Colombia's Aerial Eradication of Illicit Crops: A Multi-Stakeholder Case Study of International Environmental Law and Ethics[1]

By

Lisa Johnson
University of Puget Sound
1500 N. Warner St. #1032
Tacoma, WA 98407
(253) 759-1786
ljohnson@ups.edu

[1] The author gratefully acknowledges funding to support the development of this case and teaching note from the Burlington Northern Curriculum Grant administered by the University of Puget Sound, and from The Global Business Center (Home of the UW CIBER) at the University of Washington under a grant from the U.S. Department of Education.

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Background

Illegal drug trafficking was a serious international problem. In 2008, 178 nation-states were parties to the United Nations Convention against Illicit Traffic in Narcotic Drugs and Psychotropic Substances (hereinafter "1988 UN Drug Convention"), which was a treaty that existed to promote international cooperation to address the problem of illicit drugs (1988 UN Drug Convention, Article 2 paragraph 1, p. 2; U.S. Department of State, 2008, pp. 35 – 38). Illegal drug use posed a "serious threat to the health and welfare of human beings and adversely affect[ed] the economic, cultural and political foundations of society" (1988 UN Drug Convention, p. 1).

Unproductive "blame-games" had occupied the decades prior to 2008, consisting of "consumer" countries in Europe and in North America blaming "supplier" regions in Asia and Latin America (U.S. Department of State, p. 15). However, by 2008, this mindset was shifting to recognize that the illicit drug problem was an international issue that required cooperative measures between nation states.

Cocaine and heroin were of concern to the United States. The U.S. proactively sought to eliminate the flow of illegal drugs into its borders (U.S. Department of State, 2008, p. 16). To this end, and in recognition, of its obligations under the 1988 UN Drug Convention and its belief that international cooperation was an important strategy to fight a "common enemy" (U.S. Department of State, p. 15), the U.S. was engaged in several international counter-drug initiatives and programs, including involvement in Colombia.

One such Colombian program, Plan Colombia, used herbicides to eradicate illicit coca and opium poppy crops, the sources of cocaine and heroin, respectively. The herbicide was applied aerially by helicopters and airplanes. The aerial spraying occurred regularly since at least 2000 (Republica del Ecuador, 2008, p. 1). The Colombian government chose the areas to spray (Republica del Ecuador, 2008, p.1).

The United States was involved with this program by providing financial and technical assistance to the Colombian government. For example, the U.S. Department of Homeland Security's Customs and Border Protection provided training, tools, vehicles, equipment, and other assistance to Colombian law enforcement agencies (U.S. Department of State, p. 63).

The herbicide used in Colombia's aerial fumigation program was glyphosate (U.S. Department of State, p. 23), which was produced at least by the Monsanto Company under the brand name Roundup. Glyphosate was an herbicide approved by the U.S. Environmental Protection Agency ("EPA")in 1974 (Pesticide, 1986) and by re-registration in 1993 for cropland, forests, residential areas, and aquatic areas (Reregistration, 1993).

The U.S. Department of State asked Monsanto to create a defoliant that could be applied to large forested areas from high altitudes, since much of the Colombian rural areas were not safe fly zones due to the presence of drug traffickers, guerrillas, and ongoing military-type disputes. In response to this request, Monsanto produced Roundup Ultra, which was a modification of Roundup (Plan Colombia, 2003). Allegations existed that the chemical composition of Roundup had not been fully disclosed (Theo Colburn interviewed in Plan Colombia, 2003).

Despite the EPA's approval of glyphosate, some people believed that it was unsafe as used in the Colombian fumigation program. For example, many complaints originating in Colombia and in neighboring Ecuador reported adverse human health effects, environmental degradation, destruction of legal crops, and illness and death to animals as a result of its use. Colombia and Ecuador were ecologically rich environments, and many who lived there, as well as in the greater international community, were concerned about the effects of the chemical spraying on the area's natural diversity.

Despite complaints from Ecuador, Colombian citizens, environmental groups and other interested parties, the United States continued to support Plan Colombia, and Colombia continued to operate the aerial eradication program.

In 2008, Ecuador instituted proceedings against Colombia in the International Court of Justice to ask for relief and damages resulting from the sprayings. The U.S. was not named as a defendant.

Stakeholders

The Colombian Government

Colombia was an ally of the United States and a democracy. It wished to squelch the effects of the illegal drug trade within its borders. Colombia's President Uribe vowed to continue the aerial eradication program until his country was "rid […] from […] the scourge of drugs" (Uribe, 2003). It welcomed U.S. support in its efforts, and asked that the international community commit to "defeat drugs completely" (Uribe).

Though suppliers of illegal drugs could be found worldwide, Colombia remained one of the top suppliers. In 2008, Colombia was the world's largest producer of coca, from which cocaine is derived, as well as the opium poppy and cannabis (Colombia; Republica del Ecuador, p. 4). Colombia's illicit drug trade supplied the United States market with most of its cocaine and some of its heroin (Colombia). In 2005, Colombia's coca crop produced a potential of 545 metric tons of pure cocaine. In 2004, its opium poppy crop produced potentially 3.8 metric tons of pure heroin (Colombia).

Plan Colombia was the Colombian government's "blueprint" for its counternarcotics efforts, as well as other issues closely tied to the eradication of the drug trade, such as strengthening democratic institutions, promoting human rights, encouraging socio-economic development, and ending terrorism (Western Hemisphere, 2008, p. 544). Plan Colombia began in 1999.

In 1984 – well before the implementation of Plan Colombia – the Colombian government convened experts to study the effects of aerial spraying (Republica del Ecuador, p. 4). These experts concluded that the spraying of herbicides – including glyphosate – was not recommended, because little was known about its toxicity to humans (Republica del Ecuador, p. 5, *citing* Administrative Tribunal of Cundinamarca, Colombia, Second Section, Subsection B, 13/6/2003, "Claudia Sampedro y Hector Suarez v. Ministry of Environment and Others", p. 15 [hereinafter "Administrative Tribunal of Cundinamarca"]) These experts likened the aerial eradication program to "human experimentation" (Republica del Ecuador, p. 5, *citing* Administrative Tribunal of Cundinamarca).

Notwithstanding these findings, Colombia began aerial fumigation at least by 2000. It identified illegal coca and opium poppy crops through the use of an aircraft-mounted GPS, which identified exact coordinates (Aerial Eradication, p. 3). A computer established flight lines, but the pilots did not open the valve to release the herbicide until they had visual confirmation of the crop (Aerial Eradication, p. 3). The Colombian target areas included the frontier region along the border of Ecuador (Republica del Ecuador, p. 2). To avoid drift, aerial fumigation missions were cancelled if wind speed exceeded 10 mph, humidity < 75%, or if temperatures exceeded 90 degrees Fahrenheit (Aerial Eradication, p. 3).

The program was devised to "promote peace, combat narcotics, and foster democracy" (Republica del Ecuador, p. 5). By 2005, the Colombian National Police, in conjunction with U.S. support, had eradicated 130,000 - 140,000 hectares of coca, which was a new annual record

(Western Hemisphere, 2005, p. 545; CIA Factbook). However, apparent aggressive replanting occurred thereafter (CIA Factbook).

In response to environmental concerns, the Colombian government contracted with an environmental auditor to review and monitor spray areas, analyze data, conduct field checks, and check on oversprays (Aerial Eradication, 2003, p. 2).

In response to Ecuador's concerns about the spraying program, the Colombian Government answered that "Plan Colombia is […] the most effective method for protecting the fraternal country of Ecuador from the perverse effects of narcotrafficking and armed conflict, in a way that is aimed at preventing […] [drug traffickers] from continuing to get stronger and metastasizing to Ecuador" (Republica del Ecuador, p. 15).

The United States Government

A goal of the United States was to eliminate the flow of international drugs into its borders (U.S. Department of State, p. 16). To this end, the United States has been involved in a number of anti-narcotrafficking initiatives. United States drug control policy sought to control demand and eradicate supply (U.S. Department of State, p. 28). The United States believed that source eradication was one of the most critical pieces to this issue, and crop cultivation was viewed as the weakest link in the drug supply chain (U.S. Department of State, p. 16). Coca plants and opium poppy could be easily spotted by satellite and targeted (U.S. Department of State, p. 16).

Colombia was the source of 90% cocaine used in the U.S. and the source of much of the heroin (U.S. Department of State, p. 18, 22). From 2003 to 2007, Colombian hectares in the production of coca rose from 113,000 to 157,000, representing a jump in potential drug production from 460 metric tons to 610 (U.S. Department of State, pp. 32 – 33). Indeed, the production of cocaine had doubled in the ten years prior to 2003 (Plan Colombia).

The United States supported Plan Colombia by providing technical assistance and supplies, such as scientific advice, herbicide, fuel, aircraft, (including helicopters), and third-party contractor pilots (Aerial Eradication, 2003, p. 1). The U.S. believed that a reduction in the flow of cocaine and heroin to the U.S. would serve its interest (Western Hemisphere, 2005, p. 544). In fiscal year 2007, the U.S. spent $465 million out of a total of $721.5 million spent in the region to the Colombian effort (U.S. Department of State, p. 41).

Plan Colombia required ongoing U.S. support to "maintain the momentum" (Western Hemisphere, p. 544). Drug trafficking was viewed in a similar light as terrorism (Western Hemisphere, p. 544). Though the rate of cocaine consumption had declined in the U.S. by 2008, teenage use remained a concern (U.S. Department of State, p. 18). The U.S. Office of National Drug Control Policy reported that the purity of cocaine and heroin were decreasing and that prices for these drugs were increasing. The United States believed that these successes were attributable in part to Plan Colombia (Western Hemisphere, p. 544).

The U.S. reported that only 13% of the glyphosate sprayed in Colombia was used in the aerial eradication program, with the remainder being used by farmers of legal crops (Aerial Eradication, p. 2; U.S. Department of State, pp. 23 - 24). Surfactants were substances that helped the glyphosate to penetrate the waxy coca leaves. They were "inert" ingredients that were combined with glyphosate for the sprayings. Cosmo-Flux 411f was one of the surfactants used. This substance was Colombian-manufactured, but had been reviewed by EPA, which found it to contain the same ingredients as pesticides registered for use the United States. Individually, the compounds were approved for use in food crops (Aerial Eradication, p. 2).

Glyposate was a widely used herbicide in the U.S., which estimated usage at 74 million pounds annually for agricultural purposes and 16 – 20 million pounds for non-agricultural purposes (Aerial Eradication, p. 3). The U.S. believed glyphosate to be a safe chemical, slightly toxic to wild birds, and not toxic to fish. It dismissed complaints by some people who complained about the sprayings. The U.S. believed that some who complained were farmers of illicit crops whose livelihoods had been impaired by the fumigation or by other chemicals used to process illicit crops (Aerial Eradication, p. 3). Additionally, the U.S. believed that health complaints could be traced to parasites, bacteria or infections endemic to the regions themselves (Aerial Eradication, p. 3). When legal crops were destroyed, the U.S. believed that the reason was that they were planted next to or interspersed with illegal crops, and were therefore subject to spraying (Aerial Eradication, p. 4).

The U.S. also believed that growers of illicit crops were primarily responsible for serious environmental degradation, such as deforestation (Aerial Eradication, p. 4). The U.S. pointed out that four hectares of jungle or forest must be removed to plant one hectare of coca plants. This deforestation by farmers of illegal crops increased the chances of natural disasters such as flooding and landslides (Aerial Eradication, p. 4). Additionally, chemicals used in the processing of illegal drugs caused chemical run off into the waterways, thereby further damaging the ecosystems (Aerial Eradication, p. 4). The U.S. argued that drug criminals did not practice environmental safeguards, and that they routinely dumped toxic processing chemicals into the fragile ecosystems in which they operated (U.S. Department of State, p. 23). The U.S. government believed that six million acres of virgin rainforest had been decimated over the 20 years prior to 2008 due to slash and burn practices by coca growers (U.S. Department of State, p. 23). These clearing practices were used not only for illegal cultivation, but also for landing strips, and processing laboratories (U.S. Department of State, p. 23).

The U.S. argued that spraying of glyphosate encouraged the growth of natural species and increased diversity (Aerial Eradication, p. 4). In contrast, highly toxic herbicides, fertilizers and processing chemicals were used in the production of cocaine and heroin, and these chemicals were dumped into waterways or on the ground, which contaminated and poisoned water systems relied upon by humans and animals (U.S. Department of State, p. 23). Many of these chemicals were Category I level for toxicity, which was the highest level of toxicity as ranked by the Environmental Protection Agency and, consequently, restricted from sale within the U.S. and Colombia (U.S. Department of State, p. 23). For instance, "one kilogram of cocaine base require[d] the use of three liters of concentrated sulfuric acid, 10 kilograms of lime, 60 to 80 liters of kerosene, 200 grams of potassium permanganate, and one liter of concentrated ammonia" (U.S. Department of State, p. 23).

The U.S. did not believe that small scale farmers should be given special treatment, and that "severe economic hardship […] should not be used by anybody to pursue a livelihood that is unlawful" (Aerial Eradication, p. 4). Additionally, it said, "Colombian coca growers are not simply innocent farmers […] [T]hey are in fact actively engaged in drug production" (Aerial Eradication, p. 4).

Ongoing environmental management plans had never found soil and water samples to contain contamination outside established norms (U.S. Department of State, p. 23).

The Ecuadorian Government

In March 2008, Ecuador instituted proceedings at the International Court of Justice (ICJ) against Colombia concerning the aerial spraying of toxic herbicides (International Court of Justice, 2008). Ecuador alleged that the aerial spraying "ha[d] already caused serious damage to people, to crops, to animals, and to the natural environment on the Ecuadorian side of the frontier" (ICJ Order, 2008, p. 1). Ecuador requested relief from the ICJ in the form of an order to "respect the sovereignty and territorial integrity of Ecuador; […] 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; […] prohibit the use, by means of aerial dispersion, of such herbicides on or near any part of its border with Ecuador; and […] indemnify Ecuador for any loss or damage caused by its internationally unlawful acts" (p. 1).

In its application, Ecuador alleged that Colombia's aerial spraying of toxic herbicides had been conducted "near, at, and across its border with Ecuador" (Republica del Ecuador, 2008, p. 1), affecting Esmeraldas, Carchi, and Sucumbios, which are Ecuadorian provinces (Republica del Ecuador, p. 6). It further alleged "serious damage to people, to crops, to animals, and to the natural environment on the Ecuadorian side of the frontier," with "grave risk of further damage over time" (Republica del Ecuador, p. 1).

Ecuador argued that Colombian aircraft sometimes breached the Ecuadorian airspace by using it to turn its aircraft around, and occasionally the pilots simply kept spraying within the Ecuadorian border (Republica del Ecuador, p. 2, 7). Additionally, winds dispersed herbicide dropped into Colombia into Ecuador (Republica del Ecuador, p. 7).

Ecuador further alleged that serious human health problems had resulted from these spraying, including eye irritation, such as burning and itching, skin sores and lesions, respiratory problems, heart arrhythmias, temporary paralysis, temporary blindness, intestinal bleeding and death (Republica del Ecuador, p 2, 8) These symptoms were said to mirror complaints made by Colombians (Republica del Ecuador, p. 8). Ecuador argued that the sprayings were carcinogenic and posed reproductive risks, citing laboratory studies as its evidence (Republica del Ecuador, p. 10).

Additionally, Ecuador alleged damage to non-target crops such as yucca, plantains, rice, coffee, hay, corn, cocoa, coffee, and fruit (Republica del Ecuador, p. 2, 7). These problems had resulted in serious interference with Ecuadorian subsistence farmers of that region. The non-human toll

also included illness of poultry, fish, dogs, horses, and cows, as well as allegations of the deaths of "thousands of animals" (Republica del Ecuador, p. 7, 8).

Ecuador reported that it had unsuccessfully attempted diplomatic negotiations with Colombia to end the sprayings and, with Colombia, had convened bilateral scientific commissions to examine the effects of the spraying (Republica del Ecuador, p. 2).

Ecuador opposed the export of illegal narcotics (Republica del Ecuador, p. 3).

Ecuador alleged that under Colombia's aerial eradication program, sprayings on Ecuador's soil occurred during several episodes in many communities (see Appendix 2).

Ecuador claimed that glyphosate alone was toxic, and cited the warning label from a Roundup product produced in 2002 as evidence (see Appendix 1 for the first page of the product label) Republica del Ecuador, p. 10, *citing* www.umt.edu/sentinel/roundup_label.pdf). These warnings differed somewhat from the Roundup labels on Monsanto Company's website in 2008. For instance, under the section 3.1 "Hazards to Humans and Domestic Animals," the newer version omitted instructions regarding "if inhaled" and "if swallowed," but added "if on skin." Section 3.2 Environmental Hazards appeared to be the same or very similar (Monsanto, 2008).

Ecuador argued that the inert ingredients used with the herbicide glyphosate were toxic, and that together, these products had a synergistically toxic effect. Ecuador believed that the surfactant Cosmo-Flux 411f was used, and complained that Colombia refused to release proprietary information concerning Cosmo-Flux's chemical composition, and consequently, "the glyphosate/Cosmoflux combination has not been subject to proper evaluations for safety to humans or […] to animals" (Republica de Ecuador, p. 11). Ecuador also believed that Colombia was using polyethoxylated tallowamine (POEA) as another surfactant, which "cause[d] eye burns, skin redness and blistering, nausea and diarrhea" (Republica del Ecuador, p. 11).

Ecuador argued that it was environmentally unique and vulnerable (Republica del Ecuador, p. 12). It was one of only 17 countries designated as "megadiverse" by the UN Environment Programme's World Conservation Monitoring Centre (Republica del Ecuador, p. 12, citing, World Resources Institute, Ecuador Country Profile, Biodiversity and Protected Areas, *available al* http://earthtrends.wri.org/text/biodiversity-protected/country-profile-54.htrnl). It argued that it had the world's highest biological diversity per square kilometer than anywhere else in the world, having many species of mammals, plants, birds (including 35% of the world's hummingbirds), reptiles, amphibians, and fish. About one-quarter of its land was comprised of protected areas or national parks (Republica del Ecuador, p. 12).

Additionally, Ecuador was geographically and culturally unique, consisting of coastal, mountainous, and Amazonian jungle areas. Moreover, indigenous peoples lived there, including 3,500 Awâ, who were dependant upon the natural environment. The people of the region relied upon subsistence farming (Republica de Ecuador, p. 11). Due to the "terror induced by the sprayings," up to 50% of the local populations had fled their homelands (Republica del Ecuador, p. 18). In 2002, Puerto Mestanza had 86 farmer families, but by 2005, only four remained (Republica del Ecuador, p. 18). In these regions, formal educational opportunties, health care, and infrastructure were minimally available, if at all.

Between 2000 and 2007, Ecuador had initiated many diplomatic overtures to Colombia, to restrict spraying along the frontier border region, and each had failed (Republica del Ecuador, pp. 14 - 16). Indeed, Colombia maintained that its actions were in full conformity "with the principle of precaution enshrined in the 1992 Rio Declaration on Environment and Development" (Republica del Ecuador, p. 16). Colombia further maintained that its aerial fumigation program protected Ecuador from the metastasizing effects of narcoterrorism. In effect, it argued that it was being a good neighbor by carrying out its fumigation program.

In July 2007, "Ecuador informed Colombia […] that it considered the process of dialogue exhausted, and without prospects for success" (Republica del Ecuador, p. 17). Ecuador then commenced proceedings at the ICJ against Colombia. The U.S. was not named as a defendant.

Ecuador asserted that "Colombia's conduct amounts to a dangerous ecological and toxicological experiment on a vast scale" (Republica del Ecuador, p. 14).

Ecuador claimed that Colombia has violated its rights under customary and conventional international law, and "failed to meet its obligations of prevention and precaution" (Republica del Ecuador, p. 20). It sought indemnification for damage to property, death or injury to humans, and environmental damage (Republica del Ecuador, p. 19). It also asked that Colombia respect its sovereignty and territorial integrity and prevent toxic herbicides from being deposited in Ecuador or near its border (Republica del Ecuador, p. 19).

The Colombian and Ecuadorian People

Heath, property, and environmental complaints

Many farmers complained about the effects of the spraying. Tulio Santander, a farmer from Putamaya, Colombia, was outraged when his legal crops and his fish were fumigated. These crops were not for sale on the market. They were to feed his family (Plan Colombia, 2003).

Others had been forced to flee their homelands, including indigenous people of rural Ecuador (Republica del Ecuador, p. 18). Several rural farmer families had simply abandoned entire communities in Ecuador due to the spraying. Not only was the loss of legal crops seriously problematic, but the "terror of the sprayings" had psychological and sociological effects on the people as well, resulting in an exodus from their lands (Republica del Ecuador, p. 18).

In the early days of the sprayings, a Colombian judge had ordered them halted, after the NGO Paz Colombia filed a motion calling for their cessation (Bogotá Judge Suspends Fumigation, 2001). However, the injunction was not permanent, and fumigations were resumed.

Livelihood dilemmas

Some farmers were faced with an economic choice. According to Adam Isacson of the Center for International Policy in Washington, DC (2003), this was a matter of basic economics. Coca paste

– derived from coca crops – could be sold to drug traffickers for $1,000 a kilo. If the plants were eradicated through fumigation, the value of the coca paste would increase, perhaps to something like $3,000 per kilo. Eradication of some plants created a greater incentive to grow coca (Plan Colombia).

Sanho Tree of the Institute for Policy Studies in Washington, DC (2003) added that Plan Colombia required the rural farmers to sign a contract to grow only legal crops in return for about $950 annually. However, under this arrangement, the farmer would have to grow hundreds of kilos of legal crops, transport the crop themselves, and compete in an international agri-economy, which they simply could not effectively do. Transportation was a tremendous obstacle for many of these farmers, due to lack of vehicles or suitable roads. Additionally, $950 per year was simply not enough money to support a family. Their alternative was to grow coca plants and sell coca paste for a higher profit, and the traffickers would come right into the towns or even their farms to collect the product (Plan Colombia).

Herman Santander, a Colombian farmer said, "If we produce something that no one wants to buy, then it's the same as producing nothing in the first place."

The U.S. and Colombia recognized that real economic choices needed to be offered to coca farmers to dissuade them from growing coca. Sustainable development was a goal.

Political and military undertones

Others alleged that Plan Colombia was really just about money. Originally conceived as an agriculturally-focused plan for sustainable growth, it morphed into a military plan from U.S. influence (Plan Colombia). Accordingly, 80% of the U.S. budget for Plan Colombia was for military-type operations (William Hartung interview in Plan Colombia). The United States employed mercenaries, and the efforts in Colombia were essentially an "under the radar," private sector war (Plan Colombia). Colombia was the third largest recipient of U.S. aid (Hartung, Plan Colombia).

Colombian Senator Luiz Cruz said that nothing was discussed in the Colombian Congress about Plan Colombia. He maintained that the only discussion before the program's implementation was between the U.S. Department of State and the Colombian Executive branch (Plan Colombia, 2003).

The Revolutionary Armed Forces of Colombia [hereinafter the "FARC" after its Spanish acronym] maintained a presence in large areas of Colombia, including the spray zone. Colombia, the United States, and several other countries and international organizations viewed the FARC as a terrorist organization. Venezuela maintained that the FARC was, rather, a belligerent state as set forth in the Geneva Convention. Though the FARC was a guerrilla organization with political motives, it had become involved in drug trafficking, ransom kidnapping to fund its activities, and violence – including violence against civilians when strategic. The FARC publicly opposes Plan Colombia and U.S. involvement in Colombia. It saw itself as the voice of the rural poor.

Ingrid Betancourt, a former Colombian presidential candidate who was later kidnapped and held by the FARC for several years, argued that the U.S. funded Plan Colombia to keep a "clear conscience" that something was being done about the cocaine problem (Plan Colombia, 2003). She argued that effort should not be focused on the periphery of the problem, but instead, on the traffickers themselves (Plan Colombia, 2003).

The International Community

General concerns existed in the international community concerning Plan Colombia's effects on conventional Colombian farmers' crops, general environmental damage to wildlife and ecosystems, and potentially negative effects on waterways. For instance, Dr. Theo Colburn argued that aerial glyphosate dispersal could not be contained, and that the surfactant used enhanced the toxicity of the sprayings. She also pointed out that early studies found that glyphosate did pose risks to human health (Colburn interviewed in Plan Colombia). Likewise, general concerns existed with the use of glyphosate in a rainy and humid environment, and because the chemicals would run into the Amazonian Basin, affecting Peru, Ecuador, and Brazil (Plan Colombia).

The international drug trafficking trade had been reconceived as an international problem, requiring coherent international strategy to combat (U.S. Department of State, 2008, p. 15). Many nation states were parties to the 1988 UN Drug Convention. Though the treaty recognized demand as a problem (p. 2), it did not expressly acknowledge supply as a problem.

Noam Chomsky, U.S. philosopher and professor emeritus at MIT, argued that the U.S. did not have the right to fumigate Colombia, any more so than China would have the right to fumigate U.S. tobacco fields in Kentucky (Plan Colombia).

U.S. Representative Jim McGovern from Massachusetts argued that coca production had increased and that the program was not working. Further, he believed that the aerial fumigation program was a human rights violation, because the spraying occurred on legal crops, drinking water, children, the elderly, and pregnant women (Plan Colombia).

Sanho Tree argued that based upon a Rand Corporation study, the U.S. policy of eradication coca plants was the least cost effective method of controlling the supply of cocaine (Plan Colombia).

A Report of the UN Special Rapporteur for human rights identified aerial fumigation of illicit crops as a most serious problem (Republica del Ecuador, p. 12, *citing* Report of the Special Rapporteur on Colombia). The Ecuadorian indigenous Awa people had complained that their rights to food had been violated, they had been displaced from their homeland, the surrounding wildlife had died, the soil was contaminated, and the waters had become polluted. Their economic and social lives had been devastated. (Republica del Ecuador, pp. 12 -14, citing, Document A/HRC/4/32/Add.2 (28 December 2006)).

Instructor's Manual

Colombia's Aerial Eradication of Illicit Crops: A Multi-Stakeholder Case Study of International Environmental Law and Ethics

Case Synopsis

In order to combat trafficking in illegal drugs, such as cocaine and heroin, Plan Colombia was implemented. Plan Colombia involved the eradication of coca plants and opium poppies grown in rural Colombia by means of aerial eradication. The herbicide glyphosate, a commonly used herbicide in the United States and elsewhere worldwide, was combined with surfactants Cosmo-Flux 411f, a Colombian produced chemical compound, and POEA. Toxicity was said to be heightened when glyphosate was combined with surfactants, but the surfactants were necessary to ensure that the waxy coca leaves were penetrated by the herbicide.

The international community recognized drug trafficking as a major concern that posed a danger to human health. The United States cocaine market was largely served by cocaine produced in Colombia, and its heroin market was also served by the Colombian supply. The U.S. believed that controlling demand and supply were both key ingredients to combating illegal drug trafficking. The United States funded Plan Colombia.

Ecuador believed that Plan Colombia had caused serious environmental damage, risks to human health, and socioeconomic disruption to its residents who lived near the border of Colombia. Ecuador believed that Colombia had violated it state sovereignty. Ecuador instituted a proceeding in the International Court of Justice for an order to require Colombia to indemnify it for damages and to stop further sprayings.

This case examines the various stakeholders' positions related to the environmental, ethical, and legal issues inherent within this conflict. Environmental issues pose unique legal and ethical issues to today's government officials and business managers. This case presents conflicting arguments and evidence and allows students to analyze the evidence, develop a plan of action, and ultimately defend their decision.

This case illustrates the intersection of business activities (e.g., Monsanto Company's decision to produce Roundup Ultra; small-scale rural farmers), governmental policy and inter-governmental cooperation, the environmental community, and human rights interests.

Substantial legal and ethical questions are posed by the application of chemical treatments onto private property without the consent of the property owner. Does this amount to contamination of land by an outside agent, or is this simply a matter of government's exercise of authority over illegal activities?

Research Methods

This case was developed through the use of public records and secondary sources.

Teaching Objectives

The teaching objectives include:

1. Examination of ethical implications of governmental and business decisions that affect the natural environment;

2. Application and analysis of international environmental law in a contentious case ("contentious" as defined by the International Court of Justice);

3. Analysis of governmental ethical obligations to its citizens and to non-citizens; and,

4. Development of analytical and writing skills necessary to arrive at and convey a recommendation and to support an argument.

5. Analysis of the tensions inherent between economic growth and environmental preservation;

6. Ethical examination of international policy decisions on local population;

7. Recognition of legal issues and concepts of international law and state sovereignty, particularly vis-à-vis international environmental law;

8. Identification of competing and conflicting claims on land use;

9. Analysis of stakeholders' motives and interests; and,

10. Development of decision-making skills

Courses and Levels for Which the Case is Intended

The case was written for public affairs undergraduate or graduate courses in ethics, law, international policy, globalization, policy ethics, or environmental studies.

Teaching Objectives

After studying this case, students should be able to identify and evaluate conflicts among diverse stakeholders. The case has been developed to examine the ethical implications of international policy decisions that may result in adverse environmental, social or economic consequences. These consequences may include harm to a local economy, gains in the effort to stem the international drug trade, disruptive effects upon an indigenous people, and international relations damage between neighboring states.

This case highlights international environmental law and serves as a model to evaluate environmental conflicts in the international arena.

This encourages students to apply their skills and knowledge to a situation with legal, ethical, and environmental conflicts. It contains incomplete and contradictory information to simulate the circumstances under which decision makers must act. Students will gain appreciation of the relevance of interdisciplinary decision making skills, and learn to apply these skills to a real world situation. Moreover, students will develop a course of action, as well as the skills and knowledge to defend their decision. A teaching plan that identifies suggestions for fostering these skills follows.

Teaching plan and suggestions

Adequate background information should be provided regarding international law and disputes, particularly customary legal principles. Instructors may wish to lead a general discussion concerning the nature of international law. Customary international law served as an important indicator regarding acceptable behavior.

Some students may inquire about the International Court of Justice's jurisdiction in the *Ecuador v. Colombia* dispute. Ecuador alleges that the ICJ has jurisdiction in accordance with the American Treaty on Pacific Settlement of Disputes, Bogotá, signed April 30, 1948 ("Pact of Bogotá"), which gives jurisdiction over any question of international law and the breach of any international obligation. Additionally, Ecuador alleges jurisdiction by virtue of the 1988 UN Drug Convention.

Several theoretical perspectives may be brought to bear upon this case. Instructors are encouraged to bring their own areas of expertise to the analysis of this case.

General Activities and Strategies Students should read the entire case prior to class. Class discussions should help students focus on the many aspects of conflict within this case (i.e., legal, ethical, policy) without providing definitive answers. Use of the discussion questions would be helpful to center attention on the relevant issues. Instructors may wish to require students to write answers to the discussion questions prior to class meetings so that students develop a deeper understanding of the issues prior to class discussion.

Students should be encouraged to externally visualize the competing arguments by creating tables, listing advantages and disadvantages, or by any other means helpful to evaluate the arguments.

Students can form groups and assume the identity of a specific stakeholder to debate the issues with other stakeholders.

Students should write a decision memorandum to advise the United States government, the Ecuadorian government, the Colombian government, the Monsanto Company, or the local farmers regarding future courses of action. Alternatively, students could write from the point of view of a policy consultant or legal counsel. The decision memorandum should have a strong thesis that argues definitely for one course of action. Students should support their argument with case material. Excellent memoranda will contain a solid recommendation that includes analysis and consideration of each stakeholder's position, options to mitigate damages to negatively

impacted stakeholders, adequately address the legal concerns (with legal analysis if the case is being used in a law class), address public perception and opinion, and acknowledge and defeat opposing arguments.

The case study should culminate in a class discussion. Students could compare their decision memoranda and evaluate their classmates' recommendations.

Sufficient information has been included in the case to provide the necessary support for the various issues presented, but students may also be encouraged to conduct outside research, particularly if they lack fundamental exposure to the specific issues described in this case (e.g., drug trafficking, agribusiness, international legal disputes, environmental decision-making, the precautionary principle).

This case lends itself well to interdisciplinary teaching approaches. While the case can be used successfully in specific disciplines (e.g., law), a multi-disciplinary approach can tease out the richness of the case by exploring competing stakeholders' claims, globalization, and environmental impacts of governmental decisions on the natural environment.

Two specific teaching plans have been included for illustrative purposes. However, course instructors are encouraged to customize these plans to their own classes or to develop entirely different plans. Alternatively, the teaching ideas contained in General Activities and Strategies section (above) may be used exclusively.

Lesson Plan 1 (50-80 minutes)

1. Before class begins, students should write a decision memorandum as described in General Activities and Strategies. Students should be divided into two groups representing different courses of action (e.g., those in favor or continued aerial fumigation and those opposed; or, Ecuador and Colombia, etc.). To ensure that different outcomes are sufficiently represented, the instructor may wish to pre-assign outcomes that students must support. Students should meet with their groups to discuss their recommendations and their support. (10-20 minutes)

2. Students should participate in a formal debate. (30–45 minutes)

3. Analyze the outcome of debate. Clarify points raised in the debate that warrant further discussion. (10–15 minutes)

Lesson Plan 2 (50-80 minutes)

1. Instructor should lead a discussion to briefly summarize the case (5-10 minutes)

2. Stakeholders' Analysis: This case lends itself very well to role playing (30-50 minutes): Students should be divided into groups representing each of the different stakeholders (e.g., Ecuador, the United States, Colombia, rural farmer of Colombia, the Awa

indigenous people of Ecuador). Allow a few minutes for preparation of arguments before starting the role playing exercise.

3. The instructor should lead a discussion to debrief the session (15-20 minutes)

Summary of Discussion Questions (and some sample answers)

1. **Who are the stakeholders? What are their interests in the outcome of this conflict? How would each be affected if the aerial fumigation plan continued? How would each be affected it is ceased?**

2. **Should illegal drug trafficking be considered a domestic problem with domestic solutions or an international problem that requires coherent efforts between nation states?**

3. **What ethical issues are implicit in this dilemma?**

Students should examine ethical issues by using ethical theories such as utilitarianism, virtue ethics, deontology, or feminist ethics.

- Is this decision a domestic decision, or should the international voice be heard? If this is strictly a domestic decision, and it results in damage to the natural environment of Colombia, is this acceptable? If international actors are allowed a voice in Colombia's domestic affairs, will Colombia lose some of its sovereignty?

- Is Colombia violating Ecuador's sovereignty through its aerial fumigation plan?

- If irreparable damage to critical habitat in one of the world's most diverse ecosystems occurs, is this acceptable?

- Should the United States be involved in Plan Colombia? Why or why not?

- How does U.S. involvement in Plan Colombia affect it in the international theater?

- Does the Colombian federal government have an obligation to improve economic conditions in rural Colombia?

- Ethical questions are raised concerning the nonconsensual application of herbicide on lands not burdened by illegal crops. The United States and Colombian governments argue that illicit crops damage the environment to a much greater extent than widespread herbicide use, primarily through deforestation to cultivate lands. This debate presents interesting conflicts concerning underlying environmental philosophies and property rights.

4. **Is Plan Colombia's economic reasoning sound regarding eradication of illicit crops? Why or why not?**

   Students may question eradication of coca plans as a feasible solution to curb supply. Since reduction in supply will lead to increase in price, this may provide a greater financial incentive to farmers to grow coca than what they would have had. Consequently, eradicating 10% of the crop will not lead to a 10% reduction in quantity supplied.

5. **What arguments support the continuation of Plan Colombia's aerial fumigation program? What arguments support rejection of it? Is there a middle ground?**

   Arguments in favor of the fumigation program include:

   - The use of aerial fumigation may be environmentally benign. Students should recognize that this argument must rest upon empirical data, rather than interested parties' assertions.
   - The aerial eradication program will reduce drug trafficking activities in Colombia, which will lead to a more stable, democratized countryside.
   - The local population does not have a right to grow illicit crops. Aerial fumigations only target illicit crops, rather than legal crops.
   - Illegal crop cultivation and drug manufacturing cause more environmental damage than aerial eradication with glyphosate.
   - This decision is strictly a domestic matter, and not international matter. This is a question concerning state sovereignty and international obligations to curtail drug trafficking.

   Arguments against continuing the fumigation program include:

   - The precautionary principle should be exercised. Some believe that the spraying of chemicals into the natural environment should be delayed until adequate research has been conducted in Colombia's biome and the Amazonian basin. The focus areas for the aerial eradication program are environmentally sensitive. Students should recognize that empirical data is necessary to support or reject this argument.
   - The local population has a right to use their land as they wish, and to exclude undesirable practices. The local population will have to rely on land use laws, international treaty provisions, and similar devices to prevent others from spraying chemical herbicides on its land. This argument raises a dilemma with no easy answer.
   - Sustainable industry should be developed for the area to provide long term solutions, rather than short term remedies.
   - Spraying people, their land, wildlife, forests, and water systems with a toxic herbicide is a violation of human rights.

- Plan Colombia has not yet been successful, and funding is required to continue it.

6. **How can the pressing economic needs of rural Colombian farmers be met if growing coca plants and opium poppy are not options? Does the Colombian government have a duty to provide legitimate opportunities? Why or why not?**

   The pressing economic needs of rural Colombian farmers can be met by investment in sustainable economic opportunities. However, economic choices must "make sense" for the farmers. Additionally, pressures by drug traffickers to grow illicit crops must be eliminated. The possibilities for sustained economic growth in rural Colombia exist, but statecraft and capacity building must be focused to this end.

7. **If aerial fumigation of crops is subsequently found to be harmful to humans or the natural environment, who should bear the liability? The Colombian government? The United States? The Monsanto Company? The farmers who grow the illicit crops? Why?**

   This question is, of course, debatable. Regardless of who were held accountable for the resulting harm, what would constitute the repercussions of accountability? Additionally, causation is often difficult to prove in toxic tort cases.

   Even if parties were held fully accountable, there are few mechanisms that could discourage future problems. Certainly, environmental NGOs would wave the banner of protest, and perhaps this episode could be held up as a cautionary tale for future environmental protection campaigns.

8. Do you believe that the United States' involvement in Plan Colombia was ethical? Do you believe that the Colombian government behaved ethically? Why or why not?

Epilogue

With respect to the Ecuador and Colombian dispute pending at the International Court of Justice, the Court set the times for pleadings to be filed in the coming years. In April 2009, Ecuador must file its memorial, and in March 2010, Colombia must file its counter-memorial. Resolution of this dispute by the court will likely be several years from now (ICJ Order, p. 2). No resolution has yet been reached.

The United States continued to fund Plan Colombia.

In 2008, Ingrid Betancourt, the former Colombian presidential candidate who was kidnapped by the FARC, was rescued after several years of captivity.

The source of the following label is www.umt.edu/sentinel/roundup_label.pdf (cited by Republica del Ecuador Ministerio de Relaciones Exteriores):

This sample label is current as of 11/20/2002. The product descriptions and recommendations provided in this sample label are for background information only. Always refer to the label on the product before using Monsanto or any other agrichemical product.

21154B4-1/CG

Roundup ORIGINAL®
HERBICIDE

Complete Directions for Use

EPA Reg. No. 524-445

AVOID CONTACT OF HERBICIDE WITH FOLIAGE, GREEN STEMS, EXPOSED NON-WOODY ROOTS OR FRUIT OF CROPS (EXCEPT AS SPECIFIED FOR INDIVIDUAL ROUNDUP READY® CROPS), DESIRABLE PLANTS AND TREES, BECAUSE SEVERE INJURY OR DESTRUCTION MAY RESULT.

2004-1

Not all products recommended on this label are registered for use in California. Check the registration status of each product in California before using.

Read the entire label before using this product.

Use only according to label instructions.

It is a violation of Federal law to use this product in any manner inconsistent with its labeling

Read the "LIMIT OF WARRANTY AND LIABILITY" statement at the end of the label before buying or using. If terms are not acceptable, return at once unopened.

THIS IS AN END-USE PRODUCT. THIS COMPANY DOES NOT INTEND AND HAS NOT REGISTERED IT FOR REFORMULATION. SEE INDIVIDUAL CONTAINER LABEL FOR REPACKAGING LIMITATIONS.

1.0 INGREDIENTS

ACTIVE INGREDIENT:	
*Glyphosate, N-(phosphonomethyl)glycine, in the form of its isopropylamine salt	41.0%
OTHER INGREDIENTS:	59.0%
	100.0%

*Contains 480 grams per litre or 4 pounds per U.S. gallon of the active ingredient glyphosate, in the form of its isopropylamine salt. Equivalent to 356 grams per litre or 3 pounds per U.S. gallon of the acid, glyphosate.

No license granted under any non-U.S. patent(s).

2.0 IMPORTANT PHONE NUMBERS

1. FOR PRODUCT INFORMATION OR ASSISTANCE IN USING THIS PRODUCT, CALL TOLL-FREE,
1-800-332-3111.
2. IN CASE OF AN EMERGENCY INVOLVING THIS HERBICIDE PRODUCT, OR FOR MEDICAL ASSISTANCE, CALL COLLECT, DAY OR NIGHT,
(314)-694-4000.

3.0 PRECAUTIONARY STATEMENTS

3.1 Hazards to Humans and Domestic Animals

Keep out of reach of children.

WARNING! AVISO!

Si usted no entiende la etiqueta, busque a alguien para que se la explique a usted en detalle. (If you do not understand the label, find someone to explain it to you in detail.)

CAUSES SUBSTANTIAL BUT TEMPORARY EYE INJURY.

HARMFUL IF SWALLOWED OR INHALED.

Do not get in eyes or on clothing.

Avoid breathing vapor or spray mist.

FIRST AID:	Call a poison control center or doctor for treatment advice.
IF IN EYES	• Hold eye open and rinse slowly and gently with water for 15 - 20 minutes. • Remove contact lenses if present after the first 5 minutes then continue rinsing eye.
IF INHALED	• Remove individual to fresh air. If not breathing, give artificial respiration, preferably mouth-to mouth. Get medical attention.
IF SWALLOWED	• This product will cause gastrointestinal tract irritation. Immediately dilute by swallowing water or milk. Get medical attention. NEVER GIVE ANYTHING BY MOUTH TO AN UNCONSCIOUS PERSON.
• Have the product container or label with you when calling a poison control center or doctor, or going for treatment. • This product is identified as Roundup Original herbicide, EPA Registration No. 524-445. • You may also contact (314) 694-4000, collect day or night, for emergency medical treatment information.	

DOMESTIC ANIMALS: This product is considered to be relatively nontoxic to dogs and other domestic animals; however, ingestion of this product or large amounts of freshly sprayed vegetation may result in temporary gastrointestinal irritation (vomiting, diarrhea, colic, etc.). If such symptoms are observed, provide the animal with plenty of fluids to prevent dehydration. Call a veterinarian if symptoms persist for more than 24 hours.

Personal Protective Equipment (PPE)

Applicators and other handlers must wear: long-sleeved shirt and long pants, shoes plus socks, and protective eyewear.

Discard clothing and other absorbent materials that have been drenched or heavily contaminated with this product's concentrate. Do not reuse them. Follow manufacturer's instructions for cleaning/maintaining PPE. If no such instructions for washables, use detergent and hot water. Keep and wash PPE separately from other laundry.

When handlers use closed systems, enclosed cabs, or aircraft in a manner that meets the requirements listed in Worker Protection Standard (WPS) for agricultural pesticides [40 CFR 170.240 (d) (4-6)], the handler PPE requirements may be reduced or modified as specified in the WPS.

User Safety Recommendations

Users should:

- 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.

3.2 Environmental Hazards

Do not apply directly to water, to areas where surface water is present or to intertidal areas below the mean high water mark. Do not contaminate water when cleaning equipment or disposing of equipment washwaters.

3.3 Physical or Chemical Hazards

Spray solutions of this product should be mixed, stored and applied using only stainless steel, aluminum, fiberglass, plastic or plastic-lined steel containers.

DO NOT MIX, STORE OR APPLY THIS PRODUCT OR SPRAY SOLUTIONS OF THIS PRODUCT IN GALVANIZED STEEL OR UNLINED STEEL (EXCEPT STAINLESS STEEL) CONTAINERS OR SPRAY TANKS. This product or spray solutions of this product react with such containers and tanks to produce hydrogen gas which may form a highly combustible gas mixture. This gas mixture could flash or explode, causing serious personal injury, if ignited by open flame, spark, welder's torch, lighted cigarette or other ignition source.

DIRECTIONS FOR USE

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 Supplemental Labeling.

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. For any requirements specific to your State or Tribe, consult the agency responsible for pesticide regulations.

Appendix 2 – Dates and locations of alleged Colombian fumigations in Ecuador
(Republica del Ecuador, pp. 6 – 7).

Province	Communities	Date
Esmeraldas	Mataje	October 2000
Carchi	San Marcos (Awa community)	October 2000
Sucumbios	San Francisco 1 and 2, Neuvo Mundo, and San Pedro del Condor	December - February 2001
Carchi	San Marcos (Awa community)	October - November 2001
Sucumbios	Chone II, Playera Oriental, Palma Seca, Puerto Nuevo, 5 de Agosto, and Puerto Mestanzo	August - October 2002
Sucumbios	Santa Marianita, Corazon Orense, 5 de Agosto, Puerto Mestanzo	July 2003
Carchi	Chical	December 2004
Sucumbios	Frente al Azul	December 2004
Esmeraldas	Limones	April 2005
Carchi	San Marcos (Awa community)	May 2005
Sucumbios	The communities from Salinas to Puerto Nuevo	December 2006
Less populated areas including primary forest in Ecuador	Less populated areas	Ongoing
Sucumbios	The communities from Puerto el Carmen to Rio Abajo	January 2007

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