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ENVIRONMENTAL PROTECTION AND HUMAN RIGHTS  
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# ONLINE CASE STUDIES

## Case Study I Transboundary Pollution

### *Arial Herbicide Spraying (Ecuador v. Colombia)*

[2008] ICJ 4-28 General List No. 138 (March 31, 2008)(footnote omitted)

#### II. APPLICATION INSTITUTING PROCEEDINGS

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#### NATURE OF THE DISPUTE

2. This case concerns Colombia's aerial spraying of toxic herbicides at locations near, at and across its border with Ecuador. The spraying has already 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 therefore respectfully requests a judgment of the Court ordering Colombia to (a) respect the sovereignty and territorial integrity of Ecuador; (b) take all steps necessary to prevent the use of any toxic herbicides in such a way that they could be deposited onto the territory of Ecuador; (c) prohibit the use, by means of aerial dispersion, of such herbicides on or near any part of its border with Ecuador; and (d) indemnify Ecuador for any loss or damage caused by its internationally unlawful acts.

3. Every year since at least 2000, Colombia has used airplanes and helicopters to spray powerful, broad-spectrum herbicides (the chemical composition of which it refuses to disclose) over wide swaths of territory in the two States' border region. The putative target of Colombia's spraying has been illicit coca and poppy plantations in the frontier area. The impacts of Colombia's spraying, however, have not been confined to its side of the border. Fumigations dispersed by Colombia along or near the boundary line have been carried across the border and have caused significant deleterious effects in Ecuador. In addition, on some occasions aircrafts participating in Colombia's fumigation operations have, without authorization, crossed into Ecuadorian airspace and sprayed within the territory of Ecuador.

4. During and after each of Colombia's spraying campaigns, for instance, Ecuador's population in the northern boundary areas has reported serious adverse health reactions including burning, itching eyes, skin sores, intestinal bleeding and even death. Because of the non-discriminating nature of the herbicide used by Colombian authorities, there has also been serious and wide-spread damage to non-target plant species, including key local crops such as yucca, plantains, rice, coffee, hay and others. The consequences of the crop damage have been serious in the context of the subsistence farming needs of the local population.

5. Throughout the years since the spraying started in 2000, Ecuador has made repeated and sustained efforts to negotiate an end to the fumigations. Twice, the Parties have convened bilateral scientific commissions for purposes of examining the issues arising from Colombia's sprayings. These negotiations have proved unsuccessful. Even on the occasions when Ecuador thought it had reached agreement with Colombia to put an end to the aerial sprayings, the fumigations subsequently resumed. It is therefore plain that the attitude of Colombia makes impossible for the Parties' dispute to be settled by diplomatic means. Ecuador has been left no choice but to bring this Application instituting proceedings to secure redress for the violation of its rights as set forth more fully below.

6. Before proceeding further, Ecuador takes the opportunity to reaffirm that it is firmly opposed to the export and consumption of illegal narcotics. It has a strong and consistent record in this respect. The issues presented in this Application relate exclusively to the methods and locations of Colombia's operations to eradicate illicit coca and poppy plantations -- and the harmful effects in Ecuador of such operations.

[Ecuador bases jurisdiction on a compromissory clause in the American Treaty on Pacific Settlement of Disputes, Bogota, 30 April 1948 to which both Ecuador and Colombia are parties and on the provisions of the 1988 United Nations Convention against Illicit Traffic in Narcotic Drugs and Psychotropic Substances, to which they are also parties.]

## THE FACTS

### *Background*

9. The majority of the world's coca (*Erythroyllum coca*) is grown in Colombia. It is also one of the world's largest producer of opium poppy (*Papaver somniferum*) and a significant source of marijuana (*Cannabis saliva*).

10. Confronted with this reality, the Government of Colombia has used various strategies to eradicate illicit narcotics crops. One of these strategies has been the aerial spraying of coca and poppy crops with chemical herbicides. From the outset, this practice has met opposition from affected populations, policy makers and scientists. As early as 1984, for example, 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 opposed the aerial spraying of any herbicide, including, in particular, glyphosate, a powerful, broad-spectrum herbicide used widely in agriculture. The experts stated:

Glyphosate: Its aerial use for the eradication of crops of marihuana and coca is not recommended. The data obtained in animal experimentation show low acute toxicity; its acute toxicity in humans is little known. In the literature reviewed there is no information concerning chronic toxicity in humans. Neither is there information with respect to its mutagenic and tetragenic effects....

11. The experts subsequently reiterated their opposition, stating:

[T]he Committee reiterates its position of having not recommended the use of glyphosate or any other herbicide by means of aerial spraying ... the proposed program is inadvisable because it would be accepting human experimentation.

12. Notwithstanding the recommendations of its own experts, Colombia continued to spray herbicides aerially as part of its effort to combat the cultivation of illegal narcotics and its internal armed insurgency. Colombia has placed particularly heavy reliance on aerial spraying since 1999 when it adopted "Plan Colombia", a program originally devised by then-President Andrés Pastrana Arango to promote peace, combat narcotics, and foster democracy. From its inception, the counter-narcotics component of Plan Colombia has emphasized the chemical eradication of illicit coca and poppy plantations by aerial spraying of herbicides across wide swaths of Colombian territory, including areas located along that country's southwestern border with the Ecuadorian provinces of Esmeraldas, Carchi and Sucumbios.

### *Aerial Sprayings Near or In Ecuador*

13. Aerial fumigations under Plan Colombia officially began in 2000. Early spraying was conducted in Colombia's southwestern Provinces of Putumayo and Narifto, which abut the northern Ecuadorian Provinces of Sucumbios, Carchi, and Esmeraldas. Sprayings at the Ecuador border began soon thereafter. In October 2000, for example, the Ecuadorian hamlet of San Marcos in the Province of Carchi, home to the Awâ indigenous community, was sprayed, as was the settlement of Mataje in

the Province of Esmeraldas. Between January and February 2001, Colombia conducted a weeks-long campaign of heavy spraying along the boundary near the community of San Francisco Dos in the Province of Sucumbios. Herbicides were sprayed day after day during those two months, with only brief respites. On the days spraying took place, the fumigations were conducted virtually continuously between 6 a.m. and 4 p.m. Clouds of spray mist dropped from the planes, carried with the wind and fell on people, homes, plants and animals (both wild and domestic) in Ecuador, as well as on the San Miguel River which constitutes the border between the two countries in that area.

14. Immediately after the sprayings, residents in and around San Francisco Dos developed serious adverse health reactions including fevers, diarrhea, intestinal bleeding, nausea and a variety of skin and eye problems. Children were affected particularly badly. At least two deaths occurred in the days immediately following these initial sprayings – in a community where no similar deaths had been reported in the two preceding years. Other children required transportation to modern medical facilities elsewhere in Ecuador.

15. People were not the only ones affected. Area vegetation, including local agricultural crops, was devastated. Yucca, corn, rice, plantains, coco a, coffee and fruit turned brown, became desiccated and died. Animals were similarly hard hit: reported deaths of poultry and fish were particularly wide spread, and dogs, horses, cows and other animals also became ill.

16. Over the seven years of spraying to date, Colombian aircraft involved in the fumigations have repeatedly violated Ecuadorian airspace. Sometimes, they sprayed herbicides right up to the boundary and then used Ecuadorian air space to turn around to resume spraying on the border. On other occasions, they continued spraying even as they flew into and over Ecuadorian territory, dropping their spray directly on people, plants and animals in Ecuador. On those occasions when Colombian aircraft nominally respected Ecuador's territorial integrity, aerial drift resulted in the dispersion of the herbicide into Ecuadorian territory.

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18. The effects of the aerial spraying on Ecuadorians living in these border communities mirror the effects on Colombians who have been exposed to spraying, as reported by Colombian governmental agencies and non-governmental organizations. According to the results of an investigation conducted in the Colombian Province of Putumayo, as a result of aerial sprayings in that Province several thousand Colombians were reported to be suffering from a host of symptoms, including eye irritation, respiratory problems, heart arrhythmias, skin lesions, temporary paralysis and temporary blindness, among other problems. Thousands of animals were also reported to have died, and food crops were destroyed.

#### *The Herbicide Mixture Reportedly Used in Columbia*

19. Colombia has refused to disclose to Ecuador the precise chemical composition of the herbicide it is using. In communications, and in press reports, it has indicated that the primary "active" ingredient is glyphosate (*N-phosphonomethyl glycine*), an isopropylamine salt used widely as a weed killer. Glyphosate works by inhibiting the shikimate metabolic pathway common to all plants. It is desirable as an herbicide precisely because of its nonselective, broad-spectrum characteristics. Put directly, it kills virtually any plant.

20. Glyphosate is also portrayed as desirable because of its alleged minimal toxicity to humans and animals, which do not possess the shikimate pathway. The product label of a common glyphosate-based weed killer widely available to consumers in other parts of the world suggests reasons for concern, however. It contains explicit warnings . . .

21. Recent toxicological studies also suggest that glyphosate poses very real risks. For instance, laboratory studies have found adverse effects in all standard categories of toxicology testing. These include medium-term toxicity (salivary gland lesions), long-term toxicity (inflamed stomach linings), genetic damage (in human blood cells), effects on reproduction (reduced sperm counts in rats; increased frequency of abnormal sperm in rabbits), and carcinogenicity (increased frequency of liver tumours in male rats and thyroid cancer in female rats). Although, of course, no human experiments have been conducted, studies of people exposed to glyphosate (generally farmers) indicate an association with an increased risk of miscarriages, premature birth, and non-Hodgkin's

lymphoma. The toxicity of glyphosate is especially severe when it is inhaled, as it would be in the case of exposure to the mist from aerial spraying.

22. Glyphosate is also rarely used alone. It is typically used in combination with other chemicals known as surfactants that heighten the product's efficiency by increasing uptake by a plant's leaves. Although they are typically labeled "inert" (as contrasted with the "active" ingredient, glyphosate), these chemicals are sometimes more toxic than the glyphosate itself, and the combination yet more toxic still. A common surfactant used with glyphosate, and reportedly included in the mix employed in Colombia, is polyethoxylated tallowamine ("POEA") which, by itself, has been demonstrated to cause eye burns, skin redness and blistering, nausea and diarrhea. Glyphosate and POEA combined are significantly more toxic than either administered separately.

23. Reports also indicate that the herbicidal mixture used in Colombia includes an additional surfactant known as Cosmoflux 411 F that is used to penetrate the waxy surface coating of plant leaves. Cosmoflux is manufactured in Colombia. Its chemical composition is unknown and Colombia refuses to disclose the formula, claiming that it is proprietary. The glyphosate/Cosmoflux combination has not been subject to proper evaluations for safety to humans or even to animals.

#### *Characteristics of the Border Region*

24. Ecuador's northern border area has unique characteristics. It is comprised of three distinct geographic zones: the western coastal area, the mountainous Andes in the centre, and the Amazonian jungle to the east. The region is home to communities of indigenous peoples, including the Awâ, who continue to live according to their ancient traditions and are deeply dependant on their natural environment. Most of the population in the region lives in extreme poverty and relies on subsistence farming of traditional crops like yucca, plantains, corn, coffee and other foodstuffs to survive. As a result, their connection to the land is deep. Infrastructure in these areas is underdeveloped, healthcare is rudimentary and formal education is minimal.

25. Ecuador is also one of just 17 countries in the world designated by the World Conservation Monitoring Centre of the United Nations Environment Programme as "megadiverse." Although it covers only 0.17% of the Earth's area, Ecuador possesses a disproportionately large share of the world's biodiversity. In fact, Ecuador has the world's highest biological diversity per area unit; *i.e.*, on average, there are more species per square kilometre in Ecuador than anywhere else in the world. According to the World Resources Institute, it has 302 mammal species, 19,362 plant species, 640 breeding bird species (including 35% of the world's hummingbird species), 415 reptile species, 434 amphibian species and 246 fish species. Approximately 25% of its territory is made up of national parks and protected areas.

26. As a consequence, Colombia's fumigations are being conducted in a particularly vulnerable area in a manner that dramatically heightens the risks involved to people and to the natural environment. A recent Report of the United Nations Special Rapporteur on the situation of human rights and fundamental freedoms of indigenous people identifies serious concerns:

[ ]The Awa have been particularly affected. In all 3,500 Awas live in Ecuador and 36,000 hectares of the approximately 120,000 hectares of their ancestral territories have been recognized....

[ ]Currently, the region's most serious problem is the aerial spraying of illicit crops on the Colombian side of the border, using glysohate [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.

[ ]In some communities in Sucumbios, 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.

[ ]Some indigenous communities in the area, including the Awa, 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.

27. The use of a glyphosate-based chemical mixture in a tropical climate gives rise to serious risks and uncertainties. Such testing as has been done concerning the toxicity of glyphosate and its lasting effects on biota has typically been conducted in temperate climates on the substantially more limited set of plant and animal species native to those very different regions. It is not known whether the ostensible conclusions reached in those studies apply equally in a megadiverse tropical setting where the soil is generally less fertile than in temperate climates, and endemic plants have evolved a delicate equilibrium with the fungi, bacteria and cyanobacteria in the soil that play essential roles in maintaining the nutrient cycle. The effects of glyphosate on this ecological balance are untested, although studies suggest that glyphosate reduces populations of nitrogen fixing bacteria. Many similar key questions are similarly unanswered. Colombia's conduct amounts to a dangerous ecological and toxicological experiment on a vast scale.

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#### *Enduring Effects*

35. The serious adverse effects of Colombia's aerial sprayings on Ecuador have been immediate and dramatic. They have also persisted across time and continue to be felt to the present day. Indeed, the Report of the United Nations Special Rapporteur notes 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." In the community of San Francisco Dos where sprayings first began in January and February 2001, for example, maize yields following Colombia's aerial spraying were reduced by more than half. The nearby community of Las Salinas, also impacted by the aerial spraying, suffered equally severe reductions in its maize yields. As of the filing of this Application, similar effects continue to be felt on crops of yucca, rice, cocoa, coffee, plantains and other staples on which local populations depend for survival.

36. The lingering effects of the fumigations go beyond crop damage. In part owing to the effects on their means of livelihood, in part owing to the health effects, and in part owing to the terror induced by the sprayings, a sizable percentage of the local population has been forced to relocate to areas further from the border with Colombia. The community of Puerto Mestanza in Sucumbios Province is one example. Prior to the start of the sprayings nearby in August 2002, it was home to some 86 tenant farmer families. By 2005, only four families remained. Other border communities have been decimated. Overall, as much as 50% of the population that formerly lived within 10 km. of the border with Colombia have fled the area since the start of the fumigations.

## THE CLAIMS OF ECUADOR

37. Ecuador claims that by aerially spraying toxic herbicides at locations at, near and over its border with Ecuador, Colombia has violated Ecuador's rights under customary and conventional international law. The harm that has occurred, and is further threatened includes some with irreversible consequences, indicating that Colombia has failed to meet its obligations of prevention and precaution.

## THE JUDGMENT REQUESTED

38. 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, including 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; and
  - (ii) any loss of or damage to the property or livelihood or human rights of such persons; and
  - (iii) environmental damage or the depletion of natural resources; and
  - (iv) 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
  - (v) any other loss or damage; and
- (C) Colombia shall
  - (i) respect the sovereignty and territorial integrity of Ecuador; and
  - (ii) 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
  - (iii) prohibit the use, by means of aerial dispersion, of such herbicides in Ecuador, or on or near any part of its border with Ecuador; and

39. Ecuador reserves the right to modify and extend the term of this Application, as well as the grounds invoked.

## PROVISIONAL MEASURES

40. Ecuador reserves its rights, pursuant to Article 73 of the Rules of Court, to request the indication of provisional measures.

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*Questions & Discussion*

1. If the facts alleged are proven, how should the Court decide the case? What arguments could support each side?
2. Nuisance claims involve an equitable balancing of benefits to the acting party and harm to the claimant. How should the court balance efforts to halt illegal drug cultivation with the environmental harm caused by spraying?
3. As the application indicates, Colombia's aerial spraying was part of "Plan Colombia" an anti-narcotics program initiated by the president of Colombia in 1998. It was heavily backed and supported by the US government. Assuming there were no jurisdictional barriers, why did Ecuador not to sue the United States as well as Colombia? Note that in the *Case Concerning Military and Paramilitary Activities In and Against Nicaragua* (Nicaragua v. U.S.) 1986 I.C.J. 14, 62-65 (Merits),

the court considered whether the US was responsible for violations of international law allegedly committed by the Contra rebel forces in Nicaragua. The evidence showed substantial support for the rebels through financing, training, equipping and organizing them. The International Court nonetheless found that the US was not responsible for the illegal acts of the Contras themselves unless the evidence showed that it “directed or enforced the perpetration of the acts” contrary to human rights and humanitarian law alleged by Nicaragua. The Court analyzed the issue as one of “effective control of the military or paramilitary operations.” What evidence would suffice under this test to attribute the aerial spraying to the U.S. as well as to Colombia?

4. Do the residents of either Ecuador or Colombia allegedly harmed by the aerial spraying have a human rights claim? What forums would be open to them?

5. Monsanto developed glyphosate and initially sold it under the name “Roundup.” It has been important to gardeners, homeowners and farmers. With the expiration of the Monsanto patent, similar herbicides came on the market, including Gallup, Landmaster, Pondmaster, Ranger, Rodeo, and Touchdown. Assuming they have the will to do so, can corporations limit the applications of their products? Should they? Should Ecuador or its nationals be able to sue the manufacturers of the products used in the aerial spraying? In what forum? For environmental actions brought under the U.S. Alien Tort Statute, see Chapter 11 in the casebook.

6. Paragraph 27 of Ecuador’s Application highlights uncertainties and unanswered questions surrounding the use of glyphosate in a megadiverse tropical setting. If Ecuador were to request provisional measures (akin to the equitable remedy of a preliminary injunction in U.S. law) should they be granted given the uncertainties? Similar uncertainties were present in the *Southern Bluefin Tuna Cases* brought by Australia and New Zealand against Japan for allegedly failing to cooperate in the conservation of southern bluefin tuna stock. The International Tribunal for the Law of the Sea (ITLOS), which heard the request for provisional measures, was faced with scientific uncertainty about the continued decline of southern bluefin tuna. In granting the provisional measures ITLOS considered that “the parties should in the circumstances act with prudence and caution” and that “although the Tribunal cannot conclusively assess the scientific evidence by the parties” it found “that measures should be taken as a matter of urgency to preserve the rights of the parties and avert further deterioration of the southern bluefin tuna stock”. *Southern Bluefin Tuna Cases* (N.Z. v. Japan; Austl v. Japan), Order of 27 August 1999, 3 ITLOS Rep. 280, 117 I.L.R. 149 (1999). Some have pointed to this ruling as adopting the “precautionary approach” stated in Principle 15 of the Rio Declaration on Environment and Development, U.N. Doc. A/CONF.151/5/Rev.1 (1992), 31 I.L.M. 874 (1992). For discussion on the precautionary approach or principle see pp. 81-86 in the casebook.