

Environment

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1. Basic Data

(Chemicals Used in Illicit Drug Processing) "The chemicals used in the processing of coca leaf to cocaine, and of opium latex to heroin, are thought to have a much greater impact on the environment than the agrochemicals used in their production. Each year millions of tons and litres of processing chemicals and materials are released into the environment, both as wastes from processing laboratories and from the destruction of confiscated chemicals. However, only one specific study on the environmental effects of these chemicals has been identified, that conducted in the Chapare region of Bolivia in 1992 (Southwest Research Associates, 1993, cited by Henkel, 1995). Here, chemical spills were quickly diluted by the high rainfall received in the region. Some loss of soil microorganisms was noted, but no damage to wildlife, vegetation, fish species or bird life was detected in areas near the processing laboratories.

"The discharge of chemicals from illicit drug processing undoubtedly has some environmental impact, but it is impossible to assess the scale of this impact due to the lack of data of almost any kind on soils, water supplies or biodiversity or the health of local people."

Source:

United Nations Office on Drugs and Crime, "Coca Cultivation in the Andean Region: A Survey of Bolivia, Colombia and Peru" (Vienna, Austria: June 2006), p. 45.

http://www.unodc.org/pdf/andean/Andean_full_report.pdf

2.

(Chemical Agents Used in Drug Eradication) "Chemical agents have been used since the 1970s (Mexico, Colombia). A variety of herbicides have been used, including paraquat in Mexico and Colombia, the chemical defoliant 2,4-D (a constituent of Agent Orange) in Burma and Bolivia, Tebuthurion (trade name Spike) in Peru and glyphosate (trade name Roundup) in Colombia. Typically, herbicides have been sprayed from aircraft so that larger areas of illicit cultivation could be destroyed. Planes used for aerial fumigation have come under fire, forcing them to fly higher than the optimum altitude (of between 5 and 20 feet) for application of herbicides and raising doubts about the accuracy and impact of the spraying. Concerns about human and environmental health have caused Peru, Bolivia, Ecuador and Thailand to ban the use of chemical agents for eradication."

Source:

Mansfield, David, "Assessing Supply-Side Policy and Practice: Eradication and Alternative Development," Global Commission on Drug Policies (Rio de Janeiro, Brazil: January 2011), p. 5.

http://www.globalcommissionondrugs.org/wp-content/themes/gcdp_v1/pdf/Glo...

3.

(Effects of Coca Cultivation) "Damage to soils resulting from cultivation and elimination of the natural vegetation is widely reported in reference to the environmental impacts of illicit drug cultivation, as are the likely effects of the discharge of the chemical wastes from coca processing to soils and waterways. However, very little field assessment on the quantity of discharges and their effects on the environment (soils, fauna, flora or water) has been carried out by government agencies or universities. The only analysis found by this study was conducted in Chapare (Bolivia) in 1992 (Southwest Research Associates, 1993, quoted by Henkel, 1995). Here, a study of three cocaineprocessing laboratories found that pollution was concentrated in a small area at the processing site. Most chemicals were disposed of in holding ponds constructed for the purpose and were not dumped into nearby streams. Chemical spills at the site were quickly diluted by the high rainfall received in the region. Because coca processing sites are widely scattered in the Chapare, pollution is widely dispersed rather than concentrated at a few large sites. Some loss of soil microorganisms was noted, but no damage to wildlife, vegetation, fish species or bird life was detected near the processing laboratories. However, the study did not assess the long-term effects of pollution.

"For Colombia, DNE (2002) states that the agrochemicals used in coca processing are capable of polluting freshwater sources for human consumption, but no specific cases of this are given."

Source:

United Nations Office on Drugs and Crime, "Coca Cultivation in the Andean Region: A Survey of Bolivia, Colombia and Peru" (Vienna, Austria: June 2006), p. 31.

http://www.unodc.org/pdf/andean/Andean_full_report.pdf

4.

(Opium Poppy Eradication) "Efforts to eradicate opium have proven just as problematic. In Afghanistan the Afghan

Eradication Force and the air support required to protect it and monitor its effectiveness cost the USG [United States Government] an estimated US\$ 992 million between 2005 and 2009. Over this same period the Afghan Eradication Force destroyed an estimated 9,236 ha of opium poppy and cultivation rose from 107,400 ha in 2005 to 131,000 in 2009. Mexico has eradicated poppy regularly since the 1930's. In 1947 the net poppy crop was 4,000 hectares. In 2009 it was 15,000 hectares."

Source:

Mansfield, David, "Assessing Supply-Side Policy and Practice: Eradication and Alternative Development," Global Commission on Drug Policies (Rio de Janeiro, Brazil: January 2011), p. 8.

http://www.globalcommissionondrugs.org/wp-content/themes/gcdp_v1/pdf/Glo...

5.

(Colombian Coca Eradication) "For example, in Colombia, the United States Government [USG] allocated US\$ 457 million between 2002 and 2008 to the Colombia National Police specifically for eradication. A further US\$ 463 million was allocated to the Air Service of the Colombia National Police over the same period, as well as US\$ 844.1 to the Army Air Aviation. Both of these services have responsibilities for supporting both aerial and manual eradication although do not report on exactly how much of the money they were allocated by the USG was dedicated to this task. A further US\$ 92.1 million was allocated to the Colombia Police and US\$ 103.7 million to the Counter Narcotics Brigade of the Army's Ground Forces between 2002 and 2008 in part to secure territory in support for both manual and aerial eradication campaign. Between 2002 and 2008 the USG estimated that a total of 1.2 million hectares of coca were eradicated and net cultivation fell from 144,450 ha in 2002 to 119,000 ha in 2008."

Source:

Mansfield, David, "Assessing Supply-Side Policy and Practice: Eradication and Alternative Development," Global Commission on Drug Policies (Rio de Janeiro, Brazil: January 2011), p. 7.

http://www.globalcommissionondrugs.org/wp-content/themes/gcdp_v1/pdf/Glo...

6.

(Deforestation from Colombian Coca Cultivation) "Although the area planted with coca remains stable, 21.5% of the existing coca fields in 2011 were originated in the felling of primary forests that existed in 2010; this percentage of participation is 3 points higher than the one reported in 2010. In the period 2001-2011, 583,926 hectares have been cultivated with coca at some point, and 245,382 of these hectares were formerly covered by forests.

"In the period 2000-2001, 55,000 hectares of forest were felled to plant coca, while in the period 2010-2011 deforestation reached 23,000 hectares, from which 60 % corresponded to primary forests of high complexity, biodiversity and richness.

"In 2001, the percentage of coca plots that have their origin in deforestation was 48% and it progressively decreased to 27% in 2006. A trend to the increase in deforestation for coca cultivation started as of this year and in 2011 36 % of the area under coca cultivation is originated in deforestation of primary or secondary forests; in 2010, this amount reached 35%."

Source:

"Colombia Coca Cultivation Survey 2011," United Nations Office on Drugs and Crime, July 2012, p. 18.

https://www.unodc.org/documents/crop-monitoring/Colombia/Colombia_Coca_c...

7.

(Deforestation from Coca Cultivation) "The data on total reduction of forest cover over Colombia and that on losses resulting from coca cultivation span different periods of time, so only rough comparisons of the two can be made. It is likely that several hundred thousand hectares of forest were cleared due to the direct and indirect effects of coca cultivation prior to 2000, before UNODC estimates from remote sensed data were available. Forest cover change in Colombia for the period 1990-2000 is estimated at 190,470 hectares per year. If this rate was assumed to have continued from 2000 to 2004, the total area deforested in those four years would have been 761,880 hectares, of which the 97,622 hectares of primary forest identified as converted to coca cultivations in this period would form 13%. As already noted, the actual of primary forest cleared due to coca cultivation is greater than the area being directly cultivated for this purpose, because of the other crops and activities of the farmers including the opening of roads and airstrips for transport of coca products."

Source:

United Nations Office on Drugs and Crime, "Coca Cultivation in the Andean Region: A Survey of Bolivia, Colombia and Peru" (Vienna, Austria: June 2006), pp. 24-25.

http://www.unodc.org/pdf/andean/Andean_full_report.pdf

8. **Mycoherbicides**

(Biological Methods of Drug Eradication) "Biological methods of eradication, known as mycoherbicides, have been researched for coca and opium poppy but not fully developed because of continuing concerns over the environmental, health, and legal implications. A strain of fusarium oxysporum, a soil borne mould, has been developed as a biological agent for the control of coca and is believed to have destroyed up to seventy per cent of the crop in parts of the Huallaga valley of Peru in 1984. The United Nations Office on Drugs and Crime (UNODC) has undertaken research in Uzbekistan on the efficacy of the naturally occurring fungus pleospora papaveracea as a biological control agent for opium poppy. Both biological agents are reported to produce mycotoxins that are considered harmful to animals and plants and have the potential to mutate over time."

Source:

Mansfield, David, "Assessing Supply-Side Policy and Practice: Eradication and Alternative Development," Global

Commission on Drug Policies (Rio de Janeiro, Brazil: January 2011), p. 5.

http://www.globalcommissionondrugs.org/wp-content/themes/gcdp_v1/pdf/Glo...

9.

(Types of Mycoherbicides) "There are two mycoherbicide candidates that have been proposed for use against illicit drug crops. One of these is *Fusarium oxysporum* and the other is *Pleospora papaveracea*. Both are toxic molds that attack their targets ('hosts') through the secretion of cell-dissolving chemicals called mycotoxins."

Source:

Bigwood, Jeremy; Hanson, Heather; Isacson, Adam; Piper, Bill; Stevenson, Trevor; Tree, Sanho; and Walsh, John, "Evaluating Mycoherbicides for Illicit Drug Crop Control: Rigorous Scientific Scrutiny is Crucial," Drug Policy Alliance, et al (Washington, DC: February 27, 2007), p. 3.

<http://www.tni.org/sites/www.tni.org/archives/docs/200705111419584743.pd...>

10.

(Pleospora Papaveracea) "*Pleospora papaveracea* is a fungal pathogen that attacks opium poppy (*Papaver somniferum*). Candidate strains for use in crop eradication were isolated in the 1980s by the Institute of Genetics in Tashkent, Uzbekistan. At the time, the facility was part of the Soviet Union's offensive biological weapons program."

Source:

"Risks of Using Biological Agents in Drug Eradication: A briefing paper with emphasis on human health," The Sunshine Project (Austin, TX: February 2001), p. 2.

<http://www.sunshine-project.org/publications/bk/pdf/bk4en.pdf>

11.

(Fusarium Oxysporum) "*Fusarium oxysporum* is a well-known plant pathogen causing damage and large losses in food and industrial crops worldwide. Researchers of the US Department of Agriculture (USDA) have developed highly virulent strains that attack cannabis (marijuana) and coca plants, the source of cocaine. The coca-killing strain favored by the US is named EN-4 and was isolated in 1987 during USDA-funded experiments at a government coca plantation on Hawaii. Work to isolate *F. oxysporum* strains to attack cannabis has been ongoing at least since the early 1970s, when the US Drug Enforcement Agency and USDA funded research at the University of California at Berkeley.[5] After extensive investigation of 1970s and 80s US *Fusarium* research, including interviewing participants and extensive Freedom of Information Act requests, MacArthur Foundation grantees Jeremy Bigwood and Sharon Stevenson recently concluded that most of the early US

work conducted on Fusarium was a project of the US Central Intelligence Agency. The CIA later passed control of the work to other government institutions to allow overt US Congress funding."

Source:

"Risks of Using Biological Agents in Drug Eradication: A briefing paper with emphasis on human health," The Sunshine Project (Austin, TX: February 2001), p. 2.

<http://www.sunshine-project.org/publications/bk/pdf/bk4en.pdf>

12.

(Mycoherbicide Use and UN Principles) "The Defensoría del Pueblo de Colombia (Office of the Ombudsman) reported that the Office is studying the possibility of experimentation with the fungus *Fusarium oxysporum* in Colombia and the future application of that fungus as a biological agent for eradicating illegal crops. This body is gathering information on the serious risks to life, human health and the environment that could result from experimentation with the *F. Erythroxyllum* variety of the *Fusarium oxysporum* fungus in the open in the Colombian Amazon, one of the richest habitats in terms of biodiversity in the world. The Ombudsman's Office stressed that it is of particular importance to ascertain whether the method of 'biological control' proposed for the eradication of illegal crops is consistent with the policies, principles and agreements of the United Nations."

Source:

Ouhachi-Vesely, Fatma-Zohra, "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, United Economics and Social Council (Geneva, Switzerland: Office of the High Commissioner on Human Rights, December 2000), p. 3.

<http://www.ban.org/library/hrcprepadd.pdf>

13.

(Illegal Biological Agents) "While mycoherbicides contain chemical toxins, they are actually covered under the [United Nations] Biological Weapons Convention (BWC) rather than the Chemical Weapons Convention. ⁶⁴ Given that mycoherbicides are biological agents it has been argued that their use, especially in foreign countries, would be illegal under the BWC."

Source:

Bigwood, Jeremy, "Repeating the Mistakes of the Past: Another Mycoherbicide Research Bill," Drug Policy Alliance (New York, NY: March 2006), p. 8.

<http://www.drugpolicy.org/docUploads/Mycoherbicide06.pdf>

14.

(Scientific Study Required) "The 'Office of National Drug Control Policy Reauthorization Act of 2006' (P.L. 109-469) requires that ONDCP [Office of National Drug Control Policy] submit to Congress a plan to conduct a scientific study of mycoherbicides as means of illicit drug crop elimination, including an evaluation of the likely environmental and human health impacts if these toxin-producing fungi were to be deployed. The legislation states explicitly that the study should be undertaken 'by an appropriate Government scientific research entity, including a complete and thorough scientific peer review'"

Source:

Bigwood, Jeremy; Hanson, Heather; Isacson, Adam; Piper, Bill; Stevenson, Trevor; Tree, Sanho; and Walsh, John, "Evaluating Mycoherbicides for Illicit Drug Crop Control: Rigorous Scientific Scrutiny is Crucial," (Washington, DC: February 27, 2007), p. 1.

<http://www.tni.org/sites/www.tni.org/archives/docs/200705111419584743.pd...>

15.

(Damage Caused By *Fusarium* species) " *Fusarium avenaceum*, *Fusarium sporotrichioides*, *F. poae* as well as *Fusarium oxysporum* are the causative agents of FHB [*Fusarium* head blight] in barley and often lead to significant grain loss worldwide [36,216]. Infection of the grain results in economic loss due to shrunken grain heads, with loss of milling and malting quality. Infected grains are also contaminated by potent toxic secondary metabolites (described below) produced by these fungi [36,197,216].

" *Fusarium oxysporum* and *Fusarium solani* cause wilt and root rot [78] in a number of crops including peas [150], cotton [50,215,244], as well as ornamentals, small fruits and cucurbits [65,154,245]."

Source:

De Lucca, Anthony J., "Harmful fungi in both Agriculture and Medicine," Revista Iberoamericana Micologia (Bilbao, Spain: Spanish Mycology Association, 2007) Vol. 24, p. 5.

<http://www.reviberoammicol.com/2007-24/003013.pdf>

16.

(Human Health Threat Posed By *Fusarium* Species) "Fusarium species have emerged as major cause for fungal infections.[21] The first invasive fusariosis was reported in a child in 1973.[22] Invasive Fusarium infections represent an increasing cause of infectious morbidity and mortality in patients with blood cancer.[23] While aspergillosis remains the most common mycosis, Fusarium is the most frequently occurring new opportunistic pathogen that causes life-threatening infections.[24]

"In a recent study at a cancer center in the USA, the mortality rate of patients with a Fusarium infection was between 52-70%. [25] Other researchers reported mortality rates of 70%[26] or 76%[27]. Researchers from a German university hospital

recently reported a case of a patient with a weakened immune system that died of a *F. oxysporum* infection, even after treatment with appropriate antifungal therapy.[28]"

Source:

"Risks of Using Biological Agents in Drug Eradication: A briefing paper with emphasis on human health," The Sunshine Project (Austin, TX: February 2001), p. 5.

<http://www.sunshine-project.org/publications/bk/pdf/bk4en.pdf>

17.

(Human Health Threats Posed By *Fusarium* Species) "Cutaneous diseases related to *Fusarium spp.* can appear in both immunocompromised and healthy hosts and include toxic reactions, colonization, superficial infection, deep cutaneous or subcutaneous infections and disseminated infection.

"Exposure to the toxin deoxynivalenol [a mycotoxin associated with the *Fusarium* species] caused lesions of the skin and mucous membranes, suggesting a toxic reaction, in grass planters in The Netherlands (3). Chronic indolent superficial fusariosis limited to the skin appendages or corneal layer, namely onychomycosis and intertrigo, is frequent (4). *F. oxysporum* was reported as causing distal subungual, proximal subungual (5) and superficial white toenail mycosis in a patient who presented with a low extremity temperature after cranial trauma (6). Colonization in surgical wounds, severe burns, venous and arterial leg ulcers is a common finding (1, 7, 8) and was related to diabetes in one case (7). However, *F. oxysporum* was also reported as being the only causative agent of a large foot ulcer (9). When fungal hyphae reach the dermis and subcutaneous tissue, subcutaneous nodules (10, 11), sporotrichoid nodules (12), panniculitis (13), mycetoma (14, 15) or chronic granuloma (16, 17) can be observed in both immunocompromised and healthy hosts.

"Host responses in localized cutaneous chronic *Fusarium* infections have included granuloma (16), pseudocarcinomatous hyperplasia (15), sometimes with carcinomatous changes (21), and eccrine syringofibroadenomatous hyperplasia (22)."

Source:

Pereiro, M., Jr.; Abalde, M.T.; Zulaica, A.; Caerio, J.L.; Florez, A.; Peteiro, C.; and Toribio, J., "Chronic Infection Due to *Fusarium oxysporum* Mimicking Lupus Vulgaris: Case Report and Review of Cutaneous Involvement in Fusariosis," *Acta Derm Venereol* (October 23, 2001) Vol. 81, No. 1, p. 52.

<http://www.google.com/url?sa=t&source=web&cd=2&ved=0CCwQFjAB&url=http%3A...>

18. **Aerial Fumigation**

(Effect on Deforestation) "Aerial fumigation and forced eradication of coca crops is one factor in the dynamics of coca cultivation and deforestation. Several studies report that in response to coca eradication measures farmers have been deforesting new plots in more remote areas. These new plots can be in the local region or in other parts of the country, since migration and displacement of people is widespread, especially in Colombia. It has also been suggested that farmers create more scattered plots of smaller size in response to fumigation. This further fragments the forest and increases the impact on biodiversity. The relative importance of this phenomenon compared to the other drivers of coca cultivation and deforestation have not been determined."

Source:

United Nations Office on Drugs and Crime, "Coca Cultivation in the Andean Region: A Survey of Bolivia, Colombia and Peru" (Vienna, Austria: June 2006), p. 46.

http://www.unodc.org/pdf/andean/Andean_full_report.pdf

19.

(Costs and Problems) "Indeed, the very use of crop eradication is questionable. As noted above, the projected cost of manual and aerial fumigation programs is expected to surge to \$1.5 billion by 2013. The fact that this might not result in any meaningful decline in production obviously calls into question the wisdom of this investment. Crop spraying has also been linked to various adverse health effects. Roundup, for instance, has resulted in fever, eye irritation, gastrointestinal complaints, skin rashes, and dizziness.¹⁷ Moreover, fumigation is essentially an indiscriminate counternarcotics measure in the sense that it can destroy both licit and illicit crops. Taken together, these outcomes can have a highly detrimental impact on popular support for the government, driving local producers into the hands of insurgents and legitimating their rhetoric that the government is engaged in a rapacious drive to destroy peasant livelihoods.¹⁸ "

Source:

Chalk, Peter, "The Latin American Drug Trade: Scope, Dimensions, Impact, and Response," RAND Corporation for the the United States Air Force (Santa Monica, CA: 2011), p. 64.

http://www.rand.org/content/dam/rand/pubs/monographs/2011/RAND_MG1076.pd...

20.

(Spraying Counterproductive) "Critics note that the spraying has not prevented the tripling of the area under coca cultivation since Pastrana's inauguration, and that the spraying simply destroys the means of livelihood of subsistence farmers and displaces the crops deeper into the jungle. The coca producers have also adapted by developing new varieties of the coca plant, such as the Tingo Maria, which produces three times as much coca as the traditional varieties."

Source:

Rabasa, Angel & Peter Chalk, "Colombian Labyrinth: The Synergy of Drugs and Insurgency and Its Implications for Regional Instability" (Santa Monica, CA: RAND Corporation, 2001), Chapter 6, p. 66.

http://www.rand.org/pubs/monograph_reports/MR1339.html

http://www.rand.org/pubs/monograph_reports/MR1339/MR1339.ch6.pdf

21.

(Effects of Glyphosate) "Solomon et al. (2005) conducted a study on the effects on human health and the environment of aerial spraying of glyphosate herbicide for the illicit crops eradication programme in Colombia, based on a review of literature. It was found the formulation of glyphosate used could produce temporary irritation in eyes and skin, but no effects on reproduction were observed. No ecological field data were collected from the region, but a review found that glyphosate had low toxicity to non-target organisms other than plants. The formulation used in the eradication programme in Colombia is of low toxicity for mammals and vertebrates, although some temporary impacts may occur. Amphibians are the group most sensitive to this formulation, and it has been suggested that other formulations be tested when eradication is conducted near to water bodies, in order to minimise impacts on amphibian populations (Solomon et al., 2005). Relyea (2005) tested the impacts of glyphosate on amphibians and concluded that it could cause high rates of mortality in larval stages and lead to population decline.

"There appear to have been no systematic field studies on the possibility of loss of forest from unintended drift of glyphosate during aerial spraying."

Source:

United Nations Office on Drugs and Crime, "Coca Cultivation in the Andean Region: A Survey of Bolivia, Colombia and Peru" (Vienna, Austria: June 2006), p. 44.

http://www.unodc.org/pdf/andean/Andean_full_report.pdf

22.

(Land Subjected To Crop Eradication in Colombia) "Between 1998 and 2009, the area subjected to manual eradication increased from 3,125 ha to 60,577 ha, while aerial spraying—using a formula known as Roundup® (a mixture of glyphosate and Cosmo-Flux™)—rose by more than 58 percent, from 66,029 ha to 104,772 ha. ³ Between 2003 and 2009, the Bogotá government invested \$835 million to underwrite these programs, a figure that is expected to surge to \$1.5 billion by 2013. ⁴ "

Source:

Chalk, Peter, "The Latin American Drug Trade: Scope, Dimensions, Impact, and Response," RAND Corporation for the the United States Air Force (Santa Monica, CA: 2011), p. 60.

http://www.rand.org/content/dam/rand/pubs/monographs/2011/RAND_MG1076.pd...

23.

(Environmental Impact of Spraying) "Guio (2003), in his study in Samaniego, Nariño (Colombia), reports that aerial fumigation of poppy crops also affect household crops and alternative crops promoted by UNODC. Intensification of fumigation has lead to an increase in complaints to the Defensoria del Pueblo regarding impacts on farmers' health, domestic animals, fishes and legal crops. Ortiz et al. (2004), in an essay about agriculture, illicit crops and the environment for the National Environmental Forum (Colombia), mentions that recent studies in Putumayo have concluded that more than 2,700 hectares of licit crops, including fruits, and more than 200,000 fish, were lost because of fumigations. These figures are for people that submitted their cases to local authorities."

Source:

United Nations Office on Drugs and Crime, "Coca Cultivation in the Andean Region: A Survey of Bolivia, Colombia and Peru" (Vienna, Austria: June 2006), p. 44.

http://www.unodc.org/pdf/andean/Andean_full_report.pdf

24.

(Damage from Glyphosate) "Velaidez (2001) visited the Municipality of Cartagena de Chaira in the Department of Caquet between November 1998 and February 1999 to investigate the impact of aerial fumigation on farmers and their crops. This study reported unintended effects of aerial glyphosate spraying but no quantitative data, with affects on rubber and cocoa plantations and food crops such as plantain, maize, yucca, rice, vegetables and fruits. Cattle were reported to lose hair after eating pastures previously affected by the fumigation. The death of young chickens and farmed fish was reported as a result of related water contamination."

Source:

United Nations Office on Drugs and Crime, "Coca Cultivation in the Andean Region: A Survey of Bolivia, Colombia and Peru" (Vienna, Austria: June 2006), p. 44.

http://www.unodc.org/pdf/andean/Andean_full_report.pdf

25.

(Illness and Death) "Aerial spraying of a marijuana field near a Rarámuri village carried out by the Federal Attorney General's Office Procuraduría General de la República, PGR) left 300 sick and injured and may have killed a two-year old girl according to the Chihuahua State Human Rights Office (Comisión Estatal de Derechos Humanos, CEDH)."

Source:

Macias Medina, Silvia, "PGR Allegedly Sprays Marijuana Field, Killing Child and Injuring 300", reprinted in Frontera NorteSur, originally published in El Diaro, August 5, 2000. Available on the web at http://www.nmsu.edu/~frontera/jul_aug00/today.html , accessed May 21, 2007.

26. Environmental Hazards from Methamphetamine Production

(Dangers) "Illicit production of methamphetamine may involve hazardous materials that are toxic, corrosive, flammable, or explosive. Such materials include anhydrous ammonia, sulfuric acid, hydrochloric acid, red phosphorous, lithium metal, sodium metal, iodine, and toluene. Upon discovery, the hazardous materials contained at clandestine drug laboratory locations are classified and managed as hazardous wastes."

Source:

"Methamphetamine Initiative: Final Environmental Assessment," US Dept. of Justice Office of Community Oriented Policing Services, May 13, 2003, p. 4.

<http://www.cops.usdoj.gov/files/ric/Publications/e05031969.pdf>

27.

(Lab Fires and Explosions) "Further contributing to the threat posed by the trafficking and abuse of methamphetamine, some chemicals used to produce methamphetamine are flammable, and improper storage, use, or disposal of such chemicals often leads to clandestine laboratory fires and explosions. National Clandestine Laboratory Seizure System (NCLSS) 2003 data show that there were 529 reported methamphetamine laboratory fires or explosions nationwide, a slight decrease from 654 reported fires or explosions in 2002."

Source:

National Drug Threat Assessment 2004 (Johnstown, PA: National Drug Intelligence Center, April 2004), pp. 17-18.

<http://www.hsd.org/?view&did=31346>

28.

(Growth of Clandestine Labs) "The incidence of clandestine drug laboratories has grown dramatically in the past 10 years. For example, in Fiscal Year 1992, the DEA's National Clandestine Laboratory Cleanup Program funded approximately 400 removal actions and by fiscal year 2001, the DEA Program funded more than 6,400 removal actions."

Source:

"Methamphetamine Initiative: Final Environmental Assessment," US Dept. of Justice Office of Community Oriented Policing

Services, May 13, 2003, p. 6.

<http://www.cops.usdoj.gov/files/ric/Publications/e05031969.pdf>

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