.

²¹⁴ *Ibid.*, Art. 14 (emphasis added). EM, Vol. II, Annex 3.

**CHAPTER V. THE DANGERS PRESENTED BY COLOMBIA'S AERIAL
SPRAYING OF HERBICIDES**

5.1 The previous Chapters described the social and geographical context in which Colombia has conducted aerial spraying of toxic herbicides along and across the border with Ecuador, the unsuccessful diplomatic efforts to reach an agreement to prevent Colombia's spraying programme from harming Ecuador, and the basis for the Court's jurisdiction over this dispute.

5.2 This Chapter describes the specific dangers to people, plants, animals and the environment presented by Colombia's aerial spraying of toxic herbicides. **Section I** examines the chemical components of Colombia's herbicidal spray mixture. It shows that although Colombia has never fully disclosed all of the chemicals used in the mixture, the principal component is known to be glyphosate, a powerful herbicide that is deadly to all plants even in minute quantities. By combining glyphosate with other toxic chemical agents that increase the herbicide's potency, Colombia has made the spray significantly more lethal, not only to coca plants but also to all other plants impacted by the spray, including the food crops that are a vital source of subsistence for the local population, and the natural flora that comprise much of the region's extraordinary biodiversity. The chemicals in Colombia's spray mixture are toxic to people and animals, as well as plants. **Section II** of this Chapter describes the specific risks to human health, and to plant and animal life, posed by aerial spraying of Colombia's herbicidal mixture. These risks are confirmed by regulatory authorities -- including agencies of the Colombian government -- scientific experts, United Nations Special Rapporteurs, and the manufacturer's legally-binding warnings and restrictions on use. This Section also draws on the conclusions of a team of leading experts in the fields of ecology, toxicology, epidemiology, medicine, veterinary medicine, chemistry, agrochemical regulation

and risk assessment (“Menzie Report”)²¹⁵. **Section III** shows that the aerial spray is difficult to control, especially in the climatic and geographical circumstances of the Ecuador/Colombia border region, and that it inevitably disperses over large areas beyond the targeted coca fields, reaching population centres, subsistence crops, sources of drinking water and natural forests several kilometres away. **Section IV** shows, based on reports of independent third-party observers and first-hand accounts, that Colombia’s aerial spraying programme has, in fact, inflicted the very harms on people, plants and animals in Colombia that product manufacturers and laboratory studies have predicted would occur, based on the toxicity of the spray mixture, its aerial application and the difficulty of confining it to targeted locations.

5.3 Ecuador does not assert any claims against Colombia for harms caused by Colombia to its own people, property or natural environment. Ecuador’s claims are based solely on harms caused by Colombia’s aerial spraying programme within Ecuador, namely to people, plants, animals and the natural environment on the Ecuadorian side of the common border. These harms are described in detail in Chapter VI, where they are supported by reports of the United Nations, Ecuadorian and Colombian government agencies and civil society organizations, and the first-hand testimony of witnesses who have personally experienced the impacts of the spraying programme.

²¹⁵ Charles A. Menzie, PhD, Pieter N. Booth, MS & Susan B. Kane Driscoll, PhD, *with contributions/advice from* Angelina J. Duggan, PhD, Charlotte H. Edinboro, DVM, PhD, Anne Fairbrother, DVM, PhD, Marion J. Fedoruk, MD, CIH, DABT, FACMT, Janci Chunn Lindsay, PhD, Katherine Palmquist, PhD & Brian J. Prince, MRQA, *Evaluation of Chemicals Used in Colombia's Aerial Spraying Program and Hazards Presented to People, Plants, Animals, and the Environment in Ecuador* (hereinafter “Menzie Report”) (Apr. 2009). EM, Vol. III, Annex 158.

Section I. The Toxic Chemicals in the Herbicidal Spray Mixture

5.4 Herbicides are substances that are designed to kill unwanted plants²¹⁶. They may be derived from chemicals, or from natural materials including animals, plants, minerals, bacteria or fungi²¹⁷. To enhance their lethal effect, herbicides can be mixed with other ingredients, either at the time of manufacture or in the field prior to use.

5.5 The exact composition of the spray mixture used by Colombia is not known to Ecuador. Ecuador has repeatedly, but without success, requested this information from Colombia²¹⁸. Though some of the ingredients remain undisclosed, Colombia has indicated that the spray mixture contains at least one herbicide product whose main ingredient is a chemical known as glyphosate. Colombia has not revealed which specific glyphosate-based product is used. Nevertheless, a number of official sources indicate that the product is an enhanced variant of a commercial herbicide commonly known as “Roundup”²¹⁹. Added to Roundup is another chemical called Cosmo-Flux 411F, manufactured in Colombia, that is designed to increase the lethality of the herbicide²²⁰. The

²¹⁶ Herbicides are a class of pesticides, the “pest” being an unwanted plant.

²¹⁷ United States Environmental Protection Agency, *Types of Pesticides*, available at <http://www.epa.gov/pesticides/about/types.htm> (last visited 16 Mar. 2009).

²¹⁸ See, *supra* e.g., Chap. III, paras. 3.9–3.10, 3.13, 3.16.

²¹⁹ Roundup is the most common trade name for the many glyphosate-based herbicide formulations manufactured by Monsanto Corporation.

²²⁰ United States Department of State, Bureau for International Narcotics and Law Enforcement Affairs, *Report on Issues Related to the Aerial Eradication of Illicit Coca in Colombia: Chemicals Used in the Aerial Eradication of Illicit Coca in Colombia and Conditions of Application* (hereinafter “*Chemicals Used*”) (Sep. 2002), pp. 1–2, available at <http://www.state.gov/p/inl/rls/rpt/aeicc/13234.htm> (last visited 26 Mar. 2009). EM, Vol. III, Annex 144; Cosmoagro, S.A., *Cosmo-Flux 411F* (hereinafter “*Cosmo-Flux Product Information*”), available at <http://www.cosmoagro.com> (last visited 1 Mar. 2009). EM, Vol. III, Annex 112.

mixture contains still other chemicals, the identities of which Colombia refuses to divulge.

A. GLYPHOSATE: THE BASE CHEMICAL

5.6 As noted above, the principal herbicide in the Roundup product used by Colombia is glyphosate²²¹. This powerful chemical is considered an “active” ingredient because it does the work of killing plants²²². Glyphosate is deadly to plants because it circulates throughout their leaves, roots and other tissues, thereby affecting more than just the treated foliage²²³. Once it has penetrated the entire plant, it blocks an internal process necessary for plant growth²²⁴. The visible effects of glyphosate are not always immediate; however, within days or weeks plants treated with glyphosate display stunted growth, wither and turn

²²¹ United States Department of State, Bureau for International Narcotics and Law Enforcement Affairs, *Report on Issues Related to the Aerial Eradication of Illicit Coca in Colombia: Updated Report on Chemicals Used in the Aerial Eradication Program* (hereinafter “*Updated Report on Chemicals Used*”) (Dec. 2003), p. 1, available at <http://www.state.gov/p/inl/rls/rpt/aeicc/13234.htm> (last visited 26 Mar. 2009). EM, Vol. III, Annex 148; *Chemicals Used*, *op. cit.*, p. 1. EM, Vol. III, Annex 144.

²²² United States Environmental Protection Agency, *Inert (other) Ingredients in Pesticide Products*, available at <http://www.epa.gov/opprd001/inerts/> (last visited 16 Mar. 2009).

²²³ United States Environmental Protection Agency, Office of Prevention, Pesticides and Toxic Substances, *Report on Issues Related to the Aerial Eradication of Illicit Coca in Colombia, Response from EPA Assistant Administrator Johnson to Secretary of State*, (hereinafter “*EPA 2002 Analysis*”) (19 Aug. 2002), p. 8, available at <http://www.state.gov/p/inl/rls/rpt/aeicc/13237.htm> (last visited 26 Mar. 2009). EM, Vol. III, Annex 143; *United States Roundup Pro Label*, p. 2, Sec. 5.0. EM, Vol. III, Annex 128.

²²⁴ Keith R. Solomon et al., *Environmental and Human Health Assessment of the Aerial Spray Program for Coca and Poppy Control in Colombia*, prepared for the Inter-American Drug Abuse Control Commission (CICAD), Organization of American States (OAS), (hereinafter “*CICAD Report*”) (31 Mar. 2005), p. 21. EM, Vol. III, Annex 151; *United States Roundup Pro Label*, p. 2, Sec. 5.0. EM, Vol. III, Annex 128. More specifically, glyphosate inhibits a biochemical pathway found only in plants and microorganisms that is essential for the formation of specific amino acids. By disrupting the pathway, compounds necessary for the plant’s survival cannot be made. *CICAD Report*, *op. cit.*, p. 21. EM, Vol. III, Annex 151; *United States Roundup Pro Label*, p. 2, Sec. 5.0. EM, Vol. III, Annex 128.

yellow. Eventually the entire plant turns brown and dies²²⁵. Glyphosate is so complete in its destruction that even the plant's root system deteriorates²²⁶.

5.7 Particular care must be employed when spraying glyphosate because, as a non-selective or broad-spectrum herbicide, it kills plants indiscriminately²²⁷. In other words, if glyphosate is inadvertently sprayed on food crops -- such as the crops that people in Ecuador depend upon as an essential food source -- they will die just as readily as unwanted plants, like the coca that is grown in Colombia.

5.8 Because of the indiscriminate nature of their killing power, glyphosate-based herbicides are often used for clearing large areas of all vegetation, such as highway corridors or public utility rights-of-way²²⁸. The Roundup product believed to be used by Colombia is approved in the United States of America, for example, only for such non-agricultural uses²²⁹.

²²⁵ As the Menzie Report describes: "A plant treated with glyphosate will initially stop growing. Cessation of growth can be followed by yellowing of tissue (chlorosis), drying of leaves, leaf drop, scorching or curling of leaves, retardation of shoots, leaf deformation, bud proliferation, and finally necrosis (death)." Menzie Report, *op. cit.*, Sec. 3.1. EM, Vol. III, Annex 158.

²²⁶ *United States Roundup Pro Label*, p. 2, Sec. 5.0. EM, Vol. III, Annex 128.

²²⁷ *EPA 2002 Analysis, op. cit.*, p. 5. EM, Vol. III, Annex 143; *U.S. Roundup Pro Label*, p. 2, Sec. 5.0. EM, Vol. III, Annex 128.

²²⁸ *EPA 2002 Analysis, op. cit.*, p. 4. EM, Vol. III, Annex 143; *CICAD Report, op. cit.*, p. 20. EM, Vol. III, Annex 151.

²²⁹ *Chemicals Used, op. cit.*, p. 1 (reporting that "the commercial glyphosate formulation used in the spray mixture is registered with the U.S. Environmental Protection Agency (EPA) for sale in the United States for non-agricultural use"). EM, Vol. III, Annex 144; *See, e.g., United States Roundup SL Label*, p. 6 ("This product may be used as recommended for: Control of undesired annual and perennial herbaceous weeds in non-cropped rangelands; Control of undesired woody brush and small trees; Aid to burning treatment to establish and maintain fuel breaks, fire perimeters, and black lines; Along roads and utility rights of way; Around industrial sites, parking, buildings, fencing, etc."). EM, Vol. III, Annex 129.

5.9 It takes only a minute dose of glyphosate to kill a plant. As the manufacturer’s United States label instructs, “[d]o not allow the herbicide solution to mist, drip, drift or splash onto desirable vegetation since minute quantities of this product can cause severe damage or destruction to the crop, plants or other areas on which treatment was not intended”²³⁰.

5.10 Even when the amount of exposure is so small that the plant is not killed outright, glyphosate may still cause serious injury that results in long-term plant illness or eventual death. Glyphosate achieves this effect by causing abnormal growth²³¹, impairing soil health and nutrient uptake²³², and increasing the plant’s susceptibility to disease²³³. The United States Environmental Protection Agency (“U.S. EPA”)²³⁴ notes that following exposure to glyphosate spray drift, “[s]ome

²³⁰ *United States Roundup Pro Label*, p. 2, Sec. 5.0. EM, Vol. III, Annex 128.

²³¹ The U.S. Environmental Protection Agency Glyphosate Reregistration Decision explains that in addition to being used for total vegetation control, glyphosate may be applied at lower rates as a plant growth regulator. United States Environmental Protection Agency, *Glyphosate Reregistration Eligibility Decision Fact Sheet* (hereinafter “*Glyphosate RED*”) (Sep. 1993), p. 1. EM, Vol. III, Annex 132.

²³² Menzie Report, *op. cit.*, Secs. 3.1, 5.2.2. EM, Vol. III, Annex 158.

²³³ C. André Lévesque & James E. Rahe, *Herbicide Interactions with Fungal Root Pathogens, with Special Reference to Glyphosate*, Annu. Rev. Phytopathol, Vol. 30 (hereinafter “*Herbicide Interactions with Fungal Root Pathogens*”) (1992), pp. 579–602. EM, Vol. III, Annex 132; Menzie Report, *op. cit.*, Sec. 5.2.2. EM, Vol. III, Annex 158. Ecuadorian Scientific Commission, *The Plan Colombia Aerial Spraying System and Its Impacts on the Ecosystem and Health on the Ecuadorian Border* (hereinafter “*Ecuadorian Scientific Commission Report*”) (Apr. 2007), pp. 92–93. EM, Vol. III, Annex 157.

²³⁴ As noted in Chapter II, the United States government provides financial and programmatic support for Colombia’s aerial spraying operations, primarily through the United States Department of State’s Bureau for International Narcotics and Law Enforcement Affairs and the Narcotic Affairs Section of the United States Embassy in Bogotá. The U.S. EPA has been engaged to evaluate the human health and ecological risks of the aerial spraying program. The United States Department of Agriculture has tested various methods to eradicate drug crops in Colombia, including both chemical and biological methods; the agency has also been involved in evaluating the effectiveness of eradication efforts.

affected plants would likely recover while more sensitive plants may die, have reduced reproductive success, or reduced yields (crop plants)²³⁵.

5.11 Because of the non-selective nature of glyphosate, the herbicide is only intentionally sprayed near crops that have been genetically engineered to resist the effects of glyphosate because plants that lack this genetic modification will be killed by even minimal exposure to the spray²³⁶. For this reason, Roundup's manufacturer expressly warns:

“THIS COMPANY RECOMMENDS USE OF THIS PRODUCT FOR POSTEMERGENCE APPLICATION ONLY ON CROP VARIETIES DESIGNATED AS CONTAINING THE ROUNDUP READY GENE. Applying this product to crop varieties that are not designated as Roundup Ready will result in severe crop injury and yield loss. Avoid contact with foliage, green stems, or fruit of crops, or any desirable plants that do not contain the Roundup Ready gene, since severe injury or destruction will result.”²³⁷

Of course, neither the crops grown by subsistence farmers in the border regions of Ecuador nor the natural vegetation that supports Ecuador's extraordinary biodiversity have the built-in genetic modifications necessary to avoid such damage.

²³⁵ *EPA 2002 Analysis, op. cit.*, p. 32. EM, Vol. III, Annex 143. Even a report prepared by the Inter-American Drug Abuse Control Commission (CIDAD) of the Organization of American States that generally defends Colombia's spray program acknowledges that exposure to glyphosate can also harm future generations of plants, which may affect long-term crop productivity. For instance, the report acknowledges that “[n]on-target impacts of glyphosate on seed germination and growth characteristics of the F1 generation of treated wild plant species have been reported.” *CICAD Report, op. cit.*, p. 71. EM, Vol. III, Annex 151.

²³⁶ *See EPA 2002 Analysis, op. cit.*, p. 4. EM, Vol. III, Annex 143.

²³⁷ *United States Roundup Original Label*, p. 12, Sec. 11.0 (emphasis in original). EM, Vol. III, Annex 127.

5.12 Colombia's spraying programme bears little resemblance to commercial applications of Roundup. The UN Special Rapporteur on the Right to Health, Mr. Paul Hunt, rejected as misleading any suggestion that either the composition or the concentration of the spray mixture used by Colombia was equivalent to herbicides used for agricultural purposes in Ecuador:

“The Special Rapporteur notes that the use of glyphosate in Ecuador (direct and manual) is different from the method used on the border by Colombia (aerial spraying). Furthermore, as the composition and concentration of the spraying appear to differ between Ecuador and Colombia, the suggested equivalence between Ecuadorian and Colombian practice is misleading.”²³⁸

5.13 Reports indicate that spray mixtures used by Colombia for drug interdiction contain much more glyphosate than is typically used in agricultural applications. The elevated concentration of the active ingredient makes the spray significantly more toxic not only to the targeted drug-producing plants but also to people, animals, crops and the environment. In that regard, the UN Special Rapporteur on the Adverse Effects of the Movement and Dumping of Toxic and Dangerous Products and Wastes on the Enjoyment of Human Rights, Okechukwu Ibeanu, explained that:

“[A]lthough the herbicides used to destroy drug crops in an area affected by armed conflict use the same toxic ingredient as that used by commercially available herbicides, the concentration of this active ingredient varies from 1 per cent in herbicides used in agriculture to 26 per cent for those used to destroy drug crops, making it much more toxic”²³⁹.

²³⁸ *Report of the Special Rapporteur on the Right of Everyone to the Enjoyment of the Highest Attainable Standard of Physical and Mental Health, Preliminary Note on the Mission to Ecuador and Colombia*, U.N. Doc. A/HRC/7/11/Add.3 (4 Mar. 2007), para. 18. EM, Vol. II, Annex 31.

²³⁹ *Report of the Special Rapporteur, Okechukwu Ibeanu, Adverse Effects of the Illicit Movement and Dumping of Toxic and Dangerous Products and Wastes on the Enjoyment of Human Rights*,

5.14 The U.S. EPA has also noted that the application rate of glyphosate in Colombia's spraying programme far exceeds average rates of application at U.S. agricultural sites²⁴⁰. A United States Department of Agriculture ("USDA") researcher engaged in defining the optimal parameters for the aerial spray programme wrote that the application rate is more than three times greater than what is necessary to eradicate coca plants effectively:

"I found that 1 lb/acre [1.12 kg/ha] acid equivalent (a.e.) glyphosate, used with my best surfactant system, was sufficient to make coca nonproductive. The spray solution used for coca eradication in Colombia contains 3.5 lb/acre (ae) [3.8 kg/ha] glyphosate."²⁴¹

5.15 Such high rates of application are problematic not only because of glyphosate's lethality to crops and other desirable plants, but also because of human and animal health concerns. As noted in a report prepared by the Inter-American Drug Abuse Control Commission of the Organization of American States at Colombia's request ("CICAD Report"), several scientific studies have "reported on the relation between adverse reproductive outcomes and the use of

(hereinafter "Report of the Special Rapporteur on Toxic and Dangerous Products") U.N. Doc. A/HRC/5/5 (5 May 2007), para. 20. EM, Vol. II, Annex 32; *see also* Comptroller General of the Republic of Colombia, *Plan Colombia: Fifth Evaluation Report* (Dec. 2004), p. 35 (noting that an elevated percentage of chemicals have been applied in various geographical regions). EM, Vol. II, Annex 99.

²⁴⁰ United States Environmental Protection Agency, Office of Pesticide Programs, *Details of the 2003 Consultation for the Department of State: Use of Pesticide for Coca and Poppy Eradication Program in Colombia* (hereinafter "EPA 2003 Analysis") (June 2003), p. 1, available at <http://www.state.gov/documents/organization/27516.pdf> (last visited 26 Mar. 2009) ("[f]or coca eradication, glyphosate is sprayed from fixed wing aircraft at speeds around 165 mph at 4.4 pounds active ingredient (isopropylamine salt) per acre"). EM, Vol. III, Annex 146; *EPA 2002 Analysis, op. cit.*, p. 3 ("actual rates per application in [U.S.] agricultural sites average less than 0.75 pounds of the active ingredient glyphosate per acre"). EM, Vol. III, Annex 143.

²⁴¹ Ron Collins, Agronomist, Weed Science Laboratory, Agricultural Research Service, United States Department of Agriculture, *Glyphosate Aerial Application to Control Erythroxylum sp. in Colombia: Spray Droplet Evaluation, Draft* (hereinafter "USDA Glyphosate Aerial Application") (23 Dec. 1998), p. 8. EM, Vol. III, Annex 138.

glyphosate”, including one that “observed a moderate increase in the risk of late abortions associated with preconception exposure to glyphosate” and another that “reported a positive association ... when both spouses participated in activities where they could be exposed to pesticides”²⁴². Similarly, the U.S. EPA has reported on animal studies linking exposure of the chemical to maternal health effects including diarrhea, nasal discharge, and even death; it has also reported that glyphosate may affect foetal development²⁴³. An assessment provided to Ecuador by the Colombian National Anti-Narcotics Agency Police²⁴⁴ has also linked the chemical to serious health risks:

“The symptoms that can be caused by Glyphosate poisoning by ingestion can include the erosion of the intestinal tract, which manifests as difficulty in swallowing, sore throat, and gastrointestinal hemorrhaging. Other organs affected are the lungs, liver, cardiovascular system, kidneys, and central nervous system. ... The signs and symptoms resulting from incidental dermal exposure in the use of the compound include skin diseases such as periorbital edema, cardiovascular effects (tachycardia and hypertension), inflammation and paresthesia at the site of contact, and prolonged cutaneous irritation.”²⁴⁵

B. SUPPLEMENTARY CHEMICALS

5.16 Roundup formulations typically contain more than glyphosate; they also contain other chemicals that increase the herbicide’s lethality. These additives

²⁴² *CICAD Report, op. cit.*, p. 55. EM, Vol. III, Annex 151.

²⁴³ United States Environmental Protection Agency, *GLYPHOSATE – 2nd Report of the Hazard Identification Assessment Review Committee* (22 Jan. 2002), pp. 3–4, 9, 12. EM, Vol. III, Annex 142; United States Environmental Protection Agency, *GLYPHOSATE – Report of the Hazard Identification Review Committee* (20 Apr. 1998), pp. 3–4, 7–8, 10. EM, Vol. III, Annex 134.

²⁴⁴ *See supra* Chap. III, para. 3.33.

²⁴⁵ Republic of Colombia, *Environmental Risk of the Herbicide Glyphosate* (date unknown), Secs. 1.7.1-1.7.2. EM, Vol. II, Annex 101.

can be even more toxic than glyphosate itself²⁴⁶. This is particularly true of the herbicide spray used by Colombia.

5.17 Some of the chemicals added to glyphosate in the mixture used by Colombia are known as surfactants²⁴⁷. These additives help glyphosate adhere to the plant leaf and penetrate its waxy surface layer, thereby increasing its potency²⁴⁸. Surfactants are particularly important in Colombia's spraying programme because coca plants have waxy leaves and woody branches, which make them more resistant to the spray than soft, non-woody plants²⁴⁹. Many of the native plant species in the region, and most of the crops grown by the residents of Ecuador's border communities, lack the woody stems and waxy

²⁴⁶ *EPA 2002 Analysis, op. cit.*, p. 32 (“Ecological toxicity studies submitted to EPA for some of the formulations of glyphosate products that EPA has registered have shown them to be more toxic than glyphosate alone.”). EM, Vol. III, Annex 143; *CICAD Report, op. cit.*, p. 93. EM, Vol. III, Annex 151; *Ecuadorian Scientific Commission Report, op. cit.*, p. 26. EM, Vol. III, Annex 157.

²⁴⁷ *Chemicals Used, op. cit.*, pp. 1–2. EM, Vol. III, Annex 144; *Updated Report on Chemicals Used, op. cit.*, p. 1. EM, Vol. III, Annex 148. Surfactants are one type of “inert ingredient”; it is unclear exactly which inert ingredients are included in the formulation used by Colombia. See *EPA 2003 Analysis, op. cit.*, pp. 13–14. EM, Vol. III, Annex 146; *EPA 2002 Analysis, op. cit.*, pp. 10–11. EM, Vol. III, Annex 143. The CICAD Report states that the spray mixture “contains several formulants which are common to the commercial product as used in agricultur[e]”, however, the specific formulants (inert ingredients added to glyphosate by the manufacturer) are not identified. *CICAD Report, op. cit.*, p. 24. EM, Vol. III, Annex 151.

²⁴⁸ *CICAD Report, op. cit.*, pp. 23–24. EM, Vol. III, Annex 151; *EPA 2002 Analysis, op. cit.*, p. 5. EM, Vol. III, Annex 143. As the Menzie Report explains, “[t]he purpose of adding surfactants to the glyphosate is to increase the uptake of glyphosate by plants and thus increase the effectiveness of glyphosate at killing plants. Surfactants increase the efficacy of the herbicide by improving adherence to the plant, enhancing the spread, dispersion, and penetration of the herbicide into plant tissues by disrupting the waxy cuticle on the foliage, and reducing the surface tension of the formulation on the surface of the plant.”). Menzie Report, *op. cit.*, Sec. 3.2. EM, Vol. III, Annex 158.

²⁴⁹ See *Chemicals Used, op. cit.*, pp. 1–2. EM, Vol. III, Annex 144; *Updated Report on Chemicals Used, op. cit.*, p. 3. EM, Vol. III, Annex 148; Menzie Report, *op. cit.*, Sec. 5.2.1. EM, Vol. III, Annex 158.

leaves of the coca plant. This renders them more vulnerable to Colombia's surfactant-heavy herbicide spray than the targeted coca plants²⁵⁰.

5.18 Colombia has reported that at least one surfactant is used in the formulated Roundup product: polyoxyethyleneamine ("POEA")²⁵¹. Surfactants not only make the mixture more toxic to plants -- that is their function -- they also make the product more toxic to humans and animals²⁵². This is certainly true of POEA, which, by itself, causes severe skin irritation and is corrosive to the eyes²⁵³. POEA may also cause gastrointestinal damage, kidney and liver damage, affect the central nervous system, destroy red blood cells and induce breathing

²⁵⁰ Menzie Report, *op. cit.*, Sec. 5.2.1. EM, Vol. III, Annex 158.

²⁵¹ *Chemicals Used, op. cit.*, p. 10. EM, Vol. III, Annex 144; *EPA 2003 Analysis, op. cit.*, p. 13, EM, Vol. III, Annex 146. POEA is also known as polyoxyethylene alkylamine or tallow amine ethoxylate.

²⁵² See *CICAD Report, op. cit.*, p. 93 ("It is also known that it is the surfactants that determine the toxicity of the formulation as many are more toxic than technical glyphosate itself."). EM, Vol. III, Annex 151; *Ecuadorian Scientific Commission Report, op. cit.*, p. 30 ("the acute toxicity of the surfactant POEA is 4 to 5 times greater than that of glyphosate and Roundup."). EM, Vol. III, Annex 157; *Japan Roundup Product Safety Data Sheet* (hereinafter "*Japan Roundup Safety Data Sheet*"), available at <http://www.roundupjp.com/deta/index.html> (last visited 26 Mar. 2009) ("The surfactant that is a component of Roundup herbicide may cause eye and skin irritation, and there is a possibility that the irritating property of this product is due to such properties of the surfactant."). EM, Vol. III, Annex 121; Menzie Report, *op. cit.*, Executive Summary ("While the exact composition and amounts of the various surfactants and other additives are unknown, the addition of these chemicals brings with it increased hazards to non-target plants, as well as to people, agriculture, and the environment"). EM, Vol. III, Annex 158.

²⁵³ *EPA 2003 Analysis, op. cit.*, p. 13. EM, Vol. III, Annex 146.

difficulties²⁵⁴. It has also been linked to problems with pregnancy and even cancer²⁵⁵.

5.19 In addition to POEA, the Roundup product contains another additive, the identity of which Colombia refuses to disclose²⁵⁶. The U.S. EPA has indicated that this ingredient also presents toxicity concerns, though without knowing its chemical make-up Ecuador cannot independently evaluate these risks²⁵⁷.

5.20 The Roundup product is further adulterated by Colombia. In addition to glyphosate, POEA and the undisclosed additive that make up the Roundup product, reports indicate that another chemical, known as Cosmo-Flux 411F (“Cosmo-Flux”), is added to the mixture prior to each spraying operation by members of the Colombian National Police working at air bases in Colombia²⁵⁸. The U.S. Department of State has noted that “Cosmo-Flux 411F is produced, sold, and purchased for the GOC [Government of Colombia] in Colombia but is not sold in the United States.”²⁵⁹

²⁵⁴ Government of Colombia National Health Institute, *Evaluation of the Effects of Glyphosate on Human Health in Illicit Crop Eradication Program Influence Zones* (2003) (hereinafter “*Evaluation of the Effects of Glyphosate on Human Health*”), p. 5, available at <http://www.state.gov/p/inl/rls/rpt/aeicc/57013.htm> (last visited 26 Mar. 2009). EM, Vol. II, Annex 96; *EPA 2003 Analysis, op. cit.*, p. 13. EM, Vol. III, Annex 146.

²⁵⁵ *Evaluation of the Effects of Glyphosate on Human Health, op. cit.*, p. 5. EM, Vol. II, Annex 96; *EPA 2003 Analysis, op. cit.*, p. 13. EM, Vol. III, Annex 146.

²⁵⁶ *EPA 2003 Analysis, op. cit.*, p. 13 (showing that the commercial glyphosate formulation contains POEA and another undisclosed ingredient). EM, Vol. III, Annex 146.

²⁵⁷ *Ibid.*

²⁵⁸ *Chemicals Used, op. cit.*, p. 2. EM, Vol. III, Annex 144; *EPA 2003 Analysis, op. cit.*, pp. 13–14. EM, Vol. III, Annex 146.

²⁵⁹ *Chemicals Used, op. cit.*, p. 2. EM, Vol. III, Annex 144.

5.21 Like other surfactants, Cosmo-Flux increases the absorption of glyphosate into plant leaves and improves its efficiency at killing plants²⁶⁰. According to Cosmoagro, a Colombian manufacturer of the chemical, Cosmo-Flux quadruples the biological action of glyphosate, making the spray far more toxic to off-target plants than the powerful Roundup mixture alone²⁶¹. The specific chemical composition of Cosmo-Flux is unknown and Colombia refuses to disclose the formula²⁶².

5.22 Although Colombia's refusal to divulge the exact composition of Cosmo-Flux makes it impossible for Ecuador to fully assess its human health impacts, what is known is cause for concern. The U.S. EPA has noted that one of the undisclosed components of Cosmo-Flux "can cause dermal and ocular irritation and, in high doses orally, can cause significant toxicity"²⁶³. Personal precaution measures for Cosmo-Flux include use of a breathing apparatus, gloves and eye protection²⁶⁴. The first aid instructions in the event of exposure are as follows:

"In any event, please consult a Doctor!"

²⁶⁰ *Cosmo-Flux Product Information, op. cit. EM, Vol. III, Annex 112; CICAD Report, op. cit., p. 24. EM, Vol. III, Annex 151.*

²⁶¹ *See Cosmo-Flux Product Information, op. cit.* (Cosmo-Flux 411-F "is a non-ionic stereospecific adjuvant that substantially modifies the biological activity of agrochemicals... Adding the adjuvant COSMO-FLUX 411F to the application of insecticides, fungicides and herbicides prepared in mixtures of mineral or vegetable oil has been shown to have the ability to increase the efficiency of these products. Its effectiveness is four (4) times greater than conventional spraying oils due to synergism between the paraffinic oil and the stereospecific surfactant.") (emphasis in original). *EM, Vol. III, Annex 112; see also Ecuadorian Scientific Commission Report, op. cit., p. 30* (noting that Cosmo-Flux "has been shown to increase the effect of Roundup fourfold by increasing glyphosate's penetrating power"). *EM, Vol. III, Annex 157.*

²⁶² *EPA 2003 Analysis, op. cit., pp. 13-14. EM, Vol. III, Annex 146; Comptroller General of the Republic of Colombia, Plan Colombia: Fourth Evaluation Report* (hereinafter "*Comptroller General Fourth Evaluation Report*") (July 2003), p. 35. *EM, Vol. II, Annex 98; See supra* Chap. III, paras. 3.9-3.10, 3.13, 3.16.

²⁶³ *EPA 2003 Analysis, op. cit., p. 14. EM, Vol. III, Annex 146.*

²⁶⁴ *Cosmo-Flux 411F Safety Data Sheet, p. 2, Sec. 7. EM, Vol. III, Annex 114.*

Eye contact: Wash with clean, purified water until irritation disappears or use an eye solution. If irritation persists, seek medical attention.

Skin Contact: Wash with plenty of water; use soap if available. Remove heavily contaminated clothing, including shoes, and wash well before using.

Inhalation: Using appropriate breathing apparatus, remove the person from the site into fresh air and call a doctor.

Ingestion: Do not induce vomiting, keep the person at rest. Get immediate medical attention.”²⁶⁵

5.23 Cosmo-Flux is also toxic to the environment. Its manufacturer warns that the product is “[h]armful to aquatic organisms, fish and algae” and creates “[e]nvironmental risk in case of accident (spills/leaks)”²⁶⁶.

5.24 The original manufacturer of one of the ingredients in Cosmo-Flux was so opposed to its use in Colombia’s aerial spraying programme that it stopped making the product. In 2001, Imperial Chemical Industries (“ICI”), a British chemical company, suspended the sale of its chemical product called “Atplus 300F”, which was used by Cosmoagro in the production of Cosmo-Flux. ICI withdrew Atplus 300F from the market rather than allow it to continue to be used in Colombia’s fumigation programme, citing concerns that the herbicide mixture

²⁶⁵ *Ibid*, pp. 1–2, Sec. 4; see also *Colombia Cosmo-Flux 411F Label*, p. 2 (“Ingestion: Do not induce vomiting. Skin contact: Wash with plenty of water and soap. Inhalation: Symptomatic treatment. Eye contact: Rinse with plenty of clean water or with eye solution for 15 minutes.”). EM, Vol. III, Annex 113.

²⁶⁶ *Cosmo-Flux 411F Safety Data Sheet*, p. 1, Sec. 3. EM, Vol. III, Annex 114; see also United States Environmental Protection Agency, Office of Pesticide Programs, *CICAD Environmental and Human Health Assessment of the Aerial Spray Program for Coca and Poppy Control in Colombia (Ecological Effects Assessment)* (hereinafter “*EPA Ecological Effects Assessment*”), (26 Oct. 2005), p. 2. EM, Vol. III, Annex 154.

had not been properly tested for that use²⁶⁷. Despite safety reservations sufficient to cause ICI to withdraw its product from the market, Cosmoagro continued to produce Cosmo-Flux and Colombia continued to use the product in its aerial spraying programme²⁶⁸.

5.25 The U.S. EPA has noted that Colombia's refusal to divulge the chemical composition of Cosmo-Flux makes it impossible to conduct an adequate evaluation of the risks posed by its use:

“An important uncertainty in this risk assessment concerns differences in the tank mix used in Colombia from those used in the US. The Agency does not have ecological toxicity information on adjuvant Cosmo-Flux 411F, which is neither manufactured nor sold in the US.”²⁶⁹

5.26 Colombia's own Environment Ministry adopted a resolution demanding that the National Anti-Narcotics Agency (“DNE” per the Spanish initials), the agency responsible for implementation of the aerial fumigation programme, conduct a study of the toxicological risks associated with the spray:

“The DNE shall take measures corresponding to the toxicological classification and assessment as defined by the Ministry of Health for the mixture (active ingredient and coadjuvant) with respect to the toxicological risks associated with the herbicide in its approved formulation.”²⁷⁰

²⁶⁷ Republic of Ecuador, Ministry of Environment, *Joint Report from the Workshop: Eradication of Illicit Crops*, Bogotá, Colombia (13-15 Feb. 2002), p. 10. EM, Vol. IV, Annex 163; Antony Barnett & Solomon Hughes, “ICI Pulls Out of Cocaine War”, THE OBSERVER (London, 1 July 2001). EM, Vol. IV, Annex 174.

²⁶⁸ *Cosmo-Flux Product Information*, *op. cit.* EM, Vol. III, Annex 112.

²⁶⁹ *EPA 2003 Analysis*, *op. cit.*, p. 37. EM, Vol. III, Annex 146.

²⁷⁰ Republic of Colombia, Ministry of Environment, *Environmental Management Plan, Resolution No. 1065* (hereinafter “*Colombia Ministry of Environment Resolution 1065*”) (26 Nov. 2001), Art. 10. EM, Vol. II, Annex 15.

Ecuador is not aware that the DNE ever studied the toxicological risks of the herbicidal spray or, if it did so, that the study met with the Environment Ministry's approval.

C. OTHER POSSIBLE COMPONENTS OF THE SPRAY MIXTURE

5.27 As noted, Colombia refuses to disclose the chemical composition of the spray mixture. Indeed, the composition of the spray mixture remains a mystery even to agencies of the Colombian government such as the Comptroller General²⁷¹. Credible sources report that the spray may contain hazardous chemicals in addition to those already discussed above.

5.28 A USDA official involved in evaluating the effectiveness of the Colombia's aerial spraying programme reported that formaldehyde is or at one time was part of the spray. He observed: "It would be in the best interest of the eradication program to work with the GOC to have formaldehyde removed from the formulation"²⁷². The presence of formaldehyde is particularly concerning because of the significant risks it presents to human health. As the U.S. EPA has noted:

"Formaldehyde, a colorless, pungent-smelling gas, can cause watery eyes, burning sensations in the eyes and throat, nausea, and

²⁷¹ *Comptroller General Fourth Evaluation Report, op. cit.*, p. 35 ("[t]here are conflicting accounts as to whether the product being used is Roundup Ultra, Roundup SL, or another formulation, and whether or not coca and poppy crops are being sprayed with the same mixture and concentration. Moreover, the chemical composition of Cosmoflux is also not available, based on the argument that it constitutes information protected under intellectual property rights. Without this information, it is impossible to determine with certainty whether EPA requirements are being met."). EM, Vol. II, Annex 98. The Comptroller General is a Colombian government agency with an auditing function.

²⁷² United States Department of Agriculture, *April 2001 Colombia Coca Eradication Verification Mission Trip Report* (hereinafter "*USDA 2001 Verification Mission Trip Report*") (13 June 2001), p. 5. EM, Vol. III, Annex 140.

difficulty in breathing in some humans exposed at elevated levels (above 0.1 parts per million). High concentrations may trigger attacks in people with asthma. There is evidence that some people can develop a sensitivity to formaldehyde. It has also been shown to cause cancer in animals and may cause cancer in humans. Health effects include eye, nose, and throat irritation; wheezing and coughing; fatigue; skin rash; severe allergic reactions. May cause cancer. May also cause other effects listed under ‘organic gases.’”²⁷³

Ecuador has not located any evidence that Colombia removed formaldehyde from the spray mixture, as recommended by the USDA.

5.29 Still other chemicals may be included in the spray mixture. As the Menzie Report describes, Colombia has engaged in an experimental programme to heighten the efficacy of the spray mixture, and there is considerable uncertainty regarding what chemicals have been included over time²⁷⁴. Some of the additives that have been identified as particularly effective at killing coca present substantial health or environmental risks²⁷⁵. If such herbicides have been

²⁷³ United States Environmental Protection Agency, *An Introduction to Indoor Air Quality: Formaldehyde*, p. 2, available at <http://www.epa.gov/iaq/formalde.html#Health%20Effects> (last visited 2 Apr. 2009).

²⁷⁴ Menzie Report, *op. cit.*, Executive Summary. EM, Vol. III, Annex 158; see also Charles S. Helling & Mary J. Camp, United States Department of Agriculture, *Verifying Coca Eradication Effectiveness in Colombia* (date unknown), pp. 10–11 (reporting that in addition to Cosmo-Flux and the unidentified chemical described in Paragraph 5.19, the mixture contains yet another additive that is combined with the tank mixture prior to application). EM, Vol. III, Annex 160.

²⁷⁵ For example, the Menzie Report explains that “Silwet L-77”, crop oil concentrate, “Agri-Dex”, and “Optima” were identified by USDA scientists as enhancing the efficacy of glyphosate for controlling coca. Silwet L-77 is an organosilicone surfactant that helps prevent the loss of herbicides from leaf surfaces during rain events, and therefore are suitable for use in high-precipitation climates. It may cause irritation of the eyes, skin, mouth and throat, abdominal discomfort, nausea, vomiting and diarrhea, as well as more serious health effects. It is a persistent chemical that is highly toxic to fish and may cause long-term effects on aquatic systems. Crop oil concentrate causes eye irritation. Agri-Dex can cause eye, skin, and throat irritation, among other health effects. Optima can cause severe irritation or eye damage and is harmful if inhaled. Menzie Report, *op. cit.*, Sec. 3.3. EM, Vol. III, Annex 158.

included in the spray, they would compound the risks to the health of Ecuador's people and environment.

5.30 Further evidence suggesting that additional chemicals may be present in the spray comes from the UN Special Rapporteur on the Right to Food, Jean Ziegler, who stated that:

“The Special Rapporteurs responded [to the Government of Colombia] on 20 June 2006, saying that so far there is no clarity about the formulation used for aerial sprayings. There are reports that different chemicals such as Fusarium Oxysporum, Imazapir, 2-4-D, and Paraquat have been used. Furthermore, it seems that the proportion of glyphosate being employed and the actual composition of the final product being used are unknown.”²⁷⁶

5.31 In addition to the UN Special Rapporteur, the Governor of Putumayo Province in Colombia has reported that the spray mixture may contain the fungus *Fusarium oxysporum*²⁷⁷. The USDA and the UN Drug Control Program have long studied *Fusarium oxysporum* as a biocontrol agent (also known as a mycoherbicide²⁷⁸) for use against narcotic crops, and against coca in particular²⁷⁹, including testing it for use via aerial application²⁸⁰.

²⁷⁶ Report of the Special Rapporteur on the Right to Food, Jean Ziegler, Addendum: Communications Sent to Governments and Other Actors and Replies Received, U.N. Doc. A/HRC/4/30/Add.1 (18 May 2007), para. 17. EM, Vol. II, Annex 33.

²⁷⁷ “Fumigation with Fungus Confirmed”, LA HORA (Quito, Ecuador, 23 Aug. 2000) (reporting on a statement by the Representative of the Governor of the Department of the Putumayo, Alvaro Salas that: “the fungus *Fusarium Oxysporum* was first used in his jurisdiction in November of last year and at least twice this year.”) EM, Vol. IV, Annex 173; see also *Ecuadorian Scientific Commission Report, op. cit.*, pp. 20, 21 (reporting that *Fusarium oxysporum* may be included in the spray mixture used by Colombia). EM, Vol. III, Annex 157.

²⁷⁸ “Myco-” is a word from the Greek language, and refers to fungi. A mycoherbicide is a herbicide derived from a fungus.

²⁷⁹ See, e.g., D.C. Sands et al., *Characterization of a Vascular Wilt of *Erythroxylum coca* Caused by *Fusarium oxysporum* f. sp. *Erythroyli* Forma Specialis Nova*, Plant Disease, Vol. 81, No. 5, (hereinafter “*Characterization of Vascular Wilt*”) (May 1997), pp. 501-504 (describing the

5.32 Use of this fungus would be of particular concern because of its potential to infect organisms other than the targeted coca plant. The *Fusarium* fungus spreads easily²⁸¹. It causes wilt, blight, rotting of plant tissue and eventually plant death²⁸². *Fusarium* persists in soil for years, and therefore may cause long-term damage to crops and other plants, lasting for years after it is first sprayed²⁸³. The effects of *Fusarium oxysporum* may also be exacerbated by glyphosate because

isolation of a strain of *Fusarium oxysporum* that is pathogenic to coca plants). EM, Vol. III, Annex 133; United States Department of Agriculture, Agricultural Research Service, *Mechanisms of Microbial-Plant Interactions Related to Biocontrol of Weeds and Narcotic Plants* (1 Oct. 1993 – 30 Sep. 1998), pp. 1–7 (describing USDA research regarding *Fusarium oxysporum* as a biocontrol agent for coca). EM, Vol. III, Annex 137; United States Department of Agriculture, Agricultural Research Service, *Pathogens of Narcotic Crops and Their Use in Biological Control Strategies to Reduce Narcotics* (hereinafter “*Pathogens of Narcotic Crops*”) (1 Oct. 1998 – 30 Sep. 2003), pp. 1–5. EM, Vol. III, Annex 147; Tim Johnson, “U.S. Seeks to Test Fungus That Kills Coca”, THE MIAMI HERALD (Miami, Florida, United States, 3 July 2000), p. A1 (quoting Klaus Nyholm, director of the U.N. Drug Control Program's office in Colombia and Ecuador, who stated that “[o]ur experts tell us that [*Fusarium oxysporum*] is worth trying”). EM, Vol. IV, Annex 172.

²⁸⁰ United States Department of Agriculture, Agricultural Research Service, *Discovery and Development and Mechanism of Action of Biocontrol Agents for Perennial and Annual Weeds* (hereinafter “*Discovery and Development and Mechanism of Action of Biocontrol Agents*”) (1 Oct. 1993 – 30 Sep. 1998), p. 2 (“Methods will be devised to grow biomass in liquid fermentors and formulate biomass in a form that can be delivered by aerial application.”). EM, Vol. IV, Annex 136.

²⁸¹ *Characterization of Vascular Wilt*, *op. cit.*, p. 504. EM, Vol. III, Annex 133; *Pathogens of Narcotic Crops*, *op. cit.*, p. 3. EM, Vol. III, Annex 147; *Discovery and Development and Mechanism of Action of Biocontrol Agents*, *op. cit.*, p. 4. EM, Vol. IV, Annex 136; *Ecuadorian Scientific Commission Report*, *op. cit.*, p. 31. EM, Vol. III, Annex 157.

²⁸² *Characterization of Vascular Wilt*, *op. cit.*, p. 501. EM, Vol. III, Annex 133; Andrew K. Gonsalves & Stephen A. Ferreira, *Fusarium Primer*, available at http://www.extento.hawaii.edu/kbase/crop/Type/fus_prim.htm (last visited 26 Mar. 2009); *Ecuadorian Scientific Commission Report*, *op. cit.*, pp. 30–31. EM, Vol. III, Annex 157; *Characterization of Vascular Wilt*, *op. cit.*, p. 501. EM, Vol. III, Annex 133.

²⁸³ See *Characterization of Vascular Wilt*, *op. cit.*, p. 504. EM, Vol. III, Annex 133; *Discovery and Development and Mechanism of Action of Biocontrol Agents*, *op. cit.*, p. 3. EM, Vol. IV, Annex 136; *Ecuadorian Scientific Commission Report*, *op. cit.*, p. 31. EM, Vol. III, Annex 157.

the chemical weakens agricultural systems in a way that makes them more vulnerable to attack by the fungus²⁸⁴.

5.33 The changing constituents of the spray add to the difficulty of determining its effects on people, plants, animals and the environment. The United States Department of State has reported at least one change since the initiation of spraying near the border with Ecuador in the year 2000²⁸⁵. USDA researchers have been engaged for over a decade in testing to maximize the herbicide compound's lethality²⁸⁶ and follow-up studies to the CICAD Report indicate that testing of various chemical combinations has continued as recently as 2006²⁸⁷. Colombia has never provided Ecuador with the information necessary to

²⁸⁴ Menzie Report, *op. cit.*, Sec. 5.2.2 (explaining that “glyphosate exposure weakens plants’ immunity to fungal infections”). EM, Vol. III, Annex 158; *Herbicide Interactions with Fungal Root Pathogens*, *op. cit.*, pp. 579–580 (noting that “herbicides can alter soil ecosystems by having a direct effect on various components of the soil microflora, such as plant pathogens, antagonists, or mycorrhizae...These effects can result in increased or decreased incidence of plant disease, for example through the promotion or suppression of the activities of beneficial microorganisms...Nonspecialized pathogens can increase their potential on weeds and subsequently affect crops...As still another effect, herbicides can predispose pathogens to fungicides or act as synergists.”). EM, Vol. III, Annex 132; *Ecuadorian Scientific Commission Report*, *op. cit.*, pp. 92–93. EM, Vol. III, Annex 157.

²⁸⁵ *Updated Report on Chemicals Used*, *op. cit.*, p. 1. EM, Vol. III, Annex 148.

²⁸⁶ United States Department of Agriculture, Agricultural Research Service, *Strategies for Controlling Narcotic Plant Production* (hereinafter “*USDA Strategies for Controlling Narcotic Plant Production*”) (30 Sep. 1995 – 29 Sep. 2000), p. 3. EM, Vol. IV, Annex 139; *see also USDA Glyphosate Aerial Application*, *op. cit.*, p. 8. EM, Vol. III, Annex 138; Ronald T. Collins & Charles S. Helling, *Surfactant-Enhanced Control of Two Erythroxylum Species by Glyphosate*, *Weed Technology*, Vol. 16 (2002), pp. 851–859. EM, Vol. IV, Annex 141.

²⁸⁷ Inter-American Drug Abuse Control Commission (CICAD), *Interim Report on Follow-Up Studies: Environmental and Human Health Assessment of the Aerial Spray Program for Coca and Poppy Control in Colombia* (hereinafter “*CICAD Interim Report*”) (July 2006), pp. 3–4. EM, Vol. IV, Annex 155; Inter-American Drug Abuse Control Commission (CICAD), *Second Phase Environmental and Human Health Assessment of the Aerial Spray Program for Coca and Poppy Control in Colombia* (hereinafter “*CICAD Second Phase Assessment*”) (date unknown). EM, Vol. IV, Annex 159.

independently evaluate these reports or to assess how changes in the spray could affect Ecuador's territory, people and environment²⁸⁸.

5.34 The uncertainties about the content of the spray and how it has changed over time increase the already significant concerns about the spraying programme's risks to human health and the environment. In that regard, Ecuador is content to adopt the view of Colombia's Comptroller General, who has stated:

“The profound differences of opinion mentioned above, concerning the type and magnitude of the effects of glyphosate on ecosystems and human health; in addition, to doubts on the exact composition of the mixture sprayed, make credible the existence of a real danger due to the spraying in question.”²⁸⁹

Section II. The Spray Mixture's Effects on People, Plants, Animals and the Environment

A. EFFECTS ON PEOPLE

5.35 Contact with the spray mixture dispersed by Colombia poses direct risks to human health, including eye and skin irritation, respiratory problems and gastrointestinal effects including nausea, vomiting and diarrhea. According to Colombia's Comptroller General, unprotected persons will suffer the following effects from exposure to the herbicides sprayed by Colombia:

“[T]here are documents, university investigations, and environmental audits, in our country, on the effects on human health that report that glyphosate inhalation causes irritation to the

²⁸⁸ Menzie Report, *op. cit.*, Sec. 3.3. EM, Vol. III, Annex 158; *See supra* Chap. III, paras. 3.9–3.10, 3.13, 3.16.

²⁸⁹ Comptroller General of the Republic of Colombia, *Plan Colombia: Second Evaluation Report* (hereinafter “*Comptroller General Second Evaluation Report*”) (10 Dec. 2001), p. 44. EM, Vol. II, Annex 94.

nose and throat; moreover, contact causes skin irritation. At the same time, oral ingestion produces nausea, vomit, abdominal pain and epigstralgia.”²⁹⁰

5.36 Experts confirm that irritation of the eyes, skin, and throat are “associated with the types of chemicals known to be included in the spray, particularly the surfactants that are common to glyphosate formulations”²⁹¹. They describe a study of accidental exposures to Roundup formulations conducted in the United States that resulted in topical effects such as eye and skin irritation, respiratory effects, and systemic effects, including nausea/vomiting, dizziness, fever and diarrhea²⁹². Inadvertent ingestion of glyphosate formulation has resulted in gastrointestinal effects such as nausea, vomiting, and diarrhea²⁹³.

5.37 Eye damage -- including irreversible effects -- is a significant concern. A 2002 report by the U.S. EPA states that “[t]he label for the formulated product used in the coca eradication program in Colombia includes the ‘Danger’ signal word. ... The product has been determined to be toxicity category I for eye irritation, causing irreversible eye damage”²⁹⁴. In the United States, as in many other countries, toxicity category I is the highest toxicity rating assigned to any herbicide (category I of IV) and such products must be labelled with the corresponding “Danger” signal word²⁹⁵.

²⁹⁰ *Comptroller General Second Evaluation Report, op. cit.*, p. 43 (footnote omitted). EM, Vol. II, Annex 94.

²⁹¹ Menzie Report, *op. cit.*, Executive Summary. EM, Vol. III, Annex 158.

²⁹² *Ibid.*, Sec. 5.1.1.1.

²⁹³ *Ibid.*, Sec. 5.1.1.3.

²⁹⁴ *EPA 2002 Analysis, op. cit.*, p. 8. EM, Vol. III, Annex 143.

²⁹⁵ United States Environmental Protection Agency, *Label Review Manual, Chapter 7 – Precautionary Statements* (hereinafter “*EPA Label Review Manual Chap. 7*”) (Aug. 2007), pp. 1,

5.38 Children are particularly vulnerable to the spray mixture by virtue of greater sensitivity to the chemicals²⁹⁶. Children who suffer from nutritional deficiencies -- as many children in the border region do -- are more prone to diarrhea that may be caused by ingestion of the spray. Diarrhea is not a mere inconvenience for a small and weakened child in a remote area with little access to health care, as it can easily lead to dehydration and other adverse health effects, including death²⁹⁷.

5.39 The risks to human health are confirmed by the restrictions imposed on the use of Roundup products by States around the world²⁹⁸. These restrictions are reflected in the manufacturer's warnings about the products and their use. The warnings are not mere hortatory guidelines or recommendations. Manufacturers are legally required to include appropriate warnings on herbicide labels. Users are then legally bound to follow the label's restrictions on use²⁹⁹. Jurisdictions

3, available at <http://www.epa.gov/oppfead1/labeling/lrm/chap-07.htm> (last visited 8 Apr. 2009). The U.S. EPA explains: "The Signal Word, Hazards to Humans and Domestic Animals, Personal Protective Equipment ... and First Aid statements are typically determined by the results of the six acute toxicity studies performed with the product formulation....each acute study is assigned to a toxicity category based on the study results. *Ibid.*, p. 1. Toxicity Category I corresponds to the DANGER signal word. *Ibid.*, p. 3. See, e.g., *United States Roundup Export Label*, p. 1. EM, Vol. III, Annex 125; *United States Roundup SL Label*, p. 2. EM, Vol. III, Annex 129; *United States Fuate SL Label*, p. 2. EM, Vol. III, Annex 126.

²⁹⁶ As the Menzie Report explains, children are more sensitive to some chemical agents, especially because they eat more, drink more, and breathe more in proportion to their body size; their behaviour (hand-to-mouth contact) may expose them more to chemicals; and their bodily systems are still developing. Menzie Report, *op. cit.*, Sec. 5.1.1.4. EM, Vol. III, Annex 158.

²⁹⁷ *Ibid.*

²⁹⁸ Monsanto Company manufactures numerous glyphosate-based herbicide formulations under different trade names. This section describes warnings pertaining to glyphosate-based herbicides registered around the world. For ease of use, all of these products are described as "Roundup" in the text.

²⁹⁹ Menzie Report, *op. cit.*, Sec. 5.4 ("In the U.S. and most countries, including Colombia, pesticides—including glyphosate-based herbicides and adjuvants—must be registered and labelled before the pesticide can be sold or distributed within the country. Pesticide labelling provides legally binding requirements to control when and under what conditions a pesticide can

throughout the world -- including Colombia -- prohibit the use of “pesticides”, including herbicides like Roundup, in a manner inconsistent with their labels³⁰⁰. In the United Kingdom, for example, the Roundup label states: “**COMPLIANCE WITH THE FOLLOWING CONDITIONS OF USE AND ALL SAFETY PRECAUTIONS MARKED* IS A LEGAL REQUIREMENT.**”³⁰¹

5.40 Failure to comply with a label’s restrictions carries criminal and civil penalties in many jurisdictions, including Colombia. Like many other States,

be applied, mixed, stored, loaded or used. Labels also prescribe when fields can be re-entered after application and when and how crops can be harvested. Labelling requirements are also imposed to specify what type of product containers must be used and how they should be disposed.”). EM, Vol. III, Annex 158.

³⁰⁰ For a selection of laws that require compliance with a pesticide’s label, *see, e.g.*, Republic of Colombia, Ministry of Health, *Decree No. 1843, as amended by Decree No. 695* (26 Apr. 1995) and *Decree No. 4368* (4 Dec. 2006) (hereinafter “*Colombia Ministry of Health Decree No. 1843*”) (22 July 1991), Arts. 180, 181(h). EM, Vol. II, Annex 11; *See, e.g.*, Canada, *Pest Control Products Act*, R.S.C. Chap. 28, Sec. 6(5) (2002). EM, Vol. II, Annex 16; Republic of Ecuador, Ministry of Agriculture, *General Regulation of Pesticides and Related Products for Agricultural Use*, Special Official Registry, Book II, Title XXVIII, (20 Mar. 2003), Art. 33. EM, Vol. II, Annex 18; South Africa, *Fertilizer, Farm Feeds, Agricultural Remedies and Stock Remedies Act 36 of 1947*, Sec. 7(2). EM, Vol. II, Annex 7; United Kingdom, *Control of Pesticides Regulations*, S.I. 1510 (1986), Regulation 4(5), *as amended by Control of Pesticides (Amendment) Regulations*, S.I. 188 (1997). EM, Vol. II, Annex 13; United States, *Federal Insecticide, Fungicide and Rodenticide Act*, 7 U.S.C. Sec. 136j(a)(2)(G) (1947). EM, Vol. II, Annex 8.

³⁰¹ *United Kingdom Roundup Ultra ST Label*, pp. 2, 6 (emphasis in original). EM, Vol. III, Annex 124; *see also e.g.*, *Australia Roundup Biactive Label*, p. 11 (“NOT TO BE USED FOR ANY PURPOSE, OR IN ANY MANNER, CONTRARY TO THIS LABEL UNLESS AUTHORISED UNDER APPROPRIATE LEGISLATION.”) (emphasis in original). EM, Vol. III, Annex 106; *Canada Roundup Original Label*, p. 6, Sec. 3.6 (“NOTICE TO USER: “This pest control product is to be used only in accordance with the directions on the label. It is an offence under the *Pest Control Products Act* to use this product in a way that is inconsistent with the directions on the label. The user assumes the risk to persons or property that arises from any such use of this product.”) (emphasis in original). EM, Vol. III, Annex 110; *United States Roundup Pro Label*, p. 2 (“It is a violation of Federal law to use this product in any manner inconsistent with its labeling. This product can only be used in accordance with the Directions for Use on this label or in separately published Monsanto Supplemental Labeling.”). EM, Vol. III, Annex 128.

Colombian law imposes civil and criminal penalties for use of products such as Roundup in a manner that is inconsistent with labelling requirements³⁰².

5.41 Because of adverse effects on human health, Roundup labels typically state that direct exposure to the herbicide is prohibited: “DO NOT spray directly on humans, pets, exposed food, food preparation areas or food utensils.”³⁰³ Labels warn users to “[a]void any unnecessary contact with the product. Misuse can lead to health problems”³⁰⁴. Users of Roundup are cautioned to: “Wash hands before eating, drinking, chewing gum, using tobacco, or using the toilet. Remove clothing immediately if pesticide gets inside. Then wash thoroughly and put on clean clothing.”³⁰⁵ Another warning provides: “Do not apply this product in a way that will contact workers or other persons, either directly or through drift. Only protected handlers may be in the area during application.”³⁰⁶

³⁰² *Colombia Ministry of Health Decree No. 1843, op. cit.*, Arts. 180, 181(h), 254–264. EM, Vol. II, Annex 11; Republic of Colombia, Institute of Agriculture, *Resolution No. 3759, Enacting Provisions for the Registration and Control of Chemical Pesticides for Agricultural Use* (16 Dec. 2003), Art. 33. EM, Vol. II, Annex 20; *see also* Canada, *Pest Control Products Act*, R.S.C. Chap. 28, Sec. 6(9) (2002). EM, Vol. II, Annex 16 (providing for a fine of up to \$500,000 or a prison term of up to three years for use of a pesticide in violation of its label); United States, *Federal Insecticide, Fungicide and Rodenticide Act*, 7 U.S.C. Sec. 1361 (1947) (providing for civil and criminal penalties for the violation of the Act’s requirements including use of herbicides inconsistent with their label requirements). EM, Vol. II, Annex 8.

³⁰³ *Australia Roundup Label*, p. 14. EM, Vol. III, Annex 105.

³⁰⁴ *Germany Roundup UltraMax Label*, p. 6. EM, Vol. III, Annex 118; *see also* Ecuador *Ranger 480 Label*, p. 1 (“Avoid: Inhalation or ingestion and direct contact with clothes, skin, eyes and mouth.”) (emphasis in original). EM, Vol. III, Annex 116.

³⁰⁵ *United States Roundup Pro Label*, p. 1, Sec. 3.1. EM, Vol. III, Annex 128.

³⁰⁶ *United States Roundup Pro Label*, p. 2, Sec. 3.3. EM, Vol. III, Annex 128; *see also* Brazil *Roundup Label* (hereinafter “Brazil Roundup Label”), available at <http://www.monsanto.com.br/roundup/roundup/roundup.asp> (last visited 26 Mar. 2009) (“Do not allow minors to work in application.”). EM, Vol. III, Annex 109.

5.42 Labels for Roundup also caution against indirect contact. For example, the United States label requires a waiting period before entry into a sprayed area: “Do not enter or allow worker entry into treated areas during the restricted entry interval (REI) of 4 hours....Keep people and pets off treated areas until spray solution has dried.”³⁰⁷

5.43 Roundup labels also require that people who might be exposed to the spray be alerted to its dangers so that they can avoid exposure: “Aerial application: Notify all inhabitants in the immediate vicinity of the area to be sprayed and issue the necessary warnings.”³⁰⁸

5.44 Roundup labels confirm the consequences of contact with the spray:

“Hazards to Humans and Domestic Animals

Keep out of reach of children.

DANGER!

CAUSES IRREVERSIBLE EYE DAMAGE.

HARMFUL IF SWALLOWED OR INHALED.

MAY CAUSE SKIN IRRITATION.

Do not get in eyes, on skin or on clothing.

Wear goggles or face shield.

Avoid breathing vapour or spray mist. ...

FIRST AID:

³⁰⁷ *United States Roundup Pro Label*, p. 2, Sec. 3.3. EM, Vol. III, Annex 128.

³⁰⁸ *South Africa Roundup Label*, p. 2. EM, Vol. III, Annex 122.

IF IN EYES, immediately flush with plenty of water for at least 15 minutes. Get medical attention.

IF ON SKIN immediately flush with plenty of water. Remove contaminated clothing. Wash clothing before reuse.

IF SWALLOWED, this product will cause gastrointestinal tract irritation. ... Get medical attention. ...

IF INHALED, remove individual to fresh air. Get medical attention if breathing difficulty develops.”³⁰⁹

5.45 Other Roundup labels contain similar warnings: “KEEP OUT OF REACH OF CHILDREN. MAY CAUSE EYE IRRITATION. HARMFUL IF SWALLOWED. Avoid contact with eyes or prolonged contact with skin.”³¹⁰ The Ecuadorian Roundup label warns that “[e]xternal contact causes burning or irritation of the eyes, mucous membranes, mouth or throat. If ingested, the early symptoms can include nausea and an upset stomach”³¹¹.

5.46 Given these health concerns, Roundup labels require substantial protections to avoid inadvertent exposure. Ecuador’s “Ranger” label (equivalent to Roundup) contains the following series of warning pictograms graphically

³⁰⁹ *United States Roundup Export Label*, p. 1. EM, Vol. III, Annex 125.

³¹⁰ *Canada Vision Silviculture Herbicide Label*, Sec. 1.1 (emphasis in original). EM, Vol. III, Annex 111; *see also Colombia Roundup SL Label*, p. 1 (“Avoid contact with eyes and skin. Causes irritation. Upon completion of work, change clothes and wash with plenty of soap and water.”). EM, Vol. III, Annex 115; *Germany Roundup TURBO Label*, p. 30 (“Risk of serious eye damage.”). EM, Vol. III, Annex 117; *United Kingdom Glyphosate 360 Label*, p. 1 (“IRRITATING TO EYES. ... AVOID CONTACT WITH EYES. IN CASE OF CONTACT WITH EYES, RINSE IMMEDIATELY WITH PLENTY OF WATER & SEEK MEDICAL ADVICE.”) (emphasis in original). EM, Vol. III, Annex 123.

³¹¹ *Ecuador Ranger 480 Label*, p. 1. EM, Vol. III, Annex 116; *see also Japan Roundup Product Safety Data Sheet, op. cit.* (“Eyes: According to toxicity tests, Roundup herbicide may cause eyes to be painful, bloodshot, or to tear. Skin: According to toxicity tests, Roundup herbicide will cause symptoms ranging from mild toxicity to irritation.”). EM, Vol. III, Annex 121.

demonstrating the care with which the product must be handled to avoid harm³¹². It directs users to wear protective face shields and masks to prevent contact with the eyes or accidental eye exposure and inhalation. It also requires full-body protection including boots and gloves.



Figure 1. Warning Pictograms from Ecuador Ranger 480 Label.

5.47 Roundup warnings from around the world also preclude spraying in ways that could lead to human ingestion. For example, a South African label instructs: “Prevent contamination of food, feed, drinking water and eating utensils.”³¹³ Roundup product information from Japan notes that “[i]n cases in which similar products have been ingested, there have been reports of gastrointestinal discomfort, nausea, vomiting, and diarrhea, accompanied by oral irritation”³¹⁴.

5.48 The contamination of water bodies used by Ecuadorian border communities for drinking, bathing and washing is also a serious concern. The UN Special Rapporteur on the Rights of Indigenous People, Rodolfo Stavenhagen, has observed:

³¹² *Ecuador Ranger 480 Label*, p. 2. EM, Vol. III, Annex 116.

³¹³ *South Africa Roundup Label*, p. 4. EM, Vol. III, Annex 122; *see also Ecuador Ranger 480 Label*, p. 1 (“During the preparation and use of the product, DO NOT SMOKE, EAT or DRINK. ... BEFORE EATING, DRINKING or SMOKING: Remove contaminated clothes, wash exposed skin well with plenty of water.”) (emphasis in original). EM, Vol. III, Annex 116.

³¹⁴ *Japan Roundup Product Safety Data Sheet*, *op. cit.* EM, Vol. III, Annex 121. The warning continues: “In cases of oral ingestion of large volumes of similar products, there have been reports of a drop in blood pressure and pulmonary edema.” *Ibid.*

“International studies indicate that this [spraying] practice has negative effects on environmental resources and the health of people and animals. Skin and other diseases, pollution of rivers and aquifers, and other damage have been reported. ... In addition, the population often uses untreated water from the river forming the border between the two countries.”³¹⁵

5.49 The human health risks from exposure to the spray mixture are graphically demonstrated by Colombia’s own actions to protect those who handle it. The CICAD Report observes that Colombia requires the workers who load the spray planes to wear “[a]ppropriate protective equipment”³¹⁶. This safety gear includes “[l]ong pants, long sleeves, full rubber apron, rubber gloves, cloth hat or cap, particulate air filter and dark glasses, leather military-style boots”³¹⁷. Figure 2 depicts the protective equipment that is worn by those who load the aircraft. The worker is equipped with goggles to protect his eyes; a long-sleeve shirt, a plastic apron, and heavy gloves to protect his skin; and a special breathing apparatus to prevent inhalation. The Ecuadorians exposed to the spray have none of the protective gear that Colombia itself has deemed necessary for those persons who are potentially exposed to it.

³¹⁵ *Report of the Special Rapporteur on the Situation of Human Rights and Fundamental Freedoms of Indigenous People, Rodolfo Stavenhagen Mission to Ecuador (25 April-4 May 2006)*, U.N. Doc. A/HRC/4/32/Add.2 (28 Dec. 2006), para. 28 (expressing concern regarding the effects of aerial spraying and noting that “the population often uses untreated water from the river forming the border between the two countries”). EM, Vol. II, Annex 30.

³¹⁶ *CICAD Report, op. cit.*, p. 28. EM, Vol. III, Annex 151.

³¹⁷ *Ibid.*, pp. 37–38, Table 6. The U.S. EPA Glyphosate Reregistration Eligibility Decision explains that contact with glyphosate products is a real concern: “In California, glyphosate ranks high among pesticides causing illness or injury to workers, who report numerous incidents of eye and skin irritation from splashes during mixing and loading.” *Glyphosate RED, op. cit.*, p. 3. EM, Vol. III, Annex 132.



Figure 2. Preparing the spray mixture at an air base in Colombia; protective equipment worn by mixer-loaders³¹⁸.

5.50 This is consistent with the observations of Colombia’s Comptroller General, who has cautioned that the people living in the Ecuador-Colombia border region are unprotected from the effects of the spray mixture: “[i]n situations in which people are not informed of when sprayings will occur, and, therefore, are not properly protected, direct exposure to herbicides can be expected”³¹⁹.

B. EFFECTS ON PLANTS AND DOMESTICATED ANIMALS

5.51 Glyphosate-based herbicides like the one sprayed by Colombia are designed for the very purpose of killing all plants that they contact. Thus, the manufacturer has issued strict warnings against contact with any desirable species, re-emphasizing the need for appropriate buffer zones and other application precautions. For example, the Australian label states:

³¹⁸ *CICAD Report, op. cit.*, p. 31. EM, Vol. III, Annex 151.

³¹⁹ *Comptroller General Fourth Evaluation Report, op. cit.*, p. 36. EM, Vol. II, Annex 98.

“PROTECTION OF CROP, NATIVE AND OTHER NON-TARGET PLANTS. Avoid contact with foliage, green stems, exposed non-woody roots or fruit of crops, desirable plants and trees, since severe injury or destruction may result. DO NOT apply under weather conditions, or from spraying equipment, that may cause spray to drift onto nearby susceptible plants/crops, cropping lands, or pastures.”³²⁰

Similarly, a Japanese label directs that “[s]erious chemical damage arises when the chemical solution is placed in contact with crops or useful plants, so be careful that they are not exposed”³²¹.

5.52 Even minute quantities of the spray can be destructive:

“Direct spray contact, or even slight drift, may cause severe injury or destruction of any growing crop or other desirable plants including trees.”³²²

5.53 Colombia’s spray mixture, which has been enhanced to penetrate the hardy coca plant, poses an even greater danger to many non-target plants,

³²⁰ *Australia Roundup Biactive Label*, p. 3 (emphasis in original). EM, Vol. III, Annex 106; see also *Argentina Roundup Ultramax Label Recommendations*, p. 2, available at http://www.elijoroundup.com.ar/ultramax_recomendaciones.php (last visited 26 Mar. 2009) (“In all cases, avoid spray contact with leaves, fruits and green stems of cultivated plants, directing the application to the base of the trunk of plants older than three years, and carefully protecting plants younger than three years.”). EM, Vol. III, Annex 104.

³²¹ *Japan Roundup Agrochemical Registration* (hereinafter “*Japan Roundup Agrochemical Registration*”), Sec. 16, available at <http://www.roundupjp.com/register/index.html> (last visited 26 Mar. 2009). EM, Vol. III, Annex 120; see also *United States Roundup Pro Label*, p. 2, Sec. 5.0 (“ATTENTION. AVOID CONTACT OF HERBICIDE WITH FOLIAGE, GREEN STEMS, EXPOSED NON-WOODY ROOTS OR FRUIT OF CROPS, DESIRABLE PLANTS AND TREES, BECAUSE SEVERE INJURY OR DESTRUCTION MAY RESULT”) (emphasis in original). EM, Vol. III, Annex 128.

³²² *Australia Roundup Biactive Label*, p. 12 (emphasis in original). EM, Vol. III, Annex 106; see also *Australia Roundup Label*, p. 14 (CAUTION: DO NOT allow spray to contact or drift onto plants you do not want killed. Accidental contact must be hosed with water immediately to reduce injury to plant.”) (emphasis in original). EM, Vol. III, Annex 105.

including crops that are grown in Ecuador's border communities. As the Menzie Report describes:

“Crops that lack the thick, waxy cuticle of coca will be most susceptible to the effects of the spray. For this reason, spray drift associated with the program will be more toxic to plants than drift from ‘normal’ Roundup. Because the efficacy of the spray mixture needed to be enhanced to make it effective on coca, it follows that many other species will be more sensitive to the spray. These could include many of the crop species grown in Ecuador, such as yucca, plantain, corn, and fruit trees.”³²³

5.54 In addition to the direct effects of the herbicide, glyphosate can have significant secondary effects on non-target plants, inhibiting their vitality and productivity in the long-term:

“In addition to direct mortality to nontarget plants, there are several ways in which spray drift may result in chronic long-term effects, including loss of plant vigor for years following exposure. In addition, glyphosate mixtures have been reported to result in diminished soil productivity mediated by adverse effects on nitrogen-fixing plants and their symbiotic fungi. Finally, evidence indicates that glyphosate exposure weakens plants' immunity to fungal infections.”³²⁴

5.55 Both immediate crop destruction and long-term declines in productivity caused by the herbicidal spray are serious concerns in the Ecuador-Colombia border region because so many local residents rely on their crops for basic subsistence³²⁵.

³²³ Menzie Report, *op. cit.*, Sec. 5.2.1. EM, Vol. III, Annex 158.

³²⁴ Menzie Report, *op. cit.*, Sec. 5.2.2. EM, Vol. III, Annex 158.

³²⁵ See *supra* Chap. II, para. 2.23; See *infra* Chap. VI, paras. 6.54–6.75, 6.107–6.109, 6.114–6.119.

5.56 The United Nations Special Rapporteur on the Adverse Effects of the Movement and Dumping of Toxic and Dangerous Products and Wastes on the Enjoyment of Human Rights, Mr. Okechukwu Ibeanu, has noted that crop destruction by glyphosate-based herbicides can have a significant impact on the local food supply. In 2007, he stated that:

“because the herbicides used cannot distinguish between drug crops and other legitimate crops and because of the use of aircraft to disperse the herbicide, which renders the dispersion less precise, fumigation of coca and poppy crops can result in the destruction of nearby agricultural crops, thus limiting access of the population to food”³²⁶.

5.57 Just as the spray mixture can destroy agricultural crops, it poses significant risks to domesticated animals. A U.S. label warns: “DOMESTIC ANIMALS ... ingestion of this product or large amounts of freshly sprayed vegetation may result in temporary gastrointestinal irritation (vomiting, diarrhea, colic, etc.).”³²⁷ The Ecuadorian Ranger (Roundup equivalent) label carries a warning, shown at Figure 3, indicating that “Animals are not permitted in the treated area”³²⁸.

³²⁶ *Report of the Special Rapporteur on Toxic and Dangerous Products, op. cit.*, p. 10, para. 20. EM, Vol. II, Annex 32. The U.S. EPA has also expressed concern about risks to non-target plants in the context of Colombia’s aerial spraying program, stating that “glyphosate is highly toxic to many plants and that some level of adverse effects is likely to occur to some nontarget plants as a result of spray drift, as can be expected with herbicide applications.” United States Environmental Protection Agency, Office of Pesticide Programs, *Letter and Consultation Report from Administrator Leavitt* (17 Nov. 2004), p. 2, available at <http://www.state.gov/p/inl/rls/rpt/aeicc/57040.htm> (last visited 26 Mar. 2009). EM, Vol. III, Annex 149.

³²⁷ *United States Roundup Pro Label*, p. 1, Sec. 3.1. EM, Vol. III, Annex 128; *see also Germany Roundup TURBO Label*, p. 30 (“Keep away from food, drinks and animal feed.”). EM, Vol. III, Annex 117.

³²⁸ *Ecuador Ranger 480 Label*, p. 2. EM, Vol. III, Annex 116; Andean Community, *Resolution 630, Andean Technical Manual for the Registration and Control of Chemical Pesticides for Agricultural Use* (25 June 2002), p. 130. EM, Vol. II, Annex 17.



**Do not allow animals
in the treated area**

Figure 3. Andean Technical Manual Explanation of Warning Pictogram on Ecuador Ranger 480 Label.

5.58 The Menzie Report likewise confirms that

“[e]xposure to additives that cause eye, skin, and systemic conditions would reduce the productivity of food-producing animals (decreased weight gain or reproductive performance). In general, young animals are more susceptible to these types of stress-related effects than are adults. Spraying with glyphosate-based herbicides may also reduce the local food supply for domesticated animals, which may lead to decreased body condition and performance in livestock and other farm animals”³²⁹.

C. EFFECTS ON THE ENVIRONMENT

5.59 Because glyphosate kills plants indiscriminately, the natural flora in Ecuador are not exempt from its effects. Indeed, since the spray mixture used by Colombia is heavily laden with surfactants, which enhance the herbicide’s activity four-fold or more, the wild plant species that make up Ecuador’s natural ecosystems are especially susceptible, and can be severely affected even by small

³²⁹ Menzie Report, *op. cit.*, Executive Summary. EM, Vol. III, Annex 158.

amounts of the spray mixture. The vulnerability of naturally occurring plants in Ecuador is increased because many of these plants lack the woody stems and waxy leaves that provide some measure of protection for coca plants³³⁰.

5.60 As Colombia's Comptroller General points out:

“The broad-spectrum herbicides used in aerial spraying are designed to kill a wide range of plants and could destroy plant species in danger of extinction and disrupt or destroy different habitats. Since Colombia is one of the countries that is richest in biodiversity, the threat from spraying is particularly serious.”³³¹

5.61 As described in paragraph 5.54, exposure to glyphosate can significantly impair soil health. A study conducted by the Colombian National Police in Colombia's Sierra de la Macarena National Park demonstrated significant changes in soil chemistry within a month following spray events. Notably, the soil became more acidic and showed a significant increase in saturation of exchangeable aluminium. This substance increased “from a level which will not affect crops to a level that is toxic for the majority of crops”³³². At the same time, the soil lost nutrients such as ammonium, phosphorus and calcium after the spraying³³³.

5.62 The contamination of water bodies is another significant concern. Roundup's label provides the straightforward warning: “Avoid direct application

³³⁰ *Ibid.*, Executive Summary. (noting that many of the native plant species in Ecuador are expected to be much more sensitive than coca to the effects of the spray).

³³¹ *Comptroller General Fourth Evaluation Report, op. cit.*, p. 37. EM, Vol. II, Annex 98.

³³² Colombian National Police, Antinarcotics Directive, *Monitoring and Evaluation of the Spraying Operation to Eradicate Illicit Coca Crops Inside Sierra de la Macarena National Park* (Nov. 2006), pp. 14–15. EM, Vol. II, Annex 100.

³³³ *Ibid.*

to any body of water.”³³⁴ Such “direct application” is a real risk in the Ecuador-Colombia border region, where the frontier itself is a system of rivers, streams that feed them, and an abundance of other smaller water bodies³³⁵.

5.63 Scientific studies show that Roundup is highly toxic to fish and other aquatic species³³⁶. This point is made in unmistakable terms by the Colombian label for Roundup, which, as shown in Figure 4, depicts a fish with a line struck through it³³⁷.

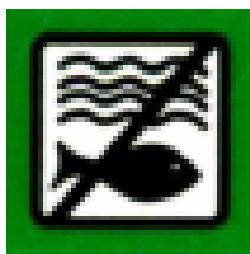


Figure 4. Warning Pictogram from Colombia Roundup SL Label.

³³⁴ *United States Roundup Pro Label*, p. 3, Sec. 7.1. EM, Vol. III, Annex 128; *see also Brazil Roundup Label, op. cit.* (“Do not wash packaging or equipment in lakes, springs, rivers or other bodies of water.”). EM, Vol. III, Annex 109; *Canada Vision Silviculture Herbicide Label*, Sec. 1.7 (“Avoid direct applications to any body of water. Do not contaminate water by disposal of waste or cleaning of equipment.”). EM, Vol. III, Annex 111; *Colombia Roundup SL Label*, p. 1 (“Do not contaminate water sources. Do not apply to or pour surplus product directly over water bodies.”). EM, Vol. III, Annex 115; *Ecuador Ranger 480 Label*, p. 1 (“Do not contaminate with the product, its waste or empty containers: lakes, rivers, ponds, streams and other water sources.”). EM, Vol. III, Annex 116.

³³⁵ *See supra* Chap. II, para. 2.11.

³³⁶ Rick A. Relyea, *The Impact of Insecticides and Herbicides on the Biodiversity and Productivity of Aquatic Communities*, Ecological Applications, Vol. 15, No. 2 (2005), pp. 618–627 (finding that Roundup had a significant impact on aquatic biodiversity by completely eliminating two species of tadpoles, nearly exterminating a third species, and resulting in a 70% decline in the species richness of tadpoles). EM, Vol. III, Annex 150; *Ecuadorian Scientific Commission Report, op. cit.*, pp. 96–97 (describing the toxicity of Roundup to fish species). EM, Vol. III, Annex 157.

³³⁷ *Colombia Roundup SL Label*, p. 2. EM, Vol. III, Annex 115.

5.64 Other labels confirm that Roundup is poisonous to both wild and domestic aquatic species. The United Kingdom's label warns: "TOXIC TO AQUATIC ORGANISMS, MAY CAUSE LONG-TERM ADVERSE EFFECTS IN THE AQUATIC ENVIRONMENT."³³⁸ Similarly, the Australian label provides: "PROTECTION OF WILDLIFE, FISH, CRUSTACEA AND ENVIRONMENT. Do NOT contaminate dams, rivers or streams with the product or used container. Do NOT apply to weeds growing in or over water. Do NOT spray across open bodies of water."³³⁹ The label specifically warns against applying Roundup to any water body inhabited by wild or domesticated fish: "Do not apply directly to any body of water populated with fish or used for domestic purposes. Do not use in areas where adverse impact on domestic water or aquatic species is likely."³⁴⁰ The label also warns that small water bodies -- home to many aquatic species -- require special protection: "DO NOT allow chemical containers or spray to get into drains, sewers, streams or pond."³⁴¹

5.65 CICAD confirms the danger to aquatic species by spray and drift over water bodies³⁴². A laboratory study conducted as a follow-up to the CICAD

³³⁸ *United Kingdom Glyphosate 360 Label*, p. 1 (emphasis in original). EM, Vol. III, Annex 123; see also *Germany Roundup UltraMax Label*, p. 6 ("Toxic to water organisms; can have long-term toxic effects on bodies of water"). EM, Vol. III, Annex 118; *Italy Roundup 450 Plus*, p. 1, available at <http://www.monsanto.it/prodotti/agrofarmaci/roundup/450plus.asp> (last visited 26 Mar. 2009) ("harmful to aquatic organisms, it can cause negative effects for the aquatic environment in the long term"). EM, Vol. III, Annex 119.

³³⁹ *Australia Roundup CT Label*, p. 14 (emphasis in original). EM, Vol. III, Annex 107.

³⁴⁰ *Canada Vision Silviculture Herbicide Label*, Sec. 3.2. EM, Vol. III, Annex 111; *Japan Roundup Agrochemical Registration*, *op. cit.*, Sec. 21 ("Sufficient caution is to be exercised so that this product is not dispersed or allowed to flow into a water supply or culturing pond."). EM, Vol. III, Annex 120.

³⁴¹ *Australia Roundup Label*, p. 14 (emphasis in original). EM, Vol. III, Annex 105; see also *Argentina, Roundup TRANSORB Material Safety Data Sheet*, p. 3, Sec. 9 ("Be sure to keep the spill away from drains, sewers, canals, and waterways"). EM, Vol. III, Annex 103.

³⁴² *CICAD Report*, *op. cit.*, p. 86 ("When the toxicity values for the mixture as used in Colombia are compared to the range of estimated exposures that would result from a direct overspray of

Report found that a spray mixture used by Colombia to eradicate illicit coca, at a concentration “slightly less than worst case concentration levels”, killed over half of the exposed tadpoles within 96 hours³⁴³. The effects on amphibians and other aquatic species are attributed to the surfactants in the spray mixture, and their ability to destroy cell membranes³⁴⁴. Such risks are particularly troubling because both Ecuador and Colombia possess a unique wealth of amphibian species; many of these species are threatened with extinction³⁴⁵.

5.66 Experts confirm these hazards and suggest that the CICAD studies may even underestimate the risks posed to amphibians by Colombia’s aerial spraying programme:

“[Amphibians] are especially vulnerable to spray drift for three reasons. First, frogs are especially sensitive to the toxic effects of the chemicals in the formulation. Second, numerous frog species in Ecuador live a primarily terrestrial existence among the vegetation. The terrestrial environments that they inhabit would

surface waters ... it is clear that aquatic animals and algae in some shallow water bodies may be at risk.”). EM, Vol. III, Annex 151. A U.S. EPA scientist notes that “[s]tudies by Relyea, Relyea *et al.* and Howe *et al.* suggest that formulations of glyphosate containing polyethoxylated tallowamines are toxic to aquatic-phase amphibians and that the toxicity appears to be related to the developmental stage of the larvae.” *Ecological Effects Assessment, op. cit.*, p. 3. EM, Vol. III, Annex 154.

³⁴³ United States Department of State, *Report to Congress: A Preliminary Evaluation of the Risk Posed to Colombia’s Amphibians and Threatened Species by the Government of Colombia’s U.S.-Supported Program of Aerial Eradication of Illicit Crops* (Aug. 2006), p. 4. EM, Vol. III, Annex 156.

³⁴⁴ The CICAD Report observes: “The effects of glyphosate on fish and other aquatic organisms are clearly related to the surfactant in the formulation rather than the glyphosate itself. Surfactants can disrupt cell membranes and this type of response would be expected.” *CICAD Report, op. cit.*, p. 68. EM, Vol. III, Annex 151. The Report considers the risk to aquatic organisms to be sufficiently serious that “[i]f shallow waters are routinely found close to fields, it is recommended that other formulants be tested for purposes of selecting products that present a lower risk to aquatic organisms,” *ibid.*, p. 12, and notes that the mixture of glyphosate and Cosmo-Flux is even “more toxic to aquatic organisms than formulated glyphosate alone,” *ibid.*, p. 11.

³⁴⁵ Menzie Report, *op. cit.*, Sec. 5.3.3. EM, Vol. III, Annex 158; *See supra* Chap. II, para. 2.13.

receive spray drift, either directly or indirectly, from droplets that accumulate on vegetation. Third, amphibians would be susceptible at multiple life stages. The young tadpoles of terrestrial frogs may live and grow in small pockets of water. These pockets are substantially smaller than those typically assumed for the purpose of evaluating sprayed biocides. An adequate assessment of the risk presented to amphibians must consider these ecological factors.”³⁴⁶

5.67 Fish species are also at risk. Beyond the direct risk posed by surfactants in the spray mixture, the chemicals used by Colombia kill aquatic plants and algae that grow densely in fish ponds, leading to loss of oxygen and asphyxiation of fish³⁴⁷. Risks to fish species are especially troubling in Ecuador’s border region, where the human population depends on both wild and farmed fish as an essential food source³⁴⁸.

5.68 The damage to plants, aquatic species and other components of Ecuador’s ecosystem is of particular concern because of the ease with which relatively minor impacts can trigger much broader effects. As experts explain, “[i]mpacts on native plants have broad implications for biodiversity because the diverse assemblage of rainforest plants provides habitat and food for the diverse assemblage of animals that live there”³⁴⁹. Consequently, the “loss of components of the plant community will directly affect the components of the animal community that rely on them”³⁵⁰.

³⁴⁶ *Ibid.*, Executive Summary; *see also ibid.* Sec. 5.3.3.

³⁴⁷ *Ibid.*, Sec. 5.2.4.

³⁴⁸ *See supra* Chap. II, para. 2.23.

³⁴⁹ Menzie Report, *op. cit.*, Sec. 5.3.1. EM, Vol. III, Annex 158.

³⁵⁰ *Ibid.*

5.69 The environmental dangers posed by Colombia’s aerial spraying programme are graphically depicted on the label for Roundup sold in the United Kingdom, which features a dead fish lying in the front of a denuded tree, and the caption: “Dangerous for the environment”³⁵¹.



Figure 5. Warning Pictogram from United Kingdom Glyphosate 360 Label.

5.70 The risks of significant environmental harm are underscored by the absence of studies about the effects of Colombia’s aerial spraying programme in tropical ecosystems. As the U.S. EPA has noted, existing studies of Roundup’s environmental effects were conducted in temperate ecosystems, and do not predict the herbicide’s effects in the tropical conditions of the Ecuador-Colombia border area:

“One of these [uncertainties] is the extrapolation of North American data to the conditions and wildlife found in Colombia. The toxicity of a pesticide to different classes of animals and plants can vary widely among species within an individual ecosystem. The Agency uses the test species as surrogates for other North American species not tested, but has little experience with tropical flora and fauna. Similarly, laboratory and field estimates of the environmental fate of pesticides, including

³⁵¹ *United Kingdom Glyphosate 360 Label*, p. 1. EM, Vol. III, Annex 123.

potential surface-water contamination, are performed with North American soils, hydrology and climate data.”³⁵²

The USDA has also expressed the view that “herbicide behaviour” in tropical ecosystems is “not easily predicted” from temperate-zone field reality:

“Real world testing of herbicides on illicit narcotic crops is generally very difficult, besides the legal and political hurdles, due to logistic and security factors. ... Herbicide behavior (especially environmental) is not easily predicted solely from laboratory or temperate-zone field research, if the intended use is in the tropics.”³⁵³

5.71 The Government of Colombia itself has acknowledged that the environmental risks of the spraying programme have not been adequately assessed or mitigated. In June 2003, the Colombian Environment Ministry expressed its concern over the failure of the DNE (the National Anti-Narcotics Agency) to adequately address the environmental risks of the aerial spraying programme:

“Regarding the DNE’s argument on the impossibility of conducting the environmental impact assessment during the implementation of a program or project, this Ministry does not share this opinion since it is a very common practice to conduct ex post facto evaluations to determine the effects of an activity on the environment and, based on the analysis of this evaluations, ascertain if the foreseen impacts and environmental management measures give optimum results and/or suggest measures to mitigate and/or offset said impacts.”³⁵⁴

³⁵² *EPA 2003 Analysis, op. cit.*, p. 37. EM, Vol. III, Annex 146.

³⁵³ *USDA Strategies for Controlling Narcotic Plant Production, op. cit.*, p. 4. EM, Vol. IV, Annex 139.

³⁵⁴ Republic of Colombia, Ministry of Environment *Resolution No. 670, Whereby a Sanction is Imposed and Other Decisions Are Made* (19 June 2003), p. 6. EM, Vol. II, Annex 19; see also *supra*, Chap. III, paras. 3.28–3.44.

5.72 The Colombian Comptroller General reached the same conclusion:

“Neither the United States Government nor the Colombian Government have presented an adequate assessment of potential impacts on human health and ecosystems of the formulated mixture, sprayed under conditions of direct exposure in Colombia.”³⁵⁵

Section III. Aerial Application of the Herbicidal Spray

5.73 As the preceding Sections demonstrated, glyphosate-based herbicides kill virtually any plant they touch and are inherently hazardous to humans, animals and the environment. Consequently, there is scientific and regulatory consensus about the critical importance of ensuring they are applied only where intended. Unfortunately, Colombia’s record shows that they are not. Rather, the inherent nature of aerial spraying, the local meteorological and atmospheric conditions along the international frontier, and the manner in which Colombia conducts its aerial spraying programme all conspire to make dispersal of the spray into Ecuador inevitable.

A. AERIAL SPRAYING INHERENTLY CAUSES DRIFT

5.74 The danger of herbicide drift is a problem inherent to aerial application. As a result, aerial spraying is strictly regulated. In fact, the European Parliament recently *prohibited* aerial spraying because of the uncontrollable risk of drift onto “off-target areas”³⁵⁶. Derogation from the ban is permitted only when there is no

³⁵⁵ *Comptroller General Fourth Evaluation Report, op. cit.*, p. 36. EM, Vol. II, Annex 98.

³⁵⁶ European Parliament, *Legislative Resolution of 13 January 2009 on the Council Common Position for Adopting a Directive of the European Parliament and of the Council Establishing a Framework for Community Action to Achieve a Sustainable Use of Pesticides*, 6124/2008 – C6-0323/2008 – 2006/0132(COD) (hereinafter “*European Union Sustainable Use Directive*”) (13

viable alternative and strict conditions are satisfied, including a specific risk assessment and implementation of measures to ensure no adverse human health effects³⁵⁷.

5.75 Colombia itself recognizes that aerial spraying is dangerous because of the spray's propensity to drift. The Colombian Ministry of Health requires pilots spraying herbicide to, at a minimum:

- a) Carry out the application taking into account the conditions of wind speed, temperature and relative humidity, and velocity and altitude of the flight, in accord with what has been established by the respective authorities of the agricultural sector and the civil aviation agency;
- b) Carry out the application within a fixed area;
- c) Do not fly over populations, aqueducts, schools and other places which represent a risk to human, animal, and plant health;
- d) Do not apply pesticides to homes within the fields to be treated, protected water bodies, natural parks, reserves or other protected areas.”³⁵⁸

5.76 Because of the ever-present danger of drift, labels for glyphosate-based products direct that they should be used only with great caution. For instance, the United States label instructs users to “AVOID DRIFT. EXTREME CARE

Jan. 2009), Art. 9.1 (“Member States shall ensure that aerial spraying is prohibited.”). EM, Vol. II, Annex 21.

³⁵⁷ *Ibid.*, Art. 9.2. Further, aerial spraying is prohibited “in close proximity to residential areas”, and in the limited circumstances where it is allowed, approving authorities must specify measures for “warning residents and bystanders in due time and to protect the environment in the vicinity of the area sprayed”. *Ibid.*, Arts. 9.2(e), 9.3. The regulations also provide that the authorities “shall make available to the public the relevant information contained [in approvals for aerial spraying] such as the area to be sprayed, the provisional day and time of the spraying and the type of pesticide, in accordance with the applicable national or Community law.” *Ibid.*, Art. 9.5.

³⁵⁸ *Colombia Ministry of Health Decree No. 1843, op. cit.*, Art. 102. EM, Vol. II, Annex 11.

MUST BE USED WHEN APPLYING THIS PRODUCT TO PREVENT INJURY TO DESIRABLE PLANTS AND CROPS.”³⁵⁹

5.77 Lest users underestimate the danger presented by drift, the label states: “NOTE: Use of this product in any manner not consistent with this label may result in injury to persons, animals or crops, or have other unintended consequences.”³⁶⁰

5.78 The inherent risk of drift has compelled the manufacturer to prohibit aerial spraying in certain contexts. For example, an Australian label bars its use in areas where crops are already established:

“Aerial equipment may be used to apply Roundup Biactive only in pasture or fallow situations prior to establishment of field crops, fodder crops, or new pasture, and for pre-harvest application to cotton and sorghum crops. DO NOT use in intensive horticultural cropping areas.”³⁶¹

5.79 Even when aerial application is not forbidden, the label obligates users to minimize the likelihood and extent of drift. A United States Roundup label mandates that: “Avoiding spray drift at the application site is the responsibility of the applicator.”³⁶² The label thus warns that the “interaction of many equipment- and weather-related factors determines the potential for spray drift” and that the

³⁵⁹ *United States Roundup Pro Label*, p. 2, Sec. 5.0 (emphasis in original). EM, Vol. III, Annex 128.

³⁶⁰ *United States Roundup Pro Label*, p. 2, Sec. 5.0 (emphasis in original). EM, Vol. III, Annex 128; see also e.g., *Australia Roundup PowerMAX Label*, p. 15 (“AVOID DRIFT. DO NOT apply treatments with spraying equipment or under weather conditions which are likely to cause spray drift onto nearby susceptible crops, pastures or other sensitive plants.”) (emphasis in original). EM, Vol. III, Annex 108.

³⁶¹ *Australia Roundup Biactive Label*, p. 13 (emphasis in original). EM, Vol. III, Annex 106.

³⁶² *United States Roundup Pro Label*, p. 3, Sec. 7.1. EM, Vol. III, Annex 128.

“applicator and the grower are/is responsible for considering all these factors when making decisions.”³⁶³

5.80 Since drift cannot be eliminated, labels for glyphosate-based products caution against aerially applying them in areas near sensitive habitats (like Ecuador’s border with Colombia.) The reason is simple: the risk of drift is too great. For example, one label states:

“Sensitive Areas. The product should only be applied when the potential for drift to adjacent sensitive areas (e.g., residential areas, bodies of water, known habitat for threatened or endangered species, non-target crops) is minimal (e.g., when wind is blowing away from the sensitive areas). Avoid direct application to any body of water.”³⁶⁴

5.81 For the same reason, labels for Roundup require there to be a buffer zone surrounding the targeted area. One label instructs that “APPROPRIATE BUFFER ZONES MUST BE MAINTAINED” in order to “PREVENT INJURY TO ADJACENT DESIRABLE VEGETATION.”³⁶⁵

5.82 Indeed, Colombia’s own Environment Ministry has called for buffer zones of at least 2 kilometres to minimize the spraying programme’s danger to

³⁶³ *Ibid.*

³⁶⁴ *United States Roundup Original Label*, p. 4, Sec. 7.1. EM, Vol. III, Annex 127.

³⁶⁵ *United States Roundup Export Label*, p. 7 (emphasis in original). EM, Vol. III, Annex 125; *see also Canada Vision Silviculture Herbicide Label*, Sec. 3.2 (“Drift may cause damage to any vegetation contacted for which treatment is not intended. Applications in wind conditions in excess of local and/or provincial aerial spray regulations are not recommended. To prevent injury to adjacent vegetation, appropriate buffer zones must be maintained.”). EM, Vol. III, Annex 111

sensitive areas, including zones of human habitation and national parks³⁶⁶. Unfortunately, its call has gone unheeded³⁶⁷.

5.83 The strict regulatory measures described above have been adopted for good reason. Herbicides released from airplanes can drift for many kilometres. As the Menzie Report explains, agricultural studies conducted in the United States have “shown that pesticides delivered through aerial spraying can be transported miles in the drift ... spray drift may extend as far as four to ten miles [six to sixteen kilometres]”,³⁶⁸. Other studies show that drift leaving the target area can represent a substantial portion of the herbicide applied³⁶⁹.

³⁶⁶ *Colombia Ministry of Environment Resolution 1065, op. cit.*, Art. 5(d) (“This Ministry considers that the buffer zones proposed in the study submitted by the DNE should be adjusted according to the Ministry’s requirement, since those suggested by DNE do not guarantee safety with respect to the need to protect and preserve the areas described. These should be adopted immediately by PECIG and verified in the field by the Technical Audit. Hence, the buffer zones have been established according to the following table: ... Areas of the zones belonging to SNPNN* [Colombia’s National Park System]. Do not spray within them. Spray outside the area with a minimum buffer zone of 2000 meters. ... Human settlements: hamlets, checkpoints, shelters, urban areas. Do not spray within them. Spray outside the area with a minimum buffer zone of 2000 meters.”). EM, Vol. II, Annex 15.

³⁶⁷ *See supra* Chap. III, paras. 3.14–3.16, 3.20–3.21, 3.24–3.26. Even beyond buffer zones, Colombia’s Environment Ministry has demanded that measures other than aerial fumigation be employed to eradicate coca in populated areas: “In the case of populated areas, areas with social infrastructure and/or water supply areas, the National Antinarcotics Agency - DNE, shall define and implement, in an immediate fashion, alternative methods for the eradication of illicit crops, so as to guarantee the protection of the social and natural environment, effective immediately.” Republic of Colombia, Ministry of Environment, *Resolution No. 341, Adopting Some Decisions in Relation to the Program for the Eradication of Illicit Crops by Aerial Spraying with Glyphosate* (2001), Art. 4. EM, Vol. II, Annex 14.

³⁶⁸ Menzie Report, *op. cit.*, Sec. 4. EM, Vol. III, Annex 158.

³⁶⁹ *Ibid.*

B. LOCAL METEOROLOGICAL AND ATMOSPHERIC CONDITIONS INCREASE
DRIFT

5.84 Not only is drift an inherent problem with aerial application, but the local meteorological and atmospheric conditions along the Ecuador-Colombia border are especially conducive to drift. When combined with the manner in which Colombia releases the spray, long-distance drift is inevitable.

5.85 Weather plays an important role in determining the extent of drift. The United States label confirms the centrality of weather:

“[t]he likelihood of injury occurring from the use of this product increases when winds are gusty, as wind velocity increases, when wind direction is constantly changing, or when there are other meteorological conditions that favor spray drift. When spraying, avoid combinations of pressure and nozzle type that will result in splatter or fine particles (mist) that are likely to drift”³⁷⁰.

5.86 The weather patterns and atmospheric conditions along Ecuador’s international frontier increase the likelihood that Colombia’s spray will enter its territory. First and foremost, this is a function of the local wind conditions. As the Menzie Report explains, both wind direction and velocity are important contributors to drift, and localized circulation patterns can increase the risk of off-target deposition. Small patches of cleared land surrounded by rainforest trees are particularly at risk of generating the types of local meteorological conditions

³⁷⁰ *United States Roundup Pro Label*, p. 2, Sec. 5.0. EM, Vol. III, Annex 128.

that favour spray drift³⁷¹. These are precisely the types of fields that Colombia targets for coca eradication in areas immediately adjacent to Ecuador³⁷².

5.87 Compounding this problem is the fact that Colombia's aerial spraying frequently occurs in mountainous terrain. As the Menzie Report explains, the heating and cooling of mountain slopes can generate wind patterns that "can carry spray drift long distances -- longer than what is typically encountered in 'flat land' agricultural situations"³⁷³.

5.88 The propensity for long-distance drift is increased because Colombia's spraying near the Ecuador border occurs over or near rivers. Temperature differences between the air over a river and the adjacent land affects circulation patterns, carrying spray up or down river and depositing it far from the point of release³⁷⁴. Because the Ecuador-Colombia border is a network of rivers, this phenomenon exacerbates the already high likelihood that significant amounts of Colombia's toxic herbicide will be deposited in Ecuador³⁷⁵.

5.89 The problem of drift into Ecuador is further aggravated by the prevailing high temperatures along the border, which make the spray more prone to form

³⁷¹ Menzie Report, *op. cit.*, Sec. 4.4.2. EM, Vol. III, Annex 158.

³⁷² *Chemicals Used, op. cit.*, p. 3. EM ("[c]oca is often grown in monocrop fields cut out of the triple canopy rainforest of the Amazon Basin"). EM, Vol. III, Annex 144. Such wind conditions are highly local and change rapidly, even in a single location, making them hard to measure. Menzie Report, *op. cit.*, Sec. 4.4.3. EM, Vol. III, Annex 158. Thus, wind speeds measured "at the airport" according to Colombia's protocol, *Chemicals Used, op. cit.*, p. 3. EM, Vol. III, Annex 144, do not necessarily represent acceptable wind speeds at spray locations. Menzie Report, *op. cit.*, Sec. 4.4.3. EM, Vol. III, Annex 158.

³⁷³ Menzie Report, *op. cit.*, Sec. 4.4.2. EM, Vol. III, Annex 158.

³⁷⁴ *Ibid.*, Sec. 4.4.2.

³⁷⁵ *See supra* Chap. II, para 2.11.

small droplets that will be carried away by the wind. These shrunken droplets are also more concentrated, increasing their toxicity³⁷⁶.

5.90 The presence of frequent “thermal inversions” along the international frontier is another meteorological condition that increases spray drift into Ecuador. During a thermal inversion, warmer air is positioned above cooler air with little vertical mixing. As a result, the spray particles become trapped between the two layers of air, causing high concentrations of spray droplets to be deposited downwind. Experts explain that “[t]hermal inversions are common in the tropics and are expected to be a frequent occurrence in the Ecuador/Colombia border region”³⁷⁷.

C. COLOMBIA SPRAYS THE HERBICIDE IN A MANNER THAT INCREASES DRIFT

5.91 Because the local conditions along the international border make the risk of drift especially high, it is incumbent upon Colombia to proceed cautiously. Regrettably, Colombia has done the opposite. Instead, it has ensured that its toxic spray will drift into Ecuador by releasing it from excessive heights and at excessive speeds.

5.92 First, Colombia has virtually guaranteed that the spray will drift long distances by releasing it from heights far above which it can safely be released. The Colombia Roundup label sets the height for aerial application at 2 metres above the target crop; it explicitly warns that “[h]igher altitudes increase the risk

³⁷⁶ Menzie Report, *op. cit.*, Sec. 4.4.4. EM, Vol. III, Annex 158.

³⁷⁷ *Ibid.*, Sec. 4.4.1.

of drift”³⁷⁸. Colombia, however, authorizes planes to release the spray mixture at heights of up to 50 metres, *i.e.*, *twenty-five times* higher than instructed³⁷⁹.

5.93 Indeed, Colombia allows the planes to release the spray even higher when the pilots unilaterally decide that doing so will help them avoid obstacles³⁸⁰. In that regard, coca crops are often grown in small clearings cut from the rainforest; as a result, towering trees frequently impede a plane’s flight-path over a coca field, thereby forcing the pilot to release his toxic cargo significantly higher than otherwise directed³⁸¹. In addition, coca growers employ tactics that force pilots to fly at heights far in excess of their titular “operating parameters”. According to the Colombian Ministry of the Environment:

“[I]llicit crop growers use a number of strategies to prevent areas where coca is planted from being sprayed. These include ... fixing wires between trees in order to try and get the fumigation aircraft to overturn when it descends, and having extremely high isolated trees on plots to make it more difficult for spraying aircraft to manoeuvre.”³⁸²

³⁷⁸ *Colombia Roundup SL Label*, p. 2. EM, Vol. III, Annex 115.

³⁷⁹ Republic of Colombia, *Environmental Management Plan for the Illicit Crop Eradication Program Using Aerial Spraying with the Herbicide Glyphosate (ICEPG)*, (2003), p. 2, available at <http://www.state.gov/p/inl/rls/rpt/aeicc/27399.htm> (last visited 2 Apr. 2009). EM, Vol. II, Annex 95.

³⁸⁰ *Ibid.*

³⁸¹ *Chemicals Used*, *op. cit.*, p. 3. EM, Vol. III, Annex 144; Menzie Report, *op. cit.*, Sec. 4.2. EM, Vol. III, Annex 158.

³⁸² Republic of Colombia, Ministry of the Environment, *Resolution No. 1054, Whereby an Environmental Management Plan is Modified and Other Decisions are Made* (30 Sep. 2003), p. 2, available at <http://www.state.gov/p/inl/rls/rpt/aeicc/27412.htm> (last visited 13 Apr. 2009). EM, Vol. IV, Annex 245.

5.94 Further, in many places the coca fields are located in uneven terrain, which compels the planes to ascend higher still³⁸³.

5.95 Making matters even worse, fear of hostile ground-fire from narco-traffickers protecting their illicit crops causes pilots to fly above the otherwise mandated altitude. As described by a U.S. State Department report, “spray planes are under continual risk from hostile ground fire”³⁸⁴. (The spray planes are flown by private pilots hired by DynCorp International, the for-profit United States government contractor that carries out aerial eradication operations for the Government of Colombia³⁸⁵. It is these non-Colombian pilots who ultimately control the timing and release of the spray³⁸⁶).

³⁸³ Menzie Report, *op. cit.*, Sec. 4.1 (“In actual application, the release, or boom, height is likely to be highly variable due to the conditions that occur along the Colombia/Ecuador border, including complex topography that includes hills, valleys, gulleys, and forest canopy of varying height.”). EM, Vol. III, Annex 158.

³⁸⁴ *Chemicals Used, op. cit.*, p. 4. EM, Vol. III, Annex 144.

³⁸⁵ The United States Government funding pays for equipment such as spray planes and helicopters, the chemicals used, and the DynCorp pilots who carry out the program. As described by DynCorp itself, a major component of its business involves providing “critical support to military and civilian government institutions.” The company “provides extensive specialty aviation support for the U.S. government’s programs to reduce the flow of illicit drugs from foreign sources,” including in Colombia. DynCorp International, *available at* <http://www.dyn-intl.com/> (last visited 14 Apr. 2009).

³⁸⁶ *CICAD Report, op. cit.*, p. 30 (noting that while flight paths are planned in advance, “the actual spraying is controlled by the pilots”). EM, Vol. III, Annex 151; *see also* Menzie Report, *op. cit.*, Sec. 4.2 (“The extent of off-target spray drift is also influenced by the pilot’s actions. Timing of spray release is controlled by the pilot. Spray is initiated and terminated at the pilot’s discretion, depending on his/her judgment regarding the airplane’s trajectory, elevation, speed, and wind direction and speed.”). EM, Vol. III, Annex 158.

The evidence indicates that DynCorp pilots often misapply the spray. U.S. State Department has reported that “occasional errors are unavoidable.” *Chemicals Used, op. cit.*, p. 4. EM, Vol. III, Annex 144. The CICAD Report also acknowledges that spray can be deposited off-target by “incorrect application where the spray pilot initiates application too soon or turns off the spray too late, or the spray swath includes a non-target area on one or both sides of the target field.” *CICAD Report, op. cit.*, p. 32. EM, Vol. III, Annex 151. As the Menzie Report explains, images

5.96 The excessive speeds at which the planes fly also contribute to the spray's drift into Ecuador. According to the U.S. State Department, the planes fly at 165 miles per hour (266 kilometres per hour)³⁸⁷. As fast as that is, the planes actually fly much faster. The USDA reviewed flight data from a sampling of 159 spray missions and found that 118 (72 percent) had flown faster than the State Department's assumed 165 miles per hour. Indeed, no fewer than 62 missions (38 percent) had flown at speeds in excess of 200 miles per hour³⁸⁸.

5.97 Flying too fast is a critical contributor to drift. The turbulence created by high plane speed causes "spray droplets to break apart, and these smaller, lighter droplets have a potential to be carried further by wind currents"³⁸⁹. It is for that reason that the United States label for Roundup directs users to "AVOID APPLYING AT EXCESSIVE SPEED OR PRESSURE"³⁹⁰.

5.98 Given the propensity for Colombia's spray to drift across the international frontier marking its boundary with Ecuador, it is incumbent on Colombia to evaluate its aerial spraying programme and determine the extent of drift and the damage it has inflicted. However, CICAD reported in 2006, six years after Colombia began spraying in earnest in the border region, that spray drift "has not been measured under conditions of use in Colombia"³⁹¹. And the Government of

produced by the UNODC show that "[s]praying continued as [the pilots] exited the field and passed again over the forest." Menzie Report, *op. cit.*, Sec. 4.2. EM, Vol. III, Annex 158.

³⁸⁷ *Updated Report on Chemicals Used, op. cit.*, p. 3. EM, Vol. III, Annex 148.

³⁸⁸ *USDA 2001 Verification Mission Trip Report*, pp. 12–19. EM, Vol. III, Annex 140.

³⁸⁹ Menzie Report, *op. cit.*, Sec. 4.1. EM, Vol. III, Annex 158.

³⁹⁰ *United States Roundup Pro Label*, p. 2, Sec. 5.0 (emphasis in original). EM, Vol. III, Annex 128.

³⁹¹ *CICAD Interim Report, op. cit.*, p. 1. EM, Vol. IV, Annex 155; *see also CICAD Second Phase Assessment, op. cit.*, p. 1. EM, Vol. IV, Annex 159.

Colombia itself has conceded that it does not know how far the spray drift extends. According to Colombia's Comptroller General:

“This drift effect is the result of the combination of different technical and meteorological variables that make this strategy highly susceptible to error. Factors like the height of spraying, the velocity and direction of the wind and the relative humidity are difficult to control, which affects the precision of the sprayings.”³⁹²

5.99 The concerns of Colombia's Comptroller General have been borne out. As described in Section IV below, many Colombians who live near the border with Ecuador have literally felt the herbicidal spray land on their exposed skin. They have suffered skin and eye irritation, and gastrointestinal distress, including severe stomach pain, vomiting and diarrhea, all as predicted by the scientific studies of the known components of the spray and the warnings on the product labels. They have also lost crops and livestock as a result of the aerial spraying near their homes and farms. And they have had their sources of potable water contaminated by the spray, leading to further adverse health consequences for themselves and their domestic animals. Chapter VI describes how the same effects have been experienced across the border in Ecuador.

Section IV. The Harms Caused by Colombia's Aerial Spraying of Toxic Herbicides Inside Colombia

5.100 The dangers presented by Colombia's herbicidal mixture are confirmed by the domestic experience of Colombia itself. As described in Chapter II, beginning in the 1990s and continuing now, massive aerial fumigations have been

³⁹² Comptroller General of the Republic of Colombia, Comptroller for the Environment, *Special Audit Regarding Illicit Crop Eradication Policies* (July 2001), p. 34. EM, Vol. II, Annex 93.

and still are being carried out across the length and breadth of Colombian territory³⁹³. From the beginning, reports of harm to people, to crops and to animals have poured in from throughout the country³⁹⁴.

5.101 Ecuador, of course, is not before the Court to press claims on behalf of the people of Colombia. The harms inflicted in Colombia nonetheless merit the Court's attention because they constitute proof of the impacts of the spray mixture Colombia employs. As the Court will read in Chapter VI, the injuries reported in Colombia are similar to the harms suffered in Ecuador. As such, the impacts of the spraying programme in Colombia confirm the causal relationship between Colombia's aerial fumigations and the harms inflicted on people, plants, animals and the environment in Ecuador.

5.102 Some of the most compelling information concerning harms suffered in Colombia comes from organs of the Colombian government itself. Following sprayings between 22 December 2000 and 2 February 2001 in Putumayo Province, for example, the Putumayo Department of Health ("DASALUD" per the Spanish abbreviation) conducted an investigation into the effects of the fumigations on the health of the local people³⁹⁵. After interviews with many area public health officials and residents, the DASALUD report observed:

"The Orito Hospital reports a notable increase in consultations for problems related to allergic reactions of the skin, such as: dermatitis, impetigo, abscesses, abdominal pain, diarrhea, acute

³⁹³ See, *supra* Chap. III, Sec. II. "Colombia's Aerial Sprayings".

³⁹⁴ See, e.g., *supra* Chap. II, paras. 2.44-2.49.

³⁹⁵ Republic of Colombia, Administrative Department of Health (DASALUD) Putumayo Province, Office of Planning, Epidemiology Section, *Effects of Aerial Spraying with Glyphosate Valle del Guamuez – San Miguel – Orito, Putumayo* (hereinafter "*DASALUD Putumayo Health Study*"), (Feb. 2001). EM, Vol. II, Annex 90.

respiratory infection, which appeared from the time of the fumigation carried out in the rural areas of the municipality.

According to information from the Administrator of the La Dorada Health Center in the municipality of San Miguel, in the town of Agua Clara the poisoning of people exposed to the fumigations was apparent, with symptomology related to skin and eye irritation, nausea, and acute respiratory infection, as well as bronchitis, flu, colds, and abdominal pain, among others, which corresponds to the findings of epidemiological studies carried out in other places.

This coincides with the similar observations of medical personnel of the Hospitals of Orito, La Hormiga (Valle del Guamuez), and la Dorada (San Miguel) regarding the fact that, from the start of the fumigations, a notable increase in consultations related to problems of skin reactions, abscesses, impetigo, gastrointestinal infections (abdominal pain, diarrhea, nausea, vomiting), respiratory infections (bronchitis, asthma), and conjunctivitis was observed.

The people who consulted their doctors attributed this symptomology to the spraying received from the planes aimed at the fumigation of illicit crops. However, not all of the people who were affected by the fumigation went to health centers, due to lack of economic resources or the erroneous perception that the method by which the health problems were to be treated was experimental.”³⁹⁶

5.103 Among the report’s more striking findings was the increase in visits to the Sacred Heart Hospital in La Hormiga (less than 20 kilometres north of the Ecuador border) in February 2001, after the sprayings, as compared to February 2000. Complaints of acute respiratory infection increased 100%, diarrhea 475%, dermatitis 2300%, skin infections an even more remarkable 4600%³⁹⁷.

³⁹⁶ *Ibid.*, pp. 1-2.

³⁹⁷ *Ibid.*, p. 13 (Table).

5.104 The DASALUD report also observed substantial negative effects on plants and animals. Speaking about the situation in the municipality of Valle de Guamuez, the report stated:

“Regarding the other damages produced by the fumigation, according to the Local Ombudsman’s Office, it can be observed that of the total number of hectares affected (7,252), the pastures (grazing areas for livestock) were the areas most affected, with 39% (2,850 hectares), followed by plantain crops (12,6%) and in third place, coca crops with 11% (854 hectares).

...

The high percentage of fish affected is worrying (72.3%), as is the case of poultry (hens, roosters, ducks) (21.5%), among the total number of animals that died as a result of the illicit crop eradication program (178,377), a situation which, added to the fumigation of subsistence crops, constitutes a high risk factor for the food security of the inhabitants of this region”³⁹⁸.

5.105 Harms were widespread throughout the municipality. The report stated:

“Of the 100 towns in Valle del Guamuez, the municipality with the largest number of inhabitants in the province, after Puerto Asis and Orito, with 35,288 inhabitants; residents of 67 towns were affected by the fumigation in terms of the state of their health, crops, and environment.”³⁹⁹

5.106 Other organs of the Colombian government have made similar findings. Following the 2000-2001 fumigations, Colombia’s Office of the Ombudsman conducted a site visit to affected areas of Putumayo between 15 and 25 January 2001, during which it spoke with local authorities, met with affected people and

³⁹⁸ *Ibid.*, pp. 15-16.

³⁹⁹ *Ibid.*, p. 3.

communities, and reviewed documentary evidence⁴⁰⁰. Based on its investigation, the Ombudsman's Office issued a report stating that the impacts of the fumigations included the following:

“An increase in deforestation in the Putumayan piedmont. Greater effects of necrosis and death are observed, leaving a desolate panorama over vast areas of territory.

Indiscriminate destruction of the little remaining forest, of subsistence crops and medicinal plants, as well as of pastures and fish-farming ponds, among others.

Migration of wild animals, principally birds, reptiles and amphibians, caused by the fragmentation of the forests. Also, complaints have been received regarding the deaths of some birds, a fact which could not be corroborated in the field work carried out...

Damage to dietary conditions of the inhabitants of the region. As has previously been mentioned, aerial spraying indiscriminately affected illicit crops, subsistence crops (*yucca*, cane, *pida*, *chontaduro*, plantain, rice, maize, *vota*, *borojó* and oranges, avocados, beans, *zapote*, and papaya), medicinal plants (Principally *yagé*, *sábila*, *descansel*, *mata ratón*, *paico*, *yerbabuena*), pastures, fish-farming ponds, chicken coops, the health of *campesinos* and indigenous peoples and, in general, disturbed the economy of the region. The Office of the Ombudsman, in some cases, could observe damages in sites located more than 150 metres from coca plantations...

Phenomena of displacement to other areas in the same municipality or to other provinces, including, in a highly striking manner, to Ecuador...

Harm to the health of people. Complaints regarding health effects are related to gastrointestinal problems, skin problems, headaches and nausea, as the more common complaints. Several cases

⁴⁰⁰ Republic of Colombia, Office of the Ombudsman, Ombudsman Report No. 1, *Fumigations and Alternative Development Projects in Putumayo* (hereinafter “*Colombia Ombudsman Report No. I*”), (9 Feb. 2001), pp. 9-10. EM, Vol. II, Annex 91.

diagnosed under the profile of ‘exogenous poisoning’ have been attended to at Hormiga Hospital⁴⁰¹.

5.107 In light of these findings, the Office of the Ombudsman issued a formal resolution recommending that the National Narcotics Council (CNE)

“within 48 hours following the issuance of this Resolution, meet and order the immediate suspension of the fumigation of illegal crops in the Department of Putumayo and in any other area of the country...”⁴⁰²

The CNE did not, however, heed the Office of the Ombudsman’s recommendation, and fumigations continued.

5.108 In 2003, the Colombian government considered extending fumigations to the Province of Caldas in the west of the country. The Office of the Ombudsman again issued a resolution in which it called on the Colombian government to refrain from conducting sprayings in Caldas. In so doing, it noted the failure of the government to implement an epidemiological monitoring plan to monitor the health effects of the sprayings. The report stated:

“In different documents from the Ombudsman’s Office the Entity’s concern regarding health impacts caused by the use of chemicals in the aerial fumigations has been presented in a detailed manner. The Office of the Ombudsman has also repeatedly required competent authorities to put into place an Epidemiological Monitoring Plan (PVE), ordered by three Health Ministries (1984, 1992, and 1994). Without the execution of the aforementioned plan it is impossible to affirm or negate the harmlessness of the substances used in the PECIG [Program to Eradicate Illicit Crops by Aerial Spraying of the Herbicide Glyphosate] in a technical and scientific manner. ...

⁴⁰¹ *Colombia Ombudsman Report No. 1, op. cit.*, pp. 10-12. EM, Vol. II, Annex 91.

⁴⁰² Republic of Colombia, Office of the Ombudsman, *Ombudsman Resolution No. 4, On the Impact of Fumigations on 11 Alternative Development Projects in Putumayo* (12 Feb. 2001), p. 5. EM, Vol. II, Annex 92.

The absence of said plan prevents the existence of measures and procedures directed towards the prevention, control, and monitoring of the risk factors to health, as provided for in various legal standards, among them the Health Code and the Decree which regulates the use, management and disposal of pesticides.

To this concern the following considerations are added: (1) the growing number of complaints filed in the sprayed areas which cite effects to the respiratory and digestive pathways, and to the organs of sight, as well as skin illnesses, among others; (2) the results of the study carried out by the American Environmental Protection Agency (EPA) in which it was recognized that Glyphosate leaves residual effects in surface waters and affects the ocular system; (3) the inadequate provision of aqueduct and irrigation services, which makes it necessary for inhabitants of rural areas to turn to still and running bodies of water for consumption use, a situation which does not guarantee the potability of the liquid, and even less in cases in which the water is contaminated because of the use of the chemicals employed in the fumigations; (4) the nutritional defects confronted by rural inhabitants, either because their income for acquiring the minimum provisions of their typical diet has been reduced or because of limitations on ensuring food security, and (4) [*sic*] the limitations suffered by the health sector, which manifests itself in facts such as the decrease in illness prevention and control programs, the lack of laboratories for analysis, the precarious situations of the infrastructure, as well as the attacks against the medical mission.”⁴⁰³

5.109 More recently, in April 2008, a team of Colombian NGOs carried out an observation mission to southern Putumayo to investigate the human rights situation in the area. Among the chief causes of concern were the effects of the fumigations. According to the mission’s report:

“Since 2000, Putumayo has been the focal point for aerial fumigations with a mixture of glyphosate and other compounds.

⁴⁰³ Republic of Colombia, Office of the Ombudsman, *Ombudsman Resolution No. 28, The Coffee Crisis and the Possible Fumigations in the Province of Caldas* (21 May 2003), pp. 23-25 (footnotes removed). EM, Vol. II, Annex 97.

The farms of many families have been fumigated between six and eight times in a systematic manner, making any crop impossible to sustain in the medium-term. Because of the fumigations, the air and water have been contaminated with glyphosate, affecting the natural ecosystem, which benefits the environment of the entire country; the crops which guarantee the subsistence and dietary security of the population; and the health of all of the inhabitants of Putumayo (coca-growers and non-coca growers). In addition, the indigenous authorities of the reserves and towns which form the Permanent Working Group of the Cofán People expressed their concern to us because traditional medicines have lost their efficacy, in that the plants have all been killed. This has an additional effect on the culture of the indigenous people in terms of the relationship they maintain with their land...

In this regard, it is also worth noting the generalized situation of poverty among the families of the San Miguel municipality (towns of San Carlos and Puerto El Sol), the Valle del Guamuez municipality, and the rural area of Puerto Asis. On 2 August 2007, 56 people belonging to the indigenous town of Villanueva of the Orito municipality were admitted to the local Orito Hospital with symptoms of poisoning, the majority of whom were children and pregnant women. All of the people reported the fumigations that affected fields, homes and the school of the Cofán indigenous group as the cause, in a case which reached the national media.”⁴⁰⁴

5.110 Many other Colombian government and NGO reports could be cited to like effect. As noted, however, the point of this discussion is not to establish a claim for damages inflicted in Colombia but to demonstrate the recognized toxicity of the sprayings and their harmful impacts on the people, plants and animals that have been subjected to them in both countries. Ecuador will therefore not burden the Court by engaging in an extended review of these sources (which by itself could consume many pages).

⁴⁰⁴ Marcella Ceballos & Carlos Duarte, *Report of the Observation Mission on the Human Rights Situation in Lower Putumayo* (June 2008), pp. 15-16. EM, Vol. IV, Annex 171.

5.111 The gravity of the harms that have been inflicted emerges not only from Colombian governmental and NGO reports, but also from the testimonies of the people directly effected. Colombia Witness 3, for instance, is a mother of five originally from Puerto Asis in southern Putumayo, approximately 18 kilometres from the Ecuador border. As a consequence of the fumigations, she left Colombia and relocated to Lago Agrio, the capital of Ecuador's Sucumbíos Province. She testified about fumigations near her home the afternoon of Christmas Day 2006, during which she and her family remained indoors:

“On 26 December, at six in the morning, we went to get water from a natural spring near the house, we drink and cook with that water; my husband had brought that water in a bottle and when I went to get it, foam came out, as if it had soap. I drank that water; it did not taste normal, like everyday water; about five minutes after I drank this water, I felt a sharp pain in my stomach. Since I had not had anything else to drink or eat, I told my husband that the water had made me sick. Still, with that water we prepared *aguapanela* which is a traditional beverage: we boil the water with the *panela* and we have it for breakfast with rice and egg; my daughters told me that the *aguapanela* tasted strange. I kept feeling a sharp pain in stomach.

I sent four of my daughters to wash clothes in the spring which is near our house. I stayed home with my two-month-old granddaughter. They returned immediately saying that they could not do the washing there because the water was oily and that they were going to La Guisia River, which is about 15 minutes from my house.

As time passed, I felt more sickly. Around ten in the morning, I began vomiting and having diarrhea, the two symptoms at the same time. I could not stop, it was one after the other, I also had a strong headache and felt faint all over, I could barely stand up. I went to bathe at a nearby creek and a friend found me lying there, they took me home and they could not control the vomiting and diarrhea.

My husband went looking for our daughters at the river so that they could help me, when he ran into them, they were bringing

back my youngest daughter, who at that time was six years old. She was sick with same symptoms as me, vomiting, diarrhea and a headache. At the same time, my 14-year-old daughter also fell ill with the same symptoms. Shortly afterward, my 16-year-old daughter also felt sick with vomiting, headache and diarrhea. My 18-year-old daughter and her three-month-old daughter, whom I was looking after, also became sick. Finally, my husband also fell ill, with vomiting and diarrhea.

...

The spraying ruined the subsistence crops that we had, maize, yucca, plantain, rice and sugar cane, the chickens also died.”⁴⁰⁵

5.112 Colombia Witness 9 is a primary school teacher in San Marcelino, a small community in southern Putumayo lying along the banks of the San Miguel River, which constitutes the border with Ecuador. She testified:

“During the spraying in 2002, the planes passed over the school and the breeze carried the poison towards us, it looked like a cloud that fell slowly and landed on the leaves of the plants, which took on an oily shine. The children were in class, inside the school. At that time I was in charge of 15 preschool children. Once they heard the planes they ran outside to see them. I stopped the children under my care, but those in the other grades went outside, and the poison fell on them. After that, they were all sent home.

Poison fell on the school, the playing fields, and the garden, which we could not recover; nothing grew, the plantains turned spotted, and when peeled showed black dots inside. The area around the school turned dry and yellow.

During the following week, many children missed school. The children in my care became ill, for example, with diarrhea and

⁴⁰⁵ Declaration of Colombia Witness 3, 20 Feb. 2009. EM, Vol. IV, Annex 227. Ecuador refers to all witness affidavits in this Memorial by witness number, rather than by name of the witnesses. Witness names have been redacted from the affidavits included as Annexes to the Memorial at the request of the witnesses for their protection. Ecuador has separately submitted to the Court, under seal, a full set of unredacted witness statements, as well as a table correlating the witnesses to the annex numbers used in the Memorial.

fevers, and it seemed like they had drunk poisoned water. The other children, those who were openly exposed to the poison, initially suffered from headaches, and later rashes and skin bumps began to appear all over their bodies. They scratched a lot, so much that they gave themselves sores from so much scratching. We knew at the time of the case of one dead child, who according to his father drank poisoned water. He was the son of Mr. [REDACTED].

In the long term, the sprayings caused a desertion of the school. The parents no longer knew how to live, nor how to feed their children, because the plantain and yucca crops were sprayed. Many parents were forced to move elsewhere. In that year, 2002, of the 90 children enrolled at the beginning of the year, we finished with only 35 students.”⁴⁰⁶

5.113 Colombia Witness 8 is also from San Marcelino and a leader of the indigenous Kichwa community there. He too described the 2002 fumigations:

“In December of 2002, I was in my house when I heard the noise of the planes passing over the house. I approached the window and saw that they were dumping a white smoke onto us. It is like oil where it leaves a stain, a grease on the leaves of the plants. They passed over my house twice, and then left.

My children drank water from the 2,000 liter collection tank, which I was unable to cover to prevent the poison from falling in. They also swam in the stream that I have next to my house where the poison also fell.

As a result of this spraying, my children got sick. I have seven children in total, it gave them all diarrhea, vomiting and bumps on their skin. My wife got sick with a headache and stomachache. To cure ourselves, we used medicinal plants from the jungle.

In 2002, 105 families lived on the Reservation. We had maize, plantain, and yucca crops. The spraying ruined these crops, especially the maize, which could not even be used for seed, and we could not replant where they had sprayed. From the maize we

⁴⁰⁶ Declaration of Colombia Witness 9, 5 Mar. 2009. EM, Vol. IV, Annex 232.

make *chicha*, which is a very important drink to our culture, as we use it in our rites and ceremonies. The Plantain was also severely affected, after the sprayings, we could see the leaves, but no fruit grew, and the few which did grow turned yellow before the harvest time.”⁴⁰⁷

5.114 Colombia Witness 4 is a farmer from La Dorada, a municipality bordering Ecuador. He testified that he was a participant in an alternative development programme designed by the Colombian government to encourage farmers to grow alternatives to illicit coca crops. After his and his partners’ non-contiguous pepper farms had repeatedly been sprayed between 2000 and 2004, an official of the antinarcotics police recommended that they consolidate their farms into a single plantation that could be geo-referenced and recorded with the DNE (Colombia’s National Anti-narcotics Agency) so as to avoid accidental sprayings in the future. In 2004 they did so. He testified:

“The farm cost us sixty million [pesos] and the establishment of each hectare of pepper cost us twenty-four million pesos, with live trainers. On that occasion, the Plan Colombia gave us the seed, part of the fertilizer and the live trainers. The NGO, operator of Plan Colombia, COMFALIAR, did all the procedures for the georeferencing and confirmed to us that they had sent the coordinates to the Anti-narcotics Police. However, seven months after having planted the pepper, the area was sprayed damaging approximately twelve of the twenty hectares of planted pepper. We filed a claim for these damages with the administrative section of the Municipality but we never received a response.

...

With the spraying of the year 2006, they again sprayed twelve and a half hectares of pepper. Two partners who were on the land confirmed to us that three planes flew over them, spraying these crops. After the spraying the pepper crops began to turn yellow,

⁴⁰⁷ Declaration of Colombia Witness 8, 4 Mar. 2009. EM, Vol. IV, Annex 231.

their leaves fell off and they dried up, and the stem and root rotted”⁴⁰⁸.

5.115 In addition to the witness accounts just quoted, included among the annexes to this Memorial are witness statements from five other Colombian witnesses, all of whom reside in the immediate vicinity of the Ecuador-Colombia border, and all of whom confirm the harmful impacts of the aerial sprayings on their families, communities, crops and livestock. Rather than quote them here, Ecuador invites the Court to review them at its convenience⁴⁰⁹.

5.116 The witness declarations are consistent not only among themselves but also with the Colombian government and NGO reports cited above. They provide compelling first-hand accounts of the harms described in those reports. The Colombian witness statements are also consistent with the known effects of glyphosate and associated additives, as described in Sections I and II of this Chapter. As such, they contribute to a comprehensive and coherent body of evidence proving the toxicity of the chemicals Colombia employs in its aerial sprayings, and the harms these sprayings have caused to people, plants, animals, and the environment, on both sides of the border.

⁴⁰⁸ Declaration of Colombia Witness 4, 20 Feb. 2009. EM, Vol. IV, Annex 228.

⁴⁰⁹ Declaration of Colombia Witness 1, 20 Feb. 2009. EM, Vol. IV, Annex 225; Declaration of Colombia Witness 2, 20 Feb. 2009. EM, Vol. IV, Annex 226; Declaration of Colombia Witness 5, 20 Feb. 2009. EM, Vol. IV, Annex 229; Declaration of Colombia Witness 6, 20 Feb. 2009. EM, Vol. IV, Annex 230; Declaration of Colombia Witness 10, 5 Mar. 2009. EM, Vol. IV, Annex 233.

CHAPTER VI.

**THE DAMAGE CAUSED IN ECUADOR
BY COLOMBIA'S AERIAL SPRAYING OF HERBICIDES**

6.1 This Chapter addresses the damage caused to Ecuador, its people and environment by the aerial spraying carried out by Colombia along the border since 2000. Two of the most frequently and intensely sprayed areas of Colombia have been the extreme southern regions of Putumayo and Nariño provinces, precisely those parts of Colombia closest to the Ecuador border. As described in Chapter II, the people living in the border communities on the Ecuador side of the boundary -- including those who live along the Mataje, San Juan, San Miguel and Putumayo Rivers -- are among the poorest in the nation. Most families subsist on the food and income they are able to generate from the crops and animals they raise themselves. Their quality of life and state of health are often marginal. They are, therefore, extremely vulnerable to anything that threatens to disrupt the delicate balance of their lives.

6.2 The border area is also home to substantial indigenous populations, comprised of members of the Awá, Cofán and Kichwa communities, among others. Indeed, two recognised indigenous territories, the Awá Territory and the Cofán Territory (which lies within the Cofán-Bermejo Ecological Reserve), directly abut the Ecuador-Colombia border⁴¹⁰. The indigenous populations in the frontier area are not, however, found only within these territories or even limited to Ecuador itself. Many indigenous people reside throughout the border region, some in mixed communities with settlers, on both sides of the Ecuadorian-Colombian boundary. Indeed, many Awá, Cofán and Kichwa move freely across the frontier.

6.3 Colombia's aerial spraying of herbicides along the border has caused serious harm to Ecuador's territory and the people who live there, including the

⁴¹⁰ The location of these territories is depicted in Sketch Map 3 of this Memorial.

indigenous populations. The spray mixture used by Colombia has repeatedly drifted across the international boundary into Ecuador where it has been deposited on people, plants, crops and animals, as well as on the rivers that make up the border. There are even reports that some sprayings have taken place directly over Ecuador's territory. Year after year, communities in Sucumbíos, Esmeraldas and, to a lesser extent, Carchi have endured serious harm to human, plant and animal health. The effect on indigenous communities has been particularly damaging given their deep cultural connection to and reliance on the natural environment.

6.4 The pattern of damage caused by the sprayings is consistent across both time and space. Beginning in late 2000, and after each spray event, members of the exposed communities have experienced a range of serious adverse effects to their health, to the health of the crops on which they rely for subsistence and to the health of their animals. In many cases, the lingering effects of the fumigations have continued to be felt weeks, months and even years after the last sprayings took place. The reports of harm suffered are not only consistent within and across those parts of the territory of Ecuador that has been harmed, they are also entirely consistent with the harms experienced in Colombia, as discussed in Chapter V. This underscores the causal link between Colombia's fumigations and the damage that has been caused to people, plants and animals on both sides of the border.

6.5 Chapter VI is divided into four parts: **Section I** details the harm to people in Sucumbíos and Esmeraldas Provinces caused by exposure to the sprayings; **Section II** addresses the harm to plants; and **Section III** deals with the harm to animals. At the end of each of these sections, Ecuador demonstrates that the harms inflicted are caused by and consistent with the predicted effects of the

misuse of glyphosate-based herbicides in uncontrolled conditions, as described in Chapter V. **Section IV** of this Chapter addresses the special harms to indigenous communities in the affected parts of Ecuador's territory, a matter of particular concern to Ecuador.

6.6 By proceeding in this manner, Ecuador does not seek to imply a hierarchy of the rights upon which it relies, or to suggest any hierarchy of complaints. Ecuador adopts this approach to facilitate the presentation of the evidence on which it relies in a manner that is organised and accessible. As will become clear, the harms occasioned by Colombia's fumigations constitute an integrated, mutually reinforcing whole that have undone the very fabric of life in the border region.

Section I. The Harm to People

6.7 Although the spray mixture Colombia uses is designed to kill plants, its effects are not limited to plant species. As described in Chapter V, it is capable of causing -- and has caused -- serious harm to human health. The experience of people in Colombia has already been presented. Ecuador here shows that the human health effects in Colombia are mirrored in Ecuador.

A. INDEPENDENT REPORTS

6.8 The harms to people living along Ecuador's northern frontier have been recognised by the UN Special Rapporteur on the Right to Health, Mr. Paul Hunt. Following a May 2007 visit to Ecuador, during which he met with government officials and representatives of civil society, and visited three communities in the northern zone, Mr. Hunt held a press conference in Quito to present his

preliminary conclusions and recommendations. His comments concerning the health effects of Colombia's fumigations were emphatic and unambiguous. He said:

“The aerial spraying of glyphosate along the northern border has to be seen in the context of the conditions of the people -- refugees, indigenous peoples, Afro-Ecuadorians, internally displaced persons and other disadvantaged groups -- living in the northern zone. ...

In my opinion, there is an overwhelming case that the aerial spraying of glyphosate along the Colombia-Ecuador border should not re-commence. ...

In summary, Colombia has a human rights responsibility of international assistance and cooperation, including in health. Consequently, as a minimum, Colombia must not jeopardise the enjoyment of the right to health in Ecuador. It must ‘do no harm’ to its neighbour.

There is credible, reliable evidence that the aerial spraying of glyphosate along the Colombia-Ecuador border damages the physical health of people living in Ecuador. There is also credible, reliable evidence that the aerial spraying damages their mental health. Military helicopters sometimes accompany the aerial spraying and the entire experience can be terrifying, especially for children. (Some children told me that, while they were in their school, it was sprayed.)

This evidence is sufficient to trigger the precautionary principle. Accordingly, the spraying should cease until it is clear that it does not damage human health.”⁴¹¹

6.9 Mr. Hunt's observations are echoed in other accounts of the aerial sprayings' effects on the Ecuadorian people, many of which are contemporaneous

⁴¹¹ *Report of the Special Rapporteur on the Right of Everyone to the Enjoyment of the Highest Attainable Standard of Physical and Mental Health: Preliminary Note on Mission to Ecuador and Colombia, Addendum, A/HRC/7/11/Add.3* (hereinafter “Special Rapporteur on the Right to Health, Preliminary Note”) (4 Mar. 2007), para. 17 (emphasis added). EM, Vol. II, Annex 31.

to the fumigations themselves. From the moment sprayings in the border region began in late 2000, residents in the border regions of Sucumbíos, Esmeraldas and, to a lesser extent, Carchi began to experience a range of adverse health effects, including skin rashes, eye irritation, nausea, vomiting, diarrhea, headaches and respiratory problems.

6.10 Dr. Dino Juan Sánchez Quishpe is the head of Marco Vinicio Iza Hospital, the only hospital in Nueva Loja (also known as “Lago Agrio”), the capital of Sucumbíos, roughly an hour’s drive from the closest frontier villages. He reported that:

“...we have observed an epidemic of symptoms that have occurred in temporal proximity to the fumigations by the Colombian border, in the province of Sucumbíos. Since January 2001, when, I believe, the sprayings began in this area, the hospital has reported a significant increase in respiratory diseases and skin infection. Since then, I have observed at the hospital and in my private practice, episodes of diseases that repeatedly coincided with the times when sprayings near the border were reported. I remember particularly a period in 2004 and early 2005 during which there were many patients complaining of headache, vomiting and skin problems, which coincided with border sprayings. ... The majority of the patients that reported these symptoms were young. Usually, children under the age of five were the ones with these problems”⁴¹².

6.11 Doctor Sánchez noted the unprecedented nature of these outbreaks:

“I had not seen this type of epidemic before. People came with severe headaches and vomiting. I was not able to attribute these symptoms to circumstances that would normally cause these types of health problems. It was something new and strange. We had treated some of these symptoms before but, usually, diseases such

⁴¹² Declaration of Dino Juan Sánchez Quishpe, 15 Jan. 2009 (hereinafter “Sánchez Declaration”), pp. 2-3. EM, Vol. IV, Annex 188.

as diarrhea resulted from prolonged summers, when there had not been any rain, and people had no fresh water to consume. But it seemed very strange to us that there were so many cases of diarrhea and vomiting during the rainy season, which was uncommon. I had not seen a person affected by multiple symptoms at the same time either, such as skin disease and at the same time diarrhea and vomiting. Nor had I seen so many people affected during the same periods.”⁴¹³

6.12 Due to increasing awareness of and growing concern about the health effects of the fumigations, in early 2001 an Ecuadorian NGO conducted an observation mission to investigate the health effects of the fumigations conducted along the border between November 2000 and March 2001. The mission found a common set of symptoms afflicting affected populations following the fumigations. Ailments reported included skin rashes, diarrhea, vomiting, abdominal pain, fever, dry cough, conjunctivitis, tearing, blurred vision and dizziness⁴¹⁴. The single most common symptom was fever followed by diarrhea, skin rashes, cough, eye irritation and vomiting⁴¹⁵.

6.13 In July 2001, a consortium of Ecuadorian and Colombian NGOs visited areas of northern Sucumbíos Province to learn more about the experiences of affected populations. Residents of the community of San Francisco 2 near the border:

“commented that at that time there was a lot of wind and that it ‘smelled horrible and their eyes and noses were stinging’. From the very beginning everyone had red, burning and teary eyes, and discomfort when seeing. ...

⁴¹³ Sánchez Declaration, *op. cit.*, pp. 3-4. EM, Vol. IV, Annex 188.

⁴¹⁴ See Acción Ecológica, *Report on the Investigation of the Fumigations’ Impacts on the Ecuadorian Border* (hereinafter “Investigation of the Fumigations’ Impacts, 2001”) (June 2001), p. 5. EM, Vol. IV, Annex 161.

⁴¹⁵ *Ibid.*, p. 5-6.

They recounted that the first ones to get sick were the children, with digestive symptoms of diarrhea and intense vomiting with abdominal inflammation. Later, the adults exhibited these symptoms. ...

Subsequently, they had respiratory problems, with an intense dry cough, but that was accompanied by difficulty in breathing and that made many children faint. These symptoms, together with the fever, caused 21 children to stop attending school...⁴¹⁶.

6.14 In September 2002, representatives of several Ecuadorian NGOs, accompanied by representatives of Ecuador's Office of the Ombudsman for Sucumbíos, conducted a further field mission to the affected border regions in *both* Ecuador *and* Colombia. This followed the renewal of aerial sprayings in July 2002. Based on their investigation, the authors of the report determined:

“A large majority of the population after the fumigations has felt adverse impacts such as headaches and eye irritation and tearfulness. In the Colombian communities that were more intensely fumigated, it was common to find digestive problems, with dizziness, abdominal pains, vomiting and nausea, diarrhea, fatigue and loss of energy. This symptomatology is typical of organophosphates, which is the group that Roundup Ultra belongs to. The presence of fever in Colombia is also significantly more widespread than in Ecuador.

Another group of symptoms appears because of skin diseases. A great deal of pruritus (itchiness) is associated to different diseases, ranging from dermatitis (inflammation) to the appearance of pimples for different reasons. The irritation caused by the chemical is evident in this symptomatology, which also occurs in the eyes,

⁴¹⁶ Confederation of Indigenous Nationalities of Ecuador (CONAIE) et al., *Technical Report of the International Commission on the Impacts in Ecuadorian Territory of Aerial Fumigations in Colombia* (hereinafter “CONAIE Report”) (19-22 July 2001), p. 12. EM, Vol. IV, Annex 162.

which has a higher incidence on the Ecuadorian side than the digestive symptoms.”⁴¹⁷

6.15 The following year, in July 2003, just two weeks after a round of aerial fumigations in the frontier area, an inter-agency team comprised of representatives from the Ecuadorian Ministry of the Environment, the Ministry of Agriculture, the Nueva Loja Mayor’s Office, the Office of the Ombudsman for Indigenous Peoples, and other governmental and non-governmental organisations visited several northern Sucumbíos communities (as well as a village in Putumayo, Colombia). Their task was to investigate the impacts of the latest fumigations in Ecuadorian territory. According to the Executive Summary of the mission’s report, the following health effects were observed:

“Every report submitted corroborates the effects on health, the environment, and food security.

The population most affected by the fumigations is the children, who have bumps on their skin, rashes, headaches, vomiting, fever, and stomach pains. This has resulted in poor school performance and a high dropout rate. ...

In terms of health, the reports indicate that the population shows symptoms such as headaches, fever, nausea, vomiting, diarrhea, conjunctivitis, bone pain, allergies, fungi, rashes and respiratory illness.”⁴¹⁸

6.16 Renewed fumigations were reported later that year, in early October 2003. An official Ecuadorian government investigation conducted in northern

⁴¹⁷ Association of American Jurists et al., *Report on Verification Mission: Impacts in Ecuador of Fumigations in Putumayo as Part of Plan Colombia* (hereinafter “Impacts in Ecuador of Fumigations in Putumayo, 2002”) (Oct. 2002), p. 10. EM, Vol. IV, Annex 165.

⁴¹⁸ Ecuadorian Ministry of Environment et al., *Impacts in Ecuador by the Fumigations Carried Out in the Putumayo Province under Plan Colombia* (hereinafter “Impacts in Ecuador by the Fumigations Carried Out in the Putumayo Province, 2003”) (July 2003), p. 4. EM, Vol. IV, Annex 166.

Sucumbíos confirmed that soon after these fumigations began the local populations reported the same familiar suite of symptoms: skin and eye irritation, nausea, dizziness, diarrhea, respiratory infections and fevers⁴¹⁹. The conclusions of the report admit no ambiguity, and include the following:

“It is evident that, the health situation in the communities visited has deteriorated because of the fumigations, not only due to direct effects on the health of people from the spraying of substances, and direct contact with the skin and mucus glands, but also due to the ingestion of contaminated water and food.

The health effects described by the populations coincide with those described in specialized technical studies undertaken in the area to evaluate the impact of the fumigations. These are: skin problems and poisoning manifested in rashes, dizziness, nausea, vomiting, abdominal pain, neurological problems, and respiratory problems. All of these are indications of organophosphate poisoning, which is compatible with the products used in the aerial fumigations being carried out in the area.”⁴²⁰

6.17 These same health phenomena have been observed each and every year following Colombia’s aerial fumigations. Following the last reported series of aerial fumigations along the border in early 2007, an international observer mission to the area reported:

“With regard to the effects on human health, it was found that, after the sprayings, there were very similar reactions in both Colombian and Ecuadorian populations, especially regarding the children who exhibited symptoms very similar to those of the flu that resulted in general discomfort, headache, vomiting, and diarrhea. Similarly, other symptoms in common, in both border areas, were burning of the eyes, skin irritations and respiratory

⁴¹⁹ National Congress of the Republic of Ecuador, Commission for Health, Environment, and Ecological Protection, Congressman Miguel López Moreno, *Report of the Visit to Communities on the Border Cordon of the Province of Sucumbíos*, (hereinafter “Congressional Visit to Communities”) (12-15 Dec. 2003), p. 2. EM, Vol. IV, Annex 167.

⁴²⁰ *Ibid.*, p. 5.

problems. These reactions were most clearly seen on the banks of the Putumayo River, where, in two Ecuadorian communities, Litoral and El Progreso [*sic*], children were unable to attend school because most of them suffered from some type of flu, which took approximately a week to cure, and which manifested itself a few days after the spraying.”⁴²¹

6.18 As these sources make clear, children have been among those most seriously affected by the fumigations. The harm they have suffered is not merely physical. According the April 2007 report of the Ecuadorian Scientific Commission, children in the region have suffered significant psychological trauma as well. As the report states:

“[T]he devastating results of the chemical spraying on the socio-economic activity of their families, sometimes strike a doubly traumatic blow: vast material resources and spiritual resources critical for harmonious personality development are lost, and the positive stimuli for acquiring the knowledge and skills associated with the profession or vocation closest to their reality are weakened.”⁴²²

6.19 The truth of this statement, together with a child’s perception of the harms the fumigations have inflicted, are powerfully captured in the image depicted below⁴²³, which was drawn by an Ecuadorian child following sprayings along the Putumayo-Sucumbíos border in late 2000 and early 2001. (The caption on the

⁴²¹ UNHCR et al., *Impact of the Spraying Along the Colombian-Ecuadorian Border Area* (Feb. 2007), p. 2. EM, Vol. II, Annex 29.

⁴²² Ecuadorian Scientific Commission, *The Plan Colombia Aerial Spraying System and its Impacts on the Ecosystem and Health on the Ecuadorian Border* (hereinafter “Ecuadorian Scientific Commission Report”) (Apr. 2007), p. 66. EM, Vol. III, Annex 153.

⁴²³ *Ibid.*, p. 67.

left side of the image reads: “Before fumigating”; the caption on the right reads: “After fumigating”.⁴²⁴)



B. WITNESS STATEMENTS

6.20 The Court may obtain a more detailed and personal account of the sprayings and their effects from the dozens of witness statements from representative border communities in both Sucumbíos and Esmeraldas Provinces that are set out in the annexes to this Memorial. The locations the witness testimonies come from do not -- and are not intended to -- represent an exhaustive list of all communities on Ecuador’s side of the border that have been harmed by

⁴²⁴ The child’s name, which Ecuador regards as confidential, has been redacted from this image. It is included in the complete version of Annex 157, which has been filed with the Court.

Colombia's aerial sprayings. Nor are they intended to be comprehensive in the accounts they present. Nevertheless, the evidence they reflect gives the Court a coherent sense of the serious nature and broad scope of the harms inflicted.

1. Sucumbíos

6.21 The village of **Salinas** is located in Sucumbíos Province and sits on the banks of the San Miguel River, which demarcates the international border with Colombia's Putumayo Province. Salinas is perched on a slope; many of its houses, as well as the schoolhouse and general store, have a view of the river and the Colombian jungle just beyond. For most of its history, Salinas has been isolated from the rest of Ecuador. The stone road to the nearest population centre, Nueva Loja (the capital of Sucumbíos Province), was completed just two years ago. Before that, the main means of transport was by canoe on the San Miguel River. Beyond affording a means of transportation, the road brought with it some access to electricity, although most households continue to lack running water.

6.22 Salinas is largely made up of subsistence farmers, many of whom have traditionally grown coffee as their main cash crop. They also typically raise regional staple crops like yucca and maize as well as some livestock to be eaten by the family and, less frequently, sold at market. Most residents live far below the national poverty line.

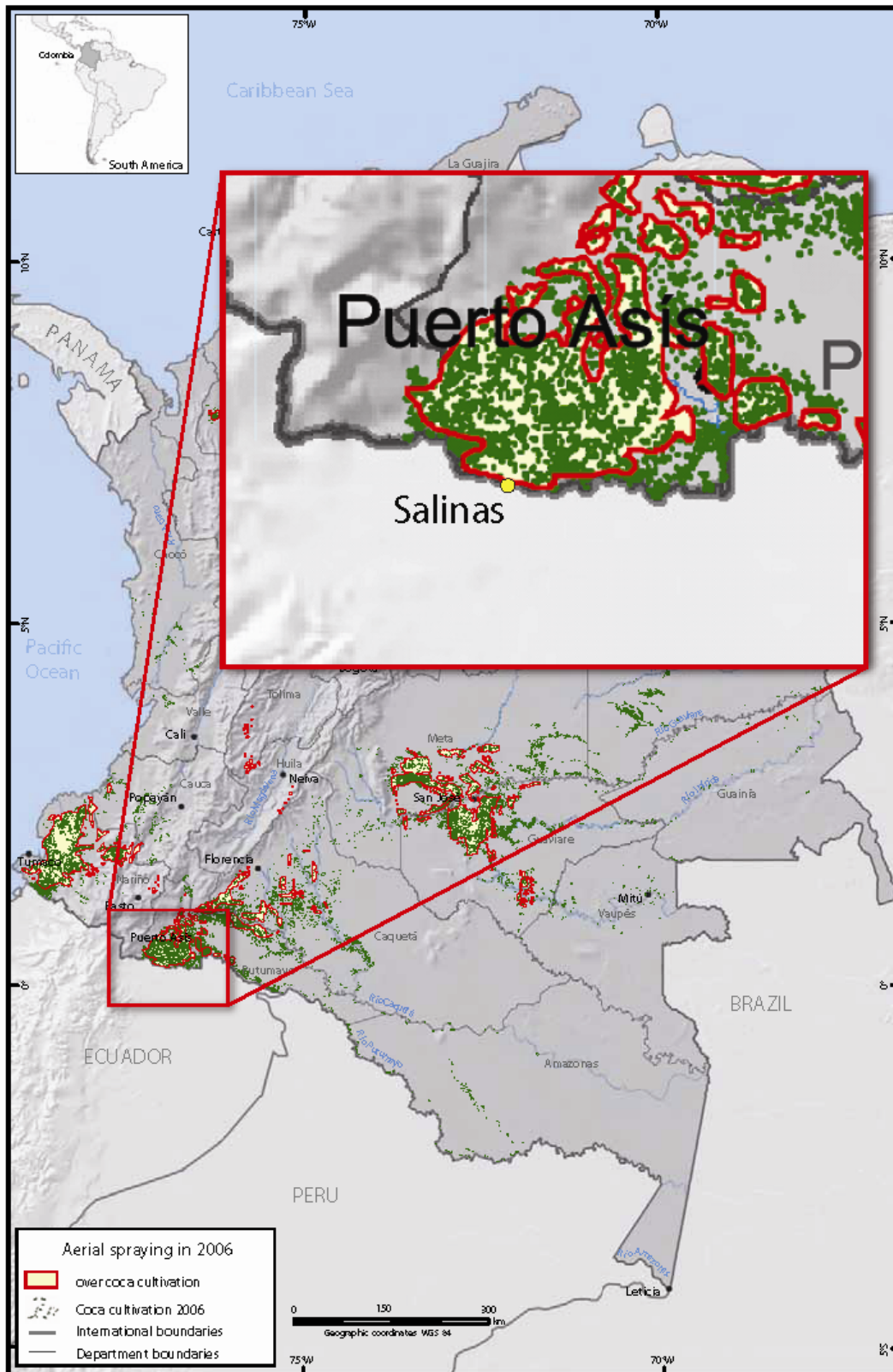
6.23 Beginning in late 2000, and repeatedly thereafter, residents of Salinas have been exposed to the fumigations taking place just across the river in Putumayo. The map that appears below was prepared by the United Nations Office on Drugs and Crime ("UNODC"), which monitors some of the fumigations and, based on Colombian official flight-path data (with which Ecuador has never been provided), produces maps that aim to depict areas of

Colombia in which chemical sprayings have taken place during each of the years from 2004 to 2007⁴²⁵. The UN map presented shows fumigations conducted during 2006⁴²⁶. As indicated in the map's key, the *green* dots indicate the reported presence of coca crops, and the *yellow* areas indicate places where aerial sprayings are reported to have taken place. In this map, the UNODC has drawn *red* lines around the yellow spray areas, which are otherwise difficult to distinguish due to the density of the green dots. The only alteration to the map that Ecuador has made is to magnify the area of north-central Sucumbíos in which Salinas is located, and to indicate the precise location of the village with a yellow dot. As the Court can see, official UNODC data shows how close to Salinas Colombia conducted sprayings in 2006. The map also shows how little (if any) drift is required for the toxic herbicide to reach into and directly affect Ecuadorian communities.

⁴²⁵ Similar maps and fumigation flight pattern data have not been produced for the years 2000-2003.

⁴²⁶ United Nations Office on Drugs and Crime, *Colombia Coca Survey for 2006* (June 2007), p. 73. EM, Vol. II, Annex 24.

[UNODC] Aerial spraying and coca cultivation in Colombia, 2006



Sources: for coca cultivation Government of Colombia, National monitoring system supported by UNODC; for aerial spraying DIRAN
 The boundaries and names shown and the designations used in this map do not imply official endorsement or acceptance by the United Nations

Map 5

6.24 Witness 3 is a life-long resident of Salinas and a father of four. He described his first experience of the fumigations as follows:

“I was working on my farm, seven or eight years ago, when I saw planes and helicopters flying over the San Miguel River, over our community, which is on the banks of the river. They crossed to the Ecuadorian side to turn around and return to Colombia. On their way, one could see that they were dropping a water-like liquid; it was like a white mist that they were dropping. One could smell a bothersome, intense odor.”⁴²⁷

6.25 Witness 2, a 27-year resident of Salinas who owns a farm on the banks of the San Miguel River, described his initial exposure in similar terms:

“About seven or eight years ago, I was working on my harvest when the first fumigations occurred. I could observe maybe four planes and some helicopters passing by the San Miguel River and, when turning around, they would fly over Ecuadorian territory. The planes were flying, dropping a white liquid that with the wind came quickly toward us. The product had a strong odor and, at the same moment, I felt burning in my nose and throat.”⁴²⁸

6.26 He continued:

“A few days later, my body broke out with bumps that itched intensely. Never before did I have this type of bumps all over my body and I did not know how to treat them. I still have the scars from those bumps. I also suffered from strong headaches and dizziness a few weeks after the planes came by spraying. When the sprayings returned, these same symptoms appeared a few days later. Even to this day, I do not feel fully recovered. During each spraying, the children in the community and neighbors that also live on the banks of the river became sick with diarrhea and vomiting. The younger children were more affected than others.

⁴²⁷ Declaration of Witness 3, 17 Jan. 2009 (hereinafter “Witness 3 Declaration”). EM, Vol. IV, Annex 191.

⁴²⁸ Declaration of Witness 2, 16 Jan. 2009 (hereinafter “Witness 2 Declaration”). EM, Vol. IV, Annex 190.

Many children would cross the river to be treated by doctors on the Colombian side, because at the time of the sprayings there was no road and it was very difficult to go to Lago Agrio. Others went to the medical subcentre in La Punta, but often we would find that there was not enough medicine for everyone.”⁴²⁹

6.27 Witness 3’s testimony is to the same effect:

“My family and I drink water from the river and bathe in it. We also use it for cooking. A week after the fumigations, we broke out in a rash of bumps on our skin that caused a strong itch. My children had fever, diarrhea, vomiting and stomach ache. It was very strange that everyone in the community got sick at the same time; this had never happened before.”⁴³⁰

6.28 The accounts of Witnesses 2 and 3 are echoed in the testimony of other Salinas residents. Witness 5, a Salinas resident for 25 years, stated that

“We have never had an epidemic like the one caused by the sprayings. The children had headaches and eye irritation. My youngest daughter had vomiting and diarrhea, and the teachers would send the children home. About four days after the fumigations, my body ached all over and my skin itched. I had bumps on my skin that lasted for about a month and a half. Some children in the community fainted because they had difficulties in breathing and were suffering from dizziness. Moreover, the sprayings have also caused psychological problems in our village. It has caused fear, concern, uncertainty and a lot of anxiety. My daughter is still scared that the planes might come back.”⁴³¹

6.29 Similar accounts come from the residents of the **Puerto Escondido** area located some 20 kilometres to the east of Salinas. Like Salinas, Puerto Escondido is located on the banks of the San Miguel River in Sucumbíos, directly across

⁴²⁹ *Ibid.*

⁴³⁰ Witness 3 Declaration, *op. cit.* EM, Vol. IV, Annex 191.

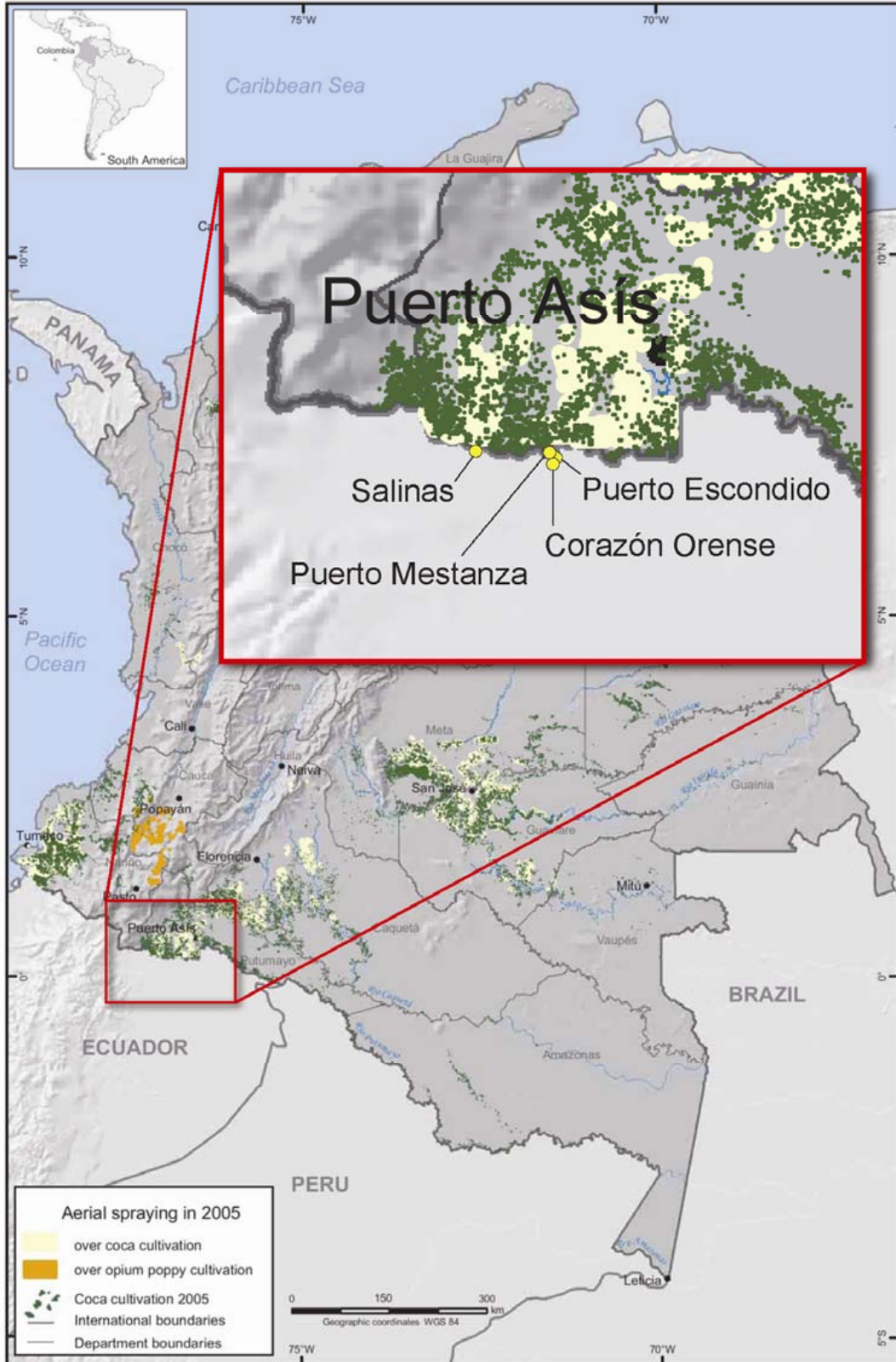
⁴³¹ Declaration of Witness 5, 16 Jan. 2009. EM, Vol. IV, Annex 193.

from Putumayo. Puerto Escondido (“hidden port”) is an apt name. It is a small community, surrounded by jungle and reached only by the narrow path that connects it to the neighbouring villages of **Puerto Mestanza** and **Corazón Orense**. The community was established by subsistence farmers who settled on the land in order to cultivate their farms and raise their families. There is no electricity and no running water. It is a tight-knit group of some twenty households, who rely on their plants, animals, the river waters and each other to survive.

6.30 Reproduced on the following page is the official UNODC map depicting areas of Colombia fumigated in 2005.⁴³² As in the 2006 map reproduced above, the green dots indicate the presence of coca crops and the yellow indicates areas where sprayings have been conducted. (The orange indicates the location of poppy crops.) Here again, the only alteration Ecuador has made to the map is to magnify the area around Puerto Escondido, Puerto Mestanza and Corazón Orense, and to indicate the location of those villages with yellow dots. And again, the Court will see just how little drift is required for the herbicide to reach Ecuadorian communities on the border.

⁴³² United Nations Office on Drugs and Crime, *Colombia Coca Survey for 2005* (June 2006), p. 80. EM, Vol. II, Annex 23.

[UNODC] Aerial spraying and coca cultivation in Colombia, 2005



Sources: for coca cultivation Government of Colombia, National monitoring system supported by UNODC; for aerial spraying DIRAN
 The boundaries and names shown and the designations used in this map do not imply official endorsement or acceptance by the United Nations

Map 6

6.31 As in Salinas, survival in this under-developed area became significantly more difficult after the aerial fumigations began. As described by Witness 20:

“It was late in the morning. I was with the pigs by the plantain fields when I saw the planes. There were also helicopters. The planes were flying like vultures fighting for food, going up and down repeatedly. They were dropping white liquid that extended throughout the air. In some areas it fell directly, in others it drifted with the wind. It smelled bad, I could barely stand it. I felt the mist go into my eyes. My eyes became sticky. I started to feel sick and I immediately returned home. I got a headache and dizziness. When I got home, I shouted to my children to go into the house because they were outside playing, watching the planes. Still, a few days later my seven children had stomach aches and diarrhea. Before, they were healthy.”⁴³³

6.32 Another Puerto Escondido resident, Witness 23, described a similar experience:

“I was working outside my house and I heard a noise that was approaching from the Colombian side. I became curious and went to the riverbank, near my house, to see what was happening. I saw three planes that were accompanied by helicopters. They were flying over Colombian territory up to the riverbank. They were going up and down over the trees, dropping a foul-smelling, gray-white mist. A few minutes later, all of a sudden, I could not breathe. My throat closed up and I started choking, like when one breathes in dust. A couple of days later, my skin also became irritated, bumps appeared and they itched intensely.”⁴³⁴

6.33 Individual accounts throughout this area confirm that the fumigations have been particularly harmful to children. As attested by a long-time Puerto

⁴³³ Declaration of Witness 20, 16 Jan. 2009 (hereinafter “Witness 20 Declaration”). EM, Vol. IV, Annex 206.

⁴³⁴ Declaration of Witness 23, 16 Jan. 2009. EM, Vol. IV, Annex 209.

Escondido resident, Witness 22, shortly after the fumigations many local children became ill with skin rashes, eye irritation, vomiting and diarrhea:

“I was not the only one who got sick. My nephews had red bumps on their skin, diarrhea, cough, and fever, and their eyes turned red and burned. Their mother had never seen her children like that, with so many problems at the same time, she did not know how to treat them. She asked other mothers in the community, but their children also had this strange disease and they did not know what to do. When these diseases returned after the sprayings, in other years, we already had a better idea of what they were, although there was not much that could be done.”⁴³⁵

6.34 In the abutting community of **Corazón Orense**, the effects on the children were so widespread that the school was forced to temporarily close. Witness 9 testified:

“My children, who were playing outside when the planes came, suffered from burning in their eyes on the day of the spraying. Five or six days after the spraying, my children and I got rashes on our arms and legs and then on the rest of our bodies. The rash caused intense itching. I had a strong headache and dizziness. The children also suffered from vomiting and diarrhea, which lasted for two weeks. My children were not the only children affected. Other children, my children’s schoolmates, also became sick with vomiting and diarrhea. Because of this, the teachers suspended classes for a few days.”⁴³⁶

6.35 As in Salinas, the psychological trauma to children has been significant. Witness 9, a mother of eight, describes the trauma shared by many Ecuadorian children who have lived through the fumigations:

⁴³⁵ Declaration of Witness 22, 16 Jan. 2009 (hereinafter “Witness 22 Declaration”). EM, Vol. IV, Annex 208.

⁴³⁶ Declaration of Witness 9, 16 Jan. 2009 (hereinafter “Witness 9 Declaration”). EM, Vol. IV, Annex 197.

“The planes came escorted by helicopters and, when I saw them, they seemed to be flying by the edge of the river, releasing a white smoke that had a strong chemical smell. My younger children, who were playing outside the house, became very frightened and came running into the house to take shelter. They still become terrified every time they hear a noise similar to that day.”⁴³⁷

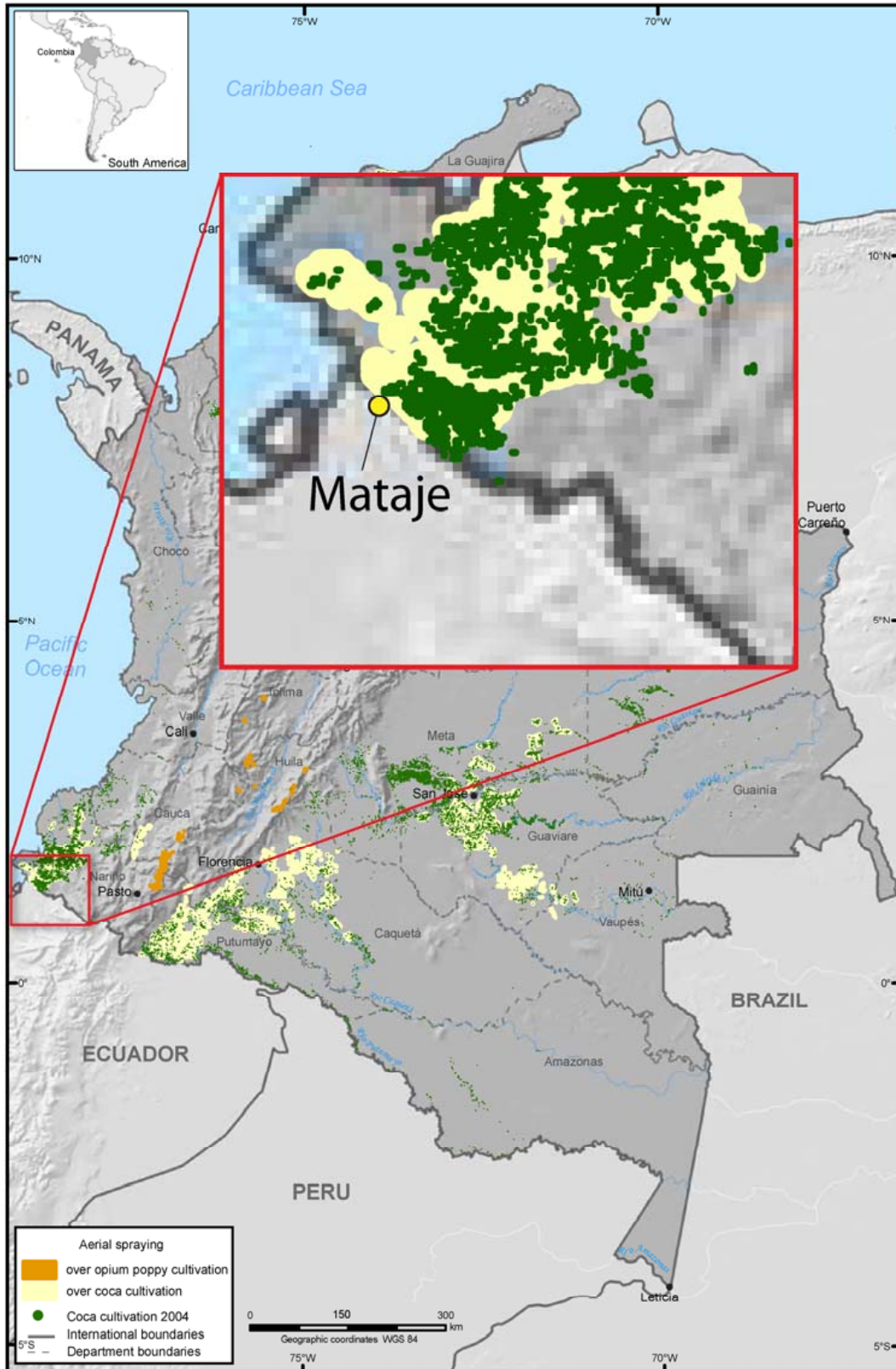
2. *Esmeraldas*

6.36 Aerial fumigations have, at various times, been conducted across much of the Ecuador-Colombia border. One of the most intensively and consistently sprayed areas in Colombia has been in southwestern Nariño Province directly across from northwestern Esmeraldas. Reproduced on the following page is a portion of the official UNODC map depicting areas fumigated in 2004.⁴³⁸ As with the other maps reproduced above, the only alteration Ecuador has made to the map is to magnify the area around the town of **Mataje**, which lies along the Mataje River some 20 kilometres in-land from the Pacific Coast. As is clear, the yellow spray areas actually overlap much of the Mataje River which constitutes the international border in the area and has historically been the chief source of fresh water for area residents.

⁴³⁷ Witness 9 Declaration, *op. cit.* EM, Vol. IV, Annex 197.

⁴³⁸ United Nations Office on Drugs and Crime, *Colombia Coca Survey for 2004* (June 2005), p. 65. EM, Vol. II, Annex 22.

[UNODC] Aerial spraying and coca cultivation in Colombia, 2004



Sources: for coca cultivation Government of Colombia, National monitoring system supported by UNODC; for aerial spraying DIRAN
 The boundaries and names shown and the designations used in this map do not imply official endorsement or acceptance by the United Nations

Map 7

6.37 Mataje is populated by Afro-Ecuadorians who are descended from the survivors of a Spanish slave ship bound for Perú that ship-wrecked off the Ecuadorian coast in 1560. Before the aerial sprayings began, their homes were almost all located along the banks of the Mataje River, on which the families depend heavily. Due to the effects of the fumigations, however, many residents have moved their homes farther inland to what they now term “Nuevo” (“New”) Mataje. In response to the residents’ campaign for potable water arising from their concerns about the effects of the fumigations on the water of the Mataje River, a pipe providing clean water to the town has been built. Mataje is unusual among border communities as it hosts one of the few health clinics in the border area, albeit staffed with just one nurse.

6.38 In all respects, Mataje’s experience with the aerial fumigations parallels those of the communities described above. The fumigations were soon followed by illness. The lone nurse at the health centre was quoted in the report of an early 2001 field study as stating:

“At the end of September and beginning of October [2000], over 8 days, 16 children and 12 adults became ill. They had vomiting, diarrhea, skin rash (the skin would turn red, with bumps and rashes), headaches, irritation of the eyes and high fever. Then the adults started getting sick.”⁴³⁹

6.39 Witness 39 is a mother of five who works principally in the home, and was among the many patients who sought help at the health centre:

“The poison that fell over us caused our body and eyes to itch. A few days later, my children had bumps on their bodies that itched a lot. I went to see the nurse so she could cure us and I was not the only one there, since there were a lot of people who had gotten

⁴³⁹ CONAIE Report, *op. cit.*, p. 17. EM, Vol. IV, Annex 162.

sick after the sprayings. For that reason we had to call a doctor from San Lorenzo, because there were too many of us for the nurse to treat.”⁴⁴⁰

6.40 Witness 36 is a mother of four whose home was formerly located just a few steps from the Mataje River. She recounted her experience with the fumigations:

“The first time that I saw the sprayings was in the year 2000. I was clearing the land in my farm, accompanied by my younger son. I saw planes and helicopters flying over the river. From the planes, a white rain was coming out. That rain fell on top of me and also on top of my son; it looked like grease on the skin. At that moment, I had a bucket of water with me, which was not covered, and that liquid also fell in there. As I returned home, I drank that water from the bucket. When I reached home, I bathed with water from a small stream, and with that I washed off the grease that was on my skin. But, on the following day, I woke up sick, with a stomachache, vomiting, diarrhea, and itchiness on my body. They took me to see the nurse, and there were so many people sick with vomiting and headaches that there was nowhere to sit. I was very sick and they made me lie down, I stayed two days with the nurse, before losing consciousness. I was so sick that they had to take me to the hospital in Esmeraldas where I was admitted for six days.”⁴⁴¹

6.41 The same deleterious effects were experienced again, after new rounds of sprayings. According to Witness 32, whose house sits some 30 metres from the Mataje River:

“The second spraying is the one that affected me most. I was returning home from work in a canoe on the Mataje River. From the canoe, I saw the planes coming from Colombia, they were flying over my head, following the river and then going back to the interior of Colombia, they would circle and return again. The

⁴⁴⁰ Declaration of Witness 39, 19 Feb. 2009, para. 3. EM, Vol. IV, Annex 222.

⁴⁴¹ Declaration of Witness 36, 19 Feb. 2009. EM, Vol. IV, Annex 219.

planes were releasing a whitish mist and, since I was in the canoe and the planes were flying near me, that mist fell on my body. It felt like a greasy moisture, like a light oil. I got home in the canoe and there I bathed with water from the river because it was the only source of water we had, and I had to get the grease off me.

... The following day I went to get shrimp because I saw that they were dying on the banks of the river. When I arrived at the river, the shrimp were dying on dry land. I took advantage of it and got them to give dinner to my family. About three hours after dinner, everyone in the house was sick with stomachache, vomiting and diarrhea. The following day we were still sick and, we also woke up with bumps on our bodies, so we went to see the nurse. When we arrived at the health subcentre, there were a lot of people who had the same thing that we had. The nurse gave us medicines that helped a little but we were sick for two more weeks.’⁴⁴²

6.42 Additional first-hand accounts have been provided by five other Mataje residents: Witness 30, Witness 33, Witness 34, Witness 37 and Witness 38⁴⁴³. Ecuador will not here repeat the contents of those testimonies, and invites the members of the Court to review them at their convenience. The declarations all identify effects substantially similar to those recounted above by their fellow residents of Mataje, as well as their countrymen from Sucumbíos.

6.43 They are also echoed by the contents of the 2001 field study report quoted above at paragraph 6.13, according to which:

“...many who were sick, did not receive medical attention at the [health] subcentre because it did not have the capacity for so

⁴⁴² Declaration of Witness 32, 19 Feb. 2009 (hereinafter “Witness 32 Declaration”), paras. 1-2. EM, Vol. IV, Annex 216.

⁴⁴³ See Declaration of Witness 30, 19 Feb. 2009 (hereinafter “Witness 30 Declaration”). EM, Vol. IV, Annex 214; Declaration of Witness 33, 19 Feb. 2009. EM, Vol. IV, Annex 217; Declaration of Witness 34, 19 Feb. 2009 (hereinafter “Witness 34 Declaration”). EM, Vol. IV, Annex 218; Declaration of Witness 37, 19 Feb. 2009 (hereinafter “Witness 37 Declaration”). EM, Vol. IV, Annex 220; Declaration of Witness 38, 19 Feb. 2009. EM, Vol. IV, Annex 221.

many. The same thing happened in Las Delicias, Corriente Larga and Boca de Chanul.

Eye conditions exhibited included irritation and reddening of the eye without purulent discharge. Vomit and diarrhea were very liquid, without blood, and antibiotics were administered for treatment. Respiratory problems included dry cough, irritation, breathing difficulties, without developing into asthma.”⁴⁴⁴

C. THE OBSERVED HARMS AND THE KNOWN EFFECTS OF THE SPRAY

6.44 As described, Colombia’s aerial fumigations have had serious, adverse affects on the health and well-being of Ecuador’s border communities. The observed effects are consistent with the known risks of glyphosate, POEA and Cosmo-Flux⁴⁴⁵. These risks have caused the manufacturers and regulators to impose strict and specific controls on the chemicals’ use.

6.45 As detailed in Chapter V, the manufacturer of the primary commercial brand of glyphosate-based herbicides warns users to “[a]void contact with eyes and skin” because the product causes irritation⁴⁴⁶, and instructs users not to “apply this product in a way that will contact workers or other persons, either directly or through drift.”⁴⁴⁷ Yet, Colombia has steadfastly and constantly

⁴⁴⁴ CONAIE Report, *op. cit.*, p. 17. EM, Vol. IV, Annex 162.

⁴⁴⁵ Charles A. Menzie, PhD, Pieter N. Booth, MS & Susan B. Kane Driscoll, PhD, *with contributions/advice from* Angelina J. Duggan, PhD, Charlotte H. Edinboro, DVM, PhD, Anne Fairbrother, DVM, PhD, Marion J. Fedoruk, MD, CIH, DABT, FACMT, Janci Chunn Lindsay, PhD, Katherine Palmquist, PhD & Brian J. Prince, MRQA, *Evaluation of Chemicals Used in Colombia's Aerial Spraying Program and Hazards Presented to People, Plants, Animals, and the Environment in Ecuador* (hereinafter “Menzie Report”) (Apr. 2009), Sec. 5. EM, Vol. III, Annex 158.

⁴⁴⁶ *Colombia Roundup SL Label*, p. 1. EM, Vol. III, Annex 158; *See supra* Chap. V, paras. 5.44–5.45.

⁴⁴⁷ *United States Roundup Pro Label*, p. 2, Sec. 3.3. EM, Vol. III, Annex 128; *see supra* Chap. V, para. 5.41.

refused to inform Ecuador of the locations of its fumigations in advance. Accordingly, the chemical sprayings have violated these most basic warnings. As recounted above, many Ecuadorians were caught outdoors when the fumigation planes arrived, leaving them directly exposed to the spray. Witnesses report seeing the spray mist drift through the air, smelling its chemical odour and feeling it land on their skin. Of course, none of these people had any of the protective equipment -- goggles, masks, and the full-body covering including heavy gloves and boots -- that is required for those at risk of being exposed to the chemicals⁴⁴⁸.

6.46 The scores of Ecuadorians who testify that they experienced eye irritation after being exposed to the spray mixture, including sore, red, or watering eyes and conjunctivitis, are consistent with the recognised properties of surfactants used in connection with Colombia's aerial sprayings⁴⁴⁹. The U.S. EPA has described POEA as "corrosive to the eyes"⁴⁵⁰. And, at least for a time, Colombia appears to have used a highly toxic Roundup product capable of causing "irreversible eye damage"⁴⁵¹. To that product, Colombia adds yet another surfactant, Cosmo-Flux, which is also known to cause eye irritation⁴⁵². Not surprisingly, one of the most

⁴⁴⁸ See *supra* Chap. V, paras. 5.46, 5.49–5.50.

⁴⁴⁹ See *supra* Chap. V, paras. 5.36–3.37; see also Menzie Report, *op. cit.*, Sec. 5.1.1.1. EM, Vol. III, Annex 158.

⁴⁵⁰ United States Environmental Protection Agency, Office of Pesticide Programs, *Details of the 2003 Consultation for the Department of State: Use of Pesticide for Coca and Poppy Eradication Program in Colombia* (hereinafter "EPA 2003 Analysis") (June 2003), p. 13, available at <http://www.state.gov/documents/organization/27516.pdf> (last visited 26 March 2009). EM, Vol. III, Annex 146; see *supra* Chap. V, para. 5.18.

⁴⁵¹ United States Environmental Protection Agency, Office of Prevention, Pesticides and Toxic Substances, *Report on Issues Related to the Aerial Eradication of Illicit Coca in Colombia, Response from EPA Assistant Administrator Johnson to Secretary of State*, (hereinafter "EPA 2002 Analysis") (19 Aug. 2002), p. 8. EM, Vol. III, Annex 143; see *supra* Chap. V, para. 5.37.

⁴⁵² See *supra* Chap. V, para. 5.22.

common symptoms reported by Ecuadorian border residents is eye problems, and in some cases long-term eye damage.

6.47 The testimonies of Ecuadorians who felt a burning sensation or numbness, and later, itchy bumps or a rash after being exposed to the spray mist are also consistent with the known health effects of the spray mixture. These are the same symptoms that Colombia has acknowledged may be caused by “incidental dermal exposure” to glyphosate products⁴⁵³. It is also well known that the surfactants believed to be used in the spray mixture cause skin irritation⁴⁵⁴. The U.S. EPA has noted that POEA causes “severe skin irritation,”⁴⁵⁵ as does one of the undisclosed components of Cosmo-Flux⁴⁵⁶. It is, therefore, understandable why skin conditions have been among the most common symptoms reported by Ecuadorian witnesses and seen by health care workers in the area. As Dr. Dino Sánchez, director of the Marco Vinicio Iza Hospital in Lago Agrio, observed:

“Since January 2001, when, I believe, the sprayings began in this area, the hospital has reported a significant increase in respiratory diseases and skin infection. ... I had never seen this type of skin problem in the population before. I have treated, before, some cases in which people had the papulae on the skin; for example, during the summer there are the typical papulae from bites. But these were a different type of papulae that did not heal from the medication that we traditionally prescribed. Coinciding with reports of sprayings on the border, there was a time in which there

⁴⁵³ Republic of Colombia, *Environmental Risk of the Herbicide Glyphosate* (hereinafter “*Environmental Risk of the Herbicide Glyphosate*”) (date unknown), Sec. 1.7.2. EM, Vol. II, Annex 101; *see supra* Chap. V, para. 5.15.

⁴⁵⁴ *See supra* Chap. V, para 5.36; Menzie Report, *op. cit.*, Sec. 5.1.1.1. EM, Vol. III, Annex 158.

⁴⁵⁵ *EPA 2002 Analysis, op. cit.*, p. 13. EM, Vol. III, Annex 143; *see supra* Chap. V, para. 5.18.

⁴⁵⁶ *EPA 2002 Analysis, op. cit.*, p. 14. EM, Vol. III, Annex 143; *see supra* Chap. V, para. 5.22.

was a widespread occurrence of skin problems, different from what I had treated before.”⁴⁵⁷

6.48 As the Court has read, many border residents report a foul chemical smell during spray events, and some also describe a burning sensation in their throat. Others report more serious respiratory problems, including difficulty breathing or a dry, irritated cough. Again, these conditions are predictable. Inhalation of the spray mixture presents significant health concerns, and breathing difficulties are amongst the known risks of exposure to components of the spray mixture⁴⁵⁸. The American manufacturer of Roundup starkly warns against inhalation of its product: “Avoid breathing vapor or spray mist” and “IF INHALED, remove individual to fresh air. Get medical attention if breathing difficulty develops”⁴⁵⁹. Cosmo-Flux presents risks of its own. Safety precautions for its use include the use of “breathing apparatus”⁴⁶⁰. Ecuador’s experts further confirm that “[r]eports of nasal and throat irritation and breathing difficulty are consistent with the effects that could occur from inhalation of glyphosate formulations.”⁴⁶¹

6.49 In addition to inhaling the spray mix, many Ecuadorians also ingested it because it contaminated both the food supply and drinking water. As described, many if not most border communities lack running water and thus depend on the border rivers and their tributaries as their chief sources of fresh water for drinking, cooking, bathing and washing clothes. And because most area residents

⁴⁵⁷ Sánchez Declaration, *op. cit.* EM, Vol. IV, Annex 188.

⁴⁵⁸ See *supra* Chap. V, para. 5.36; Menzie Report, *op. cit.*, 5.1.1.2. EM, Vol. III, Annex 158.

⁴⁵⁹ *United States Roundup Export Label*, p. 1 (emphasis in original). EM, Vol. III, Annex 125; see *supra* Chap. V, para. 5.44.

⁴⁶⁰ *Cosmo-Flux 411F Safety Data Sheet*, Sec. 4. EM, Vol. III, Annex 114; see *supra* Chap. V, para. 5.22.

⁴⁶¹ Menzie Report, *op. cit.*, Executive Summary. EM, Vol. III, Annex 158.

rely on their subsistence crops for food, they had no choice but to consume recently-sprayed food crops. Predictably, Ecuadorians from throughout the region reported precisely the symptoms one would expect from ingesting the spray mixture. As the Menzie Report explains: “Nausea, vomiting and diarrhea have been reported by a number of people following spray events. These types of effects are consistent with those that could occur from ingestion of Roundup formulations or one or more chemical constituents added to the spray mix. Exposure could occur from ingestion of local exposed water or food or from inhalation of foul-smelling spray.”⁴⁶² Regulatory authorities and the product labels further confirm the risk of gastrointestinal damage from ingesting known components of the spray mixture⁴⁶³. Colombia’s own assessment acknowledges that glyphosate intoxication by ingestion may include “erosion of the digestive tract, which manifests as difficulty in swallowing, sore throat, and gastrointestinal hemorrhaging”⁴⁶⁴.

6.50 In many border communities, children have been hit especially hard, particularly by diarrhea and vomiting. This too is to be expected, as children are smaller and more sensitive to chemical exposure⁴⁶⁵. These effects are quickly compounded, particularly given the general poverty and absence of health care that characterizes the region. It is well known, for example, that untreated vomiting and/or diarrhea -- exactly the symptoms commonly experienced following spray events -- are among the leading causes of infant death in the developing world.

⁴⁶² *Ibid.*

⁴⁶³ *See supra* Chap. V, paras. 5.18, 5.22, 5.44–5.48.

⁴⁶⁴ *Environmental Risk of the Herbicide Glyphosate, op. cit.*, Sec. 1.7.1. EM, Vol. II, Annex 101; *see supra* Chap. V, para. 5.15.

⁴⁶⁵ *See supra* Chap. V, para. 5.38.

Indeed, there are a number of reports of deaths among young children following early spray events in particular. According to the 2001 report prepared by CONAIE, the leading Ecuadorian indigenous organisation, four children died in the northern Sucumbíos town of San Francisco 2 during sprayings in 2001⁴⁶⁶. Quoted in Section IV below is the declaration of an indigenous Kichwa mother from Sucumbíos, who lost two of her previously healthy infant daughters to fumigation-induced vomiting and diarrhea following two different spray campaigns (one in 2001 and the other in 2003)⁴⁶⁷. With no money for doctors, she could do little more than watch her children die.

6.51 Some of the symptoms experienced in Ecuador may also be attributable to the components of the spray that Colombia refuses to identify, or to the particular combination of chemical employed⁴⁶⁸. This possibility is particularly troubling because, as discussed in Chapter V, Colombia has failed to produce reliable studies of the spray mixture's safety to humans or even to animals⁴⁶⁹. In addition, a sizable number of border residents have been exposed to aerial fumigations on multiple different occasions. Such repeat exposures may present additional concerns.

6.52 The fumigations' effects are exacerbated by the severely limited access to health care in the border region. Medical care is often located many hours, or even days away, from these isolated communities. For people of such limited

⁴⁶⁶ See CONAIE Report, *op. cit.*, p. 13. EM, Vol. IV, Annex 162.

⁴⁶⁷ See *infra* para. 6.129. See also Declaration of Witness 14, 17 Jan. 2009. EM, Vol. IV, Annex 202.

⁴⁶⁸ See *supra* Chap. V, paras. 5.25–5.34; Menzie Report, *op. cit.*, Sec. 3.3. EM, Vol. III, Annex 158.

⁴⁶⁹ See *supra* Chap. V, paras. 5.25–5.26.

means, access to care is often difficult or impossible. Thus, symptoms that might otherwise be treatable may go untreated, leading to more serious and even long-term health implications.

6.53 In sum, there is consensus among Roundup's manufacturer, scientific experts, international observers and even agencies of the Colombian government that the known effects of glyphosate-based sprays are exactly those effects most frequently reported by Ecuadorian witnesses.

Section II. The Harm to Plants

6.54 As set out in Chapter V, the principal known ingredient in Colombia's aerial sprayings, glyphosate, is a broad-spectrum herbicide the purpose of which is to kill the plants with which it comes into contact. To this base chemical, it is known that Colombia adds surfactants and adjuvants which are toxic in their own right in order to increase the spray's lethality to the hardy coca plant. The spray chemicals do not distinguish between legitimate crops and illegitimate ones, and they do not differentiate between the two sides of an international border. They are just as effective, and perhaps even more so, at killing yucca, maize, rice, plantain, cacao and coffee in Ecuador as they are in killing coca in Colombia⁴⁷⁰. And that is exactly what they have done. Throughout the regions of Ecuador abutting areas in Colombia where sprayings have taken place, hectare upon hectare of the subsistence crops and natural flora upon which local residents depend have been devastated by the effects of the herbicidal spray drift (and, in some cases, direct over-flight).

⁴⁷⁰ Menzie Report, *op. cit.*, Sec. 5.2.1. EM, Vol. III, Annex 158.

A. INDEPENDENT REPORTS

6.55 The effects of Colombia's aerial fumigations on food crops in Ecuador have been recognised by the UN Special Rapporteur on the Right to Food, Mr. Jean Zeigler. In a communication to the Government of Ecuador dated 10 February 2006, Mr. Ziegler stated:

“According to the information brought to their attention, the destruction of subsistence crops, the impoverishment of soil quality, and the reduction of the production capacity of border populations, among other impacts, have all been generated as a consequence of the sprayings carried out under Plan Colombia. These populations, mostly of indigenous and *campesino* descent, have seen a serious deterioration in their already difficult socioeconomic situation. In addition, the reports have confirmed that the effects of the sprayings have gravely affected private food production and commercialization initiatives, including the production of plantain flour in Santa Marianita or the agro-industrial project in Puerto Mestanza. ...

All of this appears to have caused a strong state of food insecurity among the border populations and, in consequence, has unleashed a wave of migration into the interior of the country. According to the reports, malnutrition, which is a constant in impoverished communities, is reaching alarming levels. In some of the communities of Sucumbios, such as Union Lojana, Chone II, Santa Marianita and Monterrey, the disappearance of short-cycle crops was evident less than 15 days after the sprayings.

Several studies appear to demonstrate that the concentration of phosphorus in the plants 3 km from the border is far higher than the concentration in the soil. It has been reported that four years after the commencement of the sprayings, some crops of plantains, bananas, ‘oritos’, yucca, maize, fruit plants, and specific aromatic herbs have disappeared or suffered a major negative impact, reducing their quality and quantity in comparison with periods prior to the sprayings. ...

Various activities have been affected, due to the impossibility of using the contaminated water, which, in addition to exhibiting coloration and oil slicks visible to the naked eye, has odors that

affect the population. The Rapporteur believes that these facts, as alleged, indicate a violation of the dietary right of the border population between Ecuador and Colombia. The sprayings appear to have produced the destruction of subsistence crops, the impoverishment of soil quality, and the reduction of the productive capacity of the harvest, which not only impacts in economic activities of the communities, but the population's access to a proper diet."⁴⁷¹

6.56 The extensive damage to agricultural crops and the resultant harm to the Ecuadorian communities that depend on them have been noted by other observers as well. According to the data presented in a 2002 verification mission report and reproduced below, for example, approximately 2,500 hectares of legitimate crops were damaged in Sucumbíos alone after some of the earliest fumigations in 2001⁴⁷².

Crops	No. of hectares damaged
Coffee	1,215
Grasses	785
Bananas	182
Rice	103
Maize	87
Cacao	79
Fruit	53
Yucca	51
Total	2,560

⁴⁷¹ *Report of the Special Rapporteur on the Right to Food, Jean Ziegler, Addendum: Communications Sent to Governments and Other Actors and Replies Received*, (hereinafter "Special Rapporteur on the Right to Food"), U.N. Doc. A/HRC/4/30/Add.1 (18 May 2007), para. 23. EM, Vol. II, Annex 33.

⁴⁷² Impacts in Ecuador of Fumigations in Putumayo, 2002, *op. cit.*, p. 4. EM, Vol. IV, Annex 165.

6.57 According to a July 2001 NGO fact-finding report, a field study conducted by agronomists following Colombia's aerial fumigations observed the following:

“COFFEE: the crops exhibit an alteration of the green color of their leaves, with a yellowing of the central vein; followed by total chlorosis (yellowing) and the presence of brown spots both at the tip of the leaves and their edge; and the withering of the entire plant. ...

YUCCA: yellowing was observed in the leaves and in the root or edible part. When cut cross-sectionally, one can see a dark brownish-grey halo near the bark, which appears to be healthy. These roots have a spongy texture or '*balzosa*', as the indigenous people call it, and a bland taste, making it useless as food or for preparing *chicha* [an indigenous beverage].

PLANTAIN: withering was observed in the bottom leaves of the mother plant and in the stems of the shoots. The *campesinos* said that the growth of the plant has ceased. When cut cross-sectionally, necrosis was observed in the xylem or conducting tissue, which prevents the transport of sap. As the cut was made closer to the root, the necrosis was more evident. ...

RICE: there is a yellowing that has markedly reduced the harvest. A three-month-old plot was inspected. At the mere sight of it, one could detect a discoloration of the entire plant and the onset of diseases. ...

PASTURE GRASS: it was observed that there is discoloration or yellowing that starts at the tips and edges of the leaves, and subsequently the entire plant dries and dies.”⁴⁷³

6.58 The July 2003 inter-agency mission report cited above at paragraph 6.15 notes similar effects. According to the Executive Summary of the team's report:

“It is evident that the fumigations are endangering the already precarious food supply of the populations, basically because they

⁴⁷³ CONAIE Report, *op. cit.*, p. 16. EM, Vol. IV, Annex 162.

have damaged the short-cycle crops such as maize, yucca, cacao and plantain. Many *campesinos* and *campesinas* have lost their crops and/or seen them diminish.”⁴⁷⁴

6.59 During the inter-agency team’s mission to affected areas, Dr. Santiago Gangotena, Director of Environmental Management for the Ministry of Agriculture and Livestock, asked to see the damaged crops for himself and:

“...the plot of Mr. Juan Gregorio Cuajubuy of the Santa Marianita precinct was selected. The agricultural problems that were directly experienced there are summarized as follows:

- In the Pastures (*Aleman* and *Dallys*), the plants have turned yellow and died. The plants began to turn yellow starting from the upper part, and this advanced towards the roots. Upon extracting the plant by its roots, it was noted that even the roots had died.
- With the Plantain, it was easy to see from the yellowing of the leaves and the bunches that the fruit took on a strange shape, stopped growing, and rotted. Upon cutting it, a series of brown spots could be seen in the center. According to the *campesinos*, the process is irreversible, and once the illness has affected the plant it cannot be recovered and the plant can only be thrown away; nor is it given to animals, for fear of causing them harm
- In the case of Cacao, the fruit basically rots, taking on a dark brown color which changes to black. Upon cutting it, the rotten cacao seeds can be seen.
- In the case of Maize, the situation is similar to that of the pastures, with the additional fact that on the cob the kernels lost their size, which is to say that they were smaller.”⁴⁷⁵

⁴⁷⁴ Impacts in Ecuador by the Fumigations Carried Out in the Putumayo Province, 2003, *op. cit.*, p. 4. EM, Vol. IV, Annex 166.

⁴⁷⁵ *Ibid.*, pp. 7-8.

6.60 As stated by another international verification mission, led by the International Federation of Human Rights among others, to Sucumbíos in 2005:

“All the communities that were interviewed in Sucumbíos (Unión Lojana, Chone II, Santa Marianita, Monterrey) reported that the land suffered the impacts immediately after the sprayings and that short-cycle crops disappeared in less than 15 days, leaving everything yellow. Moreover, the Chone II Community reported the loss of crops that were supported by a Project of the Lago Agrio Municipality. ... All those living along the border agree that the sprayings have weakened the soil quality and its production capacity.”⁴⁷⁶

B. WITNESS STATEMENTS

1. *Sucumbíos*

6.61 The residents of **Salinas**, the tiny community abutting the San Miguel River in Sucumbíos, described the effects of the sprayings on their crops. Witness 6 is a 30-year resident of Salinas. He recounted:

“Shortly after the sprayings, our plants also began to get sick. The coffee planted near the riverbank was affected more severely and more quickly than the other plants. First, it turned yellow and then it would not produce. We had to cut down an entire hectare of dead coffee. The coffee that was farthest from the river survived, although it got sick and it could not bear fruit as before. The cacao also dried up. With the cacao, the plant did not dry up, but the fruit did and we could not get the seed out. Half of the cacao seeds would come out completely dry and dead and the other half yellow.”⁴⁷⁷

⁴⁷⁶ FIDH et al., *Observations of the International Mission in the Ecuadorian Border with Colombia* (20-22 June 2005), p. 13. EM, Vol. IV, Annex 169.

⁴⁷⁷ Declaration of Witness 6, 16 Jan. 2009. EM, Vol. IV, Annex 194.

6.62 Witness 1's farm is located on the banks of the San Miguel River. He described similar effects:

“Soon after the spraying, my crops started turning yellow and dying. The tallest fruit trees, such as the *zapote*, were the first ones to be affected. These tall trees were the first to dry up at the top. They did not die completely although they did dry up, and no longer produced fruit. The plantain trees were also destroyed quickly. The plantain, planted next to my house, which is a few meters from the river, died first. The plant was undernourished, falling to one side, and the fruit started to die. My coffee also had spots. The plantain finally turned black. The pastures were also lost, the grass turned yellow and died. From my house, one can see the river and Colombia. On the other side, I noticed that the trees were yellow, dry, and dead. It was very similar to what had happened to my crops, it looked like a trail of destruction; although, the Colombian side was slightly more severe.”⁴⁷⁸

Other Salinas residents, including both Witness 3 and Witness 2 (whose testimonies were cited in Section I above), described identical phenomena⁴⁷⁹.

6.63 Salinas residents were also consistent in providing accounts that indicated that the effects of the sprayings did not quickly dissipate. They testified that the effects, particularly on plant health, endured for some time and, in some cases, persist even now. Witness 1 observed:

“Before the sprayings began in our area, I used to sell a lot of coffee. I had sixteen (16) hectares planted with coffee, and each hectare produced sixty (60) to eighty (80) quintals of the product annually. Now, I can barely harvest eight quintals of coffee per hectare each year. I have been strong so as to resist. But it is hard to see all your efforts wasted without having any fault. I have given all my youth to my farm. All my efforts, since I was

⁴⁷⁸ Declaration of Witness 1, 16 Jan. 2009 (hereinafter “Witness 1 Declaration”). EM, Vol. IV, Annex 189.

⁴⁷⁹ See Witness 2 Declaration, *op. cit.* EM, Vol. IV, Annex 190; Witness 3 Declaration, *op. cit.* EM, Vol. IV, Annex 191.

seventeen (17) years old, have been invested in my land and plants. To lose it all in a few days has been very difficult.”⁴⁸⁰

Witness 2 described a similarly dramatic reduction in crop yields years after the fumigations⁴⁸¹.

6.64 The situation became so bad that many farmers who had settled in Salinas to work their own land were forced to turn to day-labour on farms further inland or whatever other kind of work they could find. According to Witness 7:

“Since many of us live off the sale of coffee, when we saw that the coffee no longer produced, most of us went to work as day laborers for neighbors that were farther inland, who had not been affected by the fumigations, to earn money for the day or week. Or sometimes, we had to go to Lago Agrio to look for work. I found a way, more or less, to support my family. There were neighbors that had nothing to eat. Sometimes, the neighbors that still had some pasture left would share it with others. Those who knew how to saw, sawed wood. Before, no one even knew about woodwork because things were good, moreover when there was coffee to sell – there was work for everyone. After the sprayings, some families had to abandon their farms, and they still have not returned.”⁴⁸²

6.65 The effects in the **Puerto Escondido** area, were similar; residents there describe similar destruction of their crops. Witness 21 is an 18-year resident of Puerto Escondido whose home sits less than a hundred metres from the San Miguel River. She testified:

“After each spraying, the maize plantations were damaged. The rice no longer grew, it became yellowish. When this happened after the first spraying, some people said that this was not because of the sprayings, but possibly due to a pest. But, when the exact

⁴⁸⁰ Witness 1 Declaration, *op. cit.* EM, Vol. IV, Annex 189.

⁴⁸¹ Witness 2 Declaration, *op. cit.* EM, Vol. IV, Annex 190.

⁴⁸² Declaration of Witness 7, 16 Jan. 2009. EM, Vol. IV, Annex 195.

same thing happened after the second fumigations, there was no doubt that it was on account of the sprayings. After this, the soil became weak. The crops that grew were weak, small and of poor quality. The quantities of maize harvested now are far less than what could be drawn from the earth before.”⁴⁸³

6.66 Witness 8, a farmer in **Corazón Orense**, just outside Puerto Escondido, for some twenty years, similarly recounted that:

“About two weeks after the spraying, the plants started to wither, it was a slow process that ended with the crops drying up completely. I cut the maize and it was black in the middle. Not only would the leaves dry up but also the insides. The plantain hardened and it was black, but we ate it anyway because we had nothing else to eat. We waited until they finished spraying to plant again, but the plants would grow yellow and dry up.”⁴⁸⁴

6.67 Also neighbouring Puerto Escondido some two kilometres to the north is the community of **Puerto Mestanza**. Before the fumigations began, the principle source of employment in Puerto Mestanza was Mr. Victor Mestanza’s farm, which is located within metres of the river. Over the course of twenty years, the Mestanza farm had expanded from cultivating plantain, maize, rice and various fruits to include raising pigs, ducks and farm-raised fish. The farm’s crops consisted of eight hectares of *panela* sugarcane, 30 hectares of golden plantain, as well as short-cycle crops including maize, rice and fruits. Thanks to a large capital investment, 18 fish pools were constructed to farm-raise 120,000 tilapia.

6.68 The impressive success of Mr. Mestanza’s farm was brought to an end when the first fumigation planes arrived in November 2000. As recounted by Mr. Mestanza himself in October 2002:

⁴⁸³ Declaration of Witness 21, 16 Jan. 2009. EM, Vol. IV, Annex 207.

⁴⁸⁴ Declaration of Witness 8, 16 Jan. 2009. EM, Vol. IV, Annex 196.

“In the fumigations of November 2000, I lost 30,000 fish as a direct effect of the chemical compound used in the fumigations, all dead, 4 hectares of plantain, 2 of yucca and farmyard animals. On the second occasion of the sprayings, conducted in early January 2002, in which spraying planes flew for three days consecutively over the pools, I was affected by the death of ... 10 hectares of maize and the partial death of 6 hectares of sugarcane, and the total loss of the fruit of a citrus plantation The fourth time was Monday 7th and Thursday 10th of October of this year [2002], when the spraying planes flew over my property again. There is clear evidence of the death of woodlands, *orito* and sugarcane; that is practically liquidating my project and my finances, and, as a result, the source of employment for many people in the area who work at my farm.”⁴⁸⁵

6.69 Among the residents of Puerto Mestanza is Witness 10, a Colombian citizen who previously witnessed the same impacts in southern Colombia following fumigations there. He testified:

“All the rice, maize, *malanga*, and also the cacao were ruined. Even the pastures dried up to a yellow color. The same thing happened in Colombia, before I moved to Ecuador, and it is still happening, as I have observed during my regular visits over the years. I have seen similar effects in Colombia in the southern areas of Putumayo, where the Government sprays. ... In Colombia the effect is the same as in Ecuador but a little more excessive. Here, in Ecuador, after the sprayings, the soil has lost its strength. Now, the soil has to be fertilized a lot. ... At first, when I arrived here, it was very good; the maize and yucca grew in abundance. Now they do not.”⁴⁸⁶

⁴⁸⁵ Letter from Victor Mestanza to Roger Mera, Regional Chief Sucumbíos-Orellana, Ministry of the Environment (14 Oct. 2002), p. 1. EM, Vol. IV, Annex 237.

⁴⁸⁶ Declaration of Witness 10, 16 Jan. 2009 (hereinafter “Witness 10 Declaration”). EM, Vol. IV, Annex 198.

2. Esmeraldas

6.70 The effects on crops described by independent observers and affected populations in Sucumbíos are echoed in other locations where Colombia's aerial fumigations took place. The Afro-Ecuadorian people of **Mataje**, for instance, provide a similar account of the impacts that they observed.

6.71 Witness 34 described the appearance of the spray as it descended on his crops:

“In the air it looked like a white dust. With the wind, it moved through the air and descended to the ground. When it fell on the plants, I noticed that it looked like oil on top of them.”⁴⁸⁷

6.72 He then described what this oil-like substance did to his crops:

“After the spraying, the plants also died. At the house where I was living, there were a lot of plants for consumption: coconut, plantain, cacao, lemon and other fruit plants. A few days after the spraying, we could see that the plants were dying. The fruits looked burned, black. The lemon turned black. The same thing happened to the plantain, it was black both outside and inside. The same happened to the cacao. We could not eat these fruits. The leaves were black, withered and falling off. The stems of several plants started to rot and, in the end, they all died.”⁴⁸⁸

6.73 Witness 37 provided a similar account and related how the same effects repeated themselves after each new round of fumigations:

“On my farm, of more or less one cultivated hectare, I have planted cacao, yucca, plantains, and sugarcane, all of which have dried up. A few days after the sprayings, I noticed the effect on the leaves. They started to wrinkle and then turned yellow.

⁴⁸⁷ Witness 34 Declaration, *op. cit.*, para. 2. EM, Vol. IV, Annex 218.

⁴⁸⁸ *Ibid.*, para. 4.

Several weeks later, the plants died. The plantain plant and its fruit dried up, and we could not eat it because it had been ruined. The cacao dried up, including the leaves, and the tree died. Moreover, the yucca also rotted, even though the crop is below the ground; it turned black and the plant above the ground dried up. The land remained affected for several months, there was nothing there. For some years, we hardly planted anything because the land would not produce. Fortunately, now the land is recovering little by little. After the second and third fumigation, precisely the same effects occurred. People were very worried. It is hard [for the *campesinos*] to invest all this work only to lose their crops. We were living off of the agriculture, but because of the spraying, we could no longer feed our families with the crops. We also no longer had anything to sell after the sprayings. There was a lot of suffering in the community.”⁴⁸⁹

6.74 Witness 32, whose testimony was also cited in Section I above, described how he was forced to relocate to the “New” Mataje as a result of the devastation of his crops:

“After everything had dried up, we tried planting again, but the plants did not produce, they grew a little, to a very small height, and instead of growing more they would die without producing. I have always lived off farming but after the sprayings, I could no longer do it, that is why I was forced to move to the new town of Mataje in search for a job and opportunities to survive, just like many other families in town.”⁴⁹⁰

6.75 Witness 39, a life-long resident of Mataje, similarly recounted how some families left the area altogether, while others moved to “New” Mataje:

“After the sprayings and their effects on the community, we started to worry that it was no longer healthy or safe to consume water from the river and its streams as we had always done before. Some people left the town because one could no longer live there.

⁴⁸⁹ Witness 37 Declaration, *op. cit.*, paras. 4-5. EM, Vol. IV, Annex 220.

⁴⁹⁰ Witness 32 Declaration, *op. cit.*, para 4. EM, Vol. IV, Annex 216.

We could not plant, and we had to look for another place where we could be and plant peacefully without being afraid that the planes might return and ruin our crops. Several families moved from old Mataje to the new town, which is nearby but farther into the interior.”⁴⁹¹

C. THE OBSERVED HARMS AND THE KNOWN EFFECTS OF THE SPRAY

6.76 In Chapter V, Ecuador demonstrated that the known ingredients in Colombia’s spray mix are lethal to all plants. As Roundup’s manufacturer warns, “severe injury or destruction” results from the herbicide’s contact with non-target plants, including, of course, the yucca, maize, plantain, cacao, coffee, rice and other food crops upon which Ecuadorian border communities depend⁴⁹². The extensive destruction of food crops and other plants in Ecuador as a result of their exposure to Colombia’s spray mix was entirely predictable. That is why the use of these chemicals is so strictly controlled by many States.

6.77 As recounted above, witnesses testified that they saw an oily sheen on crops and other plants following spray events. This is consistent with how glyphosate works; it enters plants through their leaves⁴⁹³. The subsequent yellowing and withering of leaves, rotting of roots, fruits and seeds, and the burned appearance of plants described by Ecuadorian farmers and others are precisely the effects expected from exposure to glyphosate⁴⁹⁴.

⁴⁹¹ Witness 39 Declaration, *op. cit.*, para. 6. EM, Vol. IV, Annex 222.

⁴⁹² *Australia Roundup Biactive Label*, p. 3. EM, Vol. III, Annex 147; *see supra* Chap. V, paras. 5.51–5.53.

⁴⁹³ *See supra* Chap. V, para. 5.6

⁴⁹⁴ *See supra* Chap. V, para. 5.6; *see also* Menzie Report, *op. cit.*, Sec. 5.2.1 (“The effects on agricultural plants that have been reported in the border region of Ecuador and Colombia,

6.78 The reported time-frame of the effects is also consistent with glyphosate's mechanism of action; it works to kill plants over a period of days or weeks⁴⁹⁵, and is most effective when the plant is growing, in the period before it becomes productive. Indeed, the manufacturer's description of Roundup's activity and effects is remarkably consistent with the observations of Ecuadorian witnesses as presented above:

“This product moves through the plant from the point of foliage contact to and into the root system. Visible effects are a gradual wilting and yellowing of the plant which advances to complete browning of aboveground growth and deterioration of underground plant parts. Effects are visible on most annual weeds within 2 to 4 days, but on most perennial weeds, effects may not be visible for 7 days or more.”⁴⁹⁶

6.79 The fact that the spray may have been released at a distance from the affected plants is immaterial. In the first instance, many of the Ecuadorian communities most affected lie directly on the narrow rivers separating Colombian and Ecuadorian territory. The amount of drift required to reach Ecuadorian territory and populations is minimal. Moreover, it is well established that even “minute quantities of this product [Roundup] can cause severe damage or destruction to crops, plants, or other areas on which treatment was not intended”⁴⁹⁷. Thus, even “minute” amounts of the spray mixture, drifting across the border, are enough to harm plants in Ecuador. Exacerbating the danger is the fact that Colombia appears to have used a particularly powerful Roundup

including yellowing, withering, and drying, and rotting of roots and other plant tissues, are consistent with the known effects of glyphosate-based herbicides.”). EM, Vol. III, Annex 158.

⁴⁹⁵ See *supra* Chap. V, para. 5.6.

⁴⁹⁶ *United States Roundup Pro Label*, p. 2, Sec. 5.0. EM, Vol. III, Annex 128.

⁴⁹⁷ *United States Roundup Pro Label*, p. 2, Sec. 5.0. EM, Vol. III, Annex 128; see *supra* Chap. V, paras. 5.9, 5.52.

formulation that is registered only for non-agricultural use, and that is applied at a rate that far exceeds rates that are typical for agricultural sites⁴⁹⁸.

6.80 In addition, the spray mixture has been engineered to penetrate the waxy leaves and woody stems characteristic of the coca plant. It is thus heavily laden with surfactants which drastically increase the spray's lethality⁴⁹⁹. Because many of the food crops grown in Ecuador, such as yucca, maize and plantains, lack the protection afforded by the coca plant's natural defences, they are especially vulnerable to even small amounts of spray. As Ecuador's experts conclude: "many of the crop plants grown in the border region of Ecuador and Colombia are more susceptible to glyphosate-based herbicides than the coca plant."⁵⁰⁰

6.81 The accounts presented above show that plants were weakened and crop yields reduced for months or even years after spray events. While the dynamics of agro-ecosystems are complex -- and all the more so in a tropical setting like Ecuador -- these long-term changes are likely attributable to secondary, as well as primary, effects of the chemicals in Colombia's spray mix. Glyphosate is, for example, closely associated with abnormal plant growth, harm to future generations of plants, and increased susceptibility to disease, especially by facilitating fungal attack⁵⁰¹. As the Menzie Report describes: "[t]he reported long-term lowered or impaired productivity of crops such as coffee, yucca, and plantains are consistent with potential effects of the formulation. These long-term effects could arise from weakening of the plants and rendering them more susceptible to infections by fungi, nematodes, and other parasites. Formulations

⁴⁹⁸ See *supra* Chap. V, paras. 5.8, 5.13–5.14.

⁴⁹⁹ See *supra* Chap. V, paras. 5.17, 5.21, 5.53.

⁵⁰⁰ Menzie Report, *op. cit.*, Sec. 5.2.1. EM, Vol. III, Annex 158.

⁵⁰¹ See *supra* Chap. V, paras. 5.10, 5.54.

have also been reported to result in diminished soil productivity by adversely affecting nitrogen-fixing plants and their symbiotic fungi.”⁵⁰² Indeed, Colombia’s own studies demonstrate that spraying operations have been followed by dramatic changes in soil chemistry that render the land substantially less conducive to cultivation⁵⁰³. Here again, the harm to crops and other plants in Ecuador were predictable, based on the chemical properties and known effects of the ingredients in Colombia’s herbicidal spray.

Section III. The Harm to Animals

6.82 In addition to the adverse effects on people and plant life in Ecuador, Colombia’s aerial fumigations have also exacted a heavy toll on animals, both domestic and wild. Wherever and whenever sprayings took place in the border region, reports of serious harm to domestic and wild animals soon followed. Smaller animals, including fish, other aquatic species and chickens in particular were especially susceptible to the fumigations’ effects, although larger mammals were also affected. The harm to animals is of added concern because the impoverished border populations depend so heavily on their animals, both as a food supply and as a source of supplemental income.

A. INDEPENDENT REPORTS

6.83 As with the harms to people and plants, accounts of the effects of Colombia’s aerial sprayings on animals in Ecuador date back to the advent of fumigations in the border zone in late 2000 and early 2001. The following description is taken from a June 2001 report prepared by a consortium of NGOs

⁵⁰² Menzie Report, *op. cit.*, Executive Summary. EM, Vol. III, Annex 158.

⁵⁰³ *See supra* Chap. V, para. 5.61.

that visited the area soon after the sprayings. Concerning the effect on animals in the vicinities nearest the border, the report states:

“The indigenous and *campesino* communities expressed bird breeding as their main concern. They reported that during the sprayings a great number of chickens and turkeys suffered from some type of plague, with ‘a suffocation sensation’, ‘bumps with a bad smell’, becoming blind and finally dying.”⁵⁰⁴

6.84 The table below is taken from a 2002 NGO report and provides an estimate of the animals that died in the parishes of General Farfán, Nueva Loja, Pacayacu, Dureno y Tarapoa, all in northern Sucumbíos abutting Colombia, following the 2001 fumigations⁵⁰⁵.

Damage to crops and animals in Sucumbíos (Ecuador) - 2001	
Animals	No. of dead animals
Fish	6,355
Hens	4,681
Pigs	315
Cows	188
Guinea pigs	117
Ducks	73
Dogs	49
Horses	43
Total	11,828

⁵⁰⁴ Investigation of the Fumigations’ Impacts, 2001, *op. cit.*, p. 10. EM, Vol. IV, Annex 161.

⁵⁰⁵ Impacts in Ecuador of Fumigations in Putumayo, 2002, *op. cit.*, p. 3. EM, Vol. IV, Annex 165.

6.85 As the numbers in the chart (and the testimonies presented below) reflect, fish were particularly susceptible to the effects of the spray. The destruction of Victor Mestanza's tilapia ponds described above is a particularly dramatic demonstration of that fact. But Mr. Mestanza's fish ponds were not alone. A similar event was reported in the community of Santa Marianita in 2003, where farmed fish died when the fumigant fell on the farmers' pools⁵⁰⁶.

6.86 Due to the remoteness and poverty of the region, less is known about the impacts of the aerial fumigation on wild animal species, including fish in the border rivers and particularly amphibian species that are especially susceptible to the effects of glyphosate-based herbicides. What information is available, including the indigenous testimonies presented in Section IV below, suggests that significant effects have rippled through the biosphere. According to a 2001 inter-agency technical report:

“It is worth noting that some people are said to have found numerous dead rainforest animals, on the mountain near where the fumigations were carried out, not being eaten by other animals, simply decomposing there. They continue to find them.”⁵⁰⁷

6.87 Similar observations are reflected in the July 2003 report of the governmental verification mission to the border area already cited above at paragraphs 6.15 and 6.58. As recounted in the report, Mr. Felipe Maya, president of the community of Monterrey, reported that “[t]he wild birds have disappeared, and they can no longer be heard singing in the mornings or the evenings”⁵⁰⁸.

⁵⁰⁶ *Ibid.*, p. 12.

⁵⁰⁷ CONAIE Report, *op. cit.*, p. 15. EM, Vol. IV, Annex 162.

⁵⁰⁸ Impacts in Ecuador by the Fumigations Carried Out in the Putumayo Province, 2003, *op. cit.*, p. 12. EM, Vol. IV, Annex 166.

B. WITNESS STATEMENTS

1. *Sucumbíos*

6.88 The effect of Colombia's fumigations on animals in Ecuador is demonstrated in **Salinas**, the experience of which appears typical of the damage that has been caused across swathes of Ecuador's border region. Animals were sickened, and many died, as a consequence of the spraying. Witness 4 is a mother of six who grew up in Salinas. She testified:

“We used to raise pigs, chickens and cows on the farm. A few weeks after the spraying, the calves had a white diarrhea and a few days later they died. We have always fed the animals with products from the crops because we did not have any money to buy special food for them. When I woke up, I found several dead chickens near the tree. The pigs lost their hair and stopped eating. They also died.”⁵⁰⁹

6.89 Witness 3 stated:

“Three days after the spraying, the chickens that were on the tree at nightfall were found dead, the following day, on the ground. The cows that were pregnant had miscarriages. We also saw a lot of dead fish in the river, during the time of the sprayings. We have even noticed that in recent years there has been a decline in some species such as the monkeys and *guatuzas*, a type of rodent, before there were many of them and now there are hardly any.”⁵¹⁰

6.90 Witness 9 provided a similar account:

⁵⁰⁹ Declaration of Witness 4, EM, Vol. IV, Annex 192.

⁵¹⁰ Witness 3 Declaration, *op. cit.* EM, Vol. IV, Annex 191.

“The animals also became sick: I had forty chicks and nearly all of them died. The dogs got thin and many pigs lost their hair. The cows that were about to give birth miscarried.”⁵¹¹

6.91 Witness 2 noticed the effects of the sprayings on wild fish and animal species in particular:

“I used to fish in the San Miguel River. In the days after the sprayings, dead fish started to appear, especially *bocachico* and shad.

In the past years, animal species have disappeared. Before, we used to see a lot of monkeys and parrots around the farm and in nearby mountains. Now, one seldom sees a monkey or a parrot.”⁵¹²

6.92 Effects on animals, especially fish, were equally pronounced in the **Puerto Escondido** area, including **Puerto Mestanza**. In his 2002 statement, Mr. Victor Mestanza wrote:

“In the fumigations of November 2000, I lost 30,000 fish ... and farmyard animals. On the second occasion of the sprayings, conducted in early January 2002, in which spraying planes flew for three days consecutively over the pools, I was affected by the death of 60,000 fish. ... The third time, which began in early September of this year [2002], I had a huge financial loss, for I lost 400 ducks and 80,000 fish [and] the pigs were sick ...”⁵¹³.

6.93 The effects were not limited to the farm-raised fish. Witness 10, the Colombian citizen who had moved to Puerto Mestanza in search of work and safety, observed many dead fish in the San Miguel River:

⁵¹¹ Witness 9 Declaration, *op. cit.* EM, Vol. IV, Annex 197.

⁵¹² Witness 2 Declaration, *op. cit.* EM, Vol. IV, Annex 190.

⁵¹³ Letter from Victor Mestanza to Roger Mera, Regional Chief Sucumbíos-Orellana, Ministry of the Environment (14 Oct. 2002). EM, Vol. IV, Annex 237.

“I also earn some money fishing in the San Miguel River and its tributaries. I went to the river to fish the day after the sprayings and I saw dead catfish, *bocachico* and black pacu in the streams that run from the San Miguel River. The fish looked inflated on the water. I had never seen this before the sprayings.”⁵¹⁴

6.94 Nor were the effects confined to fish. As elsewhere in Sucumbíos, there were reports of miscarriages among cows that had eaten contaminated crops and drunk contaminated water. Again, according to Witness 10:

“I have several neighbors whose cows were pregnant and had miscarriages. This had never happened before. They ate the affected pasture and drank the water contaminated with the chemicals that the planes dropped.”⁵¹⁵

6.95 Due to the devastation to of its animals and crops, the Mestanza farm today consists of a few barely productive fields. And the town of Puerto Mestanza as a whole, once more than 20 households strong, has been abandoned by all but eight of the original families.

6.96 In Puerto Escondido itself, Witness 22 witnessed similarly harm to his domestic animals:

“The dogs got thin. At the same time, the pigs got sick and did not fatten up. Pregnant pigs, like the chickens, did not have good offspring. They were born weak and undernourished, and they were not well developed. I had to stop raising pigs because they were born unhealthy and I was losing more money than I made.”⁵¹⁶

He also noted effects on local wild birds:

⁵¹⁴ Witness 10 Declaration, *op. cit.* EM, Vol. IV, Annex 198.

⁵¹⁵ *Ibid.*

⁵¹⁶ Witness 22 Declaration, *op. cit.* EM, Vol. IV, Annex 208.

“In addition, shortly after the spraying, I saw dead *muchileros*. *Muchileros* are wild birds about the size of a small chicken with bluish-black feathers. During the sprayings, I noticed that the birds were fleeing the area being sprayed; they flew away.”⁵¹⁷

2. *Esmeraldas*

6.97 The accounts of witnesses from **Mataje** are similar. Typical is the testimony of Witness 30, a 34-year resident of Mataje whose home sits approximately 70 metres from the Mataje River. He declared:

“I had some animals, including some pigs and chickens. The liquid fell on the animal feed. The chickens eat maize. The pig eats *guineo* and *chileno*, but these plants were contaminated. I had a hectare of plants, to feed the animals, but all the plants were ruined, I no longer had any feed for the animals. The plants were finished and the animals were finished.”⁵¹⁸

6.98 The home of Witness 32 is located just 30 metres from the river. He testified:

“The ones that suffered the most were the pigs. After the sprayings, they got sick, they seemed sad and they would not eat anything, they got thin and, in the end, some of them starved to death. They had nothing to eat because the plants that they used to eat were also ruined. My dog, named Laisa, got sick. She was vomiting and would not eat, and fifteen days later she died.”⁵¹⁹

6.99 As elsewhere, the residents of Mataje observed particularly dramatic effects on fish. According to Witness 34:

⁵¹⁷ *Ibid.*

⁵¹⁸ Witness 30 Declaration, *op. cit.*, para. 5. EM, Vol. IV, Annex 214.

⁵¹⁹ Witness 32 Declaration, *op. cit.*, para. 3. EM, Vol. IV, Annex 216.

“After the spraying, there were a lot of dead fish and shrimp. Usually, the fish and shrimp are below the water level. But, after the sprayings, they were floating on the surface of the river and going downstream with the current. I observed this immediately after the sprayings. We could not use fish or shrimp to eat because they were infected.”⁵²⁰

6.100 Witness 39, the mother of five whose testimony is cited also in Section I above, likewise observed large numbers of dead fish:

“After the sprayings, there were a lot of dead fish in the river. My son Gabriel told me that he had seen a lot of *minchillas*, which are a type of shrimp, dead in the river. We wanted to get the fish and take them home to prepare them and eat them. We have always eaten fish from the river, they are part of our diet. But the nurse told us not to do it because they could make us sick. If there were so many dead fish, there had to be something wrong, and that could make us sick.”⁵²¹

C. THE OBSERVED HARMS AND THE KNOWN EFFECTS OF THE SPRAY

6.101 As discussed in Chapter V, and reiterated in Section I above, Colombia’s spray mixture contains ingredients that are known dermal irritants⁵²². The irritated skin and hair loss observed on animals is consistent with the known effects of the fumigant⁵²³. Indeed, it should be noted that animals may well be more vulnerable to these effects than humans. Unlike people, the animals do not know to seek shelter when the spray planes approach and cannot bathe themselves afterwards.

⁵²⁰ Witness 34 Declaration, *op. cit.*, para. 3. EM, Vol. IV, Annex 218

⁵²¹ Witness 39 Declaration, *op. cit.*, para. 4. EM, Vol. IV, Annex 222.

⁵²² See *supra* Chap. V, paras. 5.18, 5.22, 5.58.

⁵²³ Menzie Report, *op. cit.*, Sec. 5.2.3 (explaining that the surfactants in glyphosate formulations may cause both primary and secondary skin irritation in animals). EM, Vol. III, Annex 158.

6.102 Ingesting glyphosate-based products is known to cause gastrointestinal damage⁵²⁴. Roundup's manufacturer specifically instructs that domestic animals should be prevented from entering sprayed areas and from ingesting contaminated feed or vegetation⁵²⁵. The Menzie Report further confirms that "[s]praying with glyphosate-based herbicides may also reduce the local food supply for domesticated animals, which may lead to decreased body condition and performance in livestock and other farm animals."⁵²⁶ Yet, most Ecuadorian residents of the border area are subsistence farmers. They do not have the luxury of preventing their domestic animals from consuming pasture or other feed crops contaminated by the fumigations; that is all the food there is. It was thus predictable that in the days and weeks following spray events, many animals would become sick, lose weight, appear malnourished and eventually die.

6.103 Likewise, the testimony regarding cows spontaneously aborting their pregnancies (see paragraphs 6.89, 6.90, and 6.94) is consistent with relationships between glyphosate consumption and maternal health outcomes noted by both CICAD and the U.S. EPA⁵²⁷.

⁵²⁴ See *supra* Chap. V, paras. 5.15, 5.57; see also Menzie Report, *op. cit.*, Sec. 5.2.3 (describing the hazards to animals of ingesting glyphosate-based herbicides, including gastrointestinal irritation, vomiting, diarrhea and colic). EM, Vol. III, Annex 158.

⁵²⁵ See *supra* Chap. V, para. 5.57.

⁵²⁶ Menzie Report, *op. cit.* Executive Summary. EM, Vol. III, Annex 158.

⁵²⁷ Keith R. Solomon et al., *Environmental and Human Health Assessment of the Aerial Spray Program for Coca and Poppy Control in Colombia*, prepared for the Inter-American Drug Abuse Control Commission (CICAD) section of the Organization of American States (OAS), (31 Mar. 2005), p. 55. EM, Vol. III, Annex 151; United States Environmental Protection Agency, *GLYPHOSATE – 2nd Report of the Hazard Identification Assessment Review Committee* (22 Jan. 2002), pp. 3–4, 9, 12. EM, Vol. III, Annex 142; United States Environmental Protection Agency, *GLYPHOSATE – Report of the Hazard Identification Review Committee* (20 Apr. 1998), pp. 3–4, 7–8, 10. EM, Vol. III, Annex 134; see *supra* Chap. V, para. 5.15.

6.104 The many reported fish kills of both wild and farm-raised species are also consistent with the known risks of both Roundup and Cosmo-Flux⁵²⁸. Both products contain surfactants that are especially toxic to aquatic species⁵²⁹. The manufacturer's warnings, which contain drawings of dead fish, could scarcely be any clearer: "Avoid direct application to any body of water."⁵³⁰ Even so, Colombia's spray planes have repeatedly fumigated directly over the border rivers, not to mention their many tributaries on the Colombian side of the international frontier.

6.105 Harder to measure are the sprayings' effects on the natural ecosystems and the extraordinary biodiversity they support⁵³¹. Countless biological processes, including nutrient and carbon cycles, pollination, plant-fungus interactions important to soil health, and food chains may be disrupted by the introduction of the toxic spray mixture into the border region's complex ecosystems⁵³². The spray also presents serious concerns for individual species. To cite just one example, the surfactants in the spray present a special danger to Ecuador's enormous diversity of amphibian species, which studies show to be particularly susceptible to harms induced by glyphosate-based products⁵³³. A laboratory study conducted as a follow-up to the CICAD Report found that Colombia's spray mixture killed over half of exposed tadpoles within four

⁵²⁸ Menzie Report, *op. cit.* Sec. 5.2.4. EM, Vol. III, Annex 158.

⁵²⁹ *See supra* Chap. V, paras. 5.63–5.65.

⁵³⁰ *United States Roundup Original Label*, p. 4, Sec. 7.1. EM, Vol. III, Annex 127; *Colombia Roundup SL Label*, p. 2. EM, Vol. III, Annex 115; *see supra* paras. 5.62–5.63.

⁵³¹ *See supra* Chap. V, paras. 5.68, 5.69–5.71.

⁵³² Menzie Report, *op. cit.*, Secs. 5.2.2, 5.3.2. EM, Vol. III, Annex 158.

⁵³³ *See supra* Chap. V, paras. 5.65–5.66.

days⁵³⁴. As the Menzie Report explains, amphibians are especially vulnerable to spray drift because they are particularly sensitive to the chemicals in the spray, they inhabit both aquatic and terrestrial environments, and they are susceptible at multiple life stages⁵³⁵. Indeed, Colombia's sprayings may even present an extinction risk, as many of these amphibian species are endemic to the region and have small baseline populations⁵³⁶. Yet, the extent to which these threats have become reality remains unknown precisely because so many of Colombia's fumigations have been conducted adjacent to undisturbed primary ecosystems. In some cases, there are no human witnesses to perceive the impacts in those regions.

Section IV. The Special Harm to Indigenous Communities

6.106 As discussed in Chapter II, as much as 30% of Ecuador's population is indigenous. Many of these people and their ancestral lands are located in the northern region abutting the Ecuador-Colombia border, the area which has suffered the brunt of the harm caused by Colombia's sprayings. Indeed, as depicted on Sketch Map 3 in Chapter II, two recognized indigenous territories -- the Awá Territory and the Cofán Territory -- sit squarely on the border itself. These indigenous communities share an abiding respect for and reliance on the natural environment in which they live. Not only do they rely on the local plants, animals and water for their physical survival, they rely on them also for their cultural well-being and survival as communities. The devastating effects of

⁵³⁴ United States Department of State, *Report to Congress: A Preliminary Evaluation of the Risk Posed to Colombia's Amphibians and Threatened Species by the Government of Colombia's U.S.-Supported Program of Aerial Eradication of Illicit Crops* (Aug. 2006), p. 4. EM, Vol. III, Annex 156.

⁵³⁵ Menzie Report, *op. cit.*, 5.3.3. EM, Vol. III, Annex 158.

⁵³⁶ *See supra* Chap. II, paras. 2.14-2.15.

Colombia's fumigation programme have thus been felt with particular acuteness by Ecuador's indigenous population.

A. INDEPENDENT REPORTS

6.107 In April and May 2006, the UN Special Rapporteur on the Rights of Indigenous People, Mr. Rodolfo Stavenhagen, conducted an official visit to Ecuador. He met with members of the government and civil society, and interviewed representatives of indigenous nationalities and peoples. In December 2006, he issued his report setting forth his findings. The report is worth citing extensively. With respect to indigenous peoples on the northern border, Mr. Stavenhagen stated:

“28. Currently, the region's most serious problem is the aerial spraying of illicit crops on the Colombian side of the border, using glyosphate [sic] mixed with other products, under the auspices of Plan Colombia (see the report of the Special Rapporteur on Colombia, E/CN.4/2005/88/Add.2). Damage caused by this practice has affected Ecuador, particularly its indigenous communities, and has given rise to complaints by the Ecuadorian Government and to bilateral negotiations between the two countries. International studies indicate that this practice has negative effects on environmental resources and the health of people and animals. Skin and other diseases, pollution of rivers and aquifers, and other damage have been reported. Furthermore, spraying has been seen as having serious effects on banana plantations and varieties of tuber crops, the local staple. In addition, the population often uses untreated water from the river forming the border between the two countries.

29. In some communities in Sucumbíos, short-cycle crops are disappearing fewer than 15 days after spraying. It is stated that, four years after the spraying began, some banana varieties, yucca, maize, fruit trees and aromatic herbs have disappeared, or their yield has considerably diminished. It is alleged that spraying has also had a negative effect on the health and food security of border populations by polluting their water sources and the aquatic life. Complaints have been made concerning large traces in many

rivers, including the Mira river in the province of Esmeraldas, of the chemical product used for spraying in Colombia. The situation of these river communities is a matter of concern, as they use the river for domestic purposes.

30. Some indigenous communities in the area, including the Awá, are vulnerable and this is particularly worrying. In addition to the impact of spraying, they complain that their rights are being violated and that they are being subject to other abuses. They protest that their rights to food and health have been affected by spraying. Apparently, after spraying, the entire Sumac Pamba community was displaced and did not return to their place of origin. As a consequence, it appears that the local wildlife, which provided a source of daily consumption, both for households and for recreational purposes, has died and various activities have been affected, as polluted water cannot be used. Spraying appears to be destroying subsistence crops, diminishing soil quality and reducing yields, affecting both the economic activities of communities and the population's access to adequate food. In addition to the involuntary displacements caused by these activities, attention is also drawn to the lack of access to public services and the militarization of the border zone.”⁵³⁷

6.108 In light of these findings, the UN Special Rapporteur recommended that

- (a) “the Governments of Ecuador and Colombia appoint an independent international commission to study the effects of aerial spraying on indigenous border populations”;
- (b) “binding measures” be adopted “to provide compensation for the damages caused”; and
- (c) “Colombia definitively halt the aerial spraying of illicit crops in the border region with Ecuador.”⁵³⁸

⁵³⁷ *Report of the Special Rapporteur on the Situation of Human Rights and Fundamental Freedoms of Indigenous People, Rodolfo Stavenhagen: Mission to Ecuador (25 April-4 May 2006)* (hereinafter “Report of the Special Rapporteur on the Rights of Indigenous People”), U.N. Doc. A/HRC/4/32/Add.2, (28 Dec. 2006), paras. 28-31. EM, Vol. II, Annex 30.

⁵³⁸ *Ibid.*, paras. 85-86.

6.109 Mr. Stavenhagen's observations are echoed in other contemporaneous accounts. In July 2003, the inter-ministerial team of governmental officials that conducted the verification mission to northern Sucumbíos (discussed above at paragraphs 6.15, 6.58, and 6.87) visited the Kichwa community of Yana Amarum. According to the report of the National Ombudsman for Indigenous People:

“[the] leader of this community, said that 20 families live here, of which there are 50 children. He affirmed that 2 spraying planes, followed by three helicopters, cross into Ecuadorian territory (violating national sovereignty). ‘They go by 2 or 3 times, flying low, roughly at 30 meters in altitude, from 6 in the morning to 6 in the evening. These planes drop a liquid above us, our huts and school, and as a consequence they ruin our planted crops: maize, yucca, plantain, and coffee. They contaminate the river and environment; they turn around here. We are just recovering from the effects of the sprayings of July, August and September 2002; however, with last week's spraying, we have to endure the impacts again.’

The bilingual teacher, Rógulo Grefa, and four more families had to abandon the community for fear of insecurity, sickness and more problems. After the spraying, the same illnesses as in other villages appeared and a chemical odor, which goes away in 5 days, after a shower. River waters contain what seem to be oil stains. Hunting and fishing have been stopped.”⁵³⁹

6.110 According to a November 2005 report prepared by two NGOs that visited the border regions of Esmeraldas Province in June of that year:

“With the contamination of various resources in these high-biodiversity areas, various species of fauna have been reduced and even disappeared from the affected areas. According to the Awá indigenous people, one of the indigenous communities that has been affected, ‘the animals have decreased, the leaves have dried

⁵³⁹ Impacts in Ecuador by the Fumigations Carried Out in the Putumayo Province, 2003, *op. cit.*, pp. 17-18. EM, Vol. IV, Annex 166.

up. The produce turns hard, the maize dries up leaving only the cob. There are no fish anymore. We do not know if the environment is being poisoned in the capitals. We indigenous people do not feel like indigenous people without our lands’.

The environmental effects in these areas are particularly grave, not only for the impacts to biodiversity, but also because there is a greater presence of villages with people of ancestral races, indigenous peoples and Afro-Ecuadorians, to whom the land, in addition to being a space for cultural reproduction, is also a means of agricultural production and self-subsistence. These areas have been a natural provider which has given them animals to hunt and fish, as well as a set of non-timber products such as medicinal plants and other necessities to complement their nutrition diet. Therefore, the environmental destruction caused by the fumigations also impacts the life of the communities, their culture, diet, and territory.”⁵⁴⁰

B. WITNESS STATEMENTS

6.111 Among the witness statements Ecuador has gathered are testimonies from nine indigenous persons from across the border region, including members of the Kichwa, Cofán and Awá communities⁵⁴¹. Some of these people reside within

⁵⁴⁰ Interamerican Association for Environmental Defense et al., *Ecolex and AIDA Environmental Report on the Impacts of the Fumigations under Plan Colombia* (Nov. 2005), p. 5. EM, Vol. IV, Annex 170.

⁵⁴¹ Declaration of Witness 11, 16 Jan. 2009 (hereinafter “Witness 11 Declaration”). EM, Vol. IV, Annex 199; Declaration of Witnesses 12, 16 Jan. 2009 (hereinafter “Witness 12 Declaration”). EM, Vol. IV, Annex 200; Declaration of Witness 17, 16 Jan. 2009 (hereinafter “Witness 17 Declaration”). EM, Vol. IV, Annex 203; Declaration of María Blanca Chancosa Sánchez, 14 Jan. 2009 (hereinafter “Chancosa Declaration”). EM, Vol. IV, Annex 187; Declaration of Witness 26, 17 Feb. 2009, (hereinafter “Witness 26 Declaration”). EM, Vol. IV, Annex 210; Declaration of Witness 27, 17 Feb. 2009, (hereinafter “Witness 27 Declaration”). EM, Vol. IV, Annex 211; Declaration of Witness 28, 17 Feb. 2009, (hereinafter “Witness 28 Declaration”). EM, Vol. IV, Annex 212; Declaration of Witness 29, 16 Jan. 2009, (hereinafter “Witness 29 Declaration”). EM, Vol. IV, Annex 213; and Declaration of Witness 31, 27 Feb. 2009, (hereinafter “Witness 31 Declaration”). EM, Vol. IV, Annex 215.

recognized indigenous territories⁵⁴², others live in indigenous communities located outside official territories⁵⁴³, and still others live in mixed communities together with settlers⁵⁴⁴. All describe their own, first-hand experiences.

6.112 Witness 31 is a member of the Cofán community of Sukie Kankhe located close to the San Miguel River inside the **Cofán Territory**. He is also a shaman (“*curaga*” in the Cofán language) and a father of four. He described his community in a manner that conveys the uniqueness of indigenous territory:

“There are two houses in my community and nine of us live there. The nearest village to our community, on the Ecuadorian side, is the Barranca-Bermeja community, to get there we have to travel two hours by canoe. There is another way out toward a small village on the Colombian side called San José; to get there, we have to walk for an hour and a half. The school that is in San José is the closest one. I was born in *Sukie Kankhe*, in the Ecuadorian jungle on the banks of the San Miguel River and I have lived here all my life, as have the other members of my community. We have been here for generations and generations, from my great-great-grandfather and even earlier. Our dead are also in this place, in the cemetery in the community. In the community, we also have our sacred places, the house where the ceremonies take place, which in Cofán is called *yaje tsa’o*, and the sown field of the sacred plant. Only the *curagas* can pass through these places. The *yaje tsa’o* is about five hundred meters from the San Miguel River, it takes about five minutes to walk to the river by foot.”⁵⁴⁵

⁵⁴² Witness 26 Declaration, *op. cit.* EM, Vol. IV, Annex 210; Witness 27 Declaration, *op. cit.* EM, Vol. IV, Annex 211; Witness 29 Declaration, *op. cit.* EM, Vol. IV, Annex 213; Witness 31 Declaration, *op. cit.* EM, Vol. IV, Annex 215.

⁵⁴³ Witness 28 Declaration, *op. cit.* EM, Vol. IV, Annex 212

⁵⁴⁴ Witness 11 Declaration, *op. cit.* EM, Vol. IV, Annex 199; Witness 12 Declaration, *op. cit.* EM, Vol. IV, Annex 200; Witness 17 Declaration, *op. cit.* EM, Vol. IV, Annex 203.

⁵⁴⁵ Witness 31 Declaration, *op. cit.* EM, Vol. IV, Annex 215.

6.113 Witness 40, himself Awá, was a health worker between 2002 and 2007 in six Awá communities located within the **Awá Territory**, which straddles the border between Carchi and Esmeraldas Provinces. He described the importance of nature in Awá culture:

“Nature is very important in our culture. For us, the earth is a mother that gives us life, for this reason we call it mother earth. We respect it like a mother and we look after it, we treat it well, we do not throw trash or waste, we reuse and bury everything we use. In the earth, we find plants, animals and the water that give us life. We also have a special relationship with the water from the river and its streams. Our sacred places are the waterfalls. In the reserve, there are several waterfalls in the streams and small rivers that originate from the Mataje River. We use them in our traditional medicine. For example, there is a disease known as *duende* and its healing is done in the waterfall, as a cleansing ritual.”⁵⁴⁶

1. *Plants and Animals*

6.114 In light of the indigenous peoples’ deep connection to nature, anything that disrupts the natural order affects them profoundly. That is exactly what the fumigations have done. Ms. María Blanca Chancosa Sánchez is Kichwa and a leader of the Confederation of Indigenous Nationalities of Ecuador (“CONAIE” per the Spanish initials). She testified:

“The consequences of repeated sprayings have had particularly serious effects on the indigenous peoples who live around the border, including the Awá, Cofán, Huaorani, Shuar, Secoya, Siona, Chachi, and Kichwa. The relationship with Mother Earth is central to the indigenous people. They feel as if their land is sick because they no longer have plants for their survival. The plants feed them. The plants are also medicines that give energy and can prevent a disease. When the plants get sick, people also get sick.

⁵⁴⁶ Declaration of Witness 40, 20 Feb. 2009 (hereinafter “Witness 40 Declaration”). EM, Vol. IV, Annex 223.

In those areas, because of the culture and isolation, people go to the folk healer of the community, who is called a *yachak*, who uses certain plants to treat certain pains. Following the sprayings, several of the plants used by folk healers stopped growing and were damaged. They can no longer cure people with these plants. We were very worried because in some indigenous communities the *yachack* have left their communities, since the plants with which they practiced no longer worked, putting the traditional life and health of these communities at serious risk.

Plants also form part of our traditions that guide our daily life. Yucca is a fundamental element for the indigenous people, of their diet and of their life. But several communities have seen the yucca drying up until it died a few days after the repeated sprayings. *Chicha* is made from yucca, it is an energizing beverage that we use to go to work and that we drink in traditional ceremonies. After the fumigations, yucca becomes sick and hard. It does not soften when cooked and it cannot be eaten or used as a drink. There are other very important herbs that are required in order to drink a tea named *guayusa*. Every morning, the family gathers to drink the tea, which is used to protect them from bad energies and snake bites. During that hour, the family gathers to share the visions they had during the night and to prepare themselves, together, for what the day has in store for them. They feel protected by this drink. Indigenous people from some of the villages in the border have informed us that this plant no longer grows as much and it no longer has the same effect. It got sick after the sprayings.”⁵⁴⁷

6.115 Witness 31, the Cofán “*curaga*” from the Cofán Territory whose declaration was in paragraph 6.112, also described the consequences of the fumigations by indigenous peoples. He stated:

“The sprayings also affected the plants. In the community, we had planted maize, yucca, plantain, and papaya. The planes with their smoke destroyed everything, the crops, the woodland, the jungle. The effects on the plants were noticed after two days when they starting changing color, and three days later they looked dry.

⁵⁴⁷ Chancosa Declaration, *op. cit.*, paras. 3-4. EM, Vol. IV, Annex 187.

After a few days of spraying, with the wind and the rain, the leaves in the virgin jungle started to fall off and one could see the change, because before everything was green, and after the sprayings one could see the leaves falling off and the dry branches. For the Cofán, nature is very important, she provides us with everything that we need to live, plants such as *yoko* and *yaje*. If nature gets sick, we also get sick; our life depends on nature. That is why, we, the Cofán, respect nature, we do not think of destroying it, because looking after nature is looking after ourselves. But the sprayings came without us being able to avoid them, it was something that we were not familiar with and against which we could not defend ourselves; they affected the jungle and with it our lives and our traditions. We, the *curagas* or *shamans*, have sacred rituals such as the *ayahuasca*, which we perform with plants that we used to find in our community; but after the sprayings, the plants that are near our community and the river are now useless. ... Before, all the communities had sown fields of medicinal plants and they were near the house, even the plants that could not be sown were near and we knew where to find them. Now, people have to walk up to five hours to get them, in order to be able to practice the rituals and traditional medicine. The withering and dryness, caused by the sprayings, have seriously affected our traditions and the balance of our community.”⁵⁴⁸

6.116 Witness 26 is a Cofán mother of eight who also resides in the Cofán Territory. She described how the disruption caused by the fumigations has forced her family apart:

“The crops were also affected, now there is hardly any work; I can no longer help provide for my children and their education. The plants no longer produce as they used to. When I harvested the yucca plant to cook meals, I realized that the yucca was damaged; it is no longer the same. The yucca is normally white inside, but after the sprayings, the yucca seemed as if it were stained inside, before the sprayings this was not seen. From three or four small farms, it can be that only one yucca is good, which is why the community shares everything; but there is more hunger, there is not enough food for everyone. If we do not help each other, we

⁵⁴⁸ Witness 31 Declaration, *op. cit.* EM, Vol. IV, Annex 215.

will not be able to survive all of this that is happening to us. We used to live close to the border and then we moved to live in the interior of Bermejo River, thinking that this way we were going to be safe, but we were still affected. After the sprayings, my children had to leave to find work; some work in Coca, in the province of Orellana, others in Lago Agrio and others in General Farfán. The family has separated, now I live with only one daughter. All this displacement, which has been caused by the sprayings, has very much affected our community, we used to live near the border in the land of the Cofán, but we left there, moving away from the border and our community, fleeing from the sprayings.”⁵⁴⁹

6.117 The experience of residents of the **Awá Territory** has been similar. According to Witness 40, the Awá health worker quoted above:

“The third time they sprayed was fatal for our community. The previous two times we saw the planes spraying the border in Colombia, but this time they crossed to Ecuadorian territory, Awá territory. It was probably five days later that some hectares of the natural forest, near the Mataje River, died. Three days later the plants began to dry up and fall off, as if they were burned. The leaves fell off the plants and all the branches died. All the plants, big and small, were destroyed. Several species of wild plants that were in that hectare died. I estimate that at least some thirty species of plants that died were used by us in the Awá traditional medical treatments. They were used by the shamans to cure the sick in the community. For example, the *lengua de vaca* was used to cure a disease known as *chutun*, which is a spiritual disease. Other sicknesses treated by the shaman are: *shutu*, *duende*, *malmiento*, *espanto*, and *ojeado de piedra*. The shamans treat all these sicknesses with medicinal plants found in nature near the community, and that were affected by the sprayings. This time they destroyed completely the production in the community. We no longer had anything to eat. Our diet depended on the plants that

⁵⁴⁹ Witness 26 Declaration, *op. cit.* EM, Vol. IV, Annex 210.

we sow and those that are in nature, which have been affected by the fumigations.”⁵⁵⁰

6.118 Indigenous communities located outside the reserves have also been affected. Witness 28 is a resident of the Kichwa community of **Yana Amarum** located along the banks of the San Miguel River in Sucumbíos. After describing the devastation wreaked on the village’s yucca crops, he stated:

“Finally, in 2004, I had to leave the community to work in the city of Puerto Nuevo, because after the sprayings, there was nothing to harvest in *Yana Amarum*, and life had become too hard. I have always earned a living by selling the crops that we grew and the land produced, but now the land no longer produces as it used to, and I had to look for work doing something different from I what I have always done. Sometimes, I work in the boats in Puerto Nuevo, helping with the cargo. There one can still find a job because of the commerce that exists there, but in my community we only live off the crops, that is why the sprayings affect us so much in the country. I was not the only one to leave. Of eighteen families, four left in search of a better life, farther from the border and their problems.”⁵⁵¹

6.119 The hamlet of **San Francisco 2** is located roughly 25 kilometres east of the Cofán Territory in Sucumbíos and is home to about 20 Kichwa families together with residents of mixed descent. As elsewhere in the border area, the families in San Francisco all live below the national poverty line. There is no electricity and there are no telephone lines. The closest health centre is located in General Farfán, which is accessible from San Francisco only by canoe. Witness 11, a Kichwa and life-long San Francisco 2 resident, testified that the fumigations forced some Kichwa families to abandon their homes:

⁵⁵⁰ Witness 40 Declaration, *op. cit.* EM, Vol. IV, Annex 223.

⁵⁵¹ Witness 28 Declaration, *op. cit.* EM, Vol. IV, Annex 212.

“Also, shortly after the smoke of the planes visited us for the first time, and every time after that, all the plants dried up. We had planted maize, rice, cocoa, and plantain on our farm. Since we could no longer eat from our farm, we had to ask our relatives for some money to buy food in town. Now that the planes have not sprayed here for a while and the soil is getting healthy, we have planted again. The plants are growing but not very well. The yucca still has problems; it comes out of the skin rotted with black spots. Some Kichwa families have abandoned their homes for fear of problems from the sprayings. I, too, thought of leaving the border but I stayed because my whole family is here.”⁵⁵²

6.120 In addition to the harm to crops and natural flora of the border region, the indigenous witnesses also described extensive damage to both domestic animals and wildlife. Indeed, because many of the indigenous communities are located within primary forest and jungle, and because indigenous cultures emphasize a connection to the natural world, indigenous witnesses observed notably greater harms to the natural fauna of the region than the non-indigenous witnesses cited in Section II above.

6.121 In the **Cofán Territory** (which overlaps the Cofán-Bermejo Ecological Reserve), the shaman for the Sukie Kankhe Cofán community, Witness 31, testified that in addition to plants:

“[t]he animals were also affected. After the sprayings, we saw dead animals. When the birds ate the fruits contaminated by the sprayings, such as the plantain, they would get sick. The chickens that I had would vomit everything they ate, shake and then die, now I do not have many chickens. We also saw many of the jungle birds become stiff and fall dead to the ground, we saw this about four days after the spraying. Once, after the spraying, we hunted a *guanta* and we could see that its hair had fallen off. Before, we used to go fishing, but now we hardly fish, because

⁵⁵² Witness 11 Declaration, *op. cit.* EM, Vol. IV, Annex 199.

there are now almost no fish in the river, as if something came and destroyed them.”⁵⁵³

6.122 Witness 29 was particularly well-suited to observe the long-term effects of the fumigations. With the assistance of a Cofán foundation, he had gone to Quito to study for several years. Upon returning to his home community of Avie (also located in the Cofán Territory) he witnessed a profound change. He stated:

“When we were kids, my older brothers and I used to go hunting with the shotgun for *paca*, *guatusa*, *coati*, *panguanas*, *guan*; and, with the blowgun for *muchileros*, small parrots and other birds. With a fishnet and hook, we used to fish *bocachico*, *doradas*, shad and *picalones*. Last July, I went to Avie. There are not as many animals as there used to be in the jungle near the river. I saw the change after spending so much time in Quito. I used to be worried about my parents and siblings because in Quito I would hear in the news about the sprayings. My father would tell me that my siblings would get sick during the spraying periods because, while I was in Quito, they used to tell me that the planes continued to spray. The customs of my people have changed.”⁵⁵⁴

6.123 Witness 28, the Kichwa from **Yana Amarum** quoted above, offered a similar account:

“The effects were also observed in some of the wildlife. *Yana Amarum* is located near a hunting-and-fishing reserve. Following the sprayings, those who lived off hunting no longer found the animals they used to hunt, such as the *cerillo* (a mountain pig), monkeys, armadillos, and *guantas*. I used to fish everyday; and, one day after the first spraying, I went fishing, as always, but what I found were dead fish in the estuary, floating in the water whitish

⁵⁵³ Witness 31 Declaration, *op. cit.* EM, Vol. IV, Annex 215.

⁵⁵⁴ Witness 29 Declaration, *op. cit.* EM, Vol. IV, Annex 213.

and swollen. I saw that the fish were no longer safe to eat and I returned home empty handed.”⁵⁵⁵

6.124 Similar observations were made in the **Awá Territory**. According to Witness 40, the Awá health worker:

“We often go fishing. After the spraying, when we went fishing, we noticed that the fish were sick. The *zavalete* had bumps on the skin like blisters, their eyes looked pale, and the skin, which is usually a lead-gray color, turned to a more redish color. The *mojarras* had on their tail and fins hard tiny bumps, and their eyes also looked pale. We thought that was very strange, we had never seen anything like it before. This happened more to the *zavaletas* and *mojarras*, which are weaker than the other fish in the river. We did not eat these fish because they seemed sick and we thought it would not be healthy to eat them. We decided that it would be best to bury them to prevent other animals from eating them and becoming sick.”⁵⁵⁶

6.125 Witness 41, also from the Awá Territory, told of seeing dead animals while hunting in the jungle:

“Aside from the domestic animals, the forest and the animals in the jungle were also affected. After the spraying, I went with my grandfather to a place where there are several hectares of primary forest. There one can hunt animals such as the monkey, spotted paca and the *guatin*. One can use a shotgun to hunt, but the elders, like my grandfather, also know how to set traps to catch the animals. When we went to the primary forest to hunt after the spraying, we noticed that several natural trees had dried up and were dead. We also saw some dead animals such as deer, *guatin* and sloth. I was very surprised to see these animals dead.”⁵⁵⁷

⁵⁵⁵ Witness 28 Declaration, *op. cit.* EM, Vol. IV, Annex 212.

⁵⁵⁶ Witness 40 Declaration, *op. cit.* EM, Vol. IV, Annex 223.

⁵⁵⁷ Declaration of Witness 41, 20 Feb. 2009 (hereinafter “Witness 41 Declaration”), para. 6. EM, Vol. IV, Annex 224.

2. People

6.126 As was the case in non-indigenous communities throughout the border zone, the indigenous people also suffered significant adverse health effects as a result of the fumigations. Witness 31 (the Cofán “*curaga*” from the Cofán Territory), for instance, stated:

“That smoke from the planes fell on my house and also on my body; at that moment, I felt as if my skin was going numb, I felt my throat become dry and I got a cough. The effect was immediate and it happened to most of my family. My wife and children were also in the community when it happened, the smoke also fell on their bodies and later they had some terrible bumps, even on their heads, but mostly on the thorax. Everyone developed the bumps, but they affected the children the most. The problem with the bumps was not just the result of what fell on our bodies, but also of what was left contaminated. For example, we wash our clothing in the river and later we hang it to dry in the sun, which leaves it exposed. It was there when the smoke also fell on the clothes and that continued to affect our skin. That lasted for about two weeks, first we had small bumps and then a week later they burst. The bumps itched a lot. ... In addition, the children developed stomachaches, vomiting and diarrhea. That started about two days after the sprayings and lasted for two days; the children could not eat or drink anything.”⁵⁵⁸

6.127 The fumigations have also adversely affected Awá communities in the **Awá Territory**. In his capacity as a health worker in the territory between 2002 and 2007, Witness 40 visited Awá communities, met with residents, gave health lectures, and coordinated with medical teams from the San Lorenzo Hospital (many hours’ journey to the south) to arrange visits to the area. He testified that from the moment fumigations in the region began:

“the problems started in the community. A few days later, I was working at the health post, it was morning and three children came

⁵⁵⁸ Witness 31 Declaration, *op. cit.* EM, Vol. IV, Annex 215.

in sick with diarrhea, vomiting, high fever, and stomach ache. The children were between two and three years old. After a few days, the adults started coming in with fever, vomiting, headache, diarrhea and stomachache. After that, people continued to come to the health post with the same symptoms. Some people also had spots on their skin. We were concerned because everyone exhibited the same symptoms, which we had never seen before. Now and then, children would come to the health post with diarrhea or the flu, but they were always separate and simple episodes, it had never been so close one after the other, so widespread, so serious, or with that combination of symptoms. I tried to treat them with medicinal plants but it was not effective. The disease was too strong and rare, beyond our knowledge and medicinal traditions. For this reason, we had to take these people to the hospital in San Lorenzo. The situation was so severe that we had to make the effort to get these people out of the community to San Lorenzo, where the nearest hospital is located, in spite of access and transportation problems. We had to walk for five hours, carrying the sick people on our backs, to Guadualito, which is the only community that has a road, and from there travelled by car for an hour and a half to San Lorenzo.”⁵⁵⁹

6.128 Witness 41, also Awá, provided a similar account:

“Before the spraying, we were healthy. But after the spraying, many people in my community became sick. Some of the people in the community had bumps all over their bodies. It was strange, I had not seen that before. Also, some of them had white spots on their skin and hives. Even I had some white spots on my arms. People also suffered from headaches, stomach aches and vomiting. ... When an Awá person gets sick, first he goes to a healer, who is a type of a traditional doctor. The healer treats people with natural medicines. The healer uses, above all, plants to cure people, for example, a plant known as *lengua de vaca*, which grows in the forest outside the community. Sometimes, this natural medicine cures and sometimes it does not. If he is not cured, then he can visit the health promoter in the community, an Awá who is trained in Western medicine. If he still does not get better with the treatments provided in the community, people go to the hospital in

⁵⁵⁹ Witness 40 Declaration, *op. cit.* EM, Vol. IV, Annex 223.

San Lorenzo. We have no roads in the Awá community, so we can only go by foot. To get to San Lorenzo, one has to walk around three hours to reach the Mataje River, and then take a canoe. After an hour in the canoe, one arrives at a *mestizo* community known as El Pan and from there, it takes about two hours by car to get to San Lorenzo. That is how people affected by the sprayings proceeded.”⁵⁶⁰

6.129 In **San Francisco 2**, life-long resident Witness 11, a Kichwa, stated that two of her young children died as a result of fumigation-induced vomiting and diarrhea:

“Shortly after the sprayings, my three-month-old baby became sick. Suddenly, she had diarrhea, vomiting and fever. I did not know what to do because she had never been sick like this before, and many children in the community were sick with the same thing. She stopped drinking my breast milk and died on twenty-five September, two thousand and one. The rest of us in the family had a rash. They were little bubbles that would burst. ...

After the sprayings, things improved but it was not the same as before. When the planes returned, the diseases returned. Two years later, during a period of spraying, my two-month-old daughter died. She was born fat and pretty, and before the sprayings she never had any problems. But after the sprayings, she became sick with the same thing that my other daughter had, and that many children of my neighbors had every time the plane came -- vomiting, diarrhea and fever. I had no money as to go to the doctor, and she died on ten September, two thousand and three.”⁵⁶¹

6.130 Witness 12, another Kichwa resident of San Francisco 2 gave a similar account:

“[A] few days after the fumigations, I felt uneasy and then I started itching a few days later, which disappeared a few weeks later. I got dizzy and then I vomited. My children suffered from headache,

⁵⁶⁰ Witness 41 Declaration, *op. cit.*, paras. 3-4. EM, Vol. IV, Annex 224.

⁵⁶¹ Witness 11 Declaration, *op. cit.* EM, Vol. IV, Annex 199.

diarrhea and vomiting that lasted several weeks. I, too, suffered from headaches then and even now, there are days that I still get them. Many families were affected. I remember that at least four babies in my community died during that period. They did not even last a week after the sprayings. They died within days of each other.”⁵⁶²

Section V. Conclusions

6.131 In this chapter, Ecuador has shown that Colombia’s persistent aerial spraying of chemical herbicides along its long riverine border with Ecuador has caused serious harm to people, and to wild and domestic plants and animals in Ecuador. It has also inflicted significant injury on the indigenous populations that live along the international frontier. The harms reported are consistent with the effects one would expect from exposure to improperly applied herbicides, all as described in Chapter V.

6.132 These harms, significant in themselves, are compounded by the already precarious nature of life in the border area. As discussed in Chapter II, the area is characterized by general poverty and under-development, including a lack of access to medical care, that have exacerbated the sprayings’ effects. In many cases, the lasting physical effects of the sprayings, including the loss of crops and animals, have forced these poor subsistence farmers, who were struggling to make do even before the fumigations began, to leave their land in search of more healthy and secure homes.

6.133 The effects on Ecuador’s unique indigenous communities are compounded further by the unique cultural ties that such communities enjoy to

⁵⁶² Witness 12 Declaration, *op. cit.* EM, Vol. IV, Annex 200.

nature. As recounted in the indigenous testimonies cited above, when nature is made sick -- as the fumigations have done -- the communities themselves are sickened, literally, culturally and spiritually.

6.134 In the following three chapters, Ecuador will demonstrate that the profound harms that Colombia's aerial fumigation programme has caused in Ecuador constitute internationally wrongful acts in violation of a broad array of fundamental international norms.

CHAPTER VII.

VIOLATION OF TERRITORIAL SOVEREIGNTY

Section I. Colombia Has Violated Ecuador's Territorial Sovereignty

7.1 As described in Chapters II, III and VI, Colombia has caused the deposit of toxic herbicides on the territory of Ecuador (as well as their dispersion in Ecuador's airspace) in quantities that are significant and harmful⁵⁶³. Ecuador has never consented to such deposits and dispersal, either directly or indirectly. To the contrary, Ecuador has consistently objected to Colombia's aerial spraying operation in border areas⁵⁶⁴. By allowing these deposits caused by aerial spraying in border areas, Colombia has violated its international obligations to respect the territorial sovereignty of Ecuador. These obligations arise under general international law. They also arise by operation of specific treaties, including in particular the 1988 Narcotics Convention, which provides expressly in Article 2 that

“The Parties shall carry out their obligations under this Convention in a manner consistent with the principles of sovereign equality and territorial integrity of States and that of non-intervention in the domestic affairs of other States.”⁵⁶⁵

7.2 Colombia's actions have violated Ecuador's right to determine for itself what acts may take place within its territory, and in particular Ecuador's right to determine the level and nature of any harmful pollution to which its territory, people and natural resources will be exposed. The spraying and drift of

⁵⁶³ See, e.g., *supra*, Chap. II, Sec. II. “Colombia's Aerial Sprayings”; Chap. III. “The Diplomatic History of the Dispute”; Chap VI. “Jurisdiction.”

⁵⁶⁴ See, e.g., *supra*, Chap. III, Sec. I. “Ecuador's Early Protests and Requests for information: 2000-2002”; Chap. III, Sec. III. “Colombia's Adherence to the Fumigation Programme Over Ecuador's Continued Opposition and the Involvement of Multilateral Organizations: 2006-2007.”

⁵⁶⁵ United Nations Convention Against Illicit Traffic in Narcotic Drugs and Psychotropic Substances (hereinafter “1988 Narcotics Convention”) (20 Dec. 1988), Art. 2. EM, Vol. II, Annex 4.

herbicides onto the territory and natural resources of Ecuador further violate Ecuador's permanent sovereignty over its natural and biological resources.

A. VIOLATION OF TERRITORIAL SOVEREIGNTY

7.3 The principle of territorial sovereignty is a cornerstone of every State's rights under international law. As long ago as 1949, in its very first Judgment, this Court observed: "Between independent States respect for territorial sovereignty is an essential foundation of international relations."⁵⁶⁶ Four decades later, the Court recognized "the fundamental principle of State sovereignty on which the whole of international law rests"⁵⁶⁷.

7.4 The Court's jurisprudence rests on long-established practice and principles. A former President of the Permanent Court of International Justice, acting as sole arbitrator in the *Island of Palmas* case, observed that "[t]erritorial sovereignty, as has already been said, involves the exclusive right to display the activities of a State"⁵⁶⁸. Arbitrator Huber stated:

"Sovereignty in the relations between States signifies independence. Independence in relation to a portion of the globe is the right to exercise therein to the exclusion of any other state, the functions of the State."⁵⁶⁹

⁵⁶⁶ *Corfu Channel (United Kingdom v. Albania)*, Judgment, I.C.J. Reports 1949, p. 4, p. 35.

⁵⁶⁷ *Military and Paramilitary Activities (Nicaragua v. United States)*, Judgment, I.C.J. Reports 1986, p. 14, para. 263.

⁵⁶⁸ *Island of Palmas (The Netherlands v. United States)*, Reports of International Arbitral Awards, Vol. II (1949), p. 829, p. 839.

⁵⁶⁹ *Island of Palmas*, p. 838.

7.5 The tribunal in the *Lake Lanoux* case observed, in relation to a treaty concerning a shared watercourse, that:

“Territorial sovereignty plays the part of a presumption. It must bend before all international obligations, whatever their origin, but only before such obligations.”⁵⁷⁰

7.6 The Charter of the United Nations affirms the principle of sovereign equality of all of its Members⁵⁷¹. The Declaration of Principles of International Law, adopted by the United Nations General Assembly in 1970, elaborates on the indicia of sovereignty and declares that all States enjoy sovereign equality, including the following elements: “(b) Each State enjoys the rights inherent in full sovereignty ... (d) The territorial integrity and political independence of the States are inviolable”⁵⁷².

7.7 Leading commentators have affirmed that respect for the sovereignty of a State -- and the consequences of any failure to respect such sovereignty -- are reflected in the corpus of rules of international law. Professor Brownlie, for example, notes that “[t]he sovereignty and equality of states represent the basic constitutional doctrine of the law of nations”⁵⁷³. *Oppenheim’s International Law*, notes that “[a]ll states are under an international legal obligation not to commit any violation of the independence, or territorial or personal authority, of any other

⁵⁷⁰ *Lake Lanoux (France v. Spain)*, XII Reports of International Arbitral Awards, (1957), p. 281, p. 364.

⁵⁷¹ Charter of the United Nations, Art. 2(1).

⁵⁷² United Nations General Assembly Resolution 2625 (XXV) Declaration of Principles of International Law concerning Friendly Relations and Cooperation among States in accordance with the Charter of the United Nations (24 Oct. 1970).

⁵⁷³ Ian Brownlie, *Principles of Public International Law* (6th ed., Oxford U. Press, 2003), p. 287.

state”⁵⁷⁴. The fundamental importance of respect for sovereignty and territorial integrity was affirmed by the Court in the *Corfu Channel* case. The Court ruled that the United Kingdom had violated the territorial sovereignty of Albania by conducting a minesweeping operation in Albanian territorial waters, notwithstanding the United Kingdom’s argument that the operation was one of extreme urgency that it considered itself entitled to carry out without the consent of any other State or organisation⁵⁷⁵. The Permanent Court of International Justice, in the *Lotus* case, stated that “the first and foremost restriction imposed by international law upon a State is that -- failing the existence of a permissive rule to the contrary -- it may not exercise its power in any form in the territory of another State”⁵⁷⁶. In the case concerning *Armed Activities on the Territory of the Congo*, the Court also recognised that violation of sovereignty gave rise to a distinct cause of action in international law, ruling that “Uganda has violated the sovereignty and also the territorial integrity of the DRC.”⁵⁷⁷

7.8 Territorial sovereignty incorporates the right of each State to determine its own economic, social and environmental policy, subject to its international obligations. Article 3 of the 1933 Montevideo Convention on the Rights and Duties of States provided that:

“The political existence of the state is independent of recognition by the other states. Even before recognition the state has the right to defend its integrity and independence, to provide for its conservation and prosperity, and consequently to organize itself as it sees fit, to legislate upon its interests, administer its services, and

⁵⁷⁴ Sir Robert Jennings and Sir Arthur Watts, *Oppenheim’s International Law*, Vol. I (9th ed., Longman, 1992), p. 382.

⁵⁷⁵ *Corfu Channel*, *I.C.J. Reports 1949*, pp. 33-34.

⁵⁷⁶ *The Case of the S.S. “Lotus”, 1927, P.C.I.J. Series A, No. 10*, p. 18.

⁵⁷⁷ *Armed Activities on the Territory of the Congo (Democratic Republic of the Congo v. Uganda)*, *Judgment, I.C.J. Reports 2005*, p. 201, para. 165.

to define the jurisdiction and competence of its courts. The exercise of these rights has no other limitation than the exercise of the rights of other states according to international law.”⁵⁷⁸

In addition, Article 8 provides that “[n]o state has the right to intervene in the internal or external affairs of another”. This obligation is reaffirmed in Article 2(2) of the 1988 Narcotics Convention, one of the treaties establishing the jurisdiction of the Court⁵⁷⁹.

7.9 A State’s sovereignty over its territory also expresses its right, subject to any international obligations that it has entered into, to determine its own level of protection for the environment and for human health⁵⁸⁰. That includes establishing acceptable or permissible types and levels of pollution. This principle, and in particular its relationship to acts that may affect human health and the environment, was articulated before the Court as early as 1973 by Australia, in the application it filed in the *Nuclear Tests* case. Australia invoked “the right of ... its people, in common with other States and their peoples, to be free from” certain forms of pollution, and submitted that deposit of radioactive pollution and its dispersion in a State’s airspace without that State’s consent

⁵⁷⁸ Montevideo Convention on the Rights and Duties of States, (26 Dec. 1933), entered into force 26 Dec. 1934, OAS Treaty Series No. 37, Art. 3, *available at* <http://www.oas.org/juridico/english/sigs/a-40.html>. Both Ecuador and Colombia are parties to the Convention.

⁵⁷⁹ 1988 Narcotics Convention, *op. cit.*, Art. 2(2).

⁵⁸⁰ For example, in the context of the World Trade Organization Agreement on the Application of Sanitary and Phytosanitary Measures, the Appellate Body has observed that “it is undisputed that WTO Members have the right to determine the level of protection of health that they consider appropriate in a given situation”. *European Communities – Measures affecting Asbestos and Asbestos-containing Products*, Report of the Appellate Body, WT/DS135/AB/R (12 Mar. 2001), para. 168.

violated the State's "sovereignty over its territory" and impaired the State's "independent right to determine what acts shall take place within its territory"⁵⁸¹.

7.10 Ecuador's territorial sovereignty and integrity have been repeatedly violated by the deposit of toxic herbicides on its territory by Colombia. In the *Nuclear Tests* case, the Court indicated interim measures of protection to preserve rights claimed by New Zealand in respect of the deposit of radioactive fall-out in its territory. New Zealand claimed, *inter alia*, that atmospheric nuclear testing by France violated New Zealand's right not to be subject to radioactive materials being deposited on its territory from activities authorised by other States and occurring outside its territory. New Zealand's claimed rights included the protection of its airspace and territorial waters from the consequences of nuclear testing, and the right to ensure that no radioactive materials should enter New Zealand's territory so as to cause harm, including apprehension, anxiety and concern to its people⁵⁸². While the Court did not proceed to decide the case on the merits, it ultimately relied upon unilateral declarations by France guaranteeing the end of atmospheric nuclear testing in the region to determine that no further pronouncement on New Zealand's claim was necessary, the object of the claim having disappeared⁵⁸³.

7.11 Herbicides sprayed by and under the control or authorisation of Colombia have been deposited and dispersed in the territory and airspace of Ecuador. Spraying has been conducted so close to the border that it was known to

⁵⁸¹ Application instituting proceedings submitted by Australia (9 May 1973), para. 48, in *Nuclear Tests (Australia v. France)*, *Pleadings, Oral Arguments*, Documents, Vol. 1, p. 14.

⁵⁸² *Nuclear Tests (New Zealand v. France)*, *Request for the Indication of Provisional Measures, Order*, *I.C.J. Reports 1973*, p. 135.

⁵⁸³ *Ibid.*, p. 457.

Colombia that it was likely -- if not inevitable -- that the toxic herbicide spray would cross the international boundary so as to reach and adversely affect Ecuador⁵⁸⁴. Indeed, the evidence indicates that aircraft involved in the spraying have flown right up to, along, and even across the Ecuadorian border so that very little drift, if any, is required for the spray to reach Ecuadorian territory. Many people living on the Ecuadorian side of the border have witnessed the spray drift toward and envelop their crops and homes, and have often been caught in it themselves⁵⁸⁵. On occasions when the spray aircraft have been seen to fly into and over Ecuadorian territory, they appear to have continued spraying, depositing herbicides directly on and around people, plants and animals in Ecuador⁵⁸⁶.

7.12 Colombia is causing to be sent into Ecuador toxic herbicides that are expressly designed with the intention of destroying plant life. As described in Chapters V and VI, these chemicals are known to entail risks of significant adverse effects on human, animal and plant health: the evidence shows that these effects have been realised in Ecuador. The harmful effects of the spray endured by Ecuadorian border communities are set out in detail and documented in Chapter VI of this Memorial: it has damaged agricultural crops and domestic animals in Ecuador, and adversely affected agricultural land and productivity⁵⁸⁷; it has caused harm to the health of Ecuadorians living in the affected region⁵⁸⁸;

⁵⁸⁴ See, e.g., *supra*, Chap. II, para. 2.37; Chap. III. “The Diplomatic History of the Dispute”; Chap. VI, para. 6.23 & Map 5, para. 6.30 & Map 6, para. 6.36 & Map 7.

⁵⁸⁵ See all witness statements in annexes 189-224.

⁵⁸⁶ See, e.g., *supra*, Chap. VI, paras. 6.24-6.25, 6.109; Declaration of Witness 4, 22 Dec. 2008. EM, Vol. IV, Annex 192; Declaration of Witness 5, 16 Jan. 2009. EM, Vol. IV, Annex 193; Declaration of Witness 13, 15 Jan. 2009. EM, Vol. IV, Annex 201.

⁵⁸⁷ See *supra* Chap. VI, Sec. II. “The Harm to Plants” & Sec. III. “The Harm to Animals”.

⁵⁸⁸ See *supra* Chap. VI, Sec. I. “The Harm to People”.

and it has damaged the environment and natural resources of Ecuador, including water resources and biological diversity⁵⁸⁹.

7.13 As a territorial sovereign, Ecuador has, subject to any obligations arising under international law, the exclusive right to determine what acts take place in its territory. It also has the exclusive right to determine whether -- and if so, to what extent -- its population should be exposed to the risks of polluting or other harmful effects resulting from the spraying of the herbicides. Ecuador has not consented to the deposit and dispersal of herbicides of this kind on its territory. Colombia's actions are unacceptable and plainly violate the territorial sovereignty of Ecuador.

7.14 International law specifically recognises the permanent sovereignty of States over their natural resources, including biological resources, in the context of the right to territorial integrity. The United Nations General Assembly has repeatedly confirmed the principle of permanent sovereignty over natural resources⁵⁹⁰. The Preamble to the 1992 Convention on Biological Diversity reaffirms that States have sovereign rights over their biological resources, and Article 15 recognises the sovereign rights of States over their natural resources⁵⁹¹. Article 8(1) of the 1997 Convention on Non-Navigational Uses of International

⁵⁸⁹ See, e.g., *supra*, Chap. VI, paras. 6.86-6.87, 6.91, 6.96, 6.104, 6.107, 6.117, 6.120-6.125.

⁵⁹⁰ For example, U.N. General Assembly Resolution 1803 (XVII), Permanent Sovereignty over Natural Resources (14 Dec. 1962); U.N. General Assembly Resolution 3281 (XXIX) Charter on Economic Rights and Duties of States (12 Dec. 1974).

⁵⁹¹ Convention on Biological Diversity (22 May 1992), entered into force on 29 Dec. 1993. Colombia and Ecuador are parties to this Convention. Art. 3 of the Convention provides that "States have, in accordance with the Charter of the United Nations and the principles of international law, the sovereign right to exploit their own resources pursuant to their own environmental policies, and the responsibility to ensure that activities within their jurisdiction or control do not cause damage to the environment of other States or of areas beyond the limits of national jurisdiction." See *infra* Chap. VIII, para. 8.19.

Watercourses reflects the importance of the principles of sovereign equality and territorial integrity. In *Armed Activities on the Territory of the Congo* the Court recalled that:

“the principle of permanent sovereignty over natural resources is expressed in General Assembly resolution 1803 (XVII) of 14 December 1962 and further elaborated in the Declaration on the Establishment of a New International Economic Order (General Assembly resolution 3201 (S.VI) of 1 May 1974) and the Charter of Economic Rights and Duties of States (General Assembly resolution 3281 (XXIX) of 12 December 1974)”⁵⁹².

The Court recognized “the importance of this principle” and confirmed that it is “a principle of customary international law”⁵⁹³.

7.15 The herbicide spraying carried out by Colombia has had significant and verifiable effects on the natural resources of Ecuador. These effects include pollution of watercourses and drinking water, damage to forests and natural flora and fauna, loss of biological diversity, and harm to natural ecosystems⁵⁹⁴. These impacts and effects go well beyond what is permissible under the 1988 Narcotics Convention, and constitute significant transboundary harm in violation of international law as set out in Chapter VIII. For these reasons, the aerial spraying of toxic herbicides in border areas has violated Ecuador’s permanent sovereignty over its natural and biological resources.

7.16 In accordance with international law, airspace superjacent to a State’s land territory is part of that State’s territory. As such, other States may use such

⁵⁹² *Armed Activities on the Territory of the Congo*, I.C.J. Reports 2005, p. 201, para. 244.

⁵⁹³ *Ibid.*

⁵⁹⁴ *See supra* Chap. VI, Sec. II. “The Harm to Plants”, Sec. III. “The Harm to Animals”; *see also* paras. 6.86-6.87, 6.91, 6.96, 6.104, 6.107, 6.117, 6.120-6.125.

airspace only with the agreement of the territorial sovereign⁵⁹⁵. In the *Military and Paramilitary Activities case*, the Court ruled that:

“The principle of respect for territorial sovereignty is also directly infringed by the unauthorised overflight of a State’s territory by aircraft belonging to or under the control of the government of another State.”⁵⁹⁶

7.17 Thus, in addition to the violation of territorial sovereignty arising from the deposit and dispersion of herbicides in Ecuador, Colombia has further violated Ecuador’s territorial sovereignty when its herbicide spraying activities have involved instances of direct overflight into the airspace of Ecuador. Ecuador has never consented to or otherwise authorised any of these instances of overflight.

B. SOVEREIGNTY AND ENVIRONMENTAL HARM

7.18 Ecuador does not dispute that, in the exercise of its territorial sovereignty, Colombia is entitled to regulate activities within its own jurisdiction and to take certain actions aimed at halting the production of illegal drugs. However, Colombia is bound to exercise such rights in accordance with its obligations under international law and in such a manner as to respect the rights of

⁵⁹⁵ Brownlie, *op.cit.*, p. 115.

⁵⁹⁶ *Military and Paramilitary Activities*, I.C.J. Reports 1986, para. 251. See also *ibid.*, para. 212: “The basic legal concept of State sovereignty in customary international law, expressed in, *inter alia*, Article 2, paragraph 1, of the United Nations Charter, extends to the internal waters and territorial sea of every State and to the air space above its territory.”

Ecuador⁵⁹⁷. The Court has referred to “every State’s obligation not to allow knowingly its territory to be used for acts contrary to international law”⁵⁹⁸.

7.19 More specific rules of international law have developed regarding harm caused or threatened to the territory and environment of other States as a result of polluting or other environmentally-damaging activities. These are set out in more detail in Chapter VIII. In summary, as the authors of *Oppenheim’s International Law* have observed:

“A state, in spite of its territorial authority, may not alter the natural conditions of its own territory to the disadvantage of the natural conditions of the territory of a neighbouring state for instance, to stop or to divert or pollute the flow of a river which runs from its own into neighbouring territory. A state is bound to prevent such use of its territory as, having regard to the circumstances, is unduly injurious to the inhabitants of the neighbouring state, e.g. as the result of working of factories emitting deleterious fumes.

...

states are increasingly subject to constraints upon freedom of action in their own territory to engage in or permit activities, not in themselves unlawful, which pollute the environment, particularly if damage beyond their frontiers may otherwise be caused to other states or their nationals . . .”⁵⁹⁹

7.20 Principle 21 of the 1972 Stockholm Declaration on the Human Environment accordingly provides that:

⁵⁹⁷ For example, *Lake Lanoux*, p. 382 (“France is entitled to exercise her rights; she cannot ignore Spanish interests. Spain is entitled to demand that her rights be respected and that her interests be taken into consideration.”).

⁵⁹⁸ *Corfu Channel, I.C.J. Reports 1949*, p. 22. See also the *Trail Smelter Arbitration (United States of America v. Canada)* 1 *Int’l. Env. Law Reports* (1941), pp. 231 & 310; See also *infra*, Chap. VIII, para 8.12.

⁵⁹⁹ *Oppenheim’s International Law op. cit.*, pp. 391-392 (footnotes omitted).

“States have, in accordance with the Charter of the United Nations and the principles of international law, the sovereign right to exploit their own resources pursuant to their own environmental policies, and the responsibility to ensure that activities within their jurisdiction or control do not cause damage to the environment of other States or of areas beyond the limits of national jurisdiction.”⁶⁰⁰

7.21 In the *Nuclear Tests* case Australia invoked this principle in support of its claim to link environmental harm with violation of a State’s sovereignty. In the 21st century, it can hardly be challenged that the deposit of significant pollution and its dispersion in a State’s airspace without that State’s consent will violate a State’s sovereignty over its territory, and impair the “right to determine what acts shall take place within its territory”⁶⁰¹.

Section II. Conclusions

7.22 By aerially spraying toxic herbicides at locations near, at and over its border with Ecuador, Colombia has violated the territorial sovereignty and integrity of Ecuador, including the sovereign rights of Ecuador over its natural and biological resources, and has violated its obligation to ensure that activities within its jurisdiction or control do not cause damage to the environment of other States.

7.23 The consequences of such violations, as well as the consequences of Colombia’s violations relating to transboundary pollution, respect for

⁶⁰⁰ Declaration of the United Nations Conference on the Human Environment, U.N. Doc. A/CONF/48/14/REV.1 (1972); *see also infra*, Chap. VIII, para. 8.11.

⁶⁰¹ Application instituting proceedings submitted by Australia (9 May 1973), para. 48, in *Nuclear Tests (Australia v. France)*, *Pleadings, Oral Arguments*, Documents, Vol. 1, p. 14.

fundamental human rights and the rights of indigenous communities, are addressed in Chapter X.

CHAPTER VIII.
TRANSBOUNDARY HARM

Section I. Prevention of Transboundary Harm

A. ECUADOR'S CLAIM WITH RESPECT TO TRANSBOUNDARY HARM

8.1 The obligation of all states to prevent transboundary harm resulting from activities within their own territory or control is at the heart of the present case. That obligation is grounded in general international law, but it is also imported directly into these proceedings by the 1988 Narcotics Convention. Article 14(2) of that Convention provides: “Each Party shall take appropriate measures to prevent illicit cultivation of and to eradicate plants containing narcotic or psychotropic substances, such as opium poppy, coca bush and cannabis plants, cultivated illicitly in its territory. The measures adopted *shall respect fundamental human rights* and shall take due account of traditional licit uses, where there is historic evidence of such use, *as well as the protection of the environment.*”⁶⁰²

8.2 Ecuador's case is that Colombia has undertaken aerial spraying intended to eradicate plants containing narcotic substances in a manner which fails to respect fundamental human rights and protect the environment, thereby violating *inter alia*, Article 14(2) of the 1988 Narcotics Convention and customary international law relating to transboundary pollution and significant harm, in addition to the human rights obligations that form the subject of the following Chapter.

8.3 The obligation to prevent transboundary harm to people, property and the environment has been recognised by the International Law Commission (“ILC”) and in judgments of international courts and arbitral tribunals. Notably, in its

⁶⁰² Emphasis added.

Advisory Opinion on the Legality of the Threat or Use of Nuclear Weapons this Court affirmed that “the environment is not an abstraction but represents the living space, the quality of life and the very health of human beings, including generations unborn. The existence of the general obligation of States to ensure that activities within their jurisdiction and control respect the environment of other States or of areas beyond national control is now part of the corpus of international law relating to the environment”⁶⁰³.

8.4 The law on this subject is rooted in the well-known decision in the *Trail Smelter Arbitration* which, like the present case, was concerned with air pollution. In their award the arbitrators concluded that “no state has the right to use or permit the use of its territory in such a manner as to cause injury by fumes in or to the territory of another or the properties or persons therein, when the case is of serious consequence and the injury is established by clear and convincing evidence”⁶⁰⁴. The arbitrators awarded monetary compensation for damage to property and crops. Control measures to avert future transboundary pollution were prescribed⁶⁰⁵.

8.5 This decision formed the basis for subsequent codification, first in the 1972 Stockholm Declaration on the Human Environment, then in the 1992 Rio

⁶⁰³ *Legality of the Threat or Use of Nuclear Weapons, Advisory Opinion, I.C.J. Reports 1996* (8 July 1996), pp. 241-242, para. 29. See also *Arbitration regarding the Iron Rhine Railway between the Kingdom of Belgium and the Kingdom of The Netherlands, PCA, Award of the Tribunal* (24 May 2005), paras. 222-223.

⁶⁰⁴ *The Trail Smelter Arbitration between the United States and Canada*, 35 *AJIL* 684, 716 (1941). This finding relied on the *Alabama Claims Arbitration* (1872) 1 *Moore's International Arbitrations Awards*, 485, and Eagleton, *Responsibility of States in International Law* (1928), p. 80, for the general proposition that “a state owes at all times a duty to protect other states against injurious acts by individuals from within its jurisdiction”, and on the evidence of US and Swiss Federal case law dealing with interstate/inter-cantonal air and water pollution, which it held “may legitimately be taken as a guide in this field of international law ... where no contrary rule prevails”. *Ibid*, pp. 713-716.

⁶⁰⁵ *Trail Smelter Arbitration*, 35 *AJIL* 684 (1941), Sec. 3, pp. 727-731.

Declaration on Environment and Development, and finally in the International Law Commission's Articles on Prevention of Transboundary Harm, adopted by the Commission in 2001⁶⁰⁶. Principle 2 of the Rio Declaration requires States to ensure that activities within their jurisdiction do not cause harm to the environment of other States or of common spaces; Principle 17 requires them to assess "proposed activities that are likely to have a significant adverse impact on the environment", and Principle 19 requires them to give prior notification and consult in good faith before undertaking activities that may have significant adverse transboundary effects.

8.6 The ILC's articles on transboundary harm reflect the relevant provisions of the Rio Declaration⁶⁰⁷, but formulate them in greater detail. They specifically cover harm to persons and property in addition to the environment of other States (Article 2). *Inter alia*, all appropriate measures must be taken to prevent or minimise the risk of transboundary harm or to minimise its effects (Article 3); States must cooperate to this end (Article 4); no such activity may be undertaken without prior impact assessment and authorization by the State in which it is to be conducted (Articles 6 and 7); States likely to be affected must be notified and consulted with a view to agreeing on measures to minimise or prevent the risk of harm (Articles 8 and 9); relevant information on the risks must be given to the public likely to be affected (Article 14); and measures must be taken to deal with and notify other States of any emergency (Articles 16 and 17).

⁶⁰⁶ *Report of the International Law Commission to the General Assembly on its Fifty-Third Session*, U.N. Doc. A/56/10 (2001) (hereinafter "*ILC Report (2001)*"), p. 366.

⁶⁰⁷ U.N. Conference on Environment and Development, Rio Declaration on Environment and Development (14 June 1992), Principles 2, 10, 11, 15, 17, 18, and 19.

8.7 In furtherance of the objective of sustainable development, Principle 15 of the Rio Declaration stresses that the precautionary approach “shall be widely applied by States according to their capabilities”. This applies to transboundary and national environmental risks, as well as global environmental risks⁶⁰⁸. A leading authority has summarised the precautionary principle or approach in the following way: “It requires that once environmental damage is threatened, action should be taken to control or abate possible environmental interference even though there may still be scientific uncertainty as to the effects of the activities”⁶⁰⁹. The importance of the precautionary principle is that it redefines existing rules of international law on the control of environmental risks and conservation of natural resources, and brings them into play at an earlier stage than before. No longer is it necessary to prove (as in the *Trail Smelter* case) that serious harm has occurred or is highly likely before requiring that appropriate precautionary and preventive measures be taken. Evidence that serious or significant harm is possible will be enough to trigger an obligation for States to act⁶¹⁰.

8.8 The need for a more precautionary approach to international risk management now underpins an increasing number of multilateral environmental agreements⁶¹¹, and it has been recognised by international courts in several

⁶⁰⁸ See note 432 below.

⁶⁰⁹ David Freestone, “The Road from Rio: International Environmental Law After the Earth Summit”, 6 *J. of Env. Law* 193 (1994), p. 211.

⁶¹⁰ See, *Pfizer Animal Health v. Council of the EU*, (2002) ECR II-3305, paras. 135-173.

⁶¹¹ 1991 European Energy Charter, Art. 19; 1991 Bamako Convention on the Ban of the Import into Africa and the Control of Transboundary Movement and Management of Hazardous Wastes Within Africa, Art. 4(3)(f); 1992 Convention for the Protection of the Marine Environment of the North-East Atlantic, Art. 2(2)(a); 1992 Helsinki Convention on the Protection of Baltic Sea Area, Art. 3(2); 1992 UNECE Convention for the Protection of Transboundary Watercourses and Lakes, Art. 2(5); 1992 Maastricht Treaty on European Union, Art. 174; 1992 Convention on Climate Change, Art. 3; 1992 Convention on Biological Diversity, Preamble; 1994 UNECE Sulphur Protocol; 1994

cases⁶¹². The precautionary principle has become one of the central concepts for organising, influencing and interpreting contemporary international environmental law and policy⁶¹³.

8.9 In this Chapter, Ecuador will show that Colombia has *inter alia* violated its obligations in international law with respect to transboundary harm by:

- (a) Causing or failing to prevent aerial spraying of herbicides resulting in significant harm to persons, property, natural resources and the environment in Ecuador;
- (b) Failing to take precautionary measures to prevent and control harmful effects of such herbicides on the health, livelihood, private and family life, and property of affected persons in the territory of Ecuador; and
- (c) Failing to take precautionary measures to prevent and control harmful effects of such herbicides on the environment and natural resources, including biodiversity and ecosystems, in the territory of Ecuador.

Danube Convention, Art. 2(4); 1995 FAO International Code of Conduct for Responsible Fisheries, General Principles and Art. 6(5); 1995 UN Fish Stocks Agreement, Arts. 5 and 6; 1995 Revised Convention for the Protection of the Mediterranean Sea Against Pollution, Art. 4(3)(a); 1996 Protocol to the London Dumping Convention, Art. 3; 1996 Protocol for the Protection of the Mediterranean Sea against Pollution from Land-based Sources and Activities, Preamble; 1998 UNECE Protocol on Heavy Metals Protocol; 1998 UNECE Protocol on Persistent Organic Pollutants; 1999 Rhine Convention, Art. 4; 2000 Cartagena Protocol on Bio-safety, Arts. 1, 10(6) and 11(8); 2001 Stockholm Convention on Persistent Organic Pollutants, Art. 1; 2001 Convention on the Control of Harmful Anti-fouling Systems on Ships.

⁶¹² *Southern Bluefin Tuna Cases, Provisional Measures Judgment*, ITLOS Nos. 3-4 (1999) paras. 77-79; *EC Measures Concerning Meat and Meat Products, Judgment*, WTO Appellate Body, WT/DS26/AB/R (1998), paras. 120-125; *Waddenzee Case* (2004) I ECR 7405; *Pfizer Animal Health v. Council of the EU* (2002) ECR II-3305, paras. 135-173.

⁶¹³ See Nicolas de Sadeleer, *Environmental Principles* (2002), especially Chap. 4.

B. COLOMBIA HAS A DUTY TO PREVENT SIGNIFICANT HARM TO PERSONS, PROPERTY, NATURAL RESOURCES AND THE ENVIRONMENT IN ECUADOR

8.10 As already shown in Chapter VI of this Memorial, the toxic herbicide mixture used by Colombia in its aerial spraying operations has caused transboundary pollution and significant harm in the territory of Ecuador. Had Colombia taken appropriate measures, this pollution and its harmful consequences could have been avoided.

8.11 States are required by international law to regulate and control activities within their territory or subject to their jurisdiction or control that cause or risk causing significant transboundary harm: see in particular Principle 2 of the 1992 Rio Declaration on Environment and Development⁶¹⁴, the Court's *Advisory Opinion on the Legality of the Use or Threat of Use of Nuclear Weapons*⁶¹⁵, and Articles 1 to 3 of the ILC's Articles on Prevention of Transboundary Harm⁶¹⁶.

⁶¹⁴ "States have, in accordance with the Charter of the United Nations and the principles of international law, the sovereign right to exploit their own resources pursuant to their own environmental and developmental policies, and the responsibility to ensure that activities within their jurisdiction or control do not cause damage to the environment of other states or of areas beyond the limits of national jurisdiction." See also Principle 21, 1972 Stockholm Declaration on the Human Environment; 1992 Convention on Biological Diversity, Art. 3; and the preambles to the 1992 Framework Convention on Climate Change, 1994 Convention to Combat Desertification, 2001 Convention on Persistent Organic Pollutants, 2006 International Tropical Timber Agreement, and 2008 Non-Legally Binding Instrument on all Types of Forests, UNGA Res. 62/98.

⁶¹⁵ *I.C.J. Reports 1996*, p. 226, para. 29. See also *Iron Rhine Arbitration, Award, PCA* (24 May 2005), paras. 222-223.

⁶¹⁶ Art. 1 provides: "The present articles apply to activities not prohibited by international law which involve a risk of causing significant transboundary harm through their physical consequences." Art. 2 provides: "For the purposes of the present articles: (a) Risk of causing significant transboundary harm. includes risks taking the form of a high probability of causing significant transboundary harm and a low probability of causing disastrous transboundary harm; (b) Harm means harm caused to persons, property or the environment; (c) Transboundary harm means harm caused in the territory of or in other places under the jurisdiction or control of a State other than the State of origin, whether or not the States concerned share a common border; (d) State of origin means the State in the territory or otherwise under the jurisdiction or control of which the activities referred to in article 1 are planned or are carried out; (e) States likely to be

For this purpose “harm” includes harm to “persons, property or the environment” (ILC, Article 2(b)) and harm to biological resources such as forests, flora and fauna, fish stocks, and ecosystems⁶¹⁷.

8.12 The Court’s judgment in the *Corfu Channel* case supports a similar conclusion. There Albania was held responsible for damage to British warships in innocent passage through the Albanian territorial sea, caused by a failure to warn them of the presence of mines. The Court indicated that it was “every State’s obligation not to allow knowingly its territory to be used for acts contrary to the rights of other States”⁶¹⁸. *A fortiori* that obligation is even more pertinent when activities within the jurisdiction of one State cause harm within the territory of another State.

8.13 Colombia’s aerial spraying operations plainly fall within the duty to control activities taking place within its territory which cause or may cause transboundary harm.

1. *There Is Significant Harm*

8.14 The harmful effects on Ecuador of Colombia’s herbicide spraying meet or exceed the threshold of significant harm referred to by the ILC in its 2001 Articles

affected means the State or States in the territory of which there is the risk of significant transboundary harm or which have jurisdiction or control over any other place where there is such a risk; (f) States concerned means the State of origin and the State likely to be affected.” Art. 3 provides: “The State of origin shall take all appropriate measures to prevent significant transboundary harm or at any event to minimize the risk thereof.”

⁶¹⁷ 1992 Convention on Biological Diversity, Art. 3; UNEP, *Report of the Working Group of Experts on Liability and Compensation for Environmental Damage arising from Military Activities* (Nairobi, 1996); ILC, *11th Report on International Liability for Injurious Consequences*, U.N. Doc. A/CN.4/468 (1995); 1982 U.N. Convention on the Law of the Sea, Arts. 145, 194(5); 1997 U.N. Convention on the Non-Navigational Uses of International Watercourses, Art. 20.

⁶¹⁸ *Corfu Channel (United Kingdom v. Albania)*, Judgment I.C.J. Reports 1949, p. 22.

on the Prevention of Transboundary Harm⁶¹⁹. Harm is “significant” if it is “more than ‘detectable’”, but it need not be “serious” or “substantial”; what is significant depends on the circumstances of each case, and may vary over time⁶²⁰. It must lead to “a real detrimental effect on matters such as, for example, human health, industry, property, environment or agriculture in other States. Such detrimental effects must be susceptible of being measured by factual and objective standards”⁶²¹.

8.15 Definitions of pollution confirm that “harm” includes hazards to human health, injury to living resources, impairment of water, soil or air quality, and reduction of amenities. The most pertinent definition of pollution is found in Article 1(a) of the 1979 Convention on Long-range Transboundary Air Pollution: “air pollution” means the introduction by man, directly or indirectly, of substances or energy into the air resulting in deleterious effects of such a nature as to endanger human health, harm living resources and ecosystems and material property and impair or interfere with amenities and other legitimate uses of the environment, and “air pollution” shall be construed accordingly”. Article 21(1) of the 1997 UN Convention on the Law of the Non-navigational Uses of International Watercourses is also relevant. It defines water pollution as “any detrimental alteration in the composition or quality of the waters of an international watercourse which results directly or indirectly from human conduct”, but it is clear from Article 21(2) that this includes “significant harm” to

⁶¹⁹ See Arts. 1, 2 and 3, *ILC Report* (2001), *op. cit.*, p. 366.

⁶²⁰ *Ibid.*, p. 389, para 7.

⁶²¹ *Ibid.*, p. 388, para 4.

“human health or safety, to the use of the waters for any beneficial purpose or to the living resources of the watercourse”⁶²².

8.16 Ecuador’s evidence in this case has shown quite clearly that the deleterious effects of spraying herbicides on its territory and people are real and measurable in the terms required by the ILC and the definition of pollution⁶²³. The deposit of Colombian herbicides constitutes pollution and has caused significant harm within Ecuador. In particular, Chapter VI demonstrates that aerial spraying of herbicides has caused ill health to individuals who reside in or farm affected areas. The spraying has destroyed or damaged crops, rendered farmland unproductive, polluted water supplies and made them unusable, and caused sickness or death in domestic livestock. Border residents have been forced to abandon their homes and villages, resulting in disruption or interference with private and family life, loss of property, and loss of livelihood. Chapter IX will show how these harmful impacts amount, *inter alia*, to a violation of the rights to life, health, private and family life and property, as well as the rights of indigenous peoples affected by transboundary pollution, but they are also more than sufficient to engage Colombia’s obligations with respect to prevention of pollution and significant transboundary harm.

8.17 Just as importantly, the long term effects on human and animal health, biodiversity and the ecological balance remain untested and unknown⁶²⁴.

⁶²² Art. 21(2) provides: “Watercourse States shall, individually and, where appropriate, jointly, prevent, reduce and control the pollution of an international watercourse that may cause significant harm to other watercourse States or to their environment, including harm to human health or safety, to the use of the waters for any beneficial purpose or to the living resources of the watercourse. Watercourse States shall take steps to harmonize their policies in this connection.”

⁶²³ See *supra* Chap. VI. “The Damage Caused in Ecuador by Colombia’s Aerial Spraying of Herbicides.”

⁶²⁴ See *supra* Chap V, paras. 5.33–5.34, 5.70–5.72.

Justifiably, Ecuador pointed out in its Application to the Court that “Colombia’s conduct amounts to a dangerous ecological and toxicological experiment on a vast scale”. In Chapter II it was noted that Ecuador possesses the world’s highest concentration of biological diversity⁶²⁵. The northern border region is particularly rich in biological resources: protected areas and nature reserves are home to an abundance of animal and plant life that has yet to be fully documented by science⁶²⁶. The evidence reflects the extent of observed damage to forest ecosystems, water resources, biological diversity and the natural environment, but the full extent of the damage and the long-term risk to the environment can only be identified by monitoring⁶²⁷.

2. *The Risk of Harm Was Foreseeable*

8.18 Foreseeability of harm, in the sense of an objectively determined risk, is sufficient to engage a State's duty to take measures to prevent transboundary harm: see the ILC’s 2001 Articles on Prevention of Transboundary Harm. These define risk to encompass both “a low probability of causing disastrous harm”, and “a high probability of causing significant harm”⁶²⁸. Whether there is such a risk has to be determined objectively: “as denoting an appreciation of possible harm resulting from an activity which a properly informed observer had or ought to have had”⁶²⁹.

⁶²⁵ See *supra* Chap. II, paras. 2.4; 2.12.

⁶²⁶ See *supra* Chap. II, para. 2.15.

⁶²⁷ See *supra* Chap. V, paras. 5.70–5.72; Chap. VI, paras. 6.107, 6.109, 6.110, 6.114–6.125.

⁶²⁸ Art. 2 and commentary in *ILC Report (2001)*, *op. cit.*, pp. 386-387, paras. 2-3.

⁶²⁹ *Ibid.*, p. 385 para. 15. See *Corfu Channel, Judgment I.C.J. Reports 1949*, pp. 18-22; *Bosnian Genocide Case (Bosnia and Herzegovina v. Serbia and Montenegro), Judgment, I.C.J. Reports 2007*, para. 432.

8.19 For this purpose it is not necessary to prove the existence or degree of risk with absolute certainty. The precautionary principle as set out in Principle 15 of the 1992 Rio Declaration on Environment and Development provides, *inter alia*, that “Where there are threats of serious or irreversible damage, lack of full scientific certainty shall not be used as a reason for postponing cost-effective measures to prevent environmental degradation.” The preamble to the 1992 Convention on Biological Diversity applies the same requirement where there is a threat of “significant reduction or loss of biological diversity”. The precautionary principle also “implies the need for States to review their obligations of prevention in a continuous manner to keep abreast with the advances in scientific knowledge”⁶³⁰, and the ILC Commentary refers to the Court’s judgment in the *Gabčíkovo-Nagymaros* case in support of this conclusion⁶³¹.

8.20 The precautionary principle is already inherent in the requirements of international law with respect to prevention, prior authorisation and environmental impact assessment, “and could not be divorced therefrom”⁶³². As a learned author has observed, “The point which stands out is that some applications of the principle, which is based on the concept of foreseeable risk to other states, are encompassed within existing concepts of state responsibility.”⁶³³ An international tribunal must therefore take account of scientific uncertainty in determining whether harmful consequences are foreseeable or not.

⁶³⁰ *ILC Report (2001)*, *op. cit.*, p. 415, para. 7.

⁶³¹ *Ibid.*, p. 416, citing para. 140 of the judgment, in which the Court invited the Parties to “look afresh at the effects on the environment of the operation of the Gabčíkovo power plant,” in the light of new requirements of environmental protection.

⁶³² *Report of the International Law Commission to the General Assembly on its Fifty-Second Session*, U.N. GAOR A/55/10 (2000) (hereinafter “*ILC Report (2000)*”), para. 716.

⁶³³ Ian Brownlie, *Principles of Public International Law* (6th ed., Oxford, 2003), p. 276.

8.21 The risk identified by Ecuador is neither hypothetical nor conjectural. It is objectively based on scientific and expert evidence, including the risks identified by regulatory authorities around the world and by the Colombian Government itself: see Chapter V of this Memorial. Ecuadorian villages are located very close to the border with Colombia, and agricultural crops are grown right up to the border⁶³⁴. Parts of the border area are mountainous, and the border itself follows the sinuosity of the rivers and the terrain. Wind currents, tropical convection and the difficulty of staying within Colombian airspace while spraying close to the border make deposition of herbicide on Ecuador an obvious risk⁶³⁵. Colombia's own officials recognised that there had been drift and off-target impacts within Colombia⁶³⁶. To any properly informed observer, repeatedly spraying toxic herbicides from aircraft flying close to the Ecuadorian border would foreseeably make transboundary harm highly probable, if not inevitable. But even if Ecuador is wrong on this point, Colombia clearly knew of the risk to Ecuador, since it was made aware of it in direct representations on numerous occasions by the Government of Ecuador⁶³⁷, in reports by UN Special Rapporteurs⁶³⁸, and by Colombian agencies⁶³⁹. It cannot plead ignorance.

8.22 Nor can Colombia reasonably say that it was unaware of the harmful qualities of the herbicide compound used in the spraying. Although the exact

⁶³⁴ See, e.g., *supra*, Chap. VI, paras. 6.32–6.25, 6.29–6.32, 6.36–6.37, 6.61–6.75, Maps 5–7.

⁶³⁵ See *supra* Chap. V, paras. 5.84–5.98; Chap. VI, paras. 6.24–6.25, 6.109; Declaration of Witness 4, 22 Dec. 2008. EM, Vol. IV, Annex 192; Declaration of Witness 5, 16 Jan. 2009. EM, Vol. IV, Annex 193; Declaration of Witness 13, 15 Jan. 2009. EM, Vol. IV, Annex 201.

⁶³⁶ See *supra* Chap. V, paras. 5.82, 5.98, 5.102, 5.108.

⁶³⁷ See *supra* Chap. III, paras. 3.6–3.22.

⁶³⁸ See *supra* Chap. II, para. 2.50; Chap. III, paras. 3.61, 3.70; Chap. V, paras. 5.12–5.13, 5.30, 5.48, 5.56, Chap. VI, paras. 6.8, 6.107–6.108.

⁶³⁹ See *supra* Chap. V, paras. 5.82, 5.98, 5.102–5.108.

composition of the spray remains uncertain (though not of course to Colombia), the toxic qualities of its principal ingredient, glyphosate, and of the surfactants with which it appears to have been mixed, are well documented⁶⁴⁰. There is abundant evidence of their potentially harmful effects on human health, crops, water supplies, animals or plants. Even if it is less clear what the long-term risks of large-scale and repeated aerial spraying of these herbicides might be in a tropical environment⁶⁴¹, there is still sufficient scientific basis for predicting the likelihood of significant harmful effects, and “reason to believe” or “reasonable grounds for concern”⁶⁴² that significant damage will result.

8.23 It follows, therefore, that where there is evidence of a risk of serious or significant harm, as there clearly is in this case, appropriate preventive and precautionary measures are required, and there can be no scientific or legal basis for Colombia’s failure to take such measures⁶⁴³.

C. COLOMBIA FAILED TO TAKE ADEQUATE PRECAUTIONARY MEASURES

8.24 Notwithstanding the known and foreseeable risk of significant harm, Colombia failed to regulate and control the spraying to the standards necessary to give effect to its obligation to prevent transboundary harm, or to mitigate the harmful effects on Ecuador.

⁶⁴⁰ See *supra* Chap. V, Sec. I, “The Toxic Chemicals in the Herbicidal Spray” & Sec. II, “The Spray Mixture’s Effects on People, Plants, Animals and the Environment.”

⁶⁴¹ See *supra* Chap. V, paras. 5.70–5.72 on the difficulty of extrapolating North American data for use in Colombia.

⁶⁴² *EC Measures Concerning Meat and Meat Products*, paras. 120-125.

⁶⁴³ See to the same effect 2001 POPS Convention, Art. 8(7)(a) dealing with listing of harmful chemicals and 2000 Biosafety Protocol, Art. 11(8).

8.25 The spraying operations were directed by the Government of Colombia and carried out on its behalf. Adequate precautionary measures should have been taken in order to prevent or minimize the risk of transboundary harm or to minimize its effects: see Article 3 of the ILC's 2001 Articles on Prevention of Transboundary Harm⁶⁴⁴ and Article 14(1)(d) of the 1992 Convention on Biological Diversity⁶⁴⁵. What this formulation implies is an obligation to undertake a risk assessment and act with due diligence in controlling the spraying operation so as to avoid harm to Ecuador⁶⁴⁶.

8.26 The ILC commentary has summarised the key requirements of due diligence:

“The standard of due diligence against which the conduct of State of origin should be examined is that which is generally considered to be appropriate and proportional to the degree of risk of transboundary harm in the particular instance. For example, activities which may be considered ultra-hazardous require a much higher standard of care in designing policies and a much higher degree of vigour on the part of the State to enforce them. Issues such as the size of the operation; its location, special climate conditions, materials used in the activity, and whether the conclusions drawn from the application of these factors in a

⁶⁴⁴ “The State of origin shall take all appropriate measures to prevent significant transboundary harm or at any event to minimize the risk thereof.” See to the same effect Art. 2(1) of the 1991 Convention on Transboundary Environmental Impact Assessment: “The parties shall, either individually or jointly, take all appropriate and effective measures to prevent, reduce and control significant adverse transboundary environmental impact from proposed activities.”

⁶⁴⁵ Article 14(1)(d) provides: “1. Each Contracting Party, as far as possible and as appropriate, shall: (d) In the case of imminent or grave danger or damage, originating under its jurisdiction or control, to biological diversity within the area under jurisdiction of other States or in areas beyond the limits of national jurisdiction, notify immediately the potentially affected States of such danger or damage, *as well as initiate action to prevent or minimize such danger or damage.*” (emphasis added). Article 3 of the Convention recognises the responsibility of states “to ensure that activities within their jurisdiction or control do not cause damage to the environment of other states.”

⁶⁴⁶ *ILC Report (2000)*, *op. cit.*, para. 718: “the special rapporteur was of the opinion that ‘all appropriate measures’ and ‘due diligence’ were synonymous.”

specific case are reasonable, are among the factors to be considered in determining the due diligence requirement in each instance. What would be considered a reasonable standard of care or due diligence may change with time; what might be considered an appropriate and reasonable procedure, standard or rule at one point in time may not be considered as such at some point in the future. Hence, due diligence in ensuring safety requires a State to keep abreast of technological changes and scientific developments.”⁶⁴⁷

8.27 Applying the ILC’s commentary to the present case, it is clear that a very high standard of care is called for when inherently hazardous activities such as aerial spraying of toxic herbicides are undertaken. The only appropriate standard of care in the circumstances of the present case is one that eliminates all risk of transboundary pollution caused by overflight or drift. The Court has itself recognised the need for a high standard of care in such situations:

“The Court 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”⁶⁴⁸.

8.28 As Chapter V of this Memorial shows, the likely chemical ingredients in the toxic herbicide mixture used by Colombia is inherently dangerous to humans, plants, animals, natural resources and the environment. Glyphosate kills plants indiscriminately⁶⁴⁹. Various components of the spray cause ill-health in humans and animals⁶⁵⁰. It pollutes watercourses and kills fish and other aquatic

⁶⁴⁷ *ILC Report (2001), op. cit.*, p. 394, para. 11.

⁶⁴⁸ *Case concerning the Gabčíkovo-Nagymaros Project (Hungary/Slovakia), I.C.J. Reports 1997*, p. 78, para. 140.

⁶⁴⁹ *See supra* Chap. V, para. 5.7.

⁶⁵⁰ *See supra* Chap. V, paras. 5.35–5.50, 5.56–5.57.

organisms⁶⁵¹. It has harmful effects on biological diversity and ecosystems⁶⁵². Colombia has used a product that is among the most toxic available, and is many times stronger than in normal agricultural applications; the spray mixture is heavily laden with surfactants to maximize its lethal effects, and the application rate far exceeds the average for agricultural use⁶⁵³.

8.29 If it wishes to use such highly toxic compounds in its spraying programme Colombia has a duty to make certain that transboundary pollution cannot and does not occur. In the present case, overflight and transboundary drift into Ecuador are demonstrable risks and have happened on innumerable occasions detailed in Chapter VI. Product labelling for the principle ingredient in the chemical spray says clearly “AVOID DRIFT” and indicates that minute quantities of this product can cause severe damage or destruction to the crops, plants or other areas on which treatment was not intended, and may result in injury to persons or animals⁶⁵⁴. Direct spraying on humans is prohibited by product labelling⁶⁵⁵. Manufacturer’s warnings emphatically caution against any spraying that may result in drift, and substantially limit the conditions under which aerial spraying may be conducted: “The product should only be applied when the potential for drift to adjacent sensitive areas (e.g., residential areas, bodies of water, known habitat for threatened or endangered species, non-target crops) is minimal (e.g.,

⁶⁵¹ See *supra* Chap. V, paras. 5.62–5.67.

⁶⁵² Comptroller General of the Republic of Colombia, *Plan Colombia: Fourth Evaluation Report* (hereinafter “*Comptroller General Fourth Evaluation Report*”) (July 2003), p. 37. EM, Vol. II, Annex 98; see also *supra*, Chap. V, paras. 5.60, 5.63–5.72.

⁶⁵³ See *supra* Chap. V, paras. 5.13–5.14, 5.17.

⁶⁵⁴ See, e.g., *United States Roundup Pro Label*. EM, Vol. III, Annex 128; see also *supra*, Chap. V, paras. 5.9, 5.76.

⁶⁵⁵ See, e.g., *Australia Roundup Label*. EM, Vol. III, Annex 105; see also *supra*, Chap. V, para. 5.41.

when wind is blowing away from the sensitive areas).”⁶⁵⁶ In most user countries these restrictions are contained in legally binding regulations, as they are in Colombia⁶⁵⁷.

8.30 Taking fully into account “the size of the operation; its location, special climate conditions, [and] materials used in the activity”⁶⁵⁸, it is also clear that appropriate and effective measures “proportional to the degree of risk” could reasonably and easily have been taken by the Government of Colombia to eliminate the risk of transboundary harm to Ecuador. *Inter alia*, spraying should have been banned in a buffer zone adjacent to the border and should have been conducted without over-flying the territory of Ecuador. Buffer zones are required by manufacturers’ labelling and were recommended by Colombia’s own Environment Ministry as a means of protecting people and crops⁶⁵⁹. A less harmful mixture could have been used. In failing or refusing to place restrictions of this kind on aerial spraying operations, Colombia failed to control and regulate the spraying operation as required by international law and failed to display a reasonable standard of care towards those likely to be affected. Such precautionary measures were well within its power, required no additional technology or expense, and would have been effective to limit aerial drift of herbicide pollution onto the territory of Ecuador.

8.31 Colombia’s failure to take the necessary precautionary measures cannot be justified by any countervailing benefit to itself or by the requirements of the 1988

⁶⁵⁶ *United States Roundup Pro Label*, p. 4, Sec. 7.1. EM, Vol. III, Annex 128; *see also supra*, Chap. V, para. 5.80.

⁶⁵⁷ *See supra* Chap. V, paras. 5.39–5.40.

⁶⁵⁸ *ILC Report* (2001), *op. cit.*, p. 394, para. 11.

⁶⁵⁹ *See supra* Chap. V, paras. 5.81–5.82.

Narcotics Convention. Spraying of coca plantations has not resulted in an overall reduction in coca production⁶⁶⁰. It is neither the only means of crop eradication available nor the most effective: both Colombia and Ecuador also use manual eradication, for example⁶⁶¹. Implementing a no-spray zone along the border would have had limited effect on coca production, but would have saved Ecuador from significant harm. In those circumstances the harm to Ecuador greatly outweighs any benefit to Colombia from aerial spraying in border areas. This lack of proportionality violates the equitable balance of interests required by Article 10 of the 2001 ILC Articles on Prevention of Transboundary Harm⁶⁶². Not only are the means of preventing transboundary harm readily available within the terms of Article 10(a) and (c), but even if they were not, it is equally clear pursuant to Article 10(b) that the “overall advantages of a social, economic and technical character for the State of origin in relation to the potential harm for the State likely to be affected” do not justify the harm inflicted on Ecuador. The ILC commentary⁶⁶³ refers in this context to the *Donauversinkung* case where the German court stated that: “The interests of the States in question must be weighed in an equitable manner one against another. One must consider not only the

⁶⁶⁰ See *supra* Chap. II, paras. 2.54-2.55.

⁶⁶¹ See *supra* Chap. II, para. 2.31.

⁶⁶² Art. 10 provides in full: “In order to achieve an equitable balance of interests as referred to in paragraph 2 of article 9, the States concerned shall take into account all relevant factors and circumstances, including: (a) The degree of risk of significant transboundary harm and of the availability of means of preventing such harm, or minimizing the risk thereof or repairing the harm; (b) The importance of the activity, taking into account its overall advantages of a social, economic and technical character for the State of origin in relation to the potential harm for the State likely to be affected; (c) The risk of significant harm to the environment and the availability of means of preventing such harm, or minimizing the risk thereof or restoring the environment; (d) The degree to which the State of origin and, as appropriate, the State likely to be affected are prepared to contribute to the costs of prevention; (e) The economic viability of the activity in relation to the costs of prevention and to the possibility of carrying out the activity elsewhere or by other means or replacing it with an alternative activity; (f) The standards of prevention which the State likely to be affected applies to the same or comparable activities and the standards applied in comparable regional or international practice.”

⁶⁶³ ILC Report (2001), *op. cit.*, p. 413, para. 4.

absolute injury caused to the neighboring State, but also the relation of the advantage gained by the one to the injury caused to the other.”⁶⁶⁴

8.32 Nor does the 1988 Narcotics Convention compel States to disregard potential harmful impacts on other States when eradicating drug crops. On the contrary, it refers explicitly to the need to “respect fundamental human rights” and to “take due account” of the protection of the environment: see Article 14(2) quoted earlier.

8.33 Moreover, Colombia could and should have warned Ecuador when spraying operations were due to take place, so that Ecuador could take appropriate precautions to minimise the harm on its territory. Indeed, Ecuador requested that Colombia provide such warnings, without success⁶⁶⁵.

8.34 Colombia’s direct control over the spraying operations was such that it knew in what locations spraying would take place and what the likely risk to Ecuador would be. Official sources describe how sophisticated technology is used to map the locations of spraying operations in advance⁶⁶⁶. In the *Corfu*

⁶⁶⁴ *Wurttemberg and Prussia v. Baden (Donauversinkung case)* (1927) in *Entscheidungen des Reichsgerichts in Zivilsachen* (Berlin, de Gruyter), Vol. 116, Appendix, pp. 18-45 (1927), in *Annual Digest of Public International Law Cases (1927-1928)* (London, 1931), p. 131. See also *Kansas v. Colorado*, 206 US 100 (1907); *Washington v. Oregon*, 297 US 517 (1936).

⁶⁶⁵ See Chap. III, paras. 3.3, 3.44.

⁶⁶⁶ Note SARE-142, sent from the National Directorate of Narcotics of the Ministry of Interior and Justice of Colombia to the President of the Technical-Scientific Commission of Ecuador (14 Apr. 2004) (describing the process for detecting the locations of coca crops, and carrying out aerial spraying operations accordingly). EM, Vol. II, Annex 63; United States Department of State, Bureau for International Narcotics and Law Enforcement Affairs, *Report on Issues Related to the Aerial Eradication of Illicit Coca in Colombia: Chemicals Used in the Aerial Eradication of Illicit Coca in Colombia and Conditions of Application* (Sep. 2002), p. 3–4 (describing the use of an airborne camera system and global positioning systems (GPS) equipment for planning and reconnaissance that includes the programming of flight lines). EM, Vol. III, Annex 144.

Channel case the Court concluded that Albania knew of the existence of a minefield and the risk to shipping because of the “close Albanian surveillance over the Strait”⁶⁶⁷. The same inference about Colombia’s knowledge of the risk to Ecuador can be drawn in this case.

8.35 The Government of Colombia was fully aware that planes operating from Colombian territory were carrying out spraying operations in a manner that would inevitably result in harm or a risk of harm to Ecuador. In those circumstances, due diligence requires Colombia to provide adequate and timely warning to Ecuador, a State likely to be affected: see the *Corfu Channel* case⁶⁶⁸, and Principle 19 of the 1992 Rio Declaration on Environment and Development⁶⁶⁹, as codified in various treaties⁶⁷⁰.

8.36 In alleging that Colombia has failed to exercise due diligence with respect to herbicide spraying, Ecuador is not arguing that spraying must not take place at all within Colombian territory. In the present case Ecuador’s argument is precisely -- and simply -- that Colombia manifestly failed to take all the appropriate precautionary measures within its power to prevent transboundary drift from causing significant harm in Ecuador.

⁶⁶⁷ *Corfu Channel, Judgment I.C.J. Reports 1949*, p. 22.

⁶⁶⁸ “The obligations incumbent upon the Albanian authorities consisted in notifying for the benefit of shipping in general, the existence of a minefield in Albanian territorial waters and in warning the approaching British warships of imminent danger to which the minefield exposed them.” *Corfu Channel, Judgment I.C.J. Reports 1949*, p. 22.

⁶⁶⁹ Principle 19 provides: “States shall provide prior and timely notification and relevant information to potentially affected states on activities that may have a significant adverse transboundary environmental effect and shall consult with those states at an early stage and in good faith.”

⁶⁷⁰ See 1992 Convention on Biological Diversity, Article 14(c) & (d); 1992 Convention on Transboundary Effects of Industrial Accidents, especially Art. 4; 1979 Geneva Convention on Long-Range Transboundary Air Pollution, Arts. 5 & 8; 1986 Convention on Early Notification of a Nuclear Accident, especially Art. 2.

8.37 For all these reasons, Colombia is in breach of its obligation in international law to take all appropriate measures to prevent aerial spraying of herbicides from resulting in significant and foreseeable harmful effects on (a) the health, livelihood, private and family life, and property of affected persons in the territory of Ecuador and (b) the environment and natural resources, including biodiversity and ecosystems, in the territory of Ecuador. These effects have been fully detailed in Chapter VI of this Memorial.

Section II. Cooperation in Managing the Transboundary Effects of Aerial Spraying of Herbicides

A. ECUADOR'S CLAIM WITH RESPECT TO COOPERATION

8.38 Cooperation provides the essential basis for the management of transboundary risks. The obligation of States to cooperate through notification, consultation and negotiation permeates the ILC's 2001 Articles on Prevention of Transboundary Harm⁶⁷¹ and the 1992 Rio Declaration on Environment and Development⁶⁷². It is very clearly articulated in the *Lake Lanoux Arbitration*⁶⁷³, and in various regional treaties, including the 1991 UNECE Convention on EIA

⁶⁷¹ *ILC Report* (2001), *op. cit.*, p. 366.

⁶⁷² *See* Principles 7, 9, 12, 13, 14, 18, 19, 27.

⁶⁷³ *Lac Lanoux Arbitration (Spain v. France)*, 24 *ILR* 101 (1957). *See also Gabčíkovo-Nagymaros, I.C.J. Reports 1997*, paras. 140-147.

in a Transboundary Context⁶⁷⁴. It is the foundation for equitable utilisation, management, and conservation of shared natural resources⁶⁷⁵, including the law of international watercourses⁶⁷⁶.

8.39 The ILC Articles on Prevention of Transboundary Harm specifically require States to cooperate in negotiating an equitable balance of interests. Article 9 provides:

1. The States concerned shall enter into consultations, at the request of any of them, with a view to achieving acceptable solutions regarding measures to be adopted in order to prevent significant transboundary harm or at any event to minimize the risk thereof. The States concerned shall agree, at the commencement of such consultations, on a reasonable time-frame for the consultations.
2. The States concerned shall seek solutions based on an equitable balance of interests in the light of article 10.
3. If the consultations referred to in paragraph 1 fail to produce an agreed solution, the State of origin shall nevertheless take into account the interests of the State likely to be affected in case it decides to authorize the activity to be pursued, without prejudice to the rights of any State likely to be affected.

8.40 In this section Ecuador will show that Colombia has not cooperated as required by international law in managing the transboundary risks and effects of its aerial spraying programme, specifically by:

⁶⁷⁴ See especially Arts. 2-5, 8.

⁶⁷⁵ See UNEP, *1978 Principles of Conduct in the Field of the Environment for Guidance of States in the Conservation and Harmonious Utilization of Natural Resources Shared by Two or More States* (hereinafter, “UNEP Environmental Law Guidelines and Principles”), available at <http://www.unep.org/Law/PDF/UNEPEnvironmental-Law-Guidelines-and-Principles.pdf> (last visited 26 Mar. 2009).

⁶⁷⁶ See in particular 1997 U.N. Convention on the Non-Navigational Uses of International Watercourses, especially Arts. 8, 20-23.

- (a) Failing to assess the potential transboundary effects of aerial spraying of herbicides on the territory, people and environment of Ecuador;
- (b) Failing to ensure that communities in Ecuador likely to be affected by aerial spraying of herbicides have been informed and consulted; and
- (c) Failing to cooperate with Ecuador in the control of transboundary risks arising from the aerial spraying of herbicides, *inter alia* by refusing to share information on the chemicals in use and their likely effects on public health and the environment.

B. COLOMBIA FAILED TO ASSESS THE POTENTIAL TRANSBOUNDARY EFFECTS OF AERIAL SPRAYING

8.41 Without an environmental impact assessment (“EIA”) there can be no meaningful notification, consultation and cooperation with neighbouring States, nor can adequate steps be taken to protect communities likely to be affected⁶⁷⁷. The evidence set out in earlier chapters of this Memorial shows that Colombia (a) did not properly assess in advance the potential impact of its aerial spraying operations on the territory, people, natural resources and environment of Ecuador⁶⁷⁸, (b) did not give Ecuador information about the potential risk to Ecuador posed by the spraying⁶⁷⁹, and (c) did not inform or consult communities in Ecuador likely to be affected by the spraying, nor did it give warnings when spraying was imminent, despite assurances that such warning would be given⁶⁸⁰.

⁶⁷⁷ See *infra* paras. 8.43-8.54.

⁶⁷⁸ See *supra* Chap. III, paras. 3.28–3.44; Chap. V, paras. 5.25–5.26, 5.70–5.72.

⁶⁷⁹ See *supra* Chap. III, paras. 3.9–3.10, 3.13, 3.16, 3.28–3.44.

⁶⁸⁰ See *supra* Chap. III, paras. 3.2-3.3, 3.21, 3.25, 3.44-3.45.

8.42 Colombia itself has recognised that an adequate environmental impact assessment was not carried out in this case: see report of the Colombian Comptroller General (2003): “Neither the Government of the United States or the Government of Colombia has presented an adequate evaluation of the possible impacts for human health and ecosystems caused by the spray mixtures that are being sprayed under the conditions of direct exposure that occur in Colombia.”⁶⁸¹ As noted in Chapter II, Colombian Ministry of Environment Resolution 0670 (19 June 2003) sanctioned the National Narcotics Directorate (“DNE”) for refusing to carry out environmental impact evaluations during the aerial spraying campaigns, for designing environmental audits that did not evaluate the effectiveness of environmental mitigation measures, and for failing to evaluate the potential environmental damage caused by aerial fumigation⁶⁸².

8.43 International law provides that activities likely to cause significant transboundary pollution or harm must be subject to EIA by the State in which these activities are to be conducted: see, in particular, Article 7 of the 2001 ILC Articles on Prevention of Transboundary Harm, which state: “Any decision in respect of the authorization of an activity within the scope of the present articles shall, in particular, be based on an assessment of the possible transboundary harm caused by that activity, including any environmental impact assessment.”⁶⁸³

8.44 The ILC Commentary to Article 7 notes that EIA requirements in various forms are found in many international agreements, and that “The practice of requiring an environmental impact assessment has become very prevalent in order

⁶⁸¹ See *Comptroller General Fourth Evaluation Report, op. cit.*, p. 36. EM, Vol. II, Annex 98.

⁶⁸² See *supra* Chap. II, para. 2.48.

⁶⁸³ *ILC Report (2001), op. cit.*, p. 402, Art. 7.

to assess whether a particular activity has the potential of causing significant transboundary harm”⁶⁸⁴. ILC Article 7 is based on Principle 17 of the 1992 Rio Declaration on Environment and Development⁶⁸⁵, and the ILC Commentary refers extensively to the 1991 UNECE Convention on EIA in a Transboundary Context for guidance⁶⁸⁶.

8.45 At least five ICJ or ITLOS cases have involved alleged failures to undertake a transboundary EIA⁶⁸⁷. In some of these cases there are explicit treaty articles, while in others customary law or “evolutionary interpretation” are relied upon. These judgments provide evidence of State practice which points consistently in the direction of recognising that where proposed activities are likely to have harmful impacts on human health, property or the natural environment, an EIA directed at transboundary impacts is a necessary preliminary to consultation and cooperation with other potentially affected States. *Gabčíkovo-Nagymaros* remains the most significant case⁶⁸⁸. Here it was alleged that an EIA had not been carried out before construction of a hydroelectric project. The

⁶⁸⁴ *Ibid.*, p. 403, para. 4.

⁶⁸⁵ *Ibid.*, p. 402, para. 3. Principle 17 provides: “Environmental impact assessment, as a national instrument, shall be undertaken for proposed activities that are likely to have a significant impact on the environment and are subject to a decision of a competent national authority.” Both Ecuador and Colombia were parties to the consensus by which the Rio Declaration was adopted. Colombia recognizes environmental impact assessments as the “basic instrument for decision-making with respect to construction projects and other activities that significantly affect the environment”. Colombian Ministry of Environment, Law No. 99 (22 Dec. 1993), Art. 1.11. EM, Vol. II, Annex 12. This analysis must include “information about the location of the project and the biotic, abiotic, and socioeconomic elements that may suffer damage from the project or activity ... and an evaluation of the impacts that may occur. Also required are plans for prevention, mitigation, correction, and compensation of the impacts and an environmental management plan for the project or activity.” *Ibid.* Art. 57. Some projects require an alternatives analysis. *Ibid.*, Art. 56.

⁶⁸⁶ *ILC Report* (2001), *op. cit.*, p. 402, para. 3.

⁶⁸⁷ *Request for an Examination of the Situation, I.C.J. Reports 1995*, 288; *Gabčíkovo-Nagymaros, I.C.J. Reports 1997*; *MOX Plant Case, ITLOS No. 10* (2001); *Land Reclamation Case, ITLOS No. 12* (2003); *Pulp Mills Case (Argentina v. Uruguay), I.C.J. Reports 2006*.

⁶⁸⁸ *Gabčíkovo-Nagymaros Case, op. cit.*

judgment stresses that new environmental norms and standards have to be taken into account “not only when States contemplate new activities but also when continuing activities begun in the past”⁶⁸⁹. That proposition is equally apt when applied to repeated aerial spraying of toxic chemicals over a seven-year period.

8.46 Even without this evidence of State practice, if States fail to conduct an EIA before carrying out projects likely to result in significant transboundary harm, they cannot subsequently argue that they acted with due diligence in controlling or preventing harm that should and could have been foreseen and prevented⁶⁹⁰.

8.47 Principle 17 of the Rio Declaration calls for an EIA to be undertaken for “proposed activities that are likely to have a significant adverse impact on the environment”. In accordance with the precautionary principle⁶⁹¹, Principle 17 sets a low threshold of proof when deciding whether an EIA is necessary. Most treaties adopt similar formulations⁶⁹². Article 7 of the ILC’s Articles on Prevention of Transboundary Harm refers merely to “possible transboundary harm”. Article 206 of the 1982 UN Convention on the Law of the Sea requires only “reasonable grounds for believing that planned activities ... *may* cause

⁶⁸⁹ *Ibid.*, para. 140.

⁶⁹⁰ *See supra* paras. 8.18-8.37.

⁶⁹¹ Principle 15, 1992 Rio Declaration on Environment and Development: “In order to protect the environment, the precautionary approach shall be widely applied by states according to their capabilities. Where there are threats of serious or irreversible damage, lack of full scientific certainty shall not be used as a reason for postponing cost-effective measures to prevent environmental degradation.” *See also* paras. 8.24 *et seq.*

⁶⁹² ILC, 2001 Articles on Transboundary Harm, Arts. 1, 2(a), 7; 1987 UNEP Goals and Principles of Environmental Impact Assessment (hereinafter “1987 UNEP Goals and Principles of EIA”), Principle 1; 1982 UNCLOS, Art. 206; 1991 Convention on Transboundary EIA, Art. 2(3); 1992 Convention on Biological Diversity, Art. 14.

substantial pollution of or significant harmful changes to the marine environment...”⁶⁹³

8.48 The practice of the parties in *MOX Plant* and *Pulp Mills* similarly shows that, where activities with a known risk of potentially significant pollution are involved, the necessity of an EIA can be presumed, even if the likely risk is a small one⁶⁹⁴. In two cases the ITLOS found that the risk of harm to the marine environment “could not be excluded”⁶⁹⁵: in *Land Reclamation* it expressly ordered the parties to assess the risks and effects of the works, while in *Southern Bluefin Tuna* its order allowed catch quotas to be increased by agreement only after further studies of the state of the stock. The outcome in these cases shows that an EIA must be undertaken if there is some evidence of a risk of significant harm to the human or natural environment – even if the risk is uncertain and the potential harm not necessarily irreparable. They demonstrate that Colombia should have carried out an EIA before commencing spraying operations likely to affect Ecuador.

8.49 An EIA should at minimum produce information about the possible impact on persons, property and the environment of other States⁶⁹⁶. The 1991 Convention on Transboundary EIA and the United Nations Environmental Programme’s (“UNEP”) EIA Goals and Principles specify in detail the type of information which an EIA should contain. This includes a description of the

⁶⁹³ Emphasis added.

⁶⁹⁴ *MOX Plant Case, Provisional Measures Judgment*, ITLOS No. 10 (2001); *Pulp Mills Case (Argentina v. Uruguay), Provisional Measures Judgment*, I.C.J. Reports 2006.

⁶⁹⁵ *Southern Bluefin Tuna, Provisional Measures Judgment*, ITLOS Nos. 3 & 4 (1999), para. 79; *Land Reclamation, Provisional Measures Judgment*, ITLOS No. 12 (2003), para. 96.

⁶⁹⁶ *ILC Report* (2001), *op. cit.*, p. 405, paras. 7 & 8.

activity and its likely impact, mitigation measures and practical alternatives, and any uncertainties in the available knowledge⁶⁹⁷.

8.50 At no point did Colombia produce information of this kind, nor did it inform Ecuador of the results of any assessments it undertook, nor did it respond adequately to Ecuador's repeated requests for information concerning environmental impact studies⁶⁹⁸. Such information should have been made available to Ecuador: see Principle 19 of the 1992 Rio Declaration on Environment and Development⁶⁹⁹, Principle 12 of UNEP's EIA Principles⁷⁰⁰ and Article 3(2) and (5) of the 1991 UNECE Convention on EIA in a Transboundary Context⁷⁰¹. It follows that Ecuador was at no time properly or adequately

⁶⁹⁷ 1987 UNEP Goals and Principles of EIA, *op. cit.*, Principle 4; 1991 Convention on Transboundary EIA, Art. 4(1) and Appendix II.

⁶⁹⁸ See *supra* Chap. III, Sec. I, "Ecuador's Early Protests and Requests for Information: 2000-2002," and II, "The First Joint Scientific Commission and Colombia's Continued Failure to Provide Info: 2003-2004."

⁶⁹⁹ Principle 19 provides: "States shall provide prior and timely notification and relevant information to potentially affected States on activities that may have significant adverse transboundary environmental effect and shall consult with those States at an early stage and in good faith."

⁷⁰⁰ Principle 12 provides: "When information provided as part of an EIA indicates that the environment within another State is likely to be significantly affected by a proposed activity, the State in which the activity is being planned should, to the extent possible: (a) Notify the potentially affected state of the proposed activity; (b) Transmit to the potentially affected State any relevant information from the EIA, the transmission of which is not prohibited by national laws or regulations; (c) When it is agreed between the States concerned, enter into timely consultations."

⁷⁰¹ Article 3(2) provides: "This notification shall contain, inter alia: (a) Information on the proposed activity, including any available information on its possible transboundary impact; (b) The nature of the possible decision; and (c) An indication of a reasonable time within which a response under paragraph 3 of this Article is required, taking into account the nature of the proposed activity; and may include the information set out in paragraph 5 of this Article." Article 3(5) provides: "Upon receipt of a response from the affected Party indicating its desire to participate in the environmental impact assessment procedure, the Party of origin shall, if it has not already done so, provide to the affected Party: (a) Relevant information regarding the environmental impact assessment procedure, including an indication of the time schedule for transmittal of comments; and (b) Relevant information on the proposed activity and its possible significant adverse transboundary impact."

informed about the risk posed by the spraying of toxic herbicides in border areas and over Ecuadorian territory.

8.51 Information on the herbicide spraying programme should also have been made available to Ecuador in accordance with Article 14 of the 1992 Convention on Biological Diversity. Article 14(1)(a) requires parties to carry out an environmental impact assessment of projects “that are likely to have significant adverse effects on biological diversity...” Given the evidence of risk it poses to biodiversity, aerial spraying of toxic herbicides on the scale undertaken by Colombia clearly constitutes such a project⁷⁰². Notification of the significant risk of harm to biodiversity posed by herbicide spraying in border areas adjacent to Ecuador also falls within the terms of Articles 14(1)(c) and (d)⁷⁰³. Interpreted in accordance with the precautionary principle, and in the circumstances of the present dispute, compliance with all of these requirements was both “possible and appropriate”, within the terms of the chapeau to Article 14.

8.52 Colombia has recognized such obligations by incorporating them into its Environmental Code, which provides for “prior and reciprocal communication” with bordering States regarding actions taken in one State that may harm the environmental rights or interests of another State. Such communication must be made with sufficient advance notice so that the governments involved can address

⁷⁰² See *supra* Chap. V, paras. 5.59–6.72.

⁷⁰³ Article 14(1)(c) provides for the parties to “Promote, on the basis of reciprocity, notification, exchange of information and consultation on activities under their jurisdiction or control *which are likely to significantly affect adversely the biological diversity of other States or areas beyond the limits of national jurisdiction*, by encouraging the conclusion of bilateral, regional or multilateral arrangements, as appropriate.” Emphasis added. Article 14(1)(d) requires that contracting parties shall “In the case of imminent or grave danger or damage, originating under its jurisdiction or control, to biological diversity within the area under jurisdiction of other States or in areas beyond the limits of national jurisdiction, *notify immediately the potentially affected States of such danger or damage ...*” Emphasis added.

the situation⁷⁰⁴. The Code also calls for “reciprocal and permanent” exchange of information to facilitate the management of shared resources⁷⁰⁵. Shared resources include: rivers and other water bodies that make up Colombia’s frontier, forests, species, and the atmosphere⁷⁰⁶.

8.53 In the present case the harmful consequences of spraying the toxic herbicide mixture used by Colombia on people, crops, animals, biodiversity and watercourses were predictable, and stringent warnings about the risks of improper application were widely disseminated in the manufacturers’ labelling⁷⁰⁷. No government could prudently or responsibly undertake widespread aerial spraying of such a compound in border areas without considering the possible impact on neighbouring States or giving them adequate information about its spraying programme.

⁷⁰⁴ Republic of Colombia, *Decree No. 2811, National Code of Renewable Natural Resources and Environmental Protection* (18 Dec. 1974), Art 10(b). EM, Vol. II, Annex 10. (“PART II: ON ENVIRONMENTAL ISSUES OF INTERNATIONAL SCOPE OR INFLUENCE. Article 10: To prevent or solve environmental problems and to regulate the use of renewable natural resources shared with bordering countries, and without prejudice to the treaties currently in force, the government shall seek to complement the existing stipulations or to negotiate others which deal with: ... (b) The reciprocation and prior communication of alterations or environmental imbalances which can arise from works or projected works of the governments or inhabitants of the respective countries, far enough in advance that said governments can take the pertinent actions when they believe their environmental rights and interests could suffer impairment.”).

⁷⁰⁵ *Ibid.*, Art. 10(a) (“The reciprocation and permanent exchange of necessary information for the planning of development and the optimal use of said resources and elements.”).

⁷⁰⁶ *Ibid.*, Art. 11 (“Natural resources subject to the provisions referred to in the preceding article are, among others, the following: (a) The hydrographic basins of rivers which serve as borders or which cross the borders of Colombia, including surface and subterranean water and other natural connecting flows; (b) The forests on both sides of a border; (c) The fauna species in which Colombia and neighboring countries have an interest; (d) National ocean waters and the elements they contain; (e) The atmosphere, in as much as already verified acts or projected acts in a country can produce harmful effects to the neighbor, or harmful climate changes; (f) The geothermic deposits which extend to both sides of a border.”).

⁷⁰⁷ *See supra* Chap. V. “The Dangers Presented by Colombia’s Aerial Spraying of Herbicides.”

8.54 In these circumstances, whatever the threshold standard for requiring an EIA may be, Colombia cannot plausibly maintain that significant harm to Ecuador was not likely. It should have carried out an EIA first, and communicated the results to Ecuador, in accordance with the requirements of international law set out above. In failing to do so it has violated its duty to assess transboundary risks, has failed to act with due diligence, and has failed to cooperate with Ecuador as required by international law.

C. COLOMBIA FAILED TO ENSURE THAT COMMUNITIES IN ECUADOR LIKELY TO BE AFFECTED BY AERIAL SPRAYING WERE INFORMED AND CONSULTED

8.55 In addition to its failure to carry out an EIA or inform Ecuador of the results, Colombia also neglected to ensure that persons in Ecuador likely to be affected by the aerial spraying were informed and consulted before spraying took place.

8.56 Steps should have been taken to do so before spraying commenced: see UNEP's EIA Goals and Principles, Principle 5 ("appropriate opportunity to comment on the EIA") and ILC, 2001 Articles on Prevention of Transboundary Harm, Article 13, which provides that "States concerned shall, by such means as are appropriate, provide the public likely to be affected by an activity within the scope of the present articles with relevant information relating to that activity, the risk involved and the harm which might result and ascertain their views."⁷⁰⁸ The ILC Commentary notes that Article 13 applies whether the public likely to be affected is their own or that of other States⁷⁰⁹. It makes clear that "the purpose of

⁷⁰⁸ *ILC Report (2001), op. cit.*, p. 422. See also 1998 Aarhus Convention on Access to Information, Public Participation in Decision-making and Access to Justice in Environmental Matters, Art. 6, which creates a broader right of public access to information, including EIA procedures.

⁷⁰⁹ *Ibid.* See also 1991 Convention on EIA in a Transboundary Context, Arts. 2(6) and 3(8).

providing information to the public is in order to allow its members to inform themselves and then to ascertain their views. Without that second step, the purpose of the article would be defeated”⁷¹⁰.

8.57 Moreover, compliance with international human rights law also necessitates notification to the public and participation in an “informed process” wherever environmental impacts may significantly affect life, health, private life or property⁷¹¹. The right to “meaningful consultation” in such circumstances was upheld by the Inter-American Commission on Human Rights in the *Maya Indigenous Community of Toledo Case*⁷¹², by the African Commission on Human and Peoples Rights in the *Ogoniland Case*⁷¹³, and by the UN Human Rights Committee⁷¹⁴. In *Öneryildiz v. Turkey*, the European Court of Human Rights placed “particular emphasis” on the public’s right to information about dangerous activities which posed a threat to life⁷¹⁵.

⁷¹⁰ *Ibid.*, p. 422, para. 1.

⁷¹¹ *Taskin v. Turkey*, 42 EHRR 50 (2006), paras. 118-119.

⁷¹² *Maya Indigenous Communities of the Toledo District v. Belize, Judgment*, Inter-American Commission on Human Rights, Report N° 40/04, Case 12.053 (12 Oct. 2004), paras. 154-155, available at <http://www1.umn.edu/humanrts/cases/40-04.html> (last visited 26 Mar. 2009). The Commission relies inter alia on the right to life and the right to private life, in addition to finding consultation a “fundamental component of the State’s obligations in giving effect to the communal property right of the Maya people in the lands that they have traditionally used and occupied.”

⁷¹³ *Social and Economic Rights Action Center and the Center for Economic and Social Rights v. Nigeria*, ACHPR Comm. 155/96 (2002).

⁷¹⁴ *Ilmari Lansman et al. v. Finland*, ICCPR Comm. No. 511/1992 (1996), para. 9.5, which stresses the need “to ensure the effective participation of members of minority communities in decisions which affect them”. See also *Apirana Mahuika et al. v. New Zealand*, ICCPR Comm. No. 547/1993 (2000), para. 9.8. See also ILO Convention No. 169 Concerning Indigenous and Tribal Peoples.

⁷¹⁵ *Öneryildiz v. Turkey*, (2004) ECHR 657, para. 90.

8.58 Where governments engage in or permit dangerous activities with known consequences for health, such as aerial spraying of toxic herbicides, there is a duty to establish an “effective and accessible” procedure for allowing those who may be affected to obtain relevant information⁷¹⁶. That plainly did not happen in the present case, where despite repeated attempts to extract information from Colombia it still refuses to disclose precisely what chemical compound it uses in the spraying.

8.59 In appropriate cases -- of which this is undoubtedly one -- there is also a duty to inform the public likely to be affected, not simply a right of access to information. In *Guerra v. Italy*, the failure to provide “essential information” about the severity and nature of toxic emissions from a chemical plant was held to constitute a breach of the right to private life⁷¹⁷. The judgment noted that the applicants were “particularly exposed to danger” in the event of an accident at the factory, and there had been a violation of Italian legislation requiring that information concerning hazardous activities be made public. In the present case, also involving exposure to toxic chemicals, inhabitants of Ecuadorian border areas affected by aerial spraying of herbicides are likewise “particularly exposed to danger”. They should have been informed accordingly by Colombia.

8.60 The right to information and public participation in EIA and authorisation processes outlined in the ILC articles and in the case law referred to above also draws inspiration both from Principle 10 of the 1992 Rio Declaration on

⁷¹⁶ *McGinley and Egan v. United Kingdom*, (1998) III ECHR, paras. 97, 101; *LCB v. UK* (1999) 27 EHRR 212.

⁷¹⁷ *Guerra v. Italy*, (1998) 26 EHRR 357, para. 60.

Environment and Development⁷¹⁸, and from the 1998 Aarhus Convention on Access to Information, Public Participation in Decision-making and Access to Justice in Environmental Matters which gives effect to Principle 10⁷¹⁹. As Kofi Annan, when he was Secretary-General of the UN, observed: “Although regional in scope, the significance of the Aarhus Convention is global. [I]t is the most ambitious venture in the area of ‘environmental democracy’ so far undertaken under the auspices of the United Nations.”⁷²⁰ In his view the Convention has the “potential to serve as a global framework for strengthening citizens’ environmental rights”⁷²¹.

8.61 Of particular relevance is Article 5(1)(c) of the 1998 Aarhus Convention, which provides: “In the event of any imminent threat to human health or the environment, whether caused by human activities or due to natural causes, all information which could enable the public to take measures to prevent or mitigate harm arising from the threat and is held by a public authority is disseminated immediately and without delay to members of the public who may be affected.” This provision succinctly codifies the human rights standards relied upon in the cases cited in paragraphs 8.57 to 8.59 above.

⁷¹⁸ Principle 10 provides: “Environmental issues are best handled with the participation of all concerned citizens, at the relevant level. At the national level, each individual shall have appropriate access to information concerning the environment that is held by public authorities, including information on hazardous materials and activities in their communities, and the opportunity to participate in decision-making processes. States shall facilitate and encourage public awareness and participation by making information widely available. Effective access to judicial and administrative proceedings, including redress and remedy, shall be provided.”

⁷¹⁹ See in particular Arts. 4-7, and commentary in UNECE, *The Aarhus Convention-An Implementation Guide* (New York, 2000), available at <http://www.unece.org/env/pp/acig.pdf> (last visited 26 Mar. 2009).

⁷²⁰ Kofi Annan, “Foreword”, UNECE, *The Aarhus Convention-An Implementation Guide* (New York, 2000), available at <http://www.unece.org/env/pp/acig.pdf> (last visited 26 Mar. 2009).

⁷²¹ *Ibid.*

8.62 Taken together, these precedents show that Colombia failed in its duty to inform and consult those likely to be affected by its aerial spraying activities, violating both the requirements of customary international law with respect to environmental impact assessment and the rights of those Ecuadorians whose health, private life and property have been harmed or put at risk.

D. COLOMBIA FAILED TO COOPERATE IN THE CONTROL OF TRANSBOUNDARY RISKS ARISING FROM AERIAL SPRAYING

8.63 Much of the damage inflicted on Ecuador by aerial spraying could have been avoided or minimised had Colombia cooperated with Ecuador at the outset, particularly by notifying it of the intended operation, sharing information on the chemicals in use and their likely effects on public health and the environment, and consulting on ways to reduce or eliminate the risk to Ecuadorian territory and its inhabitants. In practice, Colombia failed to cooperate in any of these ways. It has already been shown in the previous Section that Colombia did not provide Ecuador with prior and timely notification concerning the spray mixture or the locations to be sprayed. It is equally the case that Colombia failed to consult with Ecuador as required by international law at an early stage, or in good faith, or at all⁷²².

8.64 The fundamental rule that States must cooperate to minimise and reduce the risk of transboundary harm emanating from activities located within their territory, jurisdiction or control is set out in Principle 19 of the 1992 Rio Declaration on Environment and Development: “States shall provide prior and timely notification and relevant information to potentially affected states on activities that may have a significant adverse transboundary environmental effect and shall consult with those states at an early stage and in good faith.”

⁷²² See *supra* Chap. III. “The Diplomatic History of the Dispute.”

8.65 Principle 19 codifies an established rule of customary international law relating to transboundary risks. It draws upon case law, State practice, and multilateral treaties. The *Lake Lanoux Arbitration*⁷²³ shows how the requirement to cooperate in managing transboundary risk has been applied to international watercourses. The tribunal held that France had obligations under both treaty and customary law to consult and negotiate in good faith before diverting a watercourse shared with Spain. It noted that conflicting interests must be reconciled by negotiation and mutual concession⁷²⁴. France had to give a reasonable place to Spain's interests in the solution finally adopted⁷²⁵.

8.66 The same requirements are found in the codification of the law of international watercourses drafted by the ILC and adopted in 1997 as the UN Convention on the Law of Non-Navigational Uses of International Watercourses: see in particular Articles 12 (Notification concerning planned measures with possible adverse effects)⁷²⁶ and 17 (Consultations and negotiations concerning planned measures)⁷²⁷.

⁷²³ *Lac Lanoux Arbitration (Spain v. France)*, 24 *ILR* 101 (1957).

⁷²⁴ *Ibid.*, 119.

⁷²⁵ *Ibid.*, 128-130, 140-141.

⁷²⁶ Art. 12 provides: "Before a watercourse State implements or permits the implementation of planned measures which may have a significant adverse effect upon other watercourse States, it shall provide those States with timely notification thereof. Such notification shall be accompanied by available technical data and information, including the results of any environmental impact assessment, in order to enable the notified States to evaluate the possible effects of the planned measures."

⁷²⁷ Art. 17 provides: "1. If a communication is made under article 15 that implementation of the planned measures would be inconsistent with the provisions of articles 5 or 7, the notifying State and the State making the communication shall enter into consultations and, if necessary, negotiations with a view to arriving at an equitable resolution of the situation. 2. The consultations and negotiations shall be conducted on the basis that each State must in good faith pay reasonable regard to the rights and legitimate interests of the other State. 3. During the course of the consultations and negotiations, the notifying State shall, if so requested by the notified State at the

8.67 The ILC's 2001 Articles on Prevention of Transboundary Harm refer to Rio Principle 19 and apply the same requirement of cooperation when another State is at risk of transboundary harm. Several ILC articles are relevant. Article 4 requires cooperation in good faith⁷²⁸. Article 8 requires that the contents of any EIA indicating a risk of significant transboundary harm be communicated to the affected States⁷²⁹. Article 9 requires consultations on preventive measures⁷³⁰. Finally, Article 12 requires an ongoing exchange of information in a timely manner not only at the planning stage but also while the activity is being carried out⁷³¹. The obligation to cooperate is thus a continuing one.

8.68 The ILC Commentary notes that "The principle of cooperation between States is essential in designing and implementing effective policies to prevent

time it makes the communication, refrain from implementing or permitting the implementation of the planned measures for a period of six months unless otherwise agreed."

⁷²⁸ Art. 4 provides: "States concerned shall cooperate in good faith and, as necessary, seek the assistance of one or more competent international organizations in preventing significant transboundary harm or at any event in minimizing the risk thereof."

⁷²⁹ Art. 8 provides: "1. If the assessment referred to in article 7 indicates a risk of causing significant transboundary harm, the State of origin shall provide the State likely to be affected with timely notification of the risk and the assessment and shall transmit to it the available technical and all other relevant information on which the assessment is based. 2. The State of origin shall not take any decision on authorization of the activity pending the receipt, within a period not exceeding six months, of the response from the State likely to be affected."

⁷³⁰ Art. 9 provides: "1. The States concerned shall enter into consultations, at the request of any of them, with a view to achieving acceptable solutions regarding measures to be adopted in order to prevent significant transboundary harm or at any event to minimize the risk thereof. The States concerned shall agree, at the commencement of such consultations, on a reasonable time-frame for the consultations. 2. The States concerned shall seek solutions based on an equitable balance of interests in the light of article 10. 3. If the consultations referred to in paragraph 1 fail to produce an agreed solution, the State of origin shall nevertheless take into account the interests of the State likely to be affected in case it decides to authorize the activity to be pursued, without prejudice to the rights of any State likely to be affected."

⁷³¹ Art. 12 provides: "While the activity is being carried out, the States concerned shall exchange in a timely manner all available information concerning that activity relevant to preventing significant transboundary harm or at any event minimizing the risk thereof. Such an exchange of information shall continue until such time as the States concerned consider it appropriate even after the activity is terminated."

significant transboundary harm or at any event to minimize the risk thereof. The requirement of cooperation of States extends to all phases of planning and of implementation”⁷³². It explains that Article 8, together with Articles 9, 11, 12 and 13, provide for “a set of procedures essential to balancing the interests of all the States concerned by giving them a reasonable opportunity to find a way to undertake the activity with satisfactory and reasonable measures designed to prevent or minimize transboundary harm”⁷³³. In the Commission’s view, “[t]he obligation to notify other States of the risk of significant harm to which they are exposed is reflected in the *Corfu Channel* case, where the International Court of Justice characterized the duty to warn as based on elementary considerations of humanity”⁷³⁴. Its commentary also draws upon Articles 3(1) and 5 of the 1991 Convention on Environmental Impact Assessment in a Transboundary Context⁷³⁵. The purpose of consultations, it explains, “is for the parties to find acceptable solutions regarding measures to be adopted in order to prevent significant transboundary harm, or at any event to minimize the risk thereof”⁷³⁶. Case law, multilateral and bilateral treaties, the 1988 Narcotics Convention, ILC codifications, and the Rio Declaration, as well as elementary considerations of humanity referred to in the *Corfu Channel* case, all point to the conclusion that neighbouring states have a duty in international law to cooperate in order to

⁷³² *ILC Report* (2001), *op. cit.*, p. 396, para. 1.

⁷³³ *Ibid.*, p. 406, para. 1.

⁷³⁴ *Ibid.*, p. 406, para. 3.

⁷³⁵ Art. 3(1) provides: “For a proposed activity listed in Appendix I that is likely to cause a significant adverse transboundary impact, the Party of origin shall, for the purposes of ensuring adequate and effective consultations under Article 5, notify any Party which it considers may be an affected Party as early as possible and no later than when informing its own public about that proposed activity.” Art. 5 provides, insofar as relevant: “The Party of origin shall, after completion of the environmental impact assessment documentation, without undue delay enter into consultations with the affected Party concerning, inter alia, the potential transboundary impact of the proposed activity and measures to reduce or eliminate its impact.”

⁷³⁶ *ILC Report* (2001), *op. cit.*, p. 411, para. 5.

control and minimize the risk of transboundary harm. They must give each other prior notice of the activity, provide adequate information about the substances used, and the risks to health, property or the environment. They must consult and negotiate in good faith in order to identify means of preventing or minimizing the risk of transboundary harm. Moreover, even if *quod non* notification and consultation in cases of transboundary risk are not independent customary rules, non-compliance with them is strong evidence of a failure to act diligently in protecting other States from harm under Rio Principle 2⁷³⁷.

8.69 It is clear from the evidence that when a herbicide with the toxicity of the likely chemicals used by Colombia is sprayed from the air along or near a border, it is likely to fall and has fallen on Ecuador and cause pollution damage and ill health. The point has already been made earlier that this outcome was foreseeable and that Colombia knew of the probable consequences. Colombia cannot plausibly argue that in these circumstances it had no duty to notify, consult and cooperate with Ecuador in managing the likely risk.

8.70 Chapter III shows clearly that in the course of Ecuador's repeated attempts to negotiate a solution Colombia did not cooperate in good faith. Despite agreeing to do so, it failed to supply information when requested⁷³⁸. Despite an express undertaking to give advance notification when further spraying operations in the vicinity of the border were planned it failed to do so⁷³⁹. When Ecuador protested, Colombia merely reiterated its intention to continue spraying up to and

⁷³⁷ Phoebe N. Okowa, "Procedural Obligations in International Environmental Agreements", 67 *BYIL* (1996), 332-334; *See also supra*, paras. 8.38 et seq.

⁷³⁸ *See* Chap. III, paras. 3.1-3.3, 3.9, 3.17, 3.21, 3.28-3.30.

⁷³⁹ *See* Chap. III, paras. 3.3, 3.21, 3.25, 3.44-3.45.

along the border⁷⁴⁰. Meetings between the foreign ministers of the two States did not result in agreement to suspend or modify the spraying operations, and spraying continued⁷⁴¹. Although Colombia did eventually agree to establish a bilateral scientific commission to investigate the matter, when the commission met Colombia took the firm position from the outset that the aerial spray did not cross over into Ecuador, and could not be the cause of any harmful trans-boundary effects⁷⁴². The Commission's meetings were futile.

Section III. Cooperation and Respect for Fundamental Human Rights and Protection of the Environment as Required by the 1988 Narcotics Convention.

8.71 Cooperation between State Parties is also required when carrying out drug eradication programmes in accordance with the 1988 Narcotics Convention. The parties to this Convention recognise “that eradication of illicit traffic is a collective responsibility of all States and that, to that end, co-ordinated action within the framework of international cooperation is necessary” (Preamble). Article 14(3)(b) provides that “The Parties shall also facilitate the exchange of scientific and technical information and the conduct of research concerning eradication.” Article 14(3)(c) provides that “Whenever they have common frontiers, the Parties shall seek to cooperate in eradication programmes in their respective areas along those frontiers.” Article 14(2) provides: “Each Party shall take appropriate measures to prevent illicit cultivation of and to eradicate plants containing narcotic or psychotropic substances, such as opium poppy, coca bush and cannabis plants, cultivated illicitly in its territory. The measures adopted shall

⁷⁴⁰ See Chap. III, paras. 3.14-3.15, 3.17, 3.26.

⁷⁴¹ See Chap. III, paras. 3.28-3.44.

⁷⁴² See *supra* Chap. III, para. 3.73.

respect fundamental human rights and shall take due account of traditional licit uses, where there is historic evidence of such use, as well as the protection of the environment.”

8.72 Colombia has failed to comply with these provisions when carrying out aerial spraying of toxic herbicides adjacent to its common border with Ecuador. As detailed in Chapter III, it has not facilitated the exchange of scientific and technical information concerning the impact of the toxic herbicides it uses to spray border areas. In particular, the composition of the herbicide compound remains unknown to Ecuador, and Colombia has failed to communicate the contents of the impact assessment studies it should have undertaken⁷⁴³. Chapter III shows clearly that Colombia has also not cooperated in respect of its eradication programme along the common frontier.

8.73 Nor has Colombia respected “fundamental human rights” or “protection of the environment” as required by Article 14(2). Interpreted “in accordance with the ordinary meaning” and “in the light of its object and purpose” (as required by Article 31(1) of the Vienna Convention on the Law of Treaties), it seems clear that the phrase “respect for fundamental human rights ... as well as protection of the environment” used in Article 14(2) is intended to incorporate the relevant requirements of international environmental law set out in this Chapter and, with respect to human rights, in the following Chapter.

8.74 In this respect Article 14(2) may be compared to the 1977 Treaty between Hungary and Czechoslovakia which formed the subject matter of the dispute in

⁷⁴³ See *supra* Chap. III, paras. 3.7, 3.30-3.35, 3.39, 3.41-3.42.

the *Gabčíkovo-Nagymaros* case⁷⁴⁴. It was stipulated in Article 19 of the 1977 Treaty that “The Contracting Parties shall, through the means specified in the joint contractual plan, ensure compliance with the obligations for the protection of nature arising in connection with the construction and operation of the System of Locks.” The Court held that there was “a continuing -- and thus necessarily evolving -- obligation on the parties to maintain the quality of the water of the Danube and to protect nature”⁷⁴⁵. Equally in the present case there is a continuing and necessarily evolving duty to protect Ecuador from environmental harm in accordance with the terms of Article 14(2).

8.75 For this purpose applicable treaties and relevant rules of international law referred to in the previous Sections of this Chapter must also be taken into account in accordance with Article 31(3)(c) of the Vienna Convention on the Law of Treaties. The terms within which “evolutionary interpretation” is permissible under Article 31(3)(c) have been elaborated in the Court’s jurisprudence. While accepting “the primary necessity of interpreting an instrument in accordance with the intentions of the parties at the time of its conclusion,” treaties are to be “interpreted and applied within the framework of the entire legal system prevailing at the time of the interpretation.”⁷⁴⁶ Thus, the Court’s approach in cases such as the *Namibia Advisory Opinion* and *Aegean Sea* is based on the view

⁷⁴⁴ *Gabčíkovo-Nagymaros*, I.C.J. Reports 1997.

⁷⁴⁵ *Ibid.*, para. 140.

⁷⁴⁶ *Legal Consequences for States of the Continued Presence of South Africa in Namibia (South West Africa) notwithstanding Security Council Resolution 276, Advisory Opinion*, I.C.J. Reports 1971, p. 16, 31; *Aegean Sea Continental Shelf (Greece v. Turkey)*, I.C.J. Reports 1978, 3, 32-23; *Gabčíkovo-Nagymaros*, I.C.J. Reports 1997., paras. 140-141; *Oil Platforms (Islamic Rep. of Iran v. United States of America)*, Judgment, I.C.J. Reports 2003, paras. 40-41. See also *Iron Rhine Arbitration (Belgium v. Netherlands)*, PCA, 2005, paras. 49, 58, 81; *OSPAR Arbitration*, PCA (2003) paras. 101-105. The Court’s approach, combining both an evolutionary and an intertemporal element, reflects the ILC’s commentary to what became Art.31(3)(c). See ILC, “The Law of Treaties,” commentary to draft Article 27, para. (16), in A.D. Watts, *The International Law Commission 1949-1998* (Oxford, 1999), Vol. II, p. 690.

that the concepts and terms in question were by definition evolutionary⁷⁴⁷. These cases were concerned with the interpretation of particular provisions or phrases, such as “natural resources,” or “jurisdiction,” which necessarily import a reference to current general international law. Ambulatory incorporation of the existing law, whatever it may be, enables treaty provisions to change and develop as the general law itself changes, without the need for constant amendment. As the Court pointed out in the *Oil Platforms* case, such treaty provisions are not intended to operate independently of general international law⁷⁴⁸.

8.76 The WTO Appellate Body has given a similarly evolutionary interpretation to certain terms in the 1947 GATT Agreement. In the *Shrimp-Turtle* decision, for example, it referred *inter alia* to the 1992 Rio Declaration on Environment and Development, the 1982 UNCLOS, the 1973 CITES Convention, the 1979 Convention on Conservation of Migratory Species and the 1992 Convention on Biological Diversity in order to determine the present meaning of “exhaustible natural resources”⁷⁴⁹.

8.77 These precedents show how the Court should approach the interpretation of Article 14(2) of the 1988 Narcotics Convention. The terms “fundamental human rights” and “protection of the environment” cannot have been intended to operate independently of general international law. Nor, in accordance with the case law of the Court, would it be appropriate to interpret them as the law stood in 1988 rather than as the Court finds it today.

⁷⁴⁷ See also *Southwest Africa Case*, *I.C.J. Reports* 1966, p. 48; *La Bretagne Arbitration (Canada v. France)*, 82 ILR 591 (1986), paras. 37-51.

⁷⁴⁸ *Oil Platforms Case (Islamic Rep. of Iran v. United States of America)*, *Judgment*, *I.C.J. Reports* 2003, paras. 40-41.

⁷⁴⁹ *Import Prohibition of Certain Shrimp and Shrimp Products*, *Judgment*, WTO Appellate Body WT/DS58/AB/R (1998), paras. 130-131.

8.78 Moreover, given that eradication of drug-producing crops is regulated by an international treaty, it would be illogical to interpret Article 14(2) as if it required each party only to protect human rights and the environment within its own territory but not in neighbouring countries. As the UN Human Rights Committee observed in *Delia Saldias de López v. Uruguay*: “It would be unconscionable to so interpret the responsibility under article 2 of the Covenant as to permit a State party to perpetrate violations of the Covenant on the territory of another State, which violations it could not perpetrate on its own territory.”⁷⁵⁰ Ecuador does not object to Colombia exercising its right to eradicate drug-producing crops within its own territory, so long as it does so in accordance with the requirements of the 1988 Narcotics Convention. That entails proper respect for human rights and environmental protection not only in Colombia but also in Ecuador.

8.79 Colombia’s failure to protect the environment of Ecuador from the effects of its aerial spraying activities, whether by not taking adequate precautionary and preventive measures, or by not assessing the risk of harm, or by not cooperating in the management of risk along their common frontier, thus represents a breach of the 1988 Narcotics Convention. For the same reasons, Colombia is also in breach of its obligation under Article 14(2) to respect fundamental human rights, as further set out in Chapter IX.

Section IV. Conclusions

8.80 The toxic herbicide used by Colombia in its aerial spraying operations has caused transboundary pollution and significant harm in the territory of Ecuador.

⁷⁵⁰ ICCPR Comm. No. 52/1979 (1981), para. 12.3, referring to Art. 2 of the U.N. Covenant on Civil and Political Rights. Emphasis added. *See also* Chap. IX, para. 9.11.

Ecuador's evidence has shown that the deleterious effects of Colombia's spraying of toxic chemicals on its territory and people are real and measurable. To any properly informed observer, repeatedly spraying toxic chemicals from aircraft flying close to the Ecuadorian border would foreseeably make transboundary harm highly probable, if not inevitable. Colombia's aerial spraying operations are plainly activities which cause or may cause transboundary harm, and which Colombia therefore has a duty to control.

8.81 Notwithstanding the known and foreseeable risk of significant harm, Colombia failed to regulate and control the spraying to the standards necessary to give effect to its obligation to take precautionary measures to prevent transboundary harm, or to mitigate the harmful effects on Ecuador. Had Colombia taken appropriate measures this pollution and its harmful consequences could have been avoided. Colombia has undertaken aerial spraying in a manner that violates Article 14(2) of the 1988 Narcotics Convention and customary international law relating to transboundary pollution and significant harm.

8.82 Colombia's failure to take the necessary precautionary measures cannot be justified by any countervailing benefit to itself or by the requirements of the 1988 Narcotics Convention. Colombia is in breach of its obligation in international law to take all appropriate measures, to prevent aerial spraying of herbicides from resulting in significant and foreseeable harmful effects on (a) the health, livelihood, private and family life, and property of affected persons in the territory of Ecuador and (b) the environment and natural resources, including biodiversity and ecosystems, in the territory of Ecuador.

8.83 Colombia also failed in its duty to inform and consult those likely to be affected by aerial spraying, violating both the requirements of customary

international law with respect to environmental impact assessment and the rights of Ecuadorians whose health, private life and property have been harmed or put at risk. Colombia *(a)* did not properly assess in advance the potential impact of its aerial spraying operations on the territory, people, natural resources and environment of Ecuador, *(b)* did not give Ecuador information about the potential risk to Ecuador posed by the spraying, and *(c)* did not inform or consult communities in Ecuador likely to be affected by the spraying, nor did it give warnings when spraying was imminent, despite assurances that such warnings would be given. Ecuador was at no time properly or adequately informed about the risk posed by the spraying of toxic herbicides in border areas and over Ecuadorian territory.

8.84 Finally, Colombia did not cooperate as required by international law, nor did it take measures to guarantee respect for fundamental human rights or protection of the environment as required by Article 14(2) of the 1988 Narcotics Convention.

CHAPTER IX.

**THE VIOLATION OF INTERNATIONAL HUMAN RIGHTS LAW
AND THE RIGHTS OF INDIGENOUS PEOPLES**

9.1 The programme of aerial spraying of toxic herbicides undertaken by Colombia along the border with Ecuador has violated the obligations it owes to Ecuador in three distinct but interrelated areas of international law: the protection of the environment (as set out in the previous chapter), the protection of fundamental human rights, and the protection of indigenous peoples.

9.2 The relationship between these three distinct areas of international law lies at the heart of this case and is the subject of this chapter. Their interrelationship arises from the fact that the toxic herbicides used by Colombia in aerial spraying of border areas have significantly harmful consequences for the health and well-being of the people, natural resources and environment in the affected areas of Ecuador. This gives rise to separate causes of action: in relation to the environment, to human rights and to indigenous peoples.

9.3 Each is a distinct area, although their interrelationship has long been recognised. The 1972 Stockholm Declaration on the Human Environment, for example, recognises in Principle I that:

“Man has the fundamental right to freedom, equality and adequate conditions of life, in an environment of a quality that permits a life of dignity and well-being, and he bears a solemn responsibility to protect and improve the environment for present and future generations.”⁷⁵¹

9.4 In 1990 the UN General Assembly declared that: “all individuals are entitled to live in an environment adequate for their health and well-

⁷⁵¹ U.N. Doc. A/CONF.48/14/Rev.1 (16 June 1972).

being”⁷⁵². Two years later, the UN Conference on Environment and Development adopted the Rio Declaration on Environment and Development, Principle 1 of which affirmed that:

“Human beings are at the centre of concerns for sustainable development. They are entitled to a healthy and productive life in harmony with nature.”⁷⁵³

9.5 Principle 14 of the Rio Declaration further called on States to “cooperate to ... prevent the relocation and transfer to other States of any activities and substances that cause severe environmental degradation or are found to be harmful to human health”.

9.6 Principle 22 of the Rio Declaration also recognised that: “Indigenous people and their communities and other local communities have a vital role in environmental management and development because of their knowledge and traditional practices. States should recognise and duly support their identity, culture and interests and enable their effective participation in the achievement of sustainable development.”

9.7 It should not be surprising that one action -- the aerial spraying of toxic herbicides with transboundary consequences -- should engage the international responsibility of Colombia under different rules of international law. They are not mutually exclusive, and a finding of a violation in one area cannot of itself preclude a finding of a violation in

⁷⁵² U.N.G.A. Res. 45/94 (1990).

⁷⁵³ U.N. Doc. A/CONF.151/6/Rev. 1 (13 June 1992). In its *Advisory Opinion on the Legality of the Threat or Use of Nuclear Weapons*, *I.C.J. Rep. 1996*, at para. 29, this Court referred to the human dimension of environmental protection: “The Court [also] recognizes that the environment is not an abstraction but represents the living space, the quality of life and the very health of human beings, including generations unborn.”

another. Ecuador's Application invites the Court to assess the actions of Colombia by reference to each of the relevant obligations in general and conventional international law.

9.8 This is consistent with the approach taken by various human rights bodies, including the UN Human Rights Committee and UN Committee on Economic, Social and Cultural Rights. The synthesis of human rights and environmental protection is also consistent with the growing body of environmental cases decided by human rights courts (referred to below)⁷⁵⁴, and in the reports of the Special Rapporteur to the UN Sub-Commission on the Prevention of Discrimination and Protection of Minorities, who has recognised that the proclamation of an autonomous right to a healthy and decent environment would enhance the social objective and the legal status of promoting high standards of environmental quality⁷⁵⁵.

9.9 International human rights treaties generally require a State Party to guarantee the relevant rights and freedoms for every person within its territory. This is the approach taken in particular by the American Convention on Human Rights (Article 1)⁷⁵⁶ and the UN International

⁷⁵⁴ See also *Manual on Human Rights and the Environment* adopted by the Council of Europe in 2005, in Committee of Experts for the Development of Human Rights, *Final Activity Report on Human Rights and the Environment*, DH-DEV(2005)006rev, App. II. (10 Nov. 2005).

⁷⁵⁵ See United Nations, *Human Rights and the Environment, Final Report of the Special Rapporteur* (hereinafter "Final Report of the Special Rapporteur on Human Rights and the Environment"), U.N. Doc. E/CN.4/Sub.2/1994/9 (6 July 1994). See also *Human Rights and the Environment, Preliminary Report of the Special Rapporteur*, U.N. Doc. E/CN.4/Sub.2/1991/8 (2 Aug. 1991); *Human Rights and the Environment, Preliminary Report of the Special Rapporteur*, U.N. Doc. E/CN.4/Sub.2/1992/7 (2 July 1992).

⁷⁵⁶ American Convention on Human Rights, O.A.S. Treaty Series No. 36, 1144 U.N.T.S. 123 (18 July 1978). Article 1 establishes that: "The States Parties to this Convention undertake to respect the rights and freedoms recognized herein and to ensure to all persons

Covenant on Civil and Political Rights (Article 2)⁷⁵⁷. These treaties are not, however, limited in their territorial scope; they impose obligations which are violated when Colombia authorises actions in its own territory that have consequences across the boundary, particularly where -- as in the present case -- Colombia and Ecuador are part of the shared legal space to which these instruments apply. The Court has taken this approach in its Advisory Opinion on the *Legal Consequences of the Construction of a Wall in the Occupied Palestinian Territory*, where it stated:

“The Court would observe that, while the jurisdiction of States is primarily territorial, it may sometimes be exercised outside the national territory. Considering the object and purpose of the International Covenant on Civil and Political Rights, it would seem natural that, even when such is the case, State parties to the Covenant should be bound to comply with its provisions.”⁷⁵⁸

9.10 A similar approach is reflected in decisions of the Human Rights Committee, the practice of which was explicitly invoked by the Court in the above mentioned Advisory Opinion. As the Human Rights Committee put it, formulations of obligations in Article 2 of the UN Covenant on Civil and Political Rights:

“do not imply that the State party concerned cannot be held accountable for violations of rights under the Covenant which its agents commit upon the territory of another State,

subject to their jurisdiction the free and full exercise of those rights and freedoms, without any discrimination...”.

⁷⁵⁷ International Covenant on Civil and Political Rights, U.N.G.A. Res. 2200A (XXI), U.N. Doc. A/6316 (1966), 999 U.N.T.S. 171 (23 Mar. 1976). Article 2 points out that: “Each State Party to the present Covenant undertakes to respect and to ensure to all individuals within its territory and subject to its jurisdiction the rights recognized in the present Covenant...”.

⁷⁵⁸ *Legal Consequences of the Construction of a Wall in the Occupied Palestinian Territory, Advisory Opinion, I.C.J. Rep. 2004*, para. 109.

whether with the acquiescence of the Government of that State or in opposition to it”⁷⁵⁹.

9.11 The obligations to respect human rights and the rights of indigenous peoples are primarily grounded in treaties to which both Ecuador and Colombia are parties. Like the environmental obligations referred to in the previous chapter, however, they are also imported directly into the present dispute by the 1988 Narcotics Convention. As argued more fully in Section I of the previous chapter, Article 14(2) of that Convention provides that measures to eradicate plants containing narcotic or psychotropic substances “shall respect fundamental human rights and shall take due account of traditional licit uses, where there is historic evidence of such use, *as well as the protection of the environment*”⁷⁶⁰. Article 14(2) is not limited to fundamental human rights within the territorial jurisdiction of the State concerned but applies equally to respect for the fundamental rights of persons beyond its borders who are affected by the measures in question. On that basis Ecuador’s case is that Colombia has violated not only applicable provisions of *inter alia* the 1966 UN Covenants on Civil and Political Rights and on Economic, Social and Cultural Rights, the 1969 Inter-American Convention on Human Rights, and the 1989 ILO Convention No. 169 Concerning Indigenous and Tribal Peoples in

⁷⁵⁹ *Lilian Celiberti de Casariego v. Uruguay*, ICCPR Comm. No. 56/1979 (1981). *See also Delia Saldias de López v. Uruguay*, ICCPR Comm. No. 52/1979 (1981), para. 12.3 (where the Committee makes reference to Art. 5(1) of the Covenant on Civil and Political Rights, which has its equivalent in Art. 29 of the American Convention of Human Rights, and points out that in accordance with this article: “It would be unconscionable to so interpret the responsibility under article 2 of the Covenant as to permit a State party to perpetrate violations of the Covenant on the territory of another State, which violations it could not perpetrate on its own territory.” (Emphasis added.)

⁷⁶⁰ United Nations Convention Against Illicit Traffic in Narcotic Drugs and Psychotropic Substances, Status of Treaty Adherence (hereinafter “1988 Narcotics Convention”) (1988). EM, Vol. II, Annex 3. Emphasis added.

Independent Countries, but additionally or alternatively the 1988 Narcotics Convention, Article 14(2).

9.12 This chapter is divided into two main sections. Section I deals specifically with the rights of indigenous peoples and addresses the manner in which Colombia's actions have violated the obligation to protect indigenous peoples in accordance with applicable treaty provisions. Section II addresses the violation more generally of the fundamental human rights of all the affected populations in Ecuador.

Section I. Colombia Has Violated the Rights of Indigenous Peoples in Ecuador

9.13 Due to the distinctive social and cultural traditions, special vulnerability and historic ill-treatment of indigenous peoples, their rights have received special attention in contemporary international law. They are also of particular relevance in the circumstances of the present case. Two general observations explain why.

9.14 Firstly, the UN Committee on Economic, Social and Cultural Rights has expressed the close connection between the rights to life and health and the well-being of indigenous peoples, having regard to the consequences of displacement from their traditional lands:

“The vital medicinal plants, animals and minerals necessary to the full enjoyment of health of indigenous peoples should also be protected. The Committee notes that, in indigenous communities, the health of the individual is often linked to the health of the society as a whole and has a collective dimension. In this respect, the Committee considers that development-related activities that lead to the displacement of indigenous peoples against their will from their traditional

territories and environment, denying them their sources of nutrition and breaking their symbiotic relationship with their lands, has a deleterious effect on their health.”⁷⁶¹

In the *Yakye Axa Case*, the Inter-American Court of Human Rights expressly recognised the normative content of the right to health and its relationship to indigenous communities⁷⁶².

9.15 Article 24 of the UN Declaration on the Rights of Indigenous Peoples, adopted by the General Assembly in 2007, acknowledges the importance for indigenous peoples of maintaining their traditional medicinal and health practices⁷⁶³. In this regard, accounts from the Awá, the Cofán and the Kichwa nationalities in Ecuador describe health problems resulting from the loss of traditional medicinal plants killed or damaged by Colombia’s spraying of toxic herbicides⁷⁶⁴.

9.16 Secondly, indigenous peoples are recognised to have a special vulnerability that justifies measures of protection under international law. The Inter-American Court of Human Rights has stated:

⁷⁶¹ U.N. Committee on Economic, Social and Cultural Rights, *General Comment No. 14, The Right to the Highest Attainable Standard of Health*, U.N. Doc. E/C.12/2000/4 (2000), para. 27.

⁷⁶² *Case of the Indigenous Community Yakye Axa v. Paraguay, Judgment* (hereinafter “*Yakye Axa Case*”), IACHR, Series C No. 125 (17 June 2005), para. 166.

⁷⁶³ United Nations Declaration on the Rights of Indigenous Peoples, U.N. Doc. A/RES/61/295 (13 Sept. 2007) (Article 24 reads: “Indigenous peoples have the right to their traditional medicines and to maintain their health practices, including the conservation of their vital medicinal plants, animals and minerals.”).

⁷⁶⁴ *See supra* Chap. VI, Sec. IV; *see also e.g.*, Witness 31 Declaration, *op. cit.* EM, Vol. IV, Annex 215; Declaration of Witness 40, 20 Feb. 2009 (hereinafter “Witness 40 Declaration”), paras. 4, 6. EM, Vol. IV, Annex 223; Chancosa Declaration, *op. cit.*, para. 3. EM, Vol. IV, Annex 187; Witness 41 Declaration, *op. cit.*, para. 4. EM, Vol. IV, Annex 224.

“As regards indigenous peoples, it is essential for the States to grant effective protection that takes into account their specificities, their economic and social characteristics, as well as their situation of special vulnerability, their customary law, values, and customs.”⁷⁶⁵

9.17 Several international instruments set out measures to protect indigenous peoples. In particular, their right to cultural identity is guaranteed by Article 27 of the International Covenant on Civil and Political Rights; a number of specific rights are protected by the 1989 ILO Convention No. 169 Concerning Indigenous and Tribal Peoples in Independent Countries, and their right to property is guaranteed by Article 21 of the Inter-American Convention on Human Rights. Both Colombia and Ecuador are parties to these instruments. Their respective constitutions enunciate a series of principles aimed at safeguarding the rights of indigenous communities, both general and specific, and to the individuals within them⁷⁶⁶. Both States have established special bodies charged with the protection of the specific interests of these populations⁷⁶⁷. The Constitutional Court of Colombia has confirmed the significance of ILO

⁷⁶⁵ *Yakye Axa Case*, para. 63.

⁷⁶⁶ The Colombian Constitution of 1991 recognizes the ethnical and cultural diversity of the Colombian Nation (Article 7).

⁷⁶⁷ See, e.g., Colombian Department of Indigenous Affairs of the Viceministry of the Ministry of Interior and Justice (“*Dirección de Asuntos Indígenas del Viceministerio del Interior del Ministerio del Interior y Justicia*”); Secretariat of the Presidency of Ecuador for Peoples, Social Movements, and Citizen Participation (“*Secretaría de la Presidencia de la República de Pueblos, Movimientos Sociales y Participación Ciudadana*”); Commission for the Development of Nationalities and Peoples in Ecuador (“*CODENPE - Consejo de Desarrollo de las Nacionalidades y Pueblos del Ecuador*”).

Convention No. 169 for protection of the constitutional rights of indigenous peoples⁷⁶⁸.

A. VIOLATION OF ARTICLE 27 OF THE INTERNATIONAL COVENANT ON CIVIL AND POLITICAL RIGHTS

9.18 Article 27 of the International Covenant on Civil and Political Rights provides that:

“In those States in which ethnic, religious or linguistic minorities exist, persons belonging to such minorities shall not be denied the right, in community with the other members of their group, to enjoy their own culture, to profess and practise their own religion, or to use their own language.”

The notion of “culture”, as expressed in this article, must be understood in a broad sense. The UN Committee on Civil and Political Rights has confirmed that:

“culture manifests itself in many forms, including a particular way of life associated with the use of land resources, especially in the case of indigenous peoples. That right may include such traditional activities as fishing or hunting and the right to live in reserves protected by law. The enjoyment of those rights may require positive legal measures of protection and measures to ensure the effective participation of members of minority communities in decisions which affect them”⁷⁶⁹.

⁷⁶⁸ Jaime Cordoba Triviño, *National Ombudsman, in Representation of Persons Belonging to the Indigenous Ethnic Group U'Wa*, Judgment No. SU-039/97, Constitutional Court of Colombia (3 Feb. 1997).

⁷⁶⁹ U.N. CCPR, *General Comment No. 23: The Rights of Minorities (Art. 27)*, U.N. Doc. CCPR/C/21/Rev.1/Add.5, (1994), para. 7. See also para. 3.2.

9.19 It is pertinent to relate the cultural rights guaranteed by ICCPR Article 27 to the definition of “culture” provided by the Inter-American Court of Human Rights:

“The culture of the members of the indigenous communities directly relates to a specific way of being, seeing, and acting in the world, developed on the basis of their close relationship with their traditional territories and the resources therein, not only because they are their main means of subsistence, but also because they are part of their worldview, their religiosity, and therefore, of their cultural identity.”⁷⁷⁰

9.20 The UN Human Rights Committee has considered a number of cases involving breaches of Article 27 and the particular need for protection of indigenous peoples’ rights. In *Lovelace v. Canada*, for example, the Committee considered that denial of the possibility to live in an Indian reserve amounted to a violation of Article 27, as the affected individual would lose the “cultural benefits of living in an Indian community, the emotional ties to home, family, friends and neighbours, and the loss of identity”⁷⁷¹. In *Lubicon Lake Band v. Canada*, where the application concerned the decision to allow private companies to exploit the natural resources on the Band’s territory, the Committee considered that historical

⁷⁷⁰ *Yakye Axa Case*, para. 135. See also *Case of the Sawhoyamaya Indigenous Community v. Paraguay*, Judgment, Inter-American Court of Human Rights (29 Mar. 2006) (hereinafter “*Sawhoyamaya Case*”), para. 118. The Court’s understanding of “culture” draws upon ILO Convention No. 169, Article 13.

⁷⁷¹ *Sandra Lovelace v. Canada*, ICCPR Comm. No. 24/1977, U.N. Doc. CCPR/C/13/D/24/1977 (1981), para. 13.1.

inequalities and development projects threatened the way of life and culture of the Lubicon Lake Band and constituted a breach of Article 27⁷⁷².

9.21 In relation to the protection of the rights guaranteed under Article 27, the Human Rights Committee has indicated the importance of consulting with indigenous communities and allowing “the effective participation of members of minority communities in decisions which affect them”⁷⁷³.

9.22 In the present, case the rights of the indigenous Awá, Cofán and Kichwa peoples and of the Afro-Ecuadorian communities in Esmeraldas, as protected under ICCPR Article 27, have been gravely breached by Colombia’s aerial spraying of toxic herbicides in the border area. As a result of the damage detailed in Chapter VI, indigenous communities have no longer been able to lead their particular way of life associated with the use of land and natural resources, including fresh water⁷⁷⁴. They have had to abandon their traditional lands or, when remaining, have been unable to grow sufficient healthy plants to produce their traditional foods and medicines⁷⁷⁵. For many of them, it has not been viable to continue

⁷⁷² *Chief Bernard Ominayak and the Lubicon Lake Band* (1984), ICCPR Comm. No. 167/1984, para. 33.

⁷⁷³ *Ilmari Lansman et al. v. Finland* (1996), ICCPR Comm. No. 511/1992, para. 9.5. *See also Apirana Mahuika et al. v. New Zealand* (2000), ICCPR Comm. No. 547/1993, para. 9.8 (where the committee considered that the process of consultations undertaken by New Zealand was consistent with the requirements of Article 27).

⁷⁷⁴ *See supra* Chap. VI, Section IV. “The Special Harms to Indigenous Communities..”

⁷⁷⁵ *See, e.g.*, Declaration of María Blanca Chancosa, 14 Jan. 2009 (hereinafter “Chancosa Declaration”), paras. 3-4. EM, Vol. IV, Annex 187; Declaration of Witness 40, *op. cit.*, para. 6. EM, Vol. IV, Annex 223; Declaration of Witness 27, 17 Feb. 2009 (hereinafter “Witness 27 Declaration”). EM, Vol. IV, Annex 211; Declaration of Witness 28, 17 Feb. 2009 (hereinafter “Witness 28 Declaration.”). EM, Vol. IV, Annex 212. *See also* Confederation of Indigenous Nationalities of Ecuador (CONAIE) et al., *Technical Report of the International Commission on the Impacts in Ecuadorian Territory of Aerial*

practicing their traditional rituals and healing practices⁷⁷⁶, nor to engage in fishing or hunting⁷⁷⁷.

9.23 The Report by Special Rapporteur Stavenhagen indicates with particular clarity how the aerial spraying of toxic herbicides has caused indigenous peoples to abandon areas where they had previously lived, hunted and fished⁷⁷⁸. The impossibility of continuing with their traditional lives has severely affected their culture and, as a result, their identity⁷⁷⁹. Ms. María Blanca Chancosa Sánchez is Kichwa and a leader of the Confederation of Indigenous Nationalities of Ecuador (“CONAIE” per the Spanish initials). She explains:

“for the indigenous people, the bond with Mother Earth prevails in their lives. The land, the river, the natural forest

Fumigations in Colombia (hereinafter “CONAIE Report”) (19-22 July 2001), p. 12 (“But now those plants are contaminated and they are turning against us. Now, we die as strangers in our own land. This was our Eden and now we are suffering a tremendous punishment.”). EM, Vol. IV, Annex 162.

⁷⁷⁶ See, e.g., Witness 27 Declaration, *op. cit.* EM, Vol. IV, Annex 211; Declaration of Witness 29, 16 Jan. 2009 (hereinafter “Witness 29 Declaration”). EM, Vol. IV, Annex 213; Declaration of Witness 41, 20 Feb. 2009 (hereinafter “Witness 41 Declaration”), para. 7. EM, Vol. IV, Annex 224. See also CONAIE Report, *op. cit.*, pp. 13, 22. EM, Vol. IV, Annex 162.

⁷⁷⁷ See, e.g., Witness 28 Declaration, *op. cit.* EM, Vol. IV, Annex 212; Witness 29 Declaration, *op. cit.* EM, Vol. IV, Annex 213; Witness 40 Declaration, *op. cit.*, para. 7. EM, Vol. IV, Annex 223; Witness 41 Declaration, *op. cit.*, para. 6. EM, Vol. IV, Annex 224.

⁷⁷⁸ See, *Report of the Special Rapporteur on the Situation of Human Rights and Fundamental Freedoms of Indigenous People: Mission to Ecuador (25 April-4 May 2006)*, (hereinafter “Report of the Special Rapporteur on the Rights of Indigenous People”) U.N. Doc. A/HRC/4/32/Add.2 (28 Dec. 2006), para. 30. EM, Vol. II, Annex 30. (“[A]fter spraying, the entire Sumac Pamba community was displaced and did not return to their place of origin.”).

⁷⁷⁹ See, e.g., Declaration of Witness 26, 17 Feb. 2009 (hereinafter “Witness 26 Declaration”). EM, Vol. IV, Annex 210; Declaration of Witness 17, 16 Jan. 2009 (hereinafter “Witness 17 Declaration”). EM, Vol. IV, Annex 203; Declaration of Witness 31, 27 Feb. 2009 (hereinafter “Witness 31 Declaration”). EM, Vol. IV, Annex 215.

are their sacred places where they can be in contact with the plants. Their relationship with the land, animals and the environment of their territory is part of their being. Having to abandon their land is like killing a part of the indigenous person, he loses his centre”⁷⁸⁰.

B. VIOLATION OF ILO CONVENTION NO. 169

9.24 Pursuant to ILO Convention No. 169, the parties have a positive and general obligation “to protect the rights of these peoples and to guarantee respect for their integrity” by taking measures including the prohibition of discrimination (Article 3), and taking specific steps aimed at “safeguarding the persons, institutions, property, labour, cultures and environment of the peoples concerned” (Article 4). The Convention also recognises the cultural and other specificities of indigenous peoples and protects their social, cultural, religious and spiritual values and practices. In applying the Convention, Parties shall respect the integrity of the values, practices and institutions of indigenous peoples (Article 5).

9.25 Article 13 of the ILO Convention is of particular importance because it acknowledges that the connection between indigenous peoples and their territories is essential for cultural survival and even for their right to a decent existence⁷⁸¹ and humane treatment⁷⁸². Article 13 provides that:

“governments shall respect the special importance for the cultures and spiritual values of the peoples concerned of their relationship with the lands or territories ... which they

⁷⁸⁰ Chancosa Declaration, *op. cit.*, para 6. EM, Vol. IV, Annex 187.

⁷⁸¹ *See infra* Chap. IX, Sec. II, A. “The Right to Life”.

⁷⁸² *See infra* Chap. IX, Sec. II, G. “The Right to Humane Treatment”.

occupy or otherwise use, and in particular the collective aspects of this relationship”.

With regard to indigenous peoples, “land” should be understood in a broad sense, including “the concept of territories, which covers the total environment of the areas which the peoples concerned occupy or otherwise use”⁷⁸³. Under Article 7(4), “[g]overnments shall take measures, in cooperation with the peoples concerned, to protect and preserve the environment of the territories they inhabit”.

9.26 ILO Convention No.169 also recognises the importance of the rights of indigenous peoples over their natural resources. Article 15 provides: “The rights of the peoples concerned to the natural resources pertaining to their lands shall be specifically safeguarded. These rights include the right of these peoples to participate in the use, management and conservation of these resources.” The Convention further determines (at Article 16) that “the peoples concerned shall not be removed from the lands which they occupy”.

9.27 The principles and rights reflected in the ILO Convention have been recently restated by the UN General Assembly in the Declaration on the Rights of the Indigenous Peoples of 2007⁷⁸⁴. Of particular interest are articles related to the rights of indigenous peoples to lands, territories and resources⁷⁸⁵, including the right to maintain their spiritual relationship with

⁷⁸³ ILO Convention No. 169, Art. 13.2.

⁷⁸⁴ United Nations Declaration on the Rights of Indigenous Peoples, U.N. Doc. A/61/L.67 (7 Sept. 2007).

⁷⁸⁵ See *ibid.*, Art. 26 & Art. 8.2(b).

their lands and resources⁷⁸⁶, and to not be forcibly removed from their lands⁷⁸⁷. Article 29 of the UN Declaration states:

“Indigenous peoples have the right to the conservation and protection of the environment and the productive capacity of their lands or territories and resources. ... States shall take effective measures to ensure that no storage or disposal of hazardous materials shall take place in the lands or territories of indigenous peoples without their free, prior and informed consent.”

The UN Declaration stresses the importance of ensuring adequate consultation, cooperation and participation of indigenous peoples before adopting measures that may affect them⁷⁸⁸.

9.28 Chapter VI of this Memorial and the reports of various UN Special Rapporteurs⁷⁸⁹ provide strong evidence that the toxic chemicals used by Colombia have had harmful effects *inter alia* on the health, property, culture, traditional lifestyles, natural resources and environment of the local indigenous populations. On that basis Ecuador argues in the following

⁷⁸⁶ See *ibid.*, Art. 25.

⁷⁸⁷ See *ibid.*, Art. 10.

⁷⁸⁸ See, e.g., *ibid.*, Art. 18 and 19.

⁷⁸⁹ See Report of the Special Rapporteur on the Rights of Indigenous People, *op. cit.*, paras. 28-33. EM, Vol. II, Annex 30; *Report of the Special Rapporteur on the Right of Everyone to the Enjoyment of the Highest Attainable Standard of Physical and Mental Health, Preliminary Note on the Mission to Ecuador and Colombia*, (hereinafter “Special Rapporteur on the Right to Health, Preliminary Note”), U.N. Doc. A/HRC/7/11/Add.3 (4 Mar. 2008), paras. 17-18. EM, Vol. II, Annex 31; *Report of the Special Rapporteur on the Right to Food, Jean Ziegler, Addendum: Communications Sent to Governments and Other Actors and Replies Received*, (hereinafter “Report of the Special Rapporteur on the Right to Food, Communications”) U.N. Doc. A/HRC/4/30/Add.1 (18 May 2007), paras. 15, 17. EM, Vol. II, Annex 33; *Adverse Effects of the Illicit Movement and Dumping of Toxic and Dangerous Products and Wastes on the Enjoyment of Human Rights, Report of the Special Rapporteur, Okechukwu Ibeanu*, U.N. Doc. A/HRC/5/5 (5 May 2007), para. 20. EM, Vol. II, Annex 32.

paragraphs that Colombia's aerial spraying of toxic herbicides in the border area has resulted in serious violations of ILO Convention No. 169.

9.29 The main violations of ILO Convention No. 169 include, but are not limited to:

- (a) Article 4, on the need to safeguard the persons, property, cultures and environment of the peoples concerned: Colombia has failed to take any special measure to prevent harm to indigenous peoples and to their territories and environment, including harm to their traditional way of life⁷⁹⁰.
- (b) Article 5, on the need to protect the social, cultural, religious and spiritual values of indigenous peoples: Colombia has not taken any measure to prevent the rupture of the bond of indigenous peoples with their land and natural resources, with devastating consequences for the maintenance of their values and culture⁷⁹¹.
- (c) Article 6, on the obligation to consult the peoples concerned whenever consideration is being given to measures which may affect them directly: Colombia has failed to consult or to provide for the participation of the affected indigenous peoples in decisions being taken, and it has failed to provide the most basic information to local communities, including warnings about imminent sprayings, which would have prevented serious harm to peoples' health and food⁷⁹².
- (d) Article 7, on the obligation to take measures to protect and preserve the environment of the territories where indigenous peoples live: As detailed in Chapters VI and VIII of this Memorial, Colombia has failed to take adequate precautionary measures to prevent herbicide pollution damaging the forest, the watercourses, and the natural

⁷⁹⁰ See *supra* Chap. VI, Sec. IV. "The Special Harm to Indigenous Communities".

⁷⁹¹ See *supra* Chap. VI, Sec. IV. "The Special Harm to Indigenous Communities".

⁷⁹² See generally, *supra*, Ch. III.

resources on which indigenous communities are dependent for their traditional lifestyle, culture, health and food⁷⁹³.

- (e) Articles 13 and 15, on the need to respect the special importance of their relationship with the lands or territories for the cultures and spiritual values of the peoples concerned, as well as to safeguard the peoples right to the natural resources pertaining to their lands: Colombia has failed to give consideration to the particularly harmful impacts of herbicide spraying on the culture, lifestyle, natural resources, land and territory of indigenous communities in the region resulting from the destruction of their natural habitat, which provides their centre of spirituality and their sources of food, medicine and general well-being⁷⁹⁴.

C. VIOLATION OF ARTICLE 21 OF THE AMERICAN CONVENTION ON HUMAN RIGHTS

9.30 Article 21 of the American Convention on Human Rights has provided the basis for claims by indigenous peoples to the use and enjoyment of their ancestral lands⁷⁹⁵. In assessing the content and scope of Article 21 of the American Convention, the Court has taken into account several provisions of ILO Convention No. 169, including Article 13 referred to earlier, and the UN Declaration on the Rights of Indigenous Peoples of 14 September 2007, particularly Article 8(2)(b). Colombia's own

⁷⁹³ See *supra* Chap. VI, Sec. IV; Chap. VIII, Sec. I.B. "Colombia has a Duty to Prevent Significant Harm to persons, Property, Natural Resources and the Environment in Ecuador"; Chap. VIII, paras. 8.16-8.17.

⁷⁹⁴ See *supra* Chap. VI, Sec. IV.

⁷⁹⁵ Article 21 provides:

"1. Everyone has the right to the use and enjoyment of his property. The law may subordinate such use and enjoyment to the interest of society.

2. No one shall be deprived of his property except upon payment of just compensation, for reasons of public utility or social interest, and in the cases and according to the forms established by law.

3. Usury and any other form of exploitation of man by man shall be prohibited by law."

Constitutional Court was one of the very first in Latin America to recognise the vital importance of this connection, underscoring the need to protect the cultural rights of indigenous communities in relation to the right to property⁷⁹⁶. Despite these international legal protections, and even its own domestic protections, Colombia has fractured these vital anthropological and cultural relationships through its chemical fumigations.

9.31 In the *Mayagna (Sumo) Awas Tingni Community v. Nicaragua Case*, the Inter-American Court underscored the vital connection between indigenous peoples and the land where they live:

“Given the characteristics of the instant case, some specifications are required on the concept of property in indigenous communities. Among indigenous peoples there is a communitarian tradition regarding a communal form of collective property of the land, in the sense that ownership of the land is not centred on an individual but rather on the group and its community. Indigenous groups, by the fact of their very existence, have the right to live freely in their own territory; the close ties of the indigenous people with the land must be recognized and understood as the fundamental basis of their cultures, their spiritual life, their integrity, and their economic survival. For indigenous communities, relations to the land are not merely a matter of possession and production but a material and spiritual element which they must fully enjoy, even to preserve their cultural legacy and transmit it to future generations.”⁷⁹⁷

⁷⁹⁶ See generally Willem Assies and Rosa Guillen, *The Recognition of Indigenous Rights: Colombian Jurisprudence and Proposals for Indigenous Jurisdiction in Ecuador and Bolivia*, Vol. I (2001). See also Constitutional Court of Colombia, Judgment T-652/98, Fourth Decision (10 Nov. 1998).

⁷⁹⁷ *The Case of Mayagna (Sumo) Awas Tingni Community v. Nicaragua*, Judgment (hereinafter “*Awas Tingni*”), IACHR (31 Aug. 2001), para. 149, available at http://www.escri-net.org/usr_doc/seriec_79_ing.pdf.

9.32 The Inter-American Court has thus recognised the importance of the *cultural* dimension of the right to property when applied to indigenous people, accepting that there is an inextricable connection between indigenous peoples and their traditional territories and the associated natural resources. The Inter-American Court pronounced itself in a similar fashion in judgments in the *Yakye Axa Case*⁷⁹⁸, in *Moiwana Community v. Suriname*⁷⁹⁹, in *Sawhoyamaxa Indigenous Community v. Paraguay*⁸⁰⁰ and in *Saramaka People v. Suriname*⁸⁰¹.

9.33 The Inter-American Court has stressed that the realization of the right to property involves the “right to own the *natural resources* they have traditionally used within their territory,” noting that “the right to use and enjoy their territory would be meaningless in the context of indigenous and tribal communities if said right were not connected to the natural resources that lie on and within the land”⁸⁰². According to the Inter-American Court, Article 21 protects the “connectedness between the territory and the natural resources necessary for [indigenous peoples’] physical and cultural survival”⁸⁰³.

9.34 The Inter-American Court has also noted the impact that a violation of the right to property will have on the enjoyment of other human rights,

⁷⁹⁸ *Yakye Axa Case*, paras. 131, 135, 137.

⁷⁹⁹ *The Moiwana Community v. Suriname, Judgment* (hereinafter “*Moiwana Community Case*”), IAHCHR, Series C No. 145 (15 June 2005), para. 131.

⁸⁰⁰ *Sawhoyamaxa Case*, para. 118.

⁸⁰¹ *Case of the Saramaka People v. Suriname, Judgment* (hereinafter “*Saramaka Case*”), IACHR, Series C No. 153 (28 Nov. 2007), paras. 90-91.

⁸⁰² *Ibid.*, paras. 121-122. (Emphasis added.)

⁸⁰³ *Ibid.*, para. 122.

including the right to life. In the *Yakye Axa Case*, the Inter-American Court ruled that “the State did not guarantee the right of the members of the Yakye Axa Community to communal property” and concluded that “this fact has had a negative effect on the right of the members of the Community to a decent life”⁸⁰⁴. A similar conclusion was reached in the *Sawhoyamaya Case*, concerning a displaced indigenous community, where Article 19 on the rights of the child was found to have been breached in addition to the right to life. In the *Moiwana Community Case*, the Inter-American Court concluded that as a result of separation from traditional lands the right to humane treatment had been violated⁸⁰⁵.

9.35 The case law of the Inter-American Court thus makes clear that the right to property as set out in general terms under Article 21 of the American Convention on Human Rights is directly applicable to indigenous communities, as a *collective* right, with consequences for the *cultural* and *physical* survival of indigenous peoples.

9.36 For all of the reasons set out in the previous two sections and supported by the evidence of significant harmful impacts in Chapter VI, Colombia’s aerial spraying of herbicides in border areas constitutes a violation of the right to property set out *inter alia* in Article 21 of the American Convention insofar as the ability of indigenous peoples to occupy and make use of their traditional lands in border areas has been adversely affected.

⁸⁰⁴ *Yakye Axa Case*, para. 168.

⁸⁰⁵ *Moiwana Community Case*, paras. 101-103.

D. CONCLUSIONS

9.37 Colombia's aerial spraying of toxic herbicides in border areas has caused serious disruption of the traditional way of life of indigenous communities who live, farm and hunt in the affected areas. Pollution damage has significantly harmed the natural resources and environment on which these communities depend. It has displaced some communities from their homes, deprived them of traditional medicines, interfered with their right to use and enjoy their property, and denied them the right to enjoy their own culture.

9.38 Colombia has an obligation to respect and protect the rights of indigenous communities, including those in Ecuador who are affected by its aerial spraying. It also has a duty to preserve the environment on which these communities depend. Its failure to have regard for the harmful effects on these communities, or to ensure that they are consulted, or to take adequate precautionary measures, amounts *inter alia* to a violation of Article 27 of the International Covenant on Civil and Political Rights, of Articles 4, 5, 6, 7, 13 and 15 of ILO Convention No. 169, and of Article 21 of the Inter-American Convention on Human Rights.

Section II. Colombia Has Violated Fundamental Human Rights in Ecuador

9.39 As demonstrated in particular by the case law of the Inter-American Court referred to below, it is unnecessary to draw a strict separation between the rights of non-indigenous populations and those of indigenous ones. All of them are human beings endowed with the same fundamental rights on the basis of the non-discrimination principle referred to in the Declaration on

the Rights of Indigenous Peoples adopted by the UN General Assembly on 14 September 2007⁸⁰⁶.

9.40 Nor is it necessary in this section to rely only on decisions of the Inter-American Court. Judge Higgins has drawn attention to the way human rights courts “work consciously to co-ordinate their approaches”⁸⁰⁷. There is convergence in the case law and a cross-fertilisation of ideas between the different human rights systems, as observed by Judge Cançado Trindade:

“The converging case-law to this effect has generated the common understanding, in the regional (European and Inter-American) systems of human rights protection, that human rights treaties are endowed with a special nature (as distinguished from multilateral treaties of the traditional type); that human rights treaties have a normative character, of *ordre public*; that their terms are to be autonomously interpreted; that in their application one ought to ensure an effective protection (*effet utile*) of the guaranteed rights; that the obligations enshrined therein do have an objective character, and are to be duly complied with by the States Parties, which have the additional common duty of exercise of the collective guarantee of the protected rights; and that permissible restrictions (limitations and derogations) to the exercise of guaranteed rights are to be restrictively interpreted. The work of the Inter-American and European Courts of Human Rights has indeed contributed to the creation of an international *ordre public* based upon the respect for human rights in all circumstances.”⁸⁰⁸

9.41 Accordingly, in this section of the Memorial Ecuador will rely not only on the applicable case law of the Inter-American human rights system

⁸⁰⁶ U.N. Declaration on the Rights of Indigenous Peoples, *op. cit.*, Arts. 1 & 2.

⁸⁰⁷ Rosalyn Higgins, *A Babel of Judicial Voices?*, 55 ICLQ 791 (2006), p. 798.

⁸⁰⁸ *Case of Caesar v. Trinidad and Tobago, Separate Opinion of Judge Cançado Trindade*, IACHR, Series C No. 123 (2005), para. 7; *see also* paras. 6-12.

but will also make reference where appropriate to decisions of other human rights bodies, including the European Court of Human Rights and the African Commission on Human and Peoples' Rights. It will show that Colombia has violated various provisions of the following human rights conventions: the 1966 International Covenant on Civil and Political Rights, the 1966 International Covenant on Economic, Social and Cultural Rights, the 1969 Inter-American Convention on Human Rights, the 1979 Convention on the Elimination of All Forms of Discrimination Against Women, the 1988 Additional Protocol to the American Convention on Human Rights in the Area of Economic, Social and Cultural Rights, and the 1989 Convention on the Rights of the Child.

9.42 A range of different violations of fundamental human rights have been engaged by Colombia's spraying of toxic chemicals and their effects on resident populations in the border areas of Ecuador. The present section focuses first on those rights which may be considered most directly associated with the right to life. These include the right to health, the right to food, the right to water, and the right to a healthy and decent environment. This section also deals with the right to property, the right to humane treatment, the right to private life, and the right to information.

A. THE RIGHT TO LIFE

9.43 It is not necessary to stress that the right to life is *per se* the most *inherent* of human rights, according to the categorisation enshrined in many international instruments, including the International Covenant on Civil and Political Rights (Article 6.1), the Convention on the Rights of the Child

(Article 6)⁸⁰⁹, and the American Convention on Human Rights (Article 4). It is a universal right⁸¹⁰ and unquestionably part of general international law. Colombia and Ecuador are parties to these three human rights treaties.

9.44 On several occasions the Inter-American Court of Human Rights has underlined the essential features of the right to life. It has stressed that it is both a fundamental and a positive right, which includes the right to have access to conditions that guarantee a decent existence. In *Villagran Morales et al. v. Guatemala*, the Court stated that:

“The right to life is a fundamental human right, and the exercise of this right is essential for the exercise of all other human rights. If it is not respected, all rights lack meaning. Owing to the fundamental nature of the right to life, restrictive approaches to it are inadmissible. In essence, the fundamental right to life includes not only the right of every human being not to be deprived of his life arbitrarily, but also the right that he will not be prevented from having access to the conditions that guarantee a decent existence. States have the obligation to guarantee the creation of the conditions required in order that violations of this basic right do not occur and, in particular, the duty to prevent its agents from violating it.”⁸¹¹

⁸⁰⁹ U.N.G.A. Res. 44/25, Convention on the Rights of the Child, U.N. Doc. A/44/49 (1989), entered into force 2 Sept. 1990.

⁸¹⁰ See also African Charter of Human and Peoples' Rights, O.A.U. Doc. CAB/LEG/67/3 rev. 5, entered into force 21 Oct. 1986, Art. 4; Convention for the Protection of Human Rights and Fundamental Freedoms, 213 U.N.T.S. 222, entered into force 3 Sept. 1953, Art. 2.

⁸¹¹ *Villagran Morales et al. v. Guatemala, Judgment* (hereinafter “*Street Children Case*”), IAHR, Series C No. 77 (19 Nov. 1999), para. 144.

This statement has since been reiterated or referred to in several other cases, including in the *Yakye Axa Case*⁸¹², which is of particular relevance to Ecuador's case.

9.45 Articles 4 and 19 of the American Convention, as recognised by the Inter-American Court, impose upon Colombia the obligation to protect with even greater care and responsibility the right to life of children. In the *Yakye Axa Case*, the Court indicated that

“the State has the obligation, *inter alia*, of providing for the children of the Community the basic conditions to ensure that the situation of vulnerability of their Community due to lack of territory will not limit their development or destroy their life aspirations”⁸¹³.

9.46 The right to life further implies a right to a decent existence. This imposes on the State an obligation to generate “minimum living conditions that are compatible with the dignity of the human person ... and of *not creating conditions that hinder or impede it*”⁸¹⁴. The Inter-American Court has identified the relationship between the right to life and other rights:

“Special detriment to the right to health, and closely tied to this, detriment to the right to food and access to clean water, have a major impact on the right to a decent existence and basic conditions to exercise other human rights, such as the right to education or the right to cultural identity.”⁸¹⁵

⁸¹² *Yakye Axa Case*, para 161. See also *Juvenile Reeducation Institute v. Paraguay*, Judgment (hereinafter “*Juvenile Reeducation Institute Case*”), IACHR, Series C No. 112 (2 Sep. 2004), para. 156.

⁸¹³ *Yakye Axa Case*, para. 172. See also *Juvenile Reeducation Institute Case*, para. 160; *Street Children Case*, para. 196; *Juridical Condition and Human Rights of the Child, Advisory Opinion OC-17/2002*, IACHR (28 Aug. 2002), paras. 80-81, 84, 86-88.

⁸¹⁴ *Yakye Axa Case*, para. 162 (emphasis added).

⁸¹⁵ *Ibid.*, para. 167.

9.47 As already noted in the previous section and in Chapter VI, the right to life of indigenous communities in the areas affected by the sprayings has been directly affected, as a result of their close dependence on the natural resources found in their traditional lands. In the *Yakye Axa Case*, the Inter-American Court recognised that the State has a special duty to guarantee the right to a decent life “in the case of persons who are vulnerable and at risk, whose care becomes a high priority”⁸¹⁶; the Court concluded that lack of access by indigenous peoples to traditional means of subsistence, as well as to use and enjoyment of the natural resources necessary to obtain clean water and to practice traditional medicine to prevent and cure illnesses, resulted in a breach of the right to a decent existence, as recognised in Article 4 of the American Convention⁸¹⁷.

9.48 Pollution from Colombian spraying of toxic herbicides poses a well-documented risk to life and human health. The evidence shows that it has harmed access to food and clean water, and denied those living in affected border areas of Ecuador the decent existence to which they are entitled. By failing to take the measures necessary to protect the right to life, Colombia has violated the International Covenant on Civil and Political Rights (Article 6.1), the Convention on the Rights of the Child (Article 6), and the American Convention on Human Rights (Article 4).

B. THE RIGHT TO HEALTH

9.49 The right to health is guaranteed in Article 12(1) of the International Covenant on Economic, Social and Cultural Rights; States parties recognise

⁸¹⁶ *Ibid.*, paras. 162.

⁸¹⁷ *Ibid.*, paras. 162-168, 176.

“the right of everyone to the enjoyment of the highest attainable standard of physical and mental health”. It is also reiterated in Article 12 of the Convention on the Elimination of All Forms of Discrimination against Women, in Article 24 of the Convention on the Rights of the Child, and in Article 10 of the Protocol of San Salvador⁸¹⁸.

9.50 In accordance with the UN Committee on Economic, Social and Cultural Rights’ (CESCR) General Comment No. 14 on the right to health, this right is not limited to the right to health care:

“the right to health embraces a wide range of socio-economic factors that promote conditions in which people can lead a healthy life, and extends to the underlying determinants of health, such as food and nutrition, housing, access to safe and potable water and adequate sanitation, safe and healthy working conditions, and a healthy environment”⁸¹⁹.

Article 12(2)(b) of the Covenant imposes a positive obligation on the parties to take appropriate measures aimed at “the improvement of all aspects of environmental...hygiene”. According to the CESCR, this includes an obligation of:

“prevention and reduction of the population’s exposure to harmful substances such as radiation and harmful chemicals or other detrimental environmental conditions that directly or indirectly impact upon human health”⁸²⁰.

⁸¹⁸ Art. 10.1 of the Protocol of San Salvador reads as follows: “Everyone shall have the right to health, understood to mean the enjoyment of the highest level of physical, mental and social well-being.”

⁸¹⁹ U.N. Committee on Economic, Social and Cultural Rights, *General Comment No. 14, The Right to the Highest Attainable Standard of Health (Article 12 of the International Covenant on Economic, Social and Cultural Rights)* (hereinafter “General Comment No. 14”), U.N. Doc. E/C.12/2000/4 (11 Aug. 2000), para. 11.

⁸²⁰ *Ibid.*, para. 15.

9.51 The detrimental effects of aerial spraying of toxic chemicals on the health of local communities in Ecuador have been described in Chapter VI of this Memorial⁸²¹. After aerial spraying, or when in contact with polluted water, individuals have regularly developed the following symptoms: skin rashes and itching; eye, nose and throat irritation and burning; fever; headaches; diarrhea; vomiting; abdominal pain; dry cough and respiratory problems; blurred vision; and weakness or dizziness, among others⁸²². The evidence shows that these and other symptoms have been accompanied by psychological stress and fear⁸²³. The nature and extent of these symptoms of toxic spraying indicate Colombian responsibility for failing to respect the right to health of the affected populations in Ecuador.

9.52 Children are more vulnerable to toxic effects and have been particularly affected by illnesses following aerial spraying of herbicides. The evidence shows that they are often the first to fall ill after the aerial sprayings⁸²⁴. Shortly after sprayings many children in a community experience skin irritation, diarrhea and vomiting⁸²⁵. Numerous accounts

⁸²¹ See *supra* Chap. VI, Sec. I.

⁸²² See *supra* Chap. VI, Sec. I.

⁸²³ See *supra* Chap. VI, paras. 6.7, 6.18, 6.19, 6.28, 6.35, 6.109, 6.119. See also e.g., Declaration of Witness 5, 16 Jan. 2009 (hereinafter “Witness 5 Declaration”). EM, Vol. IV, Annex 193; Declaration of Witness 9, 16 Jan. 2009 (hereinafter “Witness 9 Declaration”). EM, Vol. IV, Annex 197.

⁸²⁴ See *supra* Chap. VI, paras. 6.10 and 6.13.

⁸²⁵ See *supra* paras. 6.10, 6.13, 6.15, 6.17, 6.18, 6.26-6.28, 6.33-6.35, 6.38-6.39, 6.50, 6.126, 6.127, 6.129-6.130; see also e.g., Declaration of Witness 2, 16 Jan. 2009 (hereinafter “Witness 2 Declaration”). EM, Vol. IV, Annex 190; Declaration of Witness 5, 16 Jan. 2009 (hereinafter “Witness 5 Declaration”). EM, Vol. IV, Annex 193. Declaration of Witness 20, 16 Jan. 2009 (hereinafter “Witness 20 Declaration”). EM, Vol. IV, Annex 206.

explain how illnesses have persisted for months after the sprayings have occurred⁸²⁶.

9.53 As described in Chapter VI⁸²⁷, the deaths of a number of infants have been reported following spraying events. A Kichwa mother in the community of San Francisco 2 described how she lost a three-month old baby one week after the sprayings, and how two years later, during a further round of fumigations, she lost her four-month old daughter⁸²⁸. Records indicate that during the first eight days of intense sprayings in the area of San Francisco 2 in January 2001, four children died⁸²⁹.

9.54 That the spray can cause the death of children in the conditions prevalent in the border region is, sadly, not surprising. As discussed in Chapter V, the chemicals in Colombia's herbicidal mix are well-known to cause gastro-intestinal distress, including vomiting and diarrhea. And as noted just above, these were among the most commonly reported symptoms by children in Ecuador. Although these conditions are generally treatable in developed countries, they are frequently life-threatening in remote areas of the developing world, like northern Ecuador, due in part to the inadequate health care that characterise these impoverished areas.

⁸²⁶ See, e.g., Witness 5 Declaration, *op. cit.* EM, Vol. IV, Annex 193; Witness 17 Declaration, *op. cit.* EM, Vol. IV, Annex 203; Declaration of Witness 12, 16 Jan. 2009 (hereinafter "Witness 12 Declaration"). EM, Vol. IV, Annex 200.

⁸²⁷ See *supra* Chap. VI, paras. 6.50, 6.129, 6.130.

⁸²⁸ Declaration of Witness 11, 16 Jan. 2009 (hereinafter "Witness 11 Declaration"). EM, Vol. IV, Annex 199. See also Witness 12 Declaration, *op. cit.* EM, Vol. IV, Annex 200.

⁸²⁹ See CONAIE Report, *op. cit.*, p. 13. EM, Vol. IV, Annex 162.

9.55 Indigenous peoples living along the border have reported health problems similar to those of farming communities in the region. However, indigenous communities have at times endured greater hardship due to their greater dependence upon the natural environment and their vulnerability to changes to it. This has been recognised by the UN Special Rapporteur on the Rights of Indigenous People⁸³⁰.

9.56 Violations of the right to food and the right to water, discussed below also engage a breach of the obligation to respect the right to health. In the present case, the right to health of the Ecuadorian population along the border has been violated because of the exposure to toxic herbicides, by the contamination of drinking water sources, and because of the destruction of crops that constitute the basis of their nutrition and medicine⁸³¹. Paul Hunt, the UN Special Rapporteur on the Right to Health, has observed:

“In my opinion, there is an overwhelming case that the aerial spraying of glyphosate along the Colombia-Ecuador border should not re-commence. ... In summary, Colombia has a human rights responsibility of international assistance and cooperation, including in health. Consequently, as a minimum, Colombia must not jeopardize the enjoyment of the right to health in Ecuador. It must ‘do no harm’ to its neighbour.”⁸³²

⁸³⁰ Report of the Special Rapporteur on the Rights of Indigenous People, *op. cit.*, paras. 28-30.

⁸³¹ See *supra* Chap. VI, paras. 6.16, 6.27, 6.37, 6.40, 6.49; see also *supra*, Chap. VI, Secs. II and IV.

⁸³² U.N. Press Release, “U.N. Special Rapporteur on the Right to the Highest Attainable Standard of Health, Paul Hunt, Ends Visit to Ecuador” (hereinafter “Special Rapporteur on the Right to Health, 2007 Press Release”) (18 May 2007), *available at* www.unhchr.ch/hurricane/hurricane.nsf/view01/42D1F65F4D223B17C12572E4003313EB?opendocument (last visited 13 Apr. 2009). EM, Vol. IV, Annex 185.

In his final report he set out compelling conclusions on the mission to Ecuador and Colombia in 2007:

“The Special Rapporteur’s preliminary view was that there was credible and reliable evidence that the aerial spraying of glyphosate along the border damages the physical and mental health of people living in Ecuador.”⁸³³

C. THE RIGHT TO FOOD

9.57 Closely related to the right to life and the right to health is the right to food, which has also been engaged by Colombia’s aerial spraying of toxic herbicides. Article 11(2) of the International Covenant on Economic, Social and Cultural Rights, declares that the States Parties recognise “the fundamental right of everyone to be free from hunger”⁸³⁴. This right is also recognised in Article 27 of the Convention on the Rights of the Child, and in Article 12 of the Additional Protocol to the American Convention on Human Rights in the Area of Economic, Social and Cultural Rights, known as the “Protocol of San Salvador”⁸³⁵. Colombia and Ecuador are parties to all three treaties.

9.58 According to General Comment No. 12 on the right to adequate food, adopted by the UN Committee on Economic, Social and Cultural Rights (CESCR) in 1999, “the right to adequate food is indivisibly linked to

⁸³³ *Report of the Special Rapporteur on the Right to Health, Preliminary Note*, U.N. Doc. A/HRC/7/11/Add.3 (4 Mar. 2008), para. 17. EM, Vol. II, Annex 31.

⁸³⁴ U.N.G.A. Res. 2200A (XXI), International Covenant on Economic, Social and Cultural Rights, U.N. Doc. A/6316 (1966), 993 U.N.T.S. 3, entered into force 3 Jan. 1976.

⁸³⁵ Additional Protocol to the American Convention on Human Rights in the Area of Economic, Social and Cultural Rights, (hereinafter “Protocol of San Salvador”), O.A.S. Treaty Series No. 69 (1988), entered into force November 16, 1999.

the inherent dignity of the human person and is indispensable for the fulfilment of other human rights enshrined in the International Bill of Human Rights”⁸³⁶. This General Comment is an authoritative interpretation of Article 11 of the ICESCR. It recognises that:

“The right to adequate food is realized when every man, woman and child, alone or in community with others, has physical and economic access at all times to adequate food or means for its procurement. The right to adequate food shall therefore not be interpreted in a narrow or restrictive sense which equates it with a minimum package of calories, proteins and other specific nutrients.”⁸³⁷

9.59 General Comment No. 12 indicates that this right’s core content implies the availability of food in a quantity and quality sufficient to satisfy the dietary needs of individuals, free from adverse substances and acceptable within a given culture⁸³⁸. This right imposes an obligation on Colombia to respect, protect and fulfil the right to food⁸³⁹, including in areas outside its jurisdiction⁸⁴⁰. As shown in Chapter VI, aerial spraying of toxic herbicides in border areas has degraded and in some cases destroyed the normal subsistence foodstuffs of local communities in Ecuador. As repeatedly reported by farmers and indigenous peoples in Sucumbíos and Esmeraldas, after each spraying plantations were damaged to the point of

⁸³⁶ U.N. Committee on Economic, Social and Cultural Rights, *General Comment No. 12, The Right to Adequate Food (Article 11)*, U.N. Doc. E/C.12/1999/5 (12 May 1999), para. 4.

⁸³⁷ *Ibid.*, para. 6.

⁸³⁸ *Ibid.*, para. 8.

⁸³⁹ *Ibid.*, para. 15.

⁸⁴⁰ *Report of the Special Rapporteur on the Right to Food, Jean Ziegler*, (hereinafter “Special Rapporteur on the Right to Food, 2008 Report”), U.N. Doc. A/HRC/7/5 (10 Jan. 2008), paras. 21-23; *Report of the Special Rapporteur on the Right to Food, Jean Ziegler*, (hereinafter “Special Rapporteur on the Right to Food, 2006 Report”), U.N. Doc. E/CN.4/2006/44 (16 Mar. 2006), paras. 28-38, especially para. 35.

destruction; plants that survived did not produce healthy crops and their production capacity was significantly diminished⁸⁴¹.

9.60 As already described, many of the communities in the areas affected by the aerial spraying are heavily dependent on farm-reared animals and fishing in local rivers for additional sources of protein. Some of these communities hunt wildlife for food. There is evidence that after each round of Colombia's aerial sprayings, chicken and other fowl sickened and died, and young live-stock in particular often did not survive⁸⁴². There are accounts of pigs, calves, and dogs dying following the aerial sprayings, and cows are reported to have lost their young⁸⁴³. A number of individuals have described mass fish-kills in ponds and rivers following the aerial sprayings, with fish appearing unhealthy and, as a consequence, inedible⁸⁴⁴.

9.61 Many accounts of damage to plants and animals have been collected in the reports of verification missions to the area, conducted between 2001 and 2007, as described in Chapter VI⁸⁴⁵. Some reports describe first-hand observations by Ecuador's Director of Environmental Management for the

⁸⁴¹ See *supra* Chap. VI, Sec. II.

⁸⁴² See *supra* Chap. VI, paras. 6.83, 6.84, 6.88-6.90, 6.97.

⁸⁴³ See *supra* Chap. VI, paras. 6.84, 6.90, 6.94, 6.97, 6.98.

⁸⁴⁴ See *supra* Chap. VI, paras. 6.85, 6.91-6.93, 6.99, 6.100; see also e.g., Witness 40 Declaration, *op. cit.*, para. 7. EM, Vol. IV, Annex 223; Witness 28 Declaration, *op. cit.* EM, Vol. IV, Annex 212; Declaration of Witness 10, 16 Jan. 2009 (hereinafter "Witness 10 Declaration"). EM, Vol. IV, Annex 198; Letter from Victor Mestanza to Roger Mera, Regional Chief Sucumbíos-Orellana, Ministry of the Environment (14 Oct. 2002), p. 1. EM, Vol. IV, Annex 237.

⁸⁴⁵ See *supra* Chap. VI, Secs. II.A. "Independent Reports" and III.A. "Independent Reports."

Ministry of Agriculture and Livestock⁸⁴⁶, by the Director of the National Directorate for the Defence of the Rights of Indigenous Peoples (DINAPIN) of the office of the National Ombudsman of Ecuador⁸⁴⁷, and by representatives of the Provincial Government of Sucumbíos⁸⁴⁸. These reports describe extensive damage to plantations of maize, plantain, rice, coffee, cacao, and other staple foods of the local communities, such as yucca. The loss of animals is also widely reported⁸⁴⁹. These extensive losses in Ecuador are consistent with the damage that has been described on the Colombian side of the border⁸⁵⁰.

9.62 This has given rise to serious concerns at the international level. The UN Special Rapporteur on the Rights of Indigenous People, Mr. Rodolfo Stavenhagen, went on mission to Ecuador between 24 April and 4 May 2006. In his report to the Human Rights Council, he described a dire situation:

“In some communities in Sucumbíos, short-cycle crops are disappearing fewer than 15 days after spraying.... Spraying appears to be destroying subsistence crops, diminishing soil quality and reducing yields, affecting both the economic activities of communities and the population’s access to adequate food.”⁸⁵¹

⁸⁴⁶ Ecuadorian Ministry of Environment et al., *Impacts in Ecuador by the Fumigations Carried Out in the Putumayo Department under Plan Colombia* (hereinafter “Impacts in Ecuador”) (July 2003), pp. 7-10. EM, Vol. IV, Annex 166.

⁸⁴⁷ See, *ibid.*, pp. 14-18.

⁸⁴⁸ See, *ibid.*, pp. 19-22.

⁸⁴⁹ See, e.g., *ibid.*, pp. 9, 14, 17 and 20.

⁸⁵⁰ See *supra* Chap. V, Sec. IV. “The Harms Caused by Colombia’s Aerial Spraying of Toxic Herbicides Inside Colombia.”

⁸⁵¹ Report of the Special Rapporteur on the Rights of Indigenous People, *op. cit.*, paras. 29-30. EM, Vol. II, Annex 30.

9.63 The UN Special Rapporteur on the Right to Food, Mr. Jean Ziegler, in his communications to the governments of Colombia and of Ecuador of 2007, raised his concerns over the consequences of aerial sprayings with regard to the right to food. He reported:

“as a consequence of the fumigations under the Plan Colombia, among others, the destruction of subsistence crops, the weakening of soil quality and the reduction of production capacity of the border populations, a majority of which are inhabited by indigenous people and peasants. These populations, mostly indigenous and peasants, have seen great deterioration in their already difficult socio-economic situation...Several communities have lost their livestock and there are reports of an increase in birth defects and miscarriages of cattle near the border, during and after the sprayings. All of this seems to have caused a severe state of food insecurity in border populations, thus triggering a wave of migration to the interior of the country. According to reports, malnutrition, a constant feature in impoverished communities, has reached alarming levels. In other communities, short-cycle crops are disappearing in less than 15 days after spraying”⁸⁵².

9.64 As described in Chapter VI, Colombia’s aerial spraying of herbicides has caused local communities in Ecuador to go without food in a quantity and quality sufficient to satisfy their basic dietary needs, free from toxic substances, and acceptable within the given culture. Speaking as well on behalf of the Special Rapporteur on the Rights of Indigenous Peoples, the Special Rapporteur on the Right to Food stated:

⁸⁵² *Report of the Special Rapporteur on the Right to Food*, U.N. Doc. A/HRC/4/30/Add.1 (18 May 2007), para. 15. EM, Vol. II, Annex 33.

“As to the right to food, the concern of the Special Rapporteurs is not just limited to food security risk but also to the right to food free from harmful substances.”⁸⁵³

9.65 The destruction of short-cycle crops and domestic and wild animals after each round of aerial spraying has brought tremendous hardship to farmers and indigenous peoples, most of whom have subsistence economies and live already in conditions of high vulnerability. Hunger resulting from pollution and destruction of subsistence food supplies has forced many families to move inland, away from the border with Colombia:

“As a result of the damages to health, nature, and our sources of food and spirituality, some people had to move to other Awá communities within the reserve, which were farther from the border and not affected by the sprayings. They made this decision in order to avoid health problems caused by the fumigations and the death of their crops, because they no longer had the means to survive.”⁸⁵⁴

9.66 For those who have remained, difficulties are considerable. Witness 26, of Cofán nationality, who resides within the Cofán territory affected by the sprayings, explains:

“From three or four small farms, it can be that only one yucca is good, which is why the community shares everything; but there is more hunger, there is not enough food for everyone.”⁸⁵⁵

It is worth recalling that this region was already characterised, before the sprayings began, as one having “a higher level of malnutrition among the

⁸⁵³ *Ibid.*, para. 17.

⁸⁵⁴ Witness 40 Declaration, *op. cit.*, para. 8. EM, Vol. IV, Annex 223.

⁸⁵⁵ Witness 26 Declaration, *op. cit.* EM, Vol. IV, Annex 210; *see also e.g.*, Declaration of Witness 1, 16 Jan. 2009 (hereinafter “Witness 1 Declaration”). EM, Vol. IV, Annex 189; Declaration of Witness 19, 17 Jan. 2009 (hereinafter “Witness 19 Declaration”). EM, Vol. IV, Annex 205.

school-age population than in the same population over 20 km away from the border.”⁸⁵⁶ Herbicide spraying has caused significant harm in one of Ecuador’s most vulnerable and inaccessible areas, in a manner that directly engages Colombia’s responsibility for failing to protect the right to food.

D. THE RIGHT TO WATER

9.67 The right to water is also closely linked to the enjoyment of other fundamental rights, including the right to life and the right to health. No one can live without water. The right to water is expressly recognised in the Convention on the Elimination of All Forms of Discrimination Against Women of 1979 (Article 14.2.h)⁸⁵⁷ and in the Convention on the Rights of the Child of 1989 (Article 24, 2.c)⁸⁵⁸. Colombia and Ecuador are parties to both treaties.

9.68 General Comment No. 15 on the right to water (2002) notes that Articles 11(1) and 12(1) of the International Covenant on Economic, Social and Cultural Rights encompass a right to water:

“Article 11, paragraph 1, of the Covenant [on economic, social and cultural rights] specifies a number of rights to an adequate standard of living including adequate food, clothing and housing. The use of the word ‘including’ indicates that this catalogue of rights was not intended to be exhaustive. The right to water clearly falls within the category of guarantees essential for securing an adequate standard of

⁸⁵⁶ Ecuadorian Scientific Commission, *The Plan Colombia Aerial Spraying System and its Impacts on the Ecosystem and Health on the Ecuadorian Border* (hereinafter “Ecuadorian Scientific Commission Report”) (April 2007), p. 53. EM, Vol. III, Annex 153.

⁸⁵⁷ U.N.G.A. Res. 34/180, Convention on the Elimination of All Forms of Discrimination Against Women, 34 U.N. GAOR Supp. (No. 46) at 193, U.N. Doc. A/34/46, entered into force 3 Sept. 1981.

⁸⁵⁸ Convention on the Rights of the Child, *op. cit.*

health (Art. 12, para. 1) and the rights to adequate housing and adequate food (Art. 11, para. 1). The right should also be seen in conjunction with other rights enshrined in the International Bill of Human Rights, foremost amongst them the right of life and human dignity.”⁸⁵⁹

9.69 General Comment No. 15 sets out the right as follows:

“The human right to water entitles everyone to sufficient, safe, acceptable, physically accessible and affordable water for personal and domestic uses. An adequate amount of safe water is necessary to prevent death from dehydration, to reduce the risk of water-related disease and to provide for consumption, cooking, personal and domestic hygienic requirements.”⁸⁶⁰

The right to water thus includes the right to maintain access to existing water sources and the right to be free from contamination of water supplies⁸⁶¹.

9.70 Local communities in the border area between Colombia and Ecuador have no access to running water. Farmers and indigenous peoples depend on water from the local rivers to cook, drink, wash, bathe or raise domestic animals. The aerial spraying of toxic herbicides pollutes their

⁸⁵⁹ U.N. Committee on Economic, Social and Cultural Rights, *General Comment No. 15, The Right to Water (Arts. 11 and 12 of the International Covenant on Economic, Social and Cultural Rights)*, (hereinafter “General Comment No. 15”), U.N. Doc. E/C.12/2002/11 (26 Nov. 2002), para. 3. For a commentary, see P.M. Dupuy, *Le droit à l’eau, droit de l’homme ou droit des Etats?*, in Liber Amicorum Lucius Caflish, *La promotion de la justice, des droits de l’homme et du règlement des conflits par le droit international* (2007), pp. 701-716. See also the reference to “vital human needs” in the 1997 U.N. Convention on the Non-Navigational Uses of International Watercourses, Article 10. The U.N. 6th committee commentary indicates that: “In determining ‘vital human needs’ special attention is to be paid to providing sufficient water to sustain human life, including both drinking water and water required for the production of food in order to prevent starvation.” *Rept. of the 6th Committee Working Group*, GAOR A/51/869 (1997).

⁸⁶⁰ *Ibid.*, para. 2.

⁸⁶¹ *Ibid.*, paras. 2, 10 and 11.

water supplies. The evidence of pollution of these rivers and of drinking water supplies and damage to fish has been widely observed:

“People, upon bathing in the streams, found that the San Miguel River caused bumps on our skin, gave us headaches, nausea, stomach pains, the flu, and especially body aches.”⁸⁶²

“The Charapa River of this Village [Santa Marianita] is contaminated, so that whoever bathes here finds their skin affected. Animals such as cows, goats and fish have died.”⁸⁶³

“We stopped drinking the water from the river [a tributary of the border river] and instead started drinking water from a spring and the illness stopped.”⁸⁶⁴

9.71 Investigations by Ecuador’s authorities confirm these conclusions:

“It is evident that, the health situation in the communities visited has deteriorated because of the fumigations, not only due to direct effects on the health of people from the spraying of substances, and direct contact with the skin and mucus glands, but also due to the ingestion of contaminated water and food.”⁸⁶⁵

9.72 Independent corroboration has been provided by the UN Special Rapporteur on the Right to Food, referring to the situation of communities in the basin of the Mira River, which flows through the Mataje River which constitutes the border with Colombia, in the Province of Esmeraldas:

⁸⁶²“Impacts in Ecuador,” *op. cit.*, p. 12. EM, Vol. IV, Annex 166.

⁸⁶³ *Ibid.*, p. 15.

⁸⁶⁴ CONAIE Report, *op. cit.*, p. 17.

⁸⁶⁵ National Congress of the Republic of Ecuador, Commission for Health, Environment, and Ecological Protection, Congressman Miguel López Moreno, *Report of the Visit to Communities on the Border Cordon of the Province of Sucumbíos* (hereinafter “Congressional Visit to Communities”) (12-15 Dec. 2003), p. 5. EM, Vol. IV, Annex 167.

“In many rivers, among them the Mira River, which flows into Ecuadorian territory, a high percentage of the remnants of the chemical product used in the sprayings carried out in Colombian territory has been detected. The situation of the communities which sit near the Mira River, in the province of Esmeraldas, is troublesome due to the fact that the river is used for the personal and domestic uses of these communities.”⁸⁶⁶

9.73 The Special Rapporteur has linked the aerial spraying with pollution of the river and harm to health: “...the contamination of the waters of the rivers threatens the communities’ right to health”⁸⁶⁷. The Special Rapporteur on the Rights of Indigenous Peoples, Mr. Stavenhagen, has come to the same conclusions⁸⁶⁸.

9.74 The evidence demonstrates that Colombia is responsible for failing to protect the right of access to safe and healthy water. By polluting the rivers and springs from which the affected farmers and indigenous peoples in Ecuador draw their essential livelihoods Colombia has endangered the health and well-being of the most vulnerable populations living along the Ecuador-Colombia border, and significantly interfered with their rights to water, life, health, property and private life.

E. THE RIGHT TO A HEALTHY ENVIRONMENT

9.75 Colombia’s herbicide spraying also gives rise to a violation of the obligation to respect the right to a healthy and decent environment. This

⁸⁶⁶ Report of the Special Rapporteur on the Right to Food, *op. cit.*, para. 23.

⁸⁶⁷ *Ibid.*

⁸⁶⁸ See Report of the Special Rapporteur on the Rights of Indigenous People, *op. cit.*, para. 29. See also at para. 30. EM, Vol. II, Annex 30.

right is recognised by the Protocol of San Salvador, to which Colombia and Ecuador are parties. Article 11 (entitled the Right to a Healthy Environment) provides:

- “1. Everyone shall have the right to live in a healthy environment and to have access to basic public services.
2. The States Parties shall promote the protection, preservation, and improvement of the environment.”

9.76 What constitutes a healthy environment must be determined by reference to the natural, social, economic and cultural character of the region in question. In the present context, the case law of the Inter-American Court of Human Rights and the Constitutional Court of Colombia are of particular interest.

9.77 The right to a healthy environment has not yet been the subject of an authoritative interpretation by the Inter-American Court of Human Rights, since Article 19 of the Protocol of San Salvador indicates that no individual petitions concerning a violation of this right can be filed. However, the Inter-American Court has considered Article 11 of the Protocol “in connection with” other rights protected under the American Convention. In the *Yakye Axa Case* referred to above, the Inter-American Court had regard to the right to a healthy environment in order to ascertain “whether the State generated conditions that worsened the difficulties of access to a decent life for the members of the Yakye Axa Community”⁸⁶⁹. The Inter-American Court concluded that the right to a decent life had been violated.

⁸⁶⁹ *Yakye Axa Case*, para. 163.

9.78 The Inter-American Court's decision in the *Saramaka Case* also confirms that the exercise of fundamental human rights protected by the American Convention is dependent upon the enjoyment of a decent and healthy environment. Threats to indigenous peoples' natural environment resulting from logging or other concessions, or the impossibility to exercise land rights effectively, were held to breach the right to property:

“The logging concessions issued by the State in the Upper Suriname River lands have damaged the environment and the deterioration has had a negative impact on lands and natural resources traditionally used by members of the Saramaka people...The State failed to carry out or supervise environmental and social impact assessments and failed to put in place adequate safeguards and mechanisms in order to ensure that these logging concessions would not cause major damage to Saramaka territory and communities. Furthermore, the State did not allow for the effective participation of the Saramakas in the decision-making process regarding these logging concessions, in conformity with their traditions and customs...All of the above constitutes a violation of the property rights of the members of the Saramaka people recognized under Article 21 of the Convention, in connection with Article 1.1 of said instrument.”⁸⁷⁰

9.79 It is plain that the right to a healthy environment is closely related to the enjoyment of several other fundamental rights. The UN Special Rapporteur on Human Rights and the Environment has stressed this interdependence⁸⁷¹, and a number of domestic courts have acknowledged it⁸⁷². Among these decisions is the case law from Colombia, the courts of

⁸⁷⁰ *Saramaka Case*, para. 154.

⁸⁷¹ See generally, Final Report of the Special Rapporteur on Human Rights and the Environment, *op. cit.*

⁸⁷² For a review of domestic case law, see among others, background papers from *the Joint UNEP-OHCHR Expert Seminar on Human Rights and the Environment*, 14-16 January 2002, Geneva, available at <http://www.unhchr.ch/environment/index.html>; see also S.

which have been leaders in giving effect to the right to a healthy environment, which is explicitly recognised in Article 79 of the Colombian Constitution of 1991⁸⁷³. An eloquent statement by the Court of First Instance of Tuluá, in Colombia, subsequently upheld by the Colombian Constitutional Court in the leading case of *Fundepúblico v. Mayor of Bugalagrande and others* (1991-1992), describes the interdependence between the right to a healthy environment and other human rights:

“Everyone has the right to enjoy and live in a healthy environment. This should be regarded as a fundamental human right, which is a prerequisite and basis for the exercise of other human, economic and political rights. It should be recognised that a healthy environment is a *sine qua non* condition for life itself and that no right could be exercised in a deeply altered environment.”⁸⁷⁴

9.80 At the international level, the connection has been recognised by the African Commission on Human and Peoples’ Rights in the *Ogoniland Case (Social and Economic Rights Action Centre and the Centre for Economic and Social Rights v. Nigeria)*; the Commission confirmed the special link

Kravchenko and J. E. Bonine, *Human Rights and the Environment: Cases, Law, and Policy* (2008).

⁸⁷³The Constitution of Colombia of 1991, Article 79 states: “Every person has the right to enjoy a healthy environment. The law will guarantee the community's participation in the decisions that may affect it. It is the duty of the state to protect the diversity and integrity of the environment, to conserve areas of special ecological importance, and to foster education for the achievement of these ends.” Unofficial English translation, *available at* http://confinder.richmond.edu/admin/docs/colombia_const2.pdf.

⁸⁷⁴ *Fundepúblico v. Mayor of Bugalagrande and Others*, Judgment T-415, Constitutional Court of Colombia, *available at* <http://contralauvr.com/buscador/consti/tutelas/T-415-92.DOC>.

between the right to a generally satisfactory environment, guaranteed in Article 24 of the African Charter, and the right to health⁸⁷⁵.

9.81 With regard to the content of the right to a healthy environment, the Commission ruled that the right:

“requires the State to take reasonable and other measures to prevent pollution and ecological degradation, to promote conservation, and to secure an ecologically sustainable development and use of natural resources”⁸⁷⁶.

According to the African Commission, realization of this right “entails largely non-interventionist conduct from the State for example, not from carrying out, sponsoring or tolerating any practice, policy or legal measures violating the integrity of the individual”⁸⁷⁷. Compliance with the right to a healthy environment also includes obligations related to the right to information and to taking other preventive measures; government compliance must include:

“Ordering or at least permitting independent scientific monitoring of threatened environments, requiring and publicising environmental and social impact studies prior to any major industrial development, undertaking appropriate monitoring and providing information to those communities exposed to hazardous materials and activities and providing meaningful opportunities for individuals to be heard and to participate in the development decisions affecting their communities.”⁸⁷⁸

⁸⁷⁵ *Social and Economic Rights Action Centre and the Centre for Economic and Social Rights v. Nigeria*, ACHPR Comm. 155/96 (2002), para. 53.

⁸⁷⁶ *Ogoniland Case*, para. 52.

⁸⁷⁷ *Ibid.*

⁸⁷⁸ *Ibid.*, para. 53.

9.82 As established by the African Commission, protection of the right to a healthy environment does not amount to restricting the State from taking any action that impacts the environment. However, the State, in order to protect human rights, must exercise due care, take necessary preventive measures, allow informed participation of the concerned population, and provide for adequate monitoring mechanisms⁸⁷⁹.

9.83 None of these requirements have been met by Colombia in the present case. The standards aimed at establishing to what extent the right to a healthy environment of the concerned Ecuadorian population has been affected are informed by the particular characteristics of the affected area, including its social, economical and cultural environment. This Memorial provides extensive evidence of the serious environmental impacts of Colombia's aerial sprayings over Ecuadorian territory; the toxic mixture used in the aerial fumigations has polluted water, killed wild and domestic animals, destroyed forest and decimated crops⁸⁸⁰. These resources are essential to sustaining the livelihood of farming and indigenous communities in the border area. Moreover, as explained earlier in regard to the right to property, the natural environment of this region constitutes the *home* of indigenous communities. The environment is at the core of their family life, of their property rights and of their cultural survival.

9.84 As stated by the Colombian Constitutional Court, the right to a healthy environment has to be understood not only "as a fundamental right of human beings, but also as one of the aims of the State, since not only the

⁸⁷⁹ *Ibid.*, para. 54.

⁸⁸⁰ *See supra* Chap. VI, Secs. II and III.

integral development of the human species, but also the protection of the most basic conditions of survival depend on its realization.”⁸⁸¹ Colombian aerial sprayings over Ecuadorian territory have destroyed peoples’ “most basic conditions of survival” and have resulted in a violation by Colombia of the right to a healthy environment as set out in the 1988 Additional Protocol to the American Convention on Human Rights. Colombia’s failure to take preventive measures, including mechanisms to facilitate access to information and participation, aggravates its international responsibility.

F. THE RIGHT TO PROPERTY

9.85 The right to property is set out in Article 17 of the Universal Declaration of Human Rights of 1948. It is specifically guaranteed under Article 21 of the American Convention on Human Rights. This provision recognises that the right to the use and enjoyment of property may be limited, but only according to a legal mandate; a person may only be deprived of his or her property for reasons of “public utility or social interest, and in the cases and according to the forms established by law”⁸⁸². The Inter-American Court of Human Rights has defined “property” as including “those material things which can be possessed, as well as any right which may be part of a person’s patrimony; that concept includes all movables and immovables, corporeal and incorporeal elements and any other intangible object capable of having value”⁸⁸³.

⁸⁸¹ *Fundepublico v. Mayor of Bugalagrande and Others*, para. 6, available at, <http://contralauvr.com/buscador/consti/tutelas/T-415-92.DOC>.

⁸⁸² American Convention on Human Rights, *op. cit.*, Article 21(1) reads: “Everyone has the right to the use and enjoyment of his property. The law may subordinate such use and enjoyment to the interest of society.”

⁸⁸³ *Awes Tingni Case*, para. 144.

9.86 Most people living in the border area with Colombia own little more than a small plot of land, the crops they cultivate and the few animals they raise. Some of these families have incurred debts in order to make the necessary investments in their land. The loss of crops and animals occasioned by Colombia's aerial spraying of herbicides has brought irreparable harm to many families, especially to those located closer to the border. Over a period of nearly nine years, in many cases, the soil has not recovered and the productivity of farms has decreased significantly. The damage to property has had a significant impact on the income generated by already poor local farms, causing farmers to incur new or additional debt to sustain their farms and families. In addition, the lack of income has made farmers unable to repay existing loans thereby restricting local finance bodies in their ability to make new loans to the local people⁸⁸⁴. With no loans, for many of the local farmers it has been impossible to start farming again.

9.87 Chapter VI of the Memorial describes the impact of the aerial spraying of herbicides over crops and animals. Subsistence crops have been destroyed or damaged⁸⁸⁵, and domestic animals have died⁸⁸⁶. As a result, many families have lost a great deal of their property or livelihood, and many have been forced to move to other areas⁸⁸⁷. These acts give rise to a violation by Colombia of the obligation to respect the right to property.

⁸⁸⁴ See CONAIE Report, *op. cit.*, p. 22. EM. Vol. IV, Annex 162.

⁸⁸⁵ See *supra* Chap. VI, Sec. II.

⁸⁸⁶ See *supra* Chap. VI, Sec. III.

⁸⁸⁷ See, *e.g.*, *supra*, Chap. VI, paras. 6.37, 6.64, 6.74, 6.75, 6.95, 6.109, 6.116 and 6.119.

G. THE RIGHT TO HUMANE TREATMENT

9.88 Article 5 of the American Convention on Human Rights recognises that “every person has the right to have his physical, mental and moral integrity respected. No one shall be subjected to torture or to cruel, inhuman or degrading punishment or treatment”.

9.89 In the present case, the right to psychological integrity of the Ecuadorian population in the border region has been violated because people have been subject to severe emotional distress caused by the direct impacts of Colombia’s aerial fumigations on their lives⁸⁸⁸. As explained above, illnesses and other harms to health and livelihood that have occurred following contact with the chemical products used in the sprayings have had a severe psychological impact on the population⁸⁸⁹. The accounts of fear and trauma as a result of the fumigations are deeply troubling. A mother who lost two small babies after the sprayings said:

“Because of all of this, every time I would see the planes spraying around here for all these years, it would cause me great anguish. I was afraid to have more children and lose them to that poison that came out of the sky.”⁸⁹⁰

9.90 Another mother, of the Cofán community of Avie, explained:

“I would not let my children go outside nor did I send them anywhere; I was afraid they would get sick because I had

⁸⁸⁸ As affirmed by the Inter-American Court, “the violation of the right to physical and psychological integrity of persons is a category of violation that has several gradations and embraces treatment ranging from torture to other types of humiliating effects caused by endogenous and exogenous factors...”. *Loayza Tamayo v. Perú, Judgment*, IACHR (17 Sep. 1997), para. 57.

⁸⁸⁹ See *supra* Chap. VI, paras. 6.18-6.19, 6.28, 6.35, 6.109, and 6.119.

⁸⁹⁰ Witness 11 Declaration, *op. cit.* EM, Vol. IV, Annex 199.

already seen them sick after the sprayings. My health is affected, I feel sick, I have headaches, and I live in fear.”⁸⁹¹

9.91 A young man from Avie, who at the time of the sprayings was a child, left his Cofán community to study in Quito in order to recover from the disruptions caused by the sprayings:

“When the sprayings began, I stopped going to school for fear of the planes and helicopters. I spent a whole year out of school.”⁸⁹²

9.92 The UN Special Rapporteur on the Right to Health has acknowledged the devastating impacts on mental health that have been caused by Colombia’s aerial spraying:

“There is also credible, reliable evidence that the aerial spraying damages their mental health. Military helicopters sometimes accompany the aerial spraying and the entire experience can be terrifying, especially for children. (Some children told me that, while they were in their school, it was sprayed).”⁸⁹³

9.93 In addition to protection from fear, the right to humane treatment, as recognised in Article 5 of the American Convention, requires protection from other sources of distress. In the *Moiwana Case*, the Inter-American Court of Human Rights addressed the situation of indigenous peoples and the fragile balance in which they live their lives, and recognised a clear violation of Article 5(1) of the Convention as a result of the N’djuka

⁸⁹¹ Witness 26 Declaration, *op. cit.* EM, Vol. IV, Annex 210.

⁸⁹² Witness 29 Declaration, *op. cit.* EM, Vol. IV, Annex 213.

⁸⁹³ Special Rapporteur on the Right to Health, 2007 Press Release, *op. cit.* EM, Vol. IV, Annex 186.

community being deprived of the right to continue to live in their traditional lands:

“The proven facts demonstrate that a N’djuka community’s connection to its traditional land is of vital spiritual, cultural and material importance...Unable to practice their customary means of subsistence and livelihood, many, if not all, have suffered poverty and deprivation since their flight from Moiwana Village...Taking into account the foregoing analysis, the Court concludes that the Moiwana community members have endured significant emotional, psychological, spiritual and economic hardship – suffering to a such a degree as to result in the State’s violation of Article 5(1) of the American Convention, in relation to Article 1(1) of that treaty, to the detriment of said community members.”⁸⁹⁴

9.94 In these circumstances, Colombia’s actions give rise to its responsibility for violating the right to humane treatment reflected in Article 5 of the Convention.

H. THE RIGHT TO PRIVATE LIFE

9.95 The spraying of toxic chemicals on the border area has severely disrupted the lives of local communities over many years, to the point that their lives have been transformed. These sprayings have interfered with their most intimate aspects of life, affecting their choices and the way they lead their daily existence. In many cases the sprayings have resulted in the destruction of their means of subsistence and poor health, and this has caused families to abandon their homes, as shown in Chapter VI⁸⁹⁵.

⁸⁹⁴ *The Moiwana Community Case*, paras. 101-103.

⁸⁹⁵ *See supra* Chap. VI, paras. 6.37, 6.64, 6.74, 6.75, 6.95, 6.109, 6.116 and 6.119.

9.96 The right to private and family life is guaranteed by Article 17 of the International Covenant on Civil and Political Rights (ICCPR), which states that “no one shall be subjected to arbitrary or unlawful interference with his privacy, family, home or correspondence, nor to unlawful attacks on his honour and reputation”. Similar obligations are reflected in Article 11 of the American Convention on Human Rights and Article 16 of the Convention on the Rights of the Child. This right is often engaged in conjunction with the obligation to protect the family, as established in Article 23 of the ICCPR and Article 17 of the American Convention⁸⁹⁶, and with Article 19 of the American Convention, which protects the rights of the child. In this case, the right to private life, home and family life is closely connected with the freedom of movement and residence, as guaranteed by Article 17 of the ICCPR and Article 22 of the American Convention. The Human Rights Committee, in *Lovelace v. Canada*, also recognised the linkage between the right to private life and Article 27 on the rights of minorities, which has been addressed above⁸⁹⁷.

9.97 The right to private life involves the right to be free from arbitrary or unlawful interference with one’s home and family life. According to the UN Committee on Civil and Political Rights, both terms are to be interpreted broadly; “family” needs include “all those comprising the family as understood in the society of the State party concerned”, and the term

⁸⁹⁶ The right to protection of families is also recognized in Article 15 of the Protocol of San Salvador.

⁸⁹⁷ See *supra* Chap. IX, paras. 9.18-9.23.

“home”, as used in Article 17 of the Covenant, is understood to indicate “the place where a person resides or carries out his usual occupation”⁸⁹⁸.

9.98 Freedom from arbitrary or unlawful interference includes having one’s home and family life free from significant pollution. The European Court of Human Rights was the first to confirm the point, in two cases where citizens were affected by smells, fumes and noise from a waste treatment plant and by hazardous substances from a chemical plant respectively⁸⁹⁹. The European Court found that in both cases there had been a violation of the right to respect for private and family life. It stated: “Severe environmental pollution may affect individuals’ well-being and prevent them from enjoying their homes in such a way as to affect their private and family life adversely.”⁹⁰⁰

9.99 In the present case, unknowing and unprepared, local communities were periodically exposed to herbicides. As a result, farmers and indigenous peoples have frequently found it difficult to work their fields⁹⁰¹,

⁸⁹⁸ CCPR, General Comment No. 16, The Right to Respect of Privacy, Family, Home and Correspondence, and Protection of Honour and Reputation (Article 17), Thirty-second session (1988), para. 5.

⁸⁹⁹ *López Ostra v. Spain*, Judgment, ECHR, Series A no. 303-C (9 Dec. 1994), pp. 54-55, para. 51; *Guerra and Others v. Italy*, Judgment, ECHR, Reports of Judgments and Decisions 1998 I (19 Feb. 1998), p. 228, para. 60. See also *Fadeyeva v. Russia* [2005] ECHR 376; *Öneryildiz v. Turkey* [2004] ECHR 657.

⁹⁰⁰ *López Ostra v. Spain*, Judgment, ECHR, Series A no. 303-C (9 Dec. 1994), pp. 54-55, para. 51.

⁹⁰¹ See *supra* Chap. VI, Sec. II; see also e.g., Declaration of Witness 7, 16 Jan. 2009 (hereinafter “Witness 7 Declaration”). EM, Vol. IV, Annex 195; Witness 1 Declaration, *op. cit.* EM, Vol. IV, Annex 189; Declaration of Witness 19, 17 Jan. 2009. EM, Vol. IV, Annex 205.

to make use of the river⁹⁰², to send their children to school⁹⁰³, to lead their daily lives undisturbed and to enjoy their home lives in a manner to which they are entitled.

9.100 Many families have been displaced and forced to leave their homes and relocate away from the border area in order to escape the harmful effects of pollution from the chemical spray⁹⁰⁴. In some cases, families have been torn apart in the search for some alternative means to earn a living⁹⁰⁵. For example, Witness 26, from the Cofán community of Avie, explains:

“After the sprayings, my children had to leave to find work; some work in Coca, in the province of Orellana, others in Lago Agrio and others in General Farfán. The family has separated, now I live with only one daughter. All this displacement, which has been caused by the sprayings, has very much affected our community, we used to live near the border in the land of the Cofán, but we left there, moving away from the border and our community, fleeing from the sprayings. But this displacement has affected our traditions, it is very important for the Cofán people to keep their roots, the tradition of the Cofán people is to marry people from the same Cofán nationality. But after the families leave the communities, the young people turn away from the traditions. They no longer marry members of the Cofán nationality and

⁹⁰² See, e.g., Witness 10 Declaration, *op. cit.* EM, Vol. IV, Annex 198; Declaration of Witness 34, 19 Feb. 2009, para. 3. EM, Vol. IV, Annex 218; Witness 2 Declaration”). EM, Vol. IV, Annex 190.

⁹⁰³ See CONAIE Report, *op. cit.*, p. 12. EM, Vol. IV, Annex 162; see also e.g., Witness 29 Declaration, *op. cit.* EM, Vol. IV, Annex 213; Declaration of Witness 13, 15 Jan. 2009 (hereinafter “Witness 13 Declaration”). EM, Vol. IV, Annex 201.

⁹⁰⁴ See, e.g., Chap. VI, paras. 6.37, 6.64, 6.74, 6.75, 6.95, 6.109, 6.116 and 6.119.; see also e.g., Witness 32 Declaration, *op. cit.*, para. 4. EM, Vol. IV, Annex 216; Witness 27 Declaration, *op. cit.* EM, Vol. IV, Annex 211; Witness 29 Declaration, *op. cit.* EM, Vol. IV, Annex 213.

⁹⁰⁵ See, e.g., Witness 19 Declaration, *op. cit.* EM, Vol. IV, Annex 205; Witness 20 Declaration, *op. cit.*, para. 6. EM, Vol. IV, Annex 206; Witness 28 Declaration, *op. cit.* EM, Vol. IV, Annex 212.

they do not return to the communities, they remain in the village. This separation has been very difficult for all of us.”⁹⁰⁶

9.101 In the case of indigenous communities, as explained in Chapter VI, and exemplified in the statement of Witness 26, above, the abandonment of ancestral lands has not only brought an end to the enjoyment of homes, it has also led to the disintegration of families.

9.102 Displacement of families from their homes as a result of aerial spraying of toxic herbicides engages the responsibility of Colombia for a violation of the right to private life pursuant to applicable articles of the ICCPR, the American Convention on Human Rights, and the Convention on the Rights of the Child.

I. THE RIGHT TO INFORMATION

9.103 As described in this Memorial, Colombia has persistently failed to provide adequate information concerning the aerial sprayings. Information has been withheld on timings and locations, and on the chemical composition of the materials that have been used in the sprayings. Even now the Government of Ecuador and the local population in the affected areas have not been informed about the specific composition of the herbicide compound Colombia has used over time in the aerial sprayings,

⁹⁰⁶ Witness 26 Declaration, *op. cit.* EM, Vol. IV, Annex 210.

the concentration of the chemicals within the mixture, or the location or times of the spray campaigns⁹⁰⁷.

9.104 Compliance with the obligations referred to in Chapter VIII, at paragraphs 8.63-8.70, requires Colombia to notify and inform those likely to be affected by the aerial sprayings; see, for example, *Öneryildiz v Turkey*, where the European Court of Human Rights placed “particular emphasis” on the public’s right to information about dangerous activities which posed a threat to life⁹⁰⁸. In *Taskin v. Turkey*, the European Court explained that where a State wishes to undertake activities which might damage the environment and infringe individuals’ rights, it has to conduct appropriate assessments of such consequences and ensure public access to such assessments⁹⁰⁹. The African Commission on Human and Peoples’ Rights has adopted a similar approach. In the *Ogoniland Case*, it ruled that compliance with the right to health and with the right to a healthy environment required the State to provide “information to those communities exposed to hazardous materials and activities and [to provide] meaningful opportunities for individuals to be heard and to participate in the development decisions affecting their communities”⁹¹⁰.

9.105 The Inter-American system for the protection of human rights has long recognised that the failure to engage in “meaningful consultation” with indigenous communities in connection with activities affecting their traditional lands will result in a violation of various human rights

⁹⁰⁷ See generally Chap. III.

⁹⁰⁸ *Case of Öneryildiz v. Turkey*, Judgment, ECHR (30 Nov. 2004), para. 90.

⁹⁰⁹ *Case of Taskin and Others v. Turkey*, Judgment, ECHR (10 Nov. 2004), para. 119.

⁹¹⁰ *Ogoniland Case*, para. 53.

obligations⁹¹¹. As already pointed out in paragraphs 9.21 and 9.29 above, Article 27 of the International Covenant on Civil and Political Rights and Article 6 of ILO Convention No 169 also require consultation with indigenous peoples and participation in decision-making.

9.106 A great number of statements from inhabitants in the border area confirm the absence of any consultation with local inhabitants about Colombia's herbicide spraying programme⁹¹². Colombia's failure to provide even the minimum information left the population in the border area entirely uninformed as to the composition or effects of the chemical mixture being sprayed, the times of the sprayings or the areas where spraying would take place. This total lack of the most basic information has been underscored by the UN Special Rapporteur on the Right to Food⁹¹³.

9.107 Colombia's failure to provide minimum information about the serious risks of toxic herbicides to health, water supplies, crops and domestic animals, or to warn those likely to be affected when spraying was due to take place, amounts to a grave breach of the right to life and the right to private and family life, and to applicable articles of the International Covenant on Civil and Political Rights and ILO Convention No 169.

⁹¹¹ *Maya Indigenous Communities of the Toledo District v. Belize, Judgment*, Inter-American Commission on Human Rights, Report N° 40/04, Case 12.053 (12 Oct. 2004), para. 154.

⁹¹² See all witness statements in Annexes 187-233, in which none of the witnesses were given notice and all were found outside, exposed to the chemical spray during fumigation events.

⁹¹³ See Special Rapporteur on the Right to Food, Communications, *op. cit.*, para. 17. EM, Vol. II, Annex 33.

J. CONCLUSIONS

9.108 This chapter has shown that Colombia's programme of aerial spraying of toxic herbicides in border areas has seriously affected the health of local inhabitants in Ecuadorian territory, has diminished the productivity of their farms, crops, and domestic animals, has polluted their water supplies and the natural environment, and in some cases has resulted in the displacement of villages and other habitations near the border. Colombia's failure to take the measures necessary to prevent or mitigate the harmful effects of the toxic herbicides it has chosen to use amounts to a failure to protect the human rights of all the affected populations, as well as the special rights of indigenous peoples. This failure constitutes a violation *inter alia* of the rights to life, health, private and family life, property, and for indigenous peoples, of their rights to pursue their traditional lifestyles and culture and to use and enjoy their ancestral lands and natural resources.

9.109 Colombia has thus violated applicable provisions of *inter alia* the 1966 UN Covenants on Civil and Political Rights and on Economic, Social and Cultural Rights, the 1969 Inter-American Convention on Human Rights, the 1979 Convention on the Elimination of All Forms of Discrimination Against Women, the 1988 Additional Protocol to the American Convention on Human Rights in the Area of Economic, Social and Cultural Rights, the 1989 ILO Convention No. 169 Concerning Indigenous and Tribal Peoples in Independent Countries, and the 1989 Convention on the Rights of the Child. Moreover, for the same reasons and on the same basis it has also violated the 1988 UN Narcotic Drugs Convention, insofar as human rights obligations are incorporated thereunder by virtue of Article 14(2).

9.110 Ecuador reserves its right to seek appropriate remedies for these violations, as set out in Chapter X of this Memorial.

CHAPTER X.
COLOMBIA IS INTERNATIONALLY RESPONSIBLE FOR ITS
VIOLATIONS OF INTERNATIONAL LAW

10.1 This Chapter sets out the principles governing the responsibility and liability of Colombia for the multiple violations of international law that have been occasioned by Colombia's aerial spraying programme since 2000.

10.2 Colombia's actions have caused grave, continuing and long-lasting harms to Ecuador: to its sovereignty, to its people and property, including indigenous peoples, and to its environment. As set out further below, in respect of past actions, Ecuador seeks a declaration from the Court that Colombia's actions have violated numerous of its international legal obligations. It also seeks, in respect of the future, an order from the Court that Colombia cease and desist from any further illegal actions and, in light of the continuing unlawful consequences of its actions, that it be ordered not to repeat any of its past actions. But a declaration of illegality and an order of non-repetition will not be sufficient to redress the harms that have been suffered. It is well established that an illegal act gives rise to an obligation to make reparation and that, as the PCIJ made clear in the *Factory at Chorzów* case, "reparation must, as far as possible, wipe out all the consequences of the illegal act and reestablish the situation which would, in all probability, have existed if that act had not been committed"⁹¹⁴. In the present case some of the harm that has been caused -- to the rights of indigenous peoples, to the environment, to the well-being of Ecuador's citizens -- may not be susceptible to restitution. In these circumstances, in accordance with well-established principles of international law, other forms of reparation are available and should be ordered.

10.3 At this stage of the proceedings, Ecuador requests the Court to do no more than determine that Colombia is internationally responsible for its violations of

⁹¹⁴ See *infra* para. 10.16.

international law, and to declare the applicable principles that govern Colombia's liability, including the legal consequences and liability of Colombia for its unlawful actions. This is an approach that the Court has taken on other occasions. In the case concerning *Armed Activities on the Territory of the Congo* the Court stated that it:

“considers appropriate the request of the DRC for the nature, form and amount of the reparation due to it to be determined by the Court, failing agreement between the Parties, in a subsequent phase of the proceedings”⁹¹⁵.

10.4 The Court recognized that this would give the Applicant State “the opportunity to demonstrate and prove the exact injury that was suffered as a result of specific actions of [the Respondent State] constituting internationally wrongful acts for which it is responsible”⁹¹⁶. Adopting this approach, Ecuador does not propose at this stage of the proceedings to “demonstrate and prove the exact injury that was suffered” as a result of specific actions of Colombia; Ecuador is evaluating all the damages that have been suffered and will tender specific and complete evidence on all the harms, together with a detailed claim for monetary compensation, in the next phase of these proceedings. At this stage, Ecuador limits itself to identifying the applicable heads under which injury has been suffered and for which reparation and other consequences may arise, together with an indication of the relevant and existing evidence on assessment of damages that will be elaborated in a future phase.

10.5 In this regard, Ecuador notes that in the case concerning *Armed Activities on the Territory of the Congo* the Court reminded the parties that:

⁹¹⁵ *Armed Activities on the Territory of the Congo (Democratic Republic of the Congo v. Uganda)*, Judgment, I.C.J. Reports 2005, p. 201, para. 260.

⁹¹⁶ *Ibid.*

“It goes without saying, however, as the Court has had the opportunity to state in the past, ‘that in the phase of the proceedings devoted to reparation, neither Party may call in question such findings in the present Judgment as have become *res judicata*’ (*Military and Paramilitary Activities in and against Nicaragua (Nicaragua v. United States of America)*, *Merits, Judgment*, *I.C.J. Reports 1986*, p. 143, para. 284).”⁹¹⁷

10.6 The International Law Commission’s Articles on Responsibility of States for Internationally Wrongful Acts (“ILC Draft Articles on State Responsibility”) provide, in Article 1 that:

“Every internationally wrongful act of a State entails the international responsibility of that State.”⁹¹⁸

10.7 This principle, which reflects a rule of general international law, governs the international responsibility of Colombia. By violating its international obligations towards Ecuador in the manner set out in the preceding Chapters, Colombia has committed internationally wrongful acts⁹¹⁹ giving rise to responsibility under international law. Colombia has caused or allowed the deposit on the territory of Ecuador of toxic chemicals that have caused damage to human health, to property and to the environment.

⁹¹⁷ *Ibid.*

⁹¹⁸ International Law Commission, *Articles on Responsibility of States for Internationally Wrongful Acts, Yearbook of the International Law Commission, with Commentaries*, (hereinafter “ILC Draft Articles on State Responsibility”), Vol. II, Part Two (2001).

⁹¹⁹ Article 2 of the ILC Draft Articles on State Responsibility states that there is an internationally wrongful act of a State when conduct consisting of an act or omission: (a) is attributable to the State under international law; and (b) constitutes a breach of an international obligation of the State. *Ibid.*

10.8 The ILC Draft Articles on State Responsibility set out the legal consequences of an internationally wrongful act of a State. These include a duty to:

- (a) cease the wrongful act, if it is continuing⁹²⁰;
- (b) offer appropriate assurances and guarantees of non-repetition, if the circumstances so require⁹²¹; and
- (c) make full reparation for the injury caused by the internationally wrongful act, including any material or moral damage caused by that act⁹²².

These consequences need not be mutually exclusive.

Section I. The Harm Suffered by Ecuador

10.9 The harm suffered by Ecuador as a result of Colombia's acts has been described in the preceding chapters of this Memorial, in particular in Chapter VI. Colombia's chemical spraying has caused damage and injury to human health, including illness and death among the people who inhabit the border region⁹²³. Individuals in Ecuador in the affected region have suffered skin irritation and rashes, eye irritation, fever, nausea, vomiting, dizziness, headaches and respiratory complications in the aftermath of the spraying⁹²⁴. The medium and long term health effects of their exposure to the herbicide mixture remain uncertain. In addition to direct exposure to chemical spraying, the health of

⁹²⁰ *Ibid.*, Art. 30.

⁹²¹ *Ibid.*

⁹²² *Ibid.*, Art. 31. The Draft Articles go on to address reparation for injury in more detail in Articles 34 -39.

⁹²³ *See supra* Chap. VI, Sec. I. "The Harm to People".

⁹²⁴ *See ibid.*

people in the border region has been adversely affected by pollution of freshwater supplies used for drinking, cooking and bathing. The health of animals, including livestock, poultry and fish, has also been badly affected, resulting in deaths, serious ailments and reduced productivity⁹²⁵. Colombia's aerial spraying of herbicides has destroyed or damaged thousands of hectares of valuable crops in Ecuador⁹²⁶, with particularly devastating effects on short-cycle crops and the subsistence crops upon which indigenous and local communities in Ecuador's border region depend⁹²⁷. All of these impacts have had serious effects on the well-being, food security and human rights of the indigenous and local communities in the border region, and have resulted in the displacement of some communities as they seek to escape the effects of the spraying⁹²⁸. The full impact of the spraying in the short, medium and long-term on the wider environment, in what is a megadiverse region, remains unknown, but damage to local wildlife, forests and water resources has been established⁹²⁹.

Section II. Cessation and Non-Repetition

10.10 The Commentary to the ILC Draft Articles on State Responsibility explains that:

⁹²⁵ See *supra* Chap. VI, Sec. III. "The Harm to Animals".

⁹²⁶ See *supra* Chap. VI. Sec. II. "The Harm to Plants".

⁹²⁷ *Ibid.*, especially paras. 6.55-6.60.

⁹²⁸ *Report of the Special Rapporteur on the Situation of Human Rights and Fundamental Freedoms of Indigenous People, Mission to Ecuador (25 April-4 May 2006)*, (hereinafter "Report of the Special Rapporteur on the Rights of Indigenous People") U.N. Doc. A/HRC/4/32/Add.2 (28 Dec. 2006), para. 30. EM, Vol. II, Annex 30.

⁹²⁹ *Ibid.* See also *supra*, Chap. VI, Sec. II. "The Harm to Plants", Sec. III. "The Harm to Animals", paras. 6.86-6.87, 6.91, 6.96, 6.104, 6.107, 6.117, 6.120-6.125; Chap. IX, paras. 9.70-9.74.

“Cessation is, as it were, the negative aspect of future performance, concerned with securing an end to continuing wrongful conduct, whereas assurances and guarantees serve a preventive function and may be described as positive reinforcement of future performance.”⁹³⁰

10.11 Colombia commenced aerial spraying of an herbicide-based mixture in the border region with Ecuador in 2000, and continued, despite Ecuador’s protests, until early 2007. Since then, Colombia has held out the possibility that it may resume spraying at any time. The diplomatic history of this dispute, as described in Chapter III, shows conclusively that Colombia failed to take into account Ecuador’s serious concerns, and in particular that it failed to provide information as to the chemical composition of the materials being sprayed. This failure to provide information constitutes an ongoing and continuing violation of its obligations, since the failure to provide information makes it impossible to know precisely what measures are needed to safeguard the health of those persons who have been exposed to the spray, as well as the impact on crops, livestock and the environment. This continuing violation alone justifies an order for cessation of the refusal to provide information.

10.12 As described in Chapters II, III and V, Colombia has consistently refused to disclose to Ecuador the precise chemical composition of the herbicide mixture that it is spraying and the concentrations of the various chemicals used⁹³¹. It has also refused to provide information as to the time and location of the aerial sprayings. This is in plain violation of Colombia’s obligation under international law to consult and cooperate with Ecuador in order to prevent transboundary

⁹³⁰ ILC Draft Articles on State Responsibility, *op. cit.*, Art. 30, Commentary para. 1.

⁹³¹ *See, e.g., supra*, Chap. II, paras. 2.38-2.43; Chap. III, paras. 3.2, 3.9-3.10, 3.68, 3.78; Chap. V, paras. 5.27–5.34.

harm⁹³². It severely hampers the ability of Ecuador to formulate and implement effective responses to avoid or alleviate the damage caused to its people, property, and environment. It means that Ecuador has not in the past been able to provide the fullest possible care for those who have been exposed to the contaminants. And as to the future, it means that Ecuador continues to be unable to care for the victims of contamination as well as it should be able to. Accordingly, Ecuador seeks an order from the Court that Colombia should fulfil its international obligation by disclosing to Ecuador the composition of the herbicide mixture(s) used in the border region from 2000 onwards.

10.13 In the period since 2000, Colombia repeatedly violated the territorial sovereignty of Ecuador, and violated its international obligations in the manner described in the preceding Chapters of this Memorial. Moreover, despite repeated requests from Ecuador, Colombia has declined to give Ecuador any undertaking that it will refrain in the future to engage in spraying that may have cross-border effects⁹³³. Given Colombia's failure to consult or cooperate with Ecuador in relation to this matter since the commencement of spraying in 2000, the situation appears to be that Colombia could engage in renewed aerial herbicide spraying at any time and without prior or other notice or information to Ecuador, and without Ecuador having been afforded an opportunity to give its consent. Any recommencement would expose the population, territory and environment of Ecuador to continuing and additional harm. As set out in this Memorial, the adverse effects of Colombia's herbicide sprayings on Ecuador have already been severe and persistent, and threaten irreversible

⁹³² See *supra* Chap. VIII, Secs. II & III.

⁹³³ See, e.g., *supra*, Chap. III, paras. 3.14-3.15, 3.24-3.26, 3.54, 3.59.

consequences⁹³⁴. Colombia is under an obligation to cease using the herbicides in such a way that they could be deposited into the territory of Ecuador, and to provide to Ecuador guarantees of non-repetition of the illegal acts described in this Memorial. Ecuador seeks an order from the Court to this effect. To the extent that aerial herbicide spraying continues, the damage to the territory, population and environment of Ecuador described in Chapter VI will continue. Accordingly, Ecuador seeks an order from the Court that Colombia should fulfil its international obligation to Ecuador by refraining from further aerial spraying activities that deposit herbicides at, near or across the border with Ecuador.

Section III. Reparation

10.14 The general principle of reparation was set out by the Permanent Court of International Justice in the *Factory at Chorzów* case as follows:

“It is a principle of international law that the breach of an engagement involves an obligation to make reparation in adequate form.”⁹³⁵

10.15 The arbitral tribunal in *Rainbow Warrior* confirmed that:

“Any violation by a State of any obligation, of whatever origin, gives rise to state responsibility, and consequently, to the duty of reparation.”⁹³⁶

⁹³⁴ See *supra* Chap. VI.

⁹³⁵ *Factory at Chorzów, Jurisdiction, Judgment, 1927, P.C.I.J. Series A, No. 9, p. 21.*

⁹³⁶ *Case concerning the difference between New Zealand and France concerning the implementation or application of two agreements concluded on 9 July 1986 between the two States and which related to the problems arising from the Rainbow Warrior Affair, Reports of International Arbitral Awards, Vol. XX (1990), p. 215, para. 75.*

10.16 As to the form of reparation, the Permanent Court stated in *Factory at Chorzów*:

“The essential principle contained in the actual notion of an illegal act -- a principle which seems to be established by international practice and in particular by the decisions of arbitral tribunals -- is that reparation must, as far as possible, wipe out all the consequences of the illegal act and reestablish the situation which would, in all probability, have existed if that act had not been committed. Restitution in kind, or, if this is not possible, payment of a sum corresponding to the value which a restitution in kind would bear; the award, if need be, of damages for loss sustained which would not be covered by restitution in kind or payment in place of it -- such are the principles which should serve to determine the amount of compensation due for an act contrary to international law.”⁹³⁷

This principle is firmly established in international law, and has been cited by the Court in numerous cases⁹³⁸.

10.17 Historically, the leading case involving transboundary harm has been the *Trail Smelter* arbitration, where the Tribunal found that the smelter at Trail had caused damage in the United States and was called upon to decide what indemnity should be paid for the damage⁹³⁹. The case is largely of historical interest, applying the approach to compensation that pertained in the early part of the twentieth century, which approach has been significantly developed in recent years, as reflected, for example, in the decisions of the United Nations Compensation Commission that are detailed below. Even if of historical interest,

⁹³⁷ *Factory at Chorzów, Claim for Indemnity, Merits, Judgment No. 13, 1928, P.C.I.J. Series A, No. 17, p. 47.*

⁹³⁸ E.g., *Case concerning the Gabčíkovo-Nagymaros Project (Hungary/Slovakia), Judgment, I.C.J. Reports 1997, p. 7, p. 77, para. 149* and *Avena and Other Mexican Nationals (Mexico v. United States of America), Judgment, I.C.J. Reports 2004, p. 12, para. 119.*

⁹³⁹ *See Trail Smelter Case (United States v. Canada), 16 Apr. 1938 and 11 Mar. 1941, Reports of International Arbitral Awards, Vol. III, p. 1905.*

the Tribunal nevertheless went far in awarding damages for harm to cleared land used for crops, adopting the measure of damages applied by the American courts for nuisance or trespass, namely “the amount of reduction in the value of use or rental value of the land caused by the fumigations”⁹⁴⁰. The Tribunal also recognised evidence of “special damage” which gave rise to a further award of monetary damages⁹⁴¹, and awarded compensation for damage to cleared land not used for crops and to all uncleared lands. The Tribunal held that it was “unnecessary to decide whether the facts proven did or did not constitute an infringement or violation of the sovereignty of the United States under international law independently of the Convention” since the 1935 Convention only submitted to the Tribunal the question of damages caused by the Trail Smelter in the state of Washington, and it interpreted the intention of the parties in the Convention not to include monies spent by the United States in investigating the problems, since the agreement used the words “damage caused by the Trail Smelter”⁹⁴². The two awards of the Arbitral Tribunal did not deal with pure environmental damage *per se*, and did not assess damages in respect of injurious consequences to the Colombia River.

10.18 The historical approach in the *Trail Smelter* case may be compared with the modern approach reflected in decisions adopted by the United Nations Compensation Commission (“UNCC”), including in particular the report on awards of compensation for environmental and public health damage resulting from Iraq's 1990-91 invasion and occupation of Kuwait that was issued in June

⁹⁴⁰ *Ibid.*, p. 1925.

⁹⁴¹ *Ibid.*

⁹⁴² *Ibid.*, pp. 1932-1933.

2005⁹⁴³. The UNCC was required to interpret and apply Security Council Resolution 687 (1991), which provided that Iraq was “liable under international law for any direct loss, damage, including environmental damage and the depletion of natural resources, or injury to foreign Governments, nationals and corporations, as a result of Iraq's unlawful invasion and occupation of Kuwait”⁹⁴⁴. The UNCC awarded compensation for the monitoring and assessment of damage, for response costs, and for remediation of damage⁹⁴⁵. Further claims were made by Kuwait and neighbouring States for damage from oil well fires that released airborne contaminants; for damage caused by oil lakes that migrated onto the desert surface; for oil spills into the Persian Gulf; and for the impacts of these and other acts on public health. The UNCC made large money damage awards to the Governments of Kuwait, Iran, Jordan and Saudi Arabia for losses of natural resources, losses of crops and livestock, loss of water resources, costs of remediation, and damage to public health.

10.19 Significantly, the UNCC decided that pure environmental damage could be compensable, and dealt at length with the issue of quantifying the level of compensation. It decided that where a resource had commercial value, such as a crop, and was damaged for a period of time, compensation should be awarded on the basis of the market price for the period of time that the damage persisted,

⁹⁴³ On the Commission generally, see Alexandros Kolliopoulos, *La Commission d'indemnisation des Nations Unies et le droit de la responsabilité internationale*, Librairie Générale de Droit et de Jurisprudence (2001). See more specifically: United Nations Compensation Commission (UNCC), *Report and Recommendations made by the Panel of Commissioners concerning the Fifth Instalment of "F4" Claims*, (hereinafter “Report on the Fifth Instalment of F4 Claims”) S/AC.26/2005/10 (2005). EM, Vol. II, Annex 35.

⁹⁴⁴ United Nations Security Council, *Resolution 687*, 2981st Meeting, U.N. Doc. S/RES/687 (1991), para. 16.

⁹⁴⁵ See, e.g. UNCC, *Report and Recommendations made by the Panel of Commissioners concerning the First Instalment of "F4" Claims*, (hereinafter “Report on the First Instalment of F4 Claims”) U.N. Doc. S/AC.26/2001/16 (2001). EM, Vol. II, Annex 34.

adjusted as appropriate to take into account the influence of other sources of damage⁹⁴⁶. As regards damage to resources which did not have a market reference price, such as a loss of biodiversity that persisted for several years, the UNCC Panel indicated that it would be willing to compensate natural resource losses by reference to the costs of other environmental projects that were put in place to compensate for the loss of ecological services that the natural resources would have provided had they not been damaged, so long as there was “sufficient evidence that primary restoration will not fully compensate for any identified losses”⁹⁴⁷. The Panel also made awards for public health claims, including Kuwait's claim for costs of treating post-traumatic stress disorder; Iran's claim for costs of medical treatment and public health facilities made available to refugees; and a study of cancer and haematological disorder in Iran. The Panel also stated that as a matter of principle, a State could be compensated for the costs of monitoring and medical screening to investigate and combat increased health risks; for expenses actually incurred by a State in combating increased public health problems or public health risks; and for general damage related to public health, such as claims for loss of life or reduced quality of life, so long as the losses resulted directly from Iraq's invasion and occupation of Kuwait⁹⁴⁸. The Panel also found that States had standing to claim compensation for loss of well-

⁹⁴⁶ UNCC, Report on the Fifth Instalment of F4 Claims, *op. cit.*, paras. 103-118 (finding that reduced crop yields in Iran are compensable). EM, Vol. II, Annex 35.

⁹⁴⁷ *Ibid.*, para. 82. The claimants used a “Habitat Equivalency Analysis” to determine the amount of compensation claimed, which involved assessing the nature and extent of the temporary loss of ecological services from the damaged resources, determining the gain in ecological services anticipated from the compensatory projects, and calculating the cost of the compensatory projects. *See ibid.*, paras. 81-82. The Panel made awards that were quantified according to the cost of various compensatory projects: a cooperative rangeland management program to restore rangeland and wildlife habitat damaged by the influx of refugees into Jordan; shoreline preserves in Kuwait and Saudi Arabia; and damage to rangelands from the presence of refugees in Iran, on the basis of the price of fodder rather than the value that Iran derived from lost ecological services.

⁹⁴⁸ *Ibid.*, paras. 67-69.

being suffered by their nationals due to post-traumatic stress disorder, although it found that there was insufficient evidence to support awards in these instances⁹⁴⁹.

10.20 At the next stage of the proceedings, in which issues of compensation are fully addressed, Ecuador will introduce additional evidence to support its claims in relation to damage to persons, to property and to the environment, including clean up and restoration costs, and preventive measures to maximise the protection of human health.

10.21 The ILC's Draft Articles on State Responsibility make reference to the *Chorzów Factory* principle, and identify restitution, compensation and satisfaction either singly or in combination, as appropriate forms of reparation⁹⁵⁰. In the *M/V 'Saiga' (No. 2)* case, the International Tribunal for the Law of the Sea observed that:

“Reparation may be in the form of ‘restitution in kind, compensation, satisfaction and assurances and guarantees of non-repetition, either singly or in combination’ (article 42, paragraph 1, of the Draft Articles of the International Law Commission on State Responsibility). Reparation may take the form of monetary compensation for economically quantifiable damage as well as for non-material damage, depending on the circumstances of the case. The circumstances include such factors as the conduct of the State which committed the wrongful act and the manner in which the violation occurred. Reparation in the form of satisfaction may be

⁹⁴⁹*Ibid.*, para. 289 (no compensation recommended for this element of Iran's claim because evidence was not sufficient to establish that there was an increase in the number of cases of PTSD and panic disorder requiring treatment in Iran as a direct result of Iraq's invasion and occupation of Kuwait) and para. 515 (no compensation for this element of Kuwait's claim because evidence was not sufficient to demonstrate the nature and extent of the damage).

⁹⁵⁰ ILC Draft Articles on State Responsibility, *op. cit.*, Art. 34.

provided by a judicial declaration that there has been a violation of a right.”⁹⁵¹

10.22 The position has been fully set out by the Court in the *Armed Activities on the Territory of the Congo* case:

“The Court observes that it is well established in general international law that a State which bears responsibility for an internationally wrongful act is under an obligation to make full reparation for the injury caused by that act (see *Factory at Chorzów, Jurisdiction, 1927, P.C.I.J., Series A, No. 9, p. 21; Gabčíkovo-Nagymaros Project (Hungary/Slovakia), Judgment, I.C.J. Reports 1997, p. 81, para. 152; Avena and Other Mexican Nationals (Mexico v. United States of America), Judgment, I.C.J. Reports 2004, p. 59, para. 119).*”⁹⁵²

10.23 The Court proceeded to examine the evidence. It identified, amongst other violations, that Uganda was responsible for violation of the Democratic Republic of Congo’s sovereignty and territorial integrity, and violations of international human rights law and international humanitarian law. Having established that those acts resulted in injury to the DRC and to persons on its territory, and having satisfied itself that this injury was caused to the DRC by Uganda, the Court ruled that “Uganda has an obligation to make reparation accordingly”⁹⁵³.

10.24 In the present case the conditions for reparation have also been fully satisfied, so that Colombia is under a duty to make full reparation to Ecuador for

⁹⁵¹ *M/V “Saiga” (No. 2) Case (Saint Vincent and the Grenadines v. Guinea), Judgment, International Tribunal for the Law of the Sea (1999), para. 171.*

⁹⁵² *Armed Activities on the Territory of the Congo, I.C.J. Reports 2005, p. 201, para. 259.*

⁹⁵³ *Ibid.*

the injury suffered as a result of Colombia's internationally wrongful acts. Specifically:

- (a) Colombia by its acts is responsible for violations of international obligations owed to Ecuador;
- (b) those acts have caused injury to Ecuador; and
- (c) the injury to Ecuador has been caused by Colombia.

10.25 It follows that reparation is due. Insofar as damage cannot be or is not made good by restitution, international law requires the payment of compensation. As set out below, Ecuador submits that, in respect of damage to human, animal and plant health and damage to the environment caused by herbicides, reparation should take the form of monetary compensation. This approach is consistent with the principles set forth in decisions taken by the UNCC Panel in its Fifth Report, as described above⁹⁵⁴.

Section IV. Compensation

10.26 The Court has confirmed that:

“It is a well-established rule of international law that an injured State is entitled to obtain compensation from the State which has committed an internationally wrongful act for the damage caused by it.”⁹⁵⁵

10.27 In the *Corfu Channel* case, the Court found that Albania was under a duty to pay compensation to the United Kingdom for damage suffered as a result of

⁹⁵⁴ See *supra* paras. 10.18 - 10.19.

⁹⁵⁵ *Gabcikovo-Nagymaros Project (Hungary v. Slovakia)*, Judgment, I.C.J. Reports 1997, p. 7, para. 152.

the mines in its territorial waters, and that it had jurisdiction to determine the amount of compensation⁹⁵⁶. The International Law Commission observed that:

“It is equally well established that an international court or tribunal which has jurisdiction with respect to a claim of State responsibility has, as an aspect of that jurisdiction, the power to award compensation for damage suffered.”⁹⁵⁷

Article 36 of the ILC Draft Articles on State Responsibility addresses the obligation to compensate insofar as damage is not made good by restitution. Article 36(2) provides that “[t]he compensation shall cover any financially assessable damage”⁹⁵⁸, and the Commentary provides that the qualification “financially assessable” is “intended to exclude compensation for what is sometimes referred to as ‘moral damage’”⁹⁵⁹. The damages for which Ecuador seeks monetary compensation are “financially assessable”, as made clear by the UNCC Panel in its Fifth Report, as described above.

10.28 Under Article XXXI of the Pact of Bogotá⁹⁶⁰, Colombia and Ecuador recognise the jurisdiction of the Court in all disputes of a juridical nature that arise between them concerning, *inter alia*, the nature and extent of the reparation to be made for the breach of an international obligation.

⁹⁵⁶ *Corfu Channel (United Kingdom v. Albania), Judgment, Merits, I.C.J. Reports 1949*, p. 4, p.26; *Corfu Channel (United Kingdom v. Albania), Judgment, Assessment of the Amount of Compensation due from the People’s Republic of Albania to the United Kingdom of Great Britain and Northern Ireland, I.C.J. Reports 1949*, p. 244.

⁹⁵⁷ ILC Draft Articles on State Responsibility, *op. cit.*, Art. 36, Commentary para. 2.

⁹⁵⁸ *Ibid.*, Art. 36.

⁹⁵⁹ *Ibid.*, Art. 36, Commentary para. 1.

⁹⁶⁰ American Treaty on Pacific Settlement, “Pact of Bogotá” (hereinafter “Pact of Bogotá”) 30 UNTS 55 (30 Apr. 1948). EM, Vol. II, Annex 1.

10.29 In the present case, Colombia is under an obligation to indemnify Ecuador for any loss or damage caused by its internationally wrongful acts, including in particular for the following:

- (a) death or injury to the health of any person or persons;
- (b) any loss of or damage to the property or livelihood or human rights of such persons;
- (c) environmental damage or the depletion of natural resources;
- (d) the costs of monitoring to identify and assess future risks to public health, human rights and the environment; and
- (e) any other loss or damage.

Ecuador claims in relation to each of these headings.

A. ECUADOR CLAIMS COMPENSATION FOR DEATH OR INJURY TO THE HEALTH OF ANY PERSON OR PERSONS

10.30 Colombia's acts have caused extensive and long-lasting damage to the health and well-being of local communities and indigenous people in the border region of Ecuador affected by the aerial herbicide spraying⁹⁶¹. Common effects include serious skin rashes, fever, diarrhea, vomiting, abdominal pain, dry coughs, conjunctivitis, tearing, blurred vision, and dizziness⁹⁶². There have been deaths of numerous young children connected to the spraying episodes⁹⁶³. The effects of the herbicides on human health in Ecuador have been confirmed by the UN Special Rapporteur on the Right to Health, who recorded the preliminary view in 2007 that "there was credible and reliable evidence that the aerial

⁹⁶¹ See *supra* Chap. VI, Sections I and IV.

⁹⁶² See *supra* Chap. VI, Sec. I. "The Harm to People"; see especially, paras. 6.9-6.17.

⁹⁶³ See *supra* Chap. VI, paras. 6.50, 6.129-130.

spraying of glyphosate along the border damages the physical and mental health of people living in Ecuador”⁹⁶⁴.

10.31 The Court awarded damages in respect of the death of and injury to persons in the *Corfu Channel* case⁹⁶⁵. The United Kingdom claimed, in respect of loss of and injury to naval personnel, compensation relating to the costs of pensions and grants to victims and dependents, costs of administration and medical treatment.

10.32 In the *M/V ‘Saiga’ (No. 2)* case, compensation awarded by the International Tribunal for the Law of the Sea included amounts in respect of medical expenses, injury, pain, suffering and psychological damage of certain crew members of the detained vessel⁹⁶⁶. These claims were based on the approach taken by various international human rights courts on the assessment of damages⁹⁶⁷.

10.33 In the context of claims concerning public health, including claims for loss of life or reduced quality of life, a UNCC panel observed that “general international law recognizes the right of a State to bring a claim on the international plane against another State for damage to a national of the claimant

⁹⁶⁴ *Report of the Special Rapporteur on the Right of Everyone to the Enjoyment of the Highest Attainable Standard of Physical and Mental Health, Preliminary Note on the Mission to Ecuador and Colombia*, (hereinafter “Special Rapporteur on the Right to Health, Preliminary Note”) U.N. Doc. A/HRC/7/11/Add.3 (4 Mar. 2007), para. 17. EM, Vol. II, Annex 31.

⁹⁶⁵ *Corfu Channel, Assessment of the Amount of Compensation due from the People’s Republic of Albania to the United Kingdom of Great Britain and Northern Ireland*, I.C.J. Reports 1949, pp. 249-250.

⁹⁶⁶ *M/V “Saiga” (No. 2) Case, International Tribunal for the Law of the Sea, 1999*, para. 175.

⁹⁶⁷ *Ibid.*, paras. 167- 177.

State”⁹⁶⁸. This was the case even where, as in the UNCC, the injured national had the right to bring an individual claim, provided that there was no duplication in compensation awarded.

10.34 In the present case, Ecuador submits that it is entitled to compensation in respect of the loss of life and damage to the health of its nationals caused by the herbicide spraying. In addition, it is entitled to recover from Colombia the costs of medical investigations and treatment necessitated by the adverse effects of the spraying on the health of the people of Ecuador. These placed a significant burden upon the already limited and strained medical facilities available in the border region. Further, as set out under heading (D) below, given the potential long-term and delayed effects of chemicals upon human health, Ecuador is entitled to compensation in respect of the costs of targeted monitoring of public health in order to identify and address any delayed or long-term effects of exposure to the herbicides.

B. ECUADOR CLAIMS COMPENSATION FOR LOSS OF OR DAMAGE TO THE PROPERTY OR LIVELIHOOD OR HUMAN RIGHTS OF SUCH PERSONS

10.35 Colombia’s aerial spraying programme has damaged property of local and indigenous communities in the border region, and adversely affected their livelihoods. In particular, the chemicals caused significant harm to crops, including subsistence crops upon which local and indigenous communities

⁹⁶⁸ UNCC, Report on the Fifth Instalment of F4 Claims, *op. cit.*, paras. 69-70. EM, Vol. II, Annex 35.

depend for their survival, as well as to domestic animals, including livestock, poultry and fish⁹⁶⁹.

10.36 Colombia's aerial spraying of a toxic mixture containing glyphosate caused substantial damage to crops in Ecuador, resulting in reduced yields or even the disappearance of some varieties⁹⁷⁰. These impacts have been described in Chapter VI. Numerous crops were affected, including maize, coffee, plantain and yucca. The crop damage has had a significant adverse impact on the livelihoods and food security of the local people, some of whom have been displaced as a result. The health and productivity of domestic animals have also been badly affected, including fish, chickens, pigs, dogs and cattle. Many animals have died as a result of the spraying, with fish being particularly susceptible⁹⁷¹.

10.37 Ecuador submits that it is entitled to full compensation in respect of this loss of or damage to property, including crops and domestic animals, and the costs imposed by the displacement of farmers and affected other individuals. This is established on the basis of the principles applied by the *Trail Smelter* awards and the Fifth Report of the UNCC Panel. The evidence in respect of these specific claims will be submitted at a further phase of the proceedings.

⁹⁶⁹ See *supra* Chap. VI, Sec. II. "The Harm to Plants" & Sec. III. "The Harm to Animals".

⁹⁷⁰ See *supra* paras. 6.55, 6.107.

⁹⁷¹ See *supra* Ch. VI, paras. 6.82-6.87.

C. ECUADOR CLAIMS COMPENSATION FOR ENVIRONMENTAL DAMAGE AND THE DEPLETION OF NATURAL RESOURCES

10.38 In addressing this aspect of Ecuador’s claim, it is worth bearing in mind that the environment of the border region between Ecuador and Colombia is characterised by a unique natural wealth and diversity. As described in Chapter II, over 40% of the land in the border provinces of Esmeraldas, Carchi and Sucumbíos is covered by native forest, and the region is home to two of the world’s tropical forest hotspots⁹⁷². More than half of the world’s threatened amphibians reside in the corridor that includes the Ecuadorian border with Colombia⁹⁷³. Ecuador is recognised as one of just 17 “megadiverse” countries in the world, possessing a disproportionately large share of the world’s biological diversity⁹⁷⁴. It is into this environment that Colombia -- which is itself a “megadiverse” country -- has deposited and dispersed the spraying of toxic herbicides. The adverse effects on cultivated crops and domestic animals, including birds and fish, are replicated in wild flora and fauna⁹⁷⁵. In addition, there is evidence of pollution of fresh water resources in the border region. This has had adverse effects on the life and health of humans, animals and plants that depend upon them⁹⁷⁶.

10.39 Given the vital importance of the ecosystem services performed by the environmental resources of the region, as well as their intrinsic value, it is essential that they are restored as quickly and effectively as feasible. Ecuador

⁹⁷² See *supra* Ch. II, para. 2.15.

⁹⁷³ *Ibid.*, para. 2.14.

⁹⁷⁴ *Ibid.*, para. 2.12.

⁹⁷⁵ See *supra* Ch. VI, paras. 6.82, 6.86, 6.91, 6.107, 6.117, 6.120, 6.123.

⁹⁷⁶ See *supra* para. 6.49.

therefore seeks compensation for monitoring and assessment of environmental damage (addressed under heading (D) below) as well as for reasonable measures to clean and restore the environment as appropriate. Where restoration is not possible or where there is an interim loss of environmental services pending restoration, Ecuador is entitled to compensation for “pure” environmental damage.

10.40 In its work on the allocation of loss in the case of transboundary harm arising out of hazardous activities, the International Law Commission identifies as elements of “damage”: “loss or damage by impairment of the environment”; “the cost of reasonable measures of reinstatement of ... the environment, including natural resources”; and “the costs of reasonable response measures”⁹⁷⁷.

10.41 The ILC Commentary notes that Draft Principle 3(b)⁹⁷⁸ gives:

“a prominent place to the protection and preservation of the environment and to the associated obligations to mitigate the damage and to restore or reinstate the same to its original condition to the extent possible. Thus, it emphasizes the more recent concern of the international community to recognize protection of the environment *per se* as a value by itself without having to be seen only in the context of damage to persons and property. It reflects the policy to preserve the environment as a valuable resource not only for the benefit of the present generation

⁹⁷⁷ International Law Commission, *Draft Principles on the Allocation of Loss in the Case of Transboundary Harm Arising Out of Hazardous Activities, with Commentaries, Yearbook of the International Law Commission*, (hereinafter “ILC Draft Principles on Allocation of Loss”), Vol. II, Part Two (2006). In Resolution 61/36 of 2006, the United Nations General Assembly took note of the principles and commended them to the attention of States. U.N.G.A., *Allocation of Loss in the Case of Transboundary Harm Arising Out of Hazardous Activities, Sixty-First Session*, agenda item 78, U.N. Doc. A/RES/61/36 (18 Dec. 2006).

⁹⁷⁸ Principle 3, paragraph (b) provides that “The purpose of the present draft principles are: . . . (b) to preserve and protect the environment in the event of transboundary damage, especially with respect to mitigation of damage to the environment and its restoration or reinstatement”. ILC Draft Principles on Allocation of Loss, *op. cit.*

but also for future generations. In view of its novelty and the common interest in its protection, it is important to emphasize that damage to the environment *per se* could constitute damage subject to prompt and adequate compensation, which includes reimbursement of reasonable costs of response and restoration or reinstatement measures undertaken”⁹⁷⁹.

10.42 As noted above, the UNCC had occasion to consider the assessment of claims for environmental damage in the context of Security Council Resolution 687, which reaffirmed that Iraq was “liable under international law for any direct loss, damage, including environmental damage and depletion of natural resources ... as a result of Iraq’s unlawful invasion and occupation of Kuwait”⁹⁸⁰. The UNCC Governing Council decided that compensation in respect of environmental damage or depletion of natural resources would *include* losses and expenses arising from:

- (a) abatement and prevention of environmental damage . . .;
- (b) reasonable measures already taken to clean and restore the environment or future measures which can be documented as reasonably necessary to clean and restore the environment;
- (c) reasonable monitoring and assessment of the environmental damage for the purpose of evaluating and abating the harm and restoring the environment;
- (d) reasonable monitoring of public health and performing medical screening for the purposes of investigating and combating increased health risks as a result of the environmental damage; and
- (e) depletion of or damage to natural resources⁹⁸¹.

⁹⁷⁹ *Ibid.*, Principle 3, Commentary para. 6.

⁹⁸⁰ United Nations Security Council, *Resolution 687*, 2981st Meeting, S/RES/687 (1991), para. 16.

⁹⁸¹ UNCC, *Criteria for Additional Categories of Claims (Governing Council Decision 7)*, U.N. Doc. S/AC.26/1991/7/Rev.1 (1992), para. 35.

10.43 Ecuador claims in respect of each of these heads and will provide complete and detailed evidence at a subsequent stage of these proceedings.

10.44 The UNCC Panel of Commissioners charged with assessing claims for environmental damage and depletion of natural resources noted that the criteria set out by the Governing Council were not exhaustive⁹⁸². One question which arose before the Panel was whether compensation was available for “pure” environmental damage. The Panel of Commissioners found that the term “environmental damage” was not limited to damage to natural resources with a commercial value⁹⁸³, and that the temporary nature of loss or damage to the environment did not affect the question of compensability, although it might affect the nature and quantum of the compensation deemed appropriate⁹⁸⁴. In reaching these conclusions, the Panel had regard to the guidance contained in Security Council Resolution 687 and relevant decisions of the UNCC Governing Council⁹⁸⁵. The Panel stated that it did not consider that its finding was inconsistent with any principle or rule of general international law. In the Panel’s view, there was “no justification for the contention that general international law precludes compensation for pure environmental damage”⁹⁸⁶.

10.45 The ILC has also recognised some support for the principle that pure environmental damage may be the subject of a reparation claim. Paragraph 18 of

⁹⁸² UNCC, *Report and Recommendations made by the Panel of Commissioners concerning the Second Instalment of "F4" Claims*, (hereinafter “Report on the Second Instalment of F4 Claims”) U.N. Doc. S/AC.26/2002/26 (2002), paras. 22-23.

⁹⁸³ UNCC, *Report on the Fifth Instalment of F4 Claims*, *op. cit.*, para. 55. EM, Vol. II, Annex 35.

⁹⁸⁴ *Ibid.*, para. 56.

⁹⁸⁵ *Ibid.*, para. 55.

⁹⁸⁶ *Ibid.*, para. 58.

commentary to Principle 2 of the ILC Principles on the Allocation of Loss in the Case of Transboundary Harm Arising Out of Hazardous Activities states:

“Recent trends are also encouraging in allowing compensation for loss of ‘non-use value’ of the environment. There is some support for this claim from the Commission itself when it adopted its draft articles on State responsibility, even though it admitted that such damage is difficult to quantify. The recent decisions of the United Nations Compensation Commission (UNCC) in opting for a broad interpretation of the term ‘environmental damage’ is a pointer of developments to come. In the case of F-4 category of environmental and public health claims, the F-4 Panel of the UNCC allowed claims for compensation for damage to natural resources without commercial value (so-called ‘pure’ environmental damage) and also claims where there was only a temporary loss of resource use during the period prior to full restoration.”⁹⁸⁷

10.46 In the Commentary to the Draft Articles on State Responsibility, the ILC has observed in relation to environmental damage that:

“environmental damage will often extend beyond that which can be readily quantified in terms of clean-up costs or property devaluation. Damage to such environmental values (biodiversity, amenity, etc. – sometimes referred to as ‘non-use values’) is, as a matter of principle, no less real and compensable than damage to property, although it may be difficult to quantify”.⁹⁸⁸

10.47 As regards the methodology for valuation, which will be addressed in a later phase of the proceedings, the UNCC Panel of Commissioners recognised different approaches. The Panel observed that

“international law does not prescribe any specific and exclusive methods of measurement for awards of damages for

⁹⁸⁷ ILC Draft Principles on Allocation of Loss, *op. cit.*, Principle 2, Commentary para. 18. Footnotes omitted.

⁹⁸⁸ ILC Draft Articles on State Responsibility, *op. cit.*, Art. 36, Commentary para. 15.

internationally wrongful acts by states. The general rule is to restore what has been damaged to integrity or, if this is not possible, to provide an equivalent for it. The overall criterion is always that of effective reparation for the wrongful act. Hence, even in the absence of precise rules or prescriptions on the methods for evaluating damage, courts or tribunals are entitled and required to evaluate damage and determine appropriate compensation, relying on general principles for guidance, particularly the principle that reparation must, as far as possible, wipe out all the consequences of the illegal act”⁹⁸⁹.

10.48 In this regard, the UNCC Panel of Commissioners cited the statement of the arbitral tribunal in the *Trail Smelter* case:

“Where the [wrongful act] itself is of such a nature as to preclude the ascertainment of the amount of damages with certainty, it would be a perversion of the fundamental principles of justice to deny all relief to the injured person, and thereby relieve the wrongdoer from making any amend for his acts. In such case, while the damages may not be determined by mere speculation or guess, it will be enough if the evidence show the extent of the damages as a matter of just and reasonable inference, although the result may only be approximate.”⁹⁹⁰

10.49 Having regard to this approach, which reflects established international practise, Ecuador will at the next stage of these proceedings tender complete evidence and information in support of its claim for environmental damage.

⁹⁸⁹ UNCC, Report on the Fifth Instalment of F4 Claims, *op. cit.*, para. 80. EM, Vol. II, Annex 35.

⁹⁹⁰ *Ibid.* (citing *Trail Smelter Arbitration (United States of America v. Canada)*, *Reports of International Arbitral Awards, Vol. 3 (1941)*, pp. 1911, 1920.

D. ECUADOR CLAIMS COMPENSATION FOR THE COSTS OF MONITORING TO IDENTIFY AND ASSESS FUTURE RISKS TO PUBLIC HEALTH, HUMAN RIGHTS AND THE ENVIRONMENT

10.50 Ecuador has identified a number of adverse effects of Colombia's aerial spraying on human health, human rights and the environment arising from Colombia's aerial herbicide spraying. These effects are ongoing, and the full effects will only be appreciable over time. It is apparent that as a result of the spraying, Ecuador will need to conduct specific monitoring and assessment activities in order to formulate and implement effective measures to rectify or alleviate damage and to identify any further medium or long-term effects and plan appropriate remedial action.

1. *Public Health*

10.51 Immediate and short-term effects of exposure to herbicide spraying on human health have been described in Chapter VI. In order to address any possible longer-term health impacts of exposure to the chemicals contained in the herbicide mix (including through contamination of water supplies), Ecuador will need to implement public health monitoring programmes in the affected regions.

10.52 In analysing claims arising out of Iraq's invasion and occupation of Kuwait, the UNCC recognised that compensation was due to affected States in respect of "[r]easonable monitoring of public health and performing medical screenings for the purposes of investigation and combating increased health risks as a result of the environmental damage"⁹⁹¹. In reviewing claims from Iran, the UNCC allowed claims in relation to, for example, studies to assess the impact of

⁹⁹¹ UNCC, *Criteria for Additional Categories of Claims (Governing Council Decision 7)*, S/AC.26/1991/7/Rev.1 (1992), para. 35.

airborne pollutants from oil well fires on respiratory and cardiovascular health in a particular region of a claimant State, as well as studies of mental health impacts resulting from trauma experienced in the context of Iraq's invasion of Kuwait⁹⁹². In respect of another claimant state, the UNCC allowed claims for long-term public health risk assessment and monitoring programmes, addressing for example, the identification of pollutants, pathways of exposure and toxicity assessments⁹⁹³.

10.53 At a subsequent phase of these proceedings Ecuador will submit evidence as to the costs it has incurred in respect of medical treatments and investigations connected to the spraying. It will also tender evidence as to the costs of health monitoring or investigations required over the short, medium and long terms.

2. *Environment: Flora and Fauna*

10.54 In order to identify damage, formulate effective restoration or remediation plans and address any possible delayed or longer-term environmental impacts of the chemicals contained in the herbicide mix (including through contamination of water supplies), Ecuador will need to implement environmental monitoring and assessment programmes in the affected regions.

10.55 The UNCC, as noted above, addressed compensation claims in respect of “reasonable monitoring and assessment of the environmental damage for the purpose of evaluating and abating the harm and restoring the environment”.⁹⁹⁴ It

⁹⁹² UNCC, Report on the Fifth Instalment of F4 Claims, *op. cit.*, para. 266 *et seq.* EM, Vol. II, Annex 34.

⁹⁹³ *Ibid.*, para. 494 *et seq.*

⁹⁹⁴ *See supra* para. 10.42.

is notable that the UNCC Panel found that environmental monitoring and assessment were justified even where it was not yet firmly established that environmental damage had occurred. Thus, conclusive proof of environmental damage was not a prerequisite for a monitoring and assessment activity to be compensable⁹⁹⁵. However, the Panel did not award compensation for monitoring and assessment activities that were “purely theoretical and speculative”⁹⁹⁶.

10.56 There is nothing theoretical and speculative about the need for monitoring and assessment in the present case. The potential of glyphosate to be harmful to the natural environment is well known -- it kills all plants⁹⁹⁷. Its proper use is subject to strict guidance and controls. While Ecuador does not know the precise combination of chemicals contained in the herbicide mix, it is clear that uncontrolled spraying or drift of the chemicals sprayed by Colombia onto the natural environment of Ecuador has caused serious harm. However, the nature and full extent of the harm is not yet fully known. In these circumstances, it is essential that Ecuador undertake monitoring and assessment to better understand the nature and extent of the damage caused, with a view to identifying and implementing restorative measures.

10.57 As with other claims, Ecuador will tender specific and complete evidence as to its environmental claims at a later stage of these proceedings.

⁹⁹⁵ UNCC, Report on the Fifth Instalment of F4 Claims, *op. cit.*, paras. 29-30. EM, Vol. II, Annex 34.

⁹⁹⁶ *Ibid.*, para. 31.

⁹⁹⁷ *See supra* Chap. V, paras. 5.6–5.9.

E. ECUADOR CLAIMS COMPENSATION FOR OTHER LOSS OR DAMAGE

10.58 Ecuador reserves its right to amend or supplement the heads under which it makes claims for compensation, including in relation to violations of fundamental human rights and the rights of indigenous people.

Section V. Satisfaction

10.59 Insofar as damage cannot be made good by restitution or compensation, the State responsible for an internationally wrongful act is under an obligation to give satisfaction for the injury caused by that act⁹⁹⁸. In the *Corfu Channel* case, the Court made a declaration, as a form of satisfaction, of the violation of Albanian sovereignty by the United Kingdom⁹⁹⁹.

10.60 In addition to its claims for cessation and non-repetition, reparation and compensation, Ecuador requests that the Court declare that Colombia has violated the territorial sovereignty of Ecuador, and other obligations under international law, by causing the deposit on the territory of Ecuador of toxic herbicides.

⁹⁹⁸ ILC Draft Articles on State Responsibility, *op. cit.*, Art. 37.

⁹⁹⁹ *Corfu Channel (United Kingdom v. Albania)*, Judgment, *I.C.J. Reports 1949*, p. 4, p. 35.

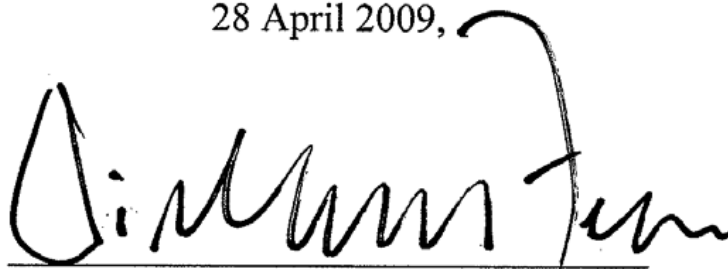
SUBMISSIONS

On the basis of the facts and law referred to above, Ecuador requests the Court to adjudge and declare that:

- (A) Colombia has violated its obligations under international law by causing or allowing the deposit on the territory of Ecuador of toxic herbicides that have caused damage to human health, property and the environment;
- (B) Colombia shall indemnify Ecuador for any loss or damage caused by its internationally unlawful acts, namely the use of herbicides by aerial dispersion, and in particular:
 - (i) death or injury to the health of any person or persons arising from the use of such herbicides;
 - (ii) any loss of or damage to the property or livelihood of such persons;
 - (iii) violation of the human rights of such persons;
 - (iv) violation of the special rights of indigenous peoples;
 - (v) environmental damage or the depletion of natural resources;
 - (vi) the costs of monitoring to identify and assess future risks to public health, human rights and the environment resulting from Colombia's use of herbicides; and
 - (vii) any other loss or damage;
- (C) Colombia shall
 - (i) respect the sovereignty and territorial integrity of Ecuador;
 - (ii) respect the human rights of Ecuadorian nationals;
 - (iii) respect the special rights of indigenous peoples in Ecuador;
 - (iv) take no action to harm the natural environment in Ecuador;

- (v) forthwith, take all steps necessary to prevent, on any part of its territory, the use of any toxic herbicides in such a way that they could be deposited onto the territory of Ecuador; and
- (vi) prohibit the use, by means of aerial dispersion, of such herbicides on or near any part of its border with Ecuador.

28 April 2009,

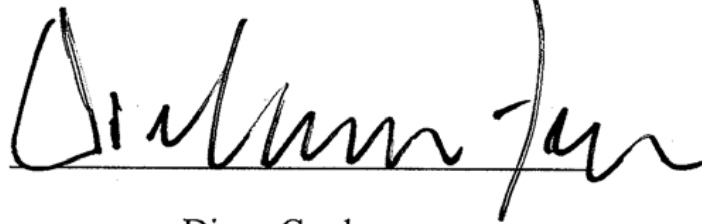
A handwritten signature in black ink, appearing to read 'Diego Cordovez', written over a horizontal line. The signature is highly stylized and cursive.

Diego Cordovez

Agent of the Republic of Ecuador

Certification

I certify that the annexes are true copies of the documents referred to
and that the translations provided are accurate.

A handwritten signature in black ink, appearing to read 'Diego Cordovez', written over a horizontal line. The signature is stylized and cursive.

Diego Cordovez

Agent of the Republic of Ecuador

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