

## **Annex 1**

### **NOTE N° E-067 FROM THE COLOMBIAN AMBASSADOR IN QUITO TO THE PRESIDENTIAL ADVISER FOR COEXISTENCE, NATIONAL SECURITY, AND FIGHT AGAINST CRIME, 18 JANUARY 2001**

*(Archives of the Ministry of Foreign Affairs of Colombia)*

#### **EMBASSY OF COLOMBIA**

E-067

Quito, 18 January 2001

Mister

GONZALO DE FRANCISCO ZAMBRANO

Presidential Adviser for Coexistence, National Security and Fight against Crime  
Bogotá D.C.

I write to you in order to thank you for the presentation carried out in the Department of the Environment of Ecuador on 16 January of the current year, by Mr. Luis Eduardo Parra Rodríguez, consultant in charge sent by your office.

In the presence of the Undersecretary of Environmental Affairs and senior representatives from the Foreign Affairs, Health, Agriculture and Defence Ministries, Mister Parra Rodríguez did a great job with his excellent presentation of all aspects related to the spraying tasks that the Colombian Government undertakes in order to eradicate illicit crops of coca and poppy which affect our territory. The expert knowledge and clarity of the speaker were conclusive in transmitting the real outlook of what is happening in our country to the audience. Thanks to his knowledge about all technical factors, required operations and characteristics of the product used in the spraying activities, the attendants, many of them in charge of the policies the Ecuadorean Government will implement in the future, were able to clear up all their questions and doubts concerning this issue.

Additionally, thanks to the presentation by Mister Parra Rodríguez, it became clear that the media is responsible for most of the 'misinformation' that the public who attended had regarding the matter. That is why I consider of vital importance to take this presentation, with the support and collaboration of Embassy, to all press, radio and television representatives of Ecuador, through a conference.

Yours sincerely,

[Signed]  
ELISEO RESTREPO LONDOÑO  
Ambassador of Colombia

## Annex 2

### NOTE N° E-934 FROM THE COLOMBIAN AMBASSADOR IN QUITO TO THE ECUADORIAN DEFENCE MINISTER, 16 AUGUST 2001

*(Archives of the Ministry of Foreign Affairs of Colombia)*

#### EMBASSY OF COLOMBIA

E-934

Quito, 16 August 2001

Mister Admiral  
HUGO UNDA AGUIRRE  
Minister of National Defense  
City

Ref.: Official letter No. 010837-MJ-3

Mister Admiral,

Regarding the request presented through the referenced official letter, please allow me to submit the following documentation:

- ‘Toxicological and technical considerations of aerial spraying with glyphosate on illicit coca crops’ – APECI/PLANCO.
- Dossier of reports about specifications and technical assessments, records and evaluation of risks to human health and the environment produced, respectively, by the Food and Agriculture Organization (FAO) of the United Nations, the U.S. Environmental Protection Agency (EPA) and the International Programme on Chemical Safety (IPCS); the latter published with the support of the United Nations Environment Programme (UNEP), the International Labour Organization (ILO), and the World Health Organization (WHO).
- Summary of the report ‘Assessment of safety and the risk to humans of the herbicide roundup and its active ingredient, glyphosate’, prepared by researchers from three prestigious universities (American, Canadian and Dutch).

I trust that the careful analysis of this documentation will allow those to whom it may concern to build a balanced and objective opinion about the chemicals used by

Colombia in the execution of its legal and legitimate right and duty to eradicate illicit crops and fight drug trafficking, through the governmental program designed and implemented for this purpose. In this sense, it is clear that the use of these products does not represent potential risks to human and animal health, crops, and in general to the environment; therefore, the declarations that mistakenly state the opposite are not valid.

I would like to take this opportunity to send the following document, due to its relation to the aforementioned matter: 'Environmental impact of illicit crops in Colombia', which clearly explains the true factors that cause problems in human and animal health, crops and environmental deterioration in zones where coca and poppy are produced and cultivated.

Best regards,

[Signed]  
GABRIEL MARTÍNEZ PELÁEZ  
Chargé d'affaires a.i.

Enclosure



### Annex 3

#### **NOTE N° E-931 FROM THE COLOMBIAN AMBASSADOR IN QUITO TO VALERIO GREFFA UQUIÑA, ECUADORIAN CONGRESSMAN, 20 AUGUST 2001**

*(Archives of the Ministry of Foreign Affairs of Colombia)*

#### EMBASSY OF COLOMBIA

No. E-931  
Quito, 20 August 2001

Professor  
VALERIO GREFFA UQUIÑA  
National Congress  
City

Honorable Member of the Congress:

Over the past few weeks, the media of Ecuador has released several declarations from some commissions of your prestigious institution in relation to the allegedly negative effects derived from the execution of the Plan Colombia, in general, and of the program for eradication of illicit crops carried out in the Province of Putumayo, which borders with the province of Sucumbíos, in particular.

With the purpose of providing enough evidence to help you build an objective and balanced opinion about the characteristics, scope and implications of the Plan Colombia and the crop spraying, and with the purpose of maintaining the spirit of understanding, solidarity and cooperation that has characterized the relationships and various ties between our people, leaders and governments, please allow me to submit the following documentation:

- Toxicological and technical considerations of aerial spraying with glyphosate on illicit coca crops.
- Press Release, Embassy of Colombia.
- “Colombia Present”, Embassy of Colombia
- Environmental impact of illicit crops in Colombia

Yours truly,

[Signed]  
GABRIEL MARTÍNEZ PELÁEZ  
Chargé d'affaires a.i.

Enclosure

## Annex 4

### NOTE N° E-962 FROM THE COLOMBIAN AMBASSADOR IN QUITO TO THE PRESIDENT OF THE NATIONAL CONGRESS OF ECUADOR, 23 AUGUST 2001

*(Archives of the Ministry of Foreign Affairs of Colombia)*

#### EMBASSY OF COLOMBIA

No. E-962  
Quito, 23 August 2001

Mister  
JOSÉ CORDERO ACOSTA  
President  
National Congress  
City

Honorable President,

Over the past few weeks, the media of Ecuador has released several declarations from some commissions of your prestigious institution in relation to the allegedly negative effects derived from the execution of the Plan Colombia, in general, and of the program for eradication of illicit crops carried out in the province of Putumayo, which borders with the province of Sucumbíos, in particular.

With the purpose of providing enough evidence to help you build an objective and balanced opinion about the characteristics, scope and implications of the Plan Colombia and the crop spraying, and with the intent of maintaining the spirit of understanding, solidarity and cooperation that has characterized the relationships and various ties between our people, leaders and governments, please allow me to submit the following documentation:

- Toxicological and technical considerations of aerial spraying with glyphosate on illicit coca crops.
- Press Release, Embassy of Colombia.
- “Colombia Present”, Embassy of Colombia
- Environmental impact of illicit crops in Colombia

Truly yours,

[Signed]  
ELISEO RESTREPO LONDOÑO

Ambassador of Colombia  
Enclosure

## **Annex 5**

### **DIPLOMATIC NOTE N° 72523/2001-SG/SSN FROM THE ECUADORIAN FOREIGN MINISTER TO THE COLOMBIAN FOREIGN MINISTER, 12 SEPTEMBER 2001**

*(Archives for the Ministry of Foreign Affairs of Colombia)*

#### **REPUBLIC OF ECUADOR MINISTRY OF FOREIGN AFFAIRS**

No. 72523/2001-ESG/SSN  
Quito, 12 September 2001

Excellency:

I have the honor to write to Your Excellency in order to refer to your notification Number DN/AL. N°25009, dated 14 July of the current year, in which you kindly answer my notification regarding the concern of the Ecuadorian Government about the spraying of illicit crops in the south of Colombia with products potentially harmful to the health of the population and the environment in the Ecuadorian zones neighboring the borderline with Colombia.

I thank Your Excellency for the notification and for sending such comprehensive information about the spraying program that is being implemented by Colombia, based on the technical studies carried out by competent institutions in your country.

Regarding the proposal made by Your Excellency of carrying out a seminar and workshop in Colombia, in order to discuss the spraying program and to exchange opinions about the matter, in the spirit of bilateral cooperation, it is a pleasure for me to inform you that my Government accepts to take part in this project, within the terms agreed by our Foreign Affairs Offices in the most recent Diplomatic Briefings meeting. For this purpose, we are executing all the logistic efforts required to conform the Ecuadorian Ad Hoc Technical Committee which will travel to Bogotá to attend the seminar.

I would appreciate it if Your Excellency could notify the date suggested by the Colombian Government to carry out the seminar and workshop, as well as the proposed schedule.

I avail myself of this opportunity to renew to Your Excellency the assurances of my highest and distinguished consideration.

[Signed]  
Heinz Meller Freile  
MINISTER OF FOREIGN AFFAIRS

His Excellency  
Guillermo Fernández de Soto  
MINISTRY OF FOREIGN AFFAIRS  
Bogotá, Colombia

## **Annex 6**

### **NOTE N° E-1313 FROM THE COLOMBIAN AMBASSADOR IN QUITO TO THE ECUADORIAN MINISTER OF AGRICULTURE, 15 NOVEMBER 2001**

*(Archives of the Ministry of Foreign Affairs of Colombia)*

#### **EMBASSY OF COLOMBIA**

E-1313

Quito, 15 November 2001

Engineer  
GALO PLAZA PALLARES  
Minister of Agriculture and Livestock  
City

Mister Minister

Knowing that it will be of interest to you, I respectfully submit a copy of the 'Final report on claims about health damages related to aerial eradication in Colombia', carried out by Colombian toxicologist Camilo Uribe, and published in September, 2001.

This report is very important since it presents an objective and weighted analysis about a problem that, unfortunately, has been subject to misjudgments and misinformation.

Yours sincerely,

[Signed]  
ELISEO RESTREPO LONDOÑO  
Ambassador of Colombia

Enclosure





## **Annex 7**

### **NOTE N° E. 455/90 FROM THE COLOMBIAN AMBASSADOR IN QUITO TO THE COLOMBIAN FOREIGN MINISTER, 26 MARCH 2003, ENCLOSING THE NON-PAPER GIVEN TO THE AMBASSADOR BY ECUADORIAN AUTHORITIES AT THE MEETING HELD ON THE SAME DATE**

*(Archives of the Ministry of Foreign Affairs of Colombia)*

**EMBASSY OF COLOMBIA**  
Quito - Ecuador

E. 455/90

Quito, 26 March 2003

Madame  
CAROLINA BARCO  
Minister of Foreign Affairs  
Bogotá D.C.

Madame Minister:

The purpose of this letter is to inform you that I was recently called to the Ecuadorian Foreign Affairs Office by the Ambassador Eduardo Mora Anda, General Director of Frontier Affairs and Executive Director of the Binational Plan for Ecuador. The aim of this meeting was to notify a series of concerns about the illicit crop spraying that is taking place near the border with Ecuador, and the allegedly negative effects on the Ecuadorian population. I am attaching a non-paper copy of the information I received concerning the issue.

With regard to the conversation with the Ambassador Mora and the document presented by him, I would like to highlight the following aspects:

- The hypothesis stating that illicit crop spraying on Putumayo causes damages to the Ecuadorian population and its crops persists.
- They insist on asking us to keep spraying tasks within a distance of ten kilometres, at least, from the border.
- The communities that live in the border gave Notice of Appeal for Legal Protection (Injunctive Relief) against the Ecuadorian Government, due to the

inability of our country to guarantee spraying will not take place within ten kilometers from borderline. Apparently, this Appeal for Legal Protection has been accepted by a competent court, which could potentially lead to the State of Ecuador to be sentenced.

- Monitoring and control of the potential impacts on the environment and the Ecuadorian population that lives in the border with Colombia is requested, through the agreed binational mechanisms.

Regarding this matter, I had the opportunity to talk to the Ambassador Mora about the scientific and technical studies which prove that substances used to spray the crops do not have the effects Ecuadorian communities claim. Moreover, I brought to his attention that the real damage to the environment and the health of the community is caused by drug trafficking; which pollutes the atmosphere and destroys rainforest with the chemical substances used in order to produce coca. Furthermore, I emphasized on how all the damages caused to the crops and the health of the Ecuadorian people have been, in fact, the result of natural and climate phenomena, and not of the products used in illicit crop spraying.

In order to answer all these concerns, I strongly recommend submitting the documents that confirm the arguments I presented over the meeting to the Office of Foreign Affairs. However, I kindly request Madam Minister to let me know your suggestions and instructions about this matter.

Sincerely yours

[Signed]  
MARÍA PAULINA ESPINOSA DE LÓPEZ  
Ambassador

Enclosure: the aforementioned

## NON-PAPER

Under the policies defined in the program known as “Plan Colombia” and as a mechanism to fight illicit crops, mainly poppy and coca, aerial spraying has been carried out by the Colombian Government on all the neighboring areas of the Ecuadorian borderline, especially in Sucumbíos.

Last September and November two high level meetings (Ministry of foreign Affairs, Ministry of Defense, Ministry of Foreign Trade and Government) were held in Bogotá and Quito, in order to discuss this and other priority subjects. During these meetings, the Ecuadorian authorities emphasized on the need to keep the spraying within a distance of ten kilometers from the borderline with Ecuador in order to prevent potential ecological damages.

As a result, an Appeal for Legal Protection was presented by Ecological Action, the Ecumenical Commission for Human Rights and all the communities of Vía Colombia (Santiago Tanguila), Puerto Nuevo (Ángel Nauya), Chone II (Edmundo Encarnación), before the Court for Contentious Administrative Proceedings, claiming that the State of Ecuador has failed to guarantee spraying tasks carried out by Colombia in Putumayo are kept within ten kilometers from the borderline with Ecuador.

The claim states that the verbal agreement made by the Governments of Colombia and Ecuador on 2 July 2001, has not been complied with by the latter. This agreement consisted on keeping spraying operations within ten kilometers from the borderline. This complaint was accepted by the court, abiding the Appeal for Legal Protection, and sentencing the State of Ecuador to pay a compensation of six hundred thousand dollars to each affected citizen.

One of the commitments made during the Binational Spraying Seminar-Workshop, carried out from 13 to 15 February 2002 in Bogotá, was the implementation of an inter-institutional technical commission in charge of controlling and monitoring these tasks at national level, in order to asses the potential impacts to the environment and the health of the Ecuadorian communities that live in the border with Colombia -Carchí, Esmeraldas, and Sucumbíos-, produced by the spraying plan in Putumayo.

A meeting was held on 26 February 2003, with the participation of members of the Ministry of Environment, the Ministry of Foreign Affairs, and the Government, and the official in charge of the Plan Colombia Mrs. Sandra Suárez, who suggested the implementation of a committee, composed of members from the Ministry of Environment of both countries, in order to discuss common matters such as the ecological effects of spraying.

In addition, it was suggested that the Binational Commission, supported by international organisms, could carry out scientific research in order to prove the effects of the spraying method used for the eradication of illicit crops of coca and poppy, and to develop new alternatives to fight these crops.

## **Annex 8**

### **NOTE VERBALE VRE N° 32759 FROM THE COLOMBIAN FOREIGN MINISTRY TO THE ECUADORIAN EMBASSY IN BOGOTÁ, 18 SEPTEMBER 2003**

*(Archives of the Ministry of Foreign Affairs of Colombia)*

#### **REPUBLIC OF COLOMBIA MINISTRY OF FOREIGN AFFAIRS**

The Ministry of Foreign Affairs presents its compliments to the Honorable Embassy of Ecuador and has the honor to refer to its Note No. 4-2-234/03, dated August 25 2003, whose contents refers to a previous note No. 23205/GM, dated April 10 2003.

In this communication, the Illustrious Government of Ecuador proposed the creation of a Binational Commission to evaluate the effects of aerial sprayings on illicit crops in the common border zone and the signing of a “Memorandum of Understanding” concerning a 10-kilometre buffer zone along the border.

The Colombian Government, aware of the importance that the world fight against illicit drugs and its related crimes has on the bilateral agenda of both countries, thoroughly examined the Note No. 23205/GM, dated April 10 2003. After evaluating its content, it was clear that the Ecuadorian Government recognizes the need to eliminate illegal crops that are the basis for the processing of narcotic drugs, though it has a different view on the effects of aerial sprayings with which the Colombian Government aims at eradicating such crops during the present Administration in order to decisively contribute to the world fight against the narcotic drugs problem.

The Honorable  
EMBASSY OF ECUADOR

The establishment of a buffer zone in the common border, as proposed by the Ecuadorian Government in the above mentioned Memorandum, is unacceptable for the Colombian Government for multiple reasons, among which the following should be highlighted:

- Eradication of illicit crops is performed within the limits of Colombian territory, according to the United Nation Convention Against Illicit Traffic in Narcotic Drugs and Psychotropic Substances (1988), the other relevant international conventions, and , Declaration and Action Plan against World Drugs Problem adopted by United Nations in 1988; commitments accepted by both the Colombian and Ecuadorian Governments.
- Forced eradication is accepted as a legitimate means in the fight against illicit crops, and is performed under procedures that are compatible with the preservation of human health and the environment, in accordance with the precautionary principle stated in the Rio Declaration on Environment and Development in 1992. Prior to aerial sprayings, an illicit crops monitoring satellite system is used, which guarantees the exact perimeter of the zone to be sprayed, and additionally, the technical equipment of the airplanes that perform such activities ensures the target is reached accurately.
- Crops extension itself does not make it possible to consider manual eradication as a viable way to eliminate them. Therefore, it is necessary to carry out aerial sprayings. To declare a zone of crops free of aerial sprayings in the common border, would open the door to the free movement of the drug-trafficking international networks, gunrunning and chemical precursors smuggling, in collaboration with the terrorist groups that operate in the south of Colombia, and would create a greater risk for the security of the two nations, particularly, for the residents of the border zone.

Those arguments were presented to the Ecuadorian delegation that attended the bilateral meeting held in Bogota last 5 August, with the objective of exchanging information about aerial sprayings, as well as examining the controls that both Governments carry out on deviation of chemical precursors and cross border flow of arms, ammunition, and explosives.

As a result of that meeting, and reassured by the Declaration issued by both the Ecuadorian and Colombian Presidents last August 22, in Quito, the intention of both Governments to shortly activate the Joint Commission proposed in the Cooperation Agreement to prevent, control, and stop illicit traffic and use of Narcotic Drugs and Psychotropic Substances, of 1979, with the purpose of reviewing the different aspects affecting the fight against illicit drugs has been explicitly expressed.

Colombian Government affirms once again, its willingness to share with Ecuadorian authorities all the information it has about the procedures that have been used in aerial sprayings of illegal crops within its territory and urges the

Ecuadorian Government to continue to carry out common efforts against International crime and terrorism.

The Ministry of Foreign Affairs avails itself of this opportunity to renew to the Honorable Embassy of Ecuador the assurances of its highest consideration.

[Initials]

Bogota, 18 September 2003.





## **Annex 9**

### **NOTE VERBALE DBR/CAL UNNUMBERED FROM THE COLOMBIAN FOREIGN MINISTRY TO THE ECUADORIAN EMBASSY IN BOGOTÁ, 13 NOVEMBER 2003**

*(Archives of the Ministry of Foreign Affairs of Colombia)*

#### **REPUBLIC OF COLOMBIA MINISTRY OF FOREIGN AFFAIRS**

Note DBR/CAL

Bogota, 13 November 2003.

The Ministry of Foreign Affairs – Division of Bilateral and Regional Affairs- presents its compliments to the Honorable Embassy of the Republic of Ecuador, and has the honor to send the Diplomatic Note VRE/DBR 40153, dated 12 November, in which the Minister of Foreign Affairs submits the information requested by the Ecuadorian Ministry of Foreign Affairs in its Note 68964/2003-GM dated 23 October 2003, regarding the Binational Scientific Commission on the possible effects of Aerial Sprayings in the border zone.

Similarly, the Ministry of Foreign Affairs has attentively sent the following documents so that they are handed in to the Ecuadorian Scientific Commission:

- Chemical Substances and Narcotic Drugs Traffic
- The Colombian Fight against Illicit Drugs- Actions and Results 2002
- Processes Area of Illicit Crops Eradication. Environmental Management Plan. Anti-Narcotics Direction of the National Police.

Upon thanking for delivering the Diplomatic Note as well as its annexes to its highest addressee, the Ministry of Foreign Affairs, Division of Bilateral Affairs avails itself of this opportunity to renew to the Honorable Embassy of Ecuador, the assurances of its highest consideration.

Honorable  
EMBASSY OF ECUADOR 2003.



## Annex 10

### **DIPLOMATIC NOTE N° 4-2-336/03 FROM THE ECUADORIAN FOREIGN MINISTRY TO THE COLOMBIAN FOREIGN MINISTRY, 10 DECEMBER 2003**

*(Archives of the Ministry of Foreign Affairs of Colombia)*

THE EMBASSY OF ECUADOR presents its compliments to the Honorable Ministry of Foreign Affairs, Office of Bilateral and Regional Affairs related to the note number 4-2 317/03, dated 21 November 2003, we kindly remind you our request for the Environmental Impact Assessment carried out before the application of glyphosate, which was offered by the Colombian Scientific Commission to the fellow Commission in Ecuador, within the framework of the meeting held last 14 October in Bogotá.

Likewise, with regards to the next meeting of the Binational Scientific Commission, scheduled to be held in the City of Quito on 17 December, this year, we kindly request the list of delegates of the Colombian Scientific Commission who will participate in the meeting to be sent as soon as possible, as well as their logistic needs and travel itineraries.

The meeting schedule will be sent timely to the Honorable Ministry Foreign Affairs of Colombia.

The EMBASSY OF ECUADOR would like to thank the Honorable Ministry of Foreign Affairs - Office of Bilateral and Regional Affairs for your immediate attention to this matter and avails itself of this opportunity to renew the assurances of its highest and distinguished consideration.

Bogotá, D.C., 10 December 2003

To the Honorable  
Ministry of Foreign Affairs  
Office of Bilateral and Regional Affairs  
City



## Annex 11

### **NOTE N° CMFS-46-2004, FROM THE PRESIDENT OF THE ECUADORIAN SCIENTIFIC AND TECHNICAL COMMISSION TO THE ACTING DIRECTOR OF THE ANTI-NARCOTICS DIRECTION OF THE COLOMBIAN NATIONAL POLICE, 18 MARCH 2004**

*(Archives of the Ministry of Foreign Affairs of Colombia)*

Quito, 18 March 2004  
CFMS-46-2004

Colonel  
Jaime Piñeros  
Acting Director  
Colombian Antinarcotics Office  
Bogotá, Colombia

My considerations

First, I would like to express my gratitude for seeing me yesterday in your office to discuss one of the topics in the Agenda of the Official Visit of President Gutierrez to your country.

As you know, both Colombian and Ecuadorian Scientific and Technical Commissions were created to analyze the possible effects of illicit crops spraying on Ecuadorian territory, in October 2003 pursuant to the agreement reached by the presidents Gutierrez and Uribe the previous month.

Since then, the Commissions have held two meetings, one on 14 October 2003 in Bogotá, Colombia, and the second one on 9 February this year in Quito, Ecuador.

During the first meeting, the Ecuadorian Commission had the opportunity to know the studies that have been carried out by Colombian technicians on the impacts caused by the products used and requested more information on this topic to the members of the Colombian in order to analyze it and reach their conclusions.

In the Meeting on 9 February in the city of Quito, the Commissions made commitments, which I list below:

1. Make a joint trip the Ecuadorian-Colombian frontier to make observations and collect testimonies and complaints directly from people living in the region.
2. The Ecuadorian Commission requested the submission of additional reports that allow for a more precise analysis and evaluation of the procedure of sprayings and of the studies carried out by Colombia on this issue; specifically, information on past spraying carried out on Colombian territory bordering Ecuador, regarding the methodology, route, and the other factors and variables taken into account.
3. It was agreed to elaborate a mathematical model to be implemented in sprayings that the Colombian Government carries out, which includes variables of: droplet size, terminal velocity, wind speed, flight speed, liquid density, temperature, relative humidity, minimal distance from border line, types of nozzles, types of pump, calibration of nozzles, as the most important parameters, so that it is not possible spray drift to reach Ecuadorian territory.
4. Exchange information on health related issues and facilitate signing Agreements for mutual medical help among the corresponding institutions, and
5. Make deeper analyses on the possible effects on human health and on the environment caused by the herbicides used.

During the meeting I had with you, Director, we agreed on facilitate and propose meeting schedules to reach definite conclusions until the end of April this year, which should be submitted to the Presidents of the Republic of both countries. We have come to this agreement, based on paragraph No. 14 of the Joint Declaration of Ecuadorian and Colombian Presidents, signed on 17 March this year.

As members of the Ecuadorian Scientific and Technical Commission, we are looking forward to the next meeting that you hold with the relevant authorities in your country to establish a schedule of visits and agendas to be discussed.

I avail myself of this opportunity to express my appreciation and personal consideration.

Sincerely,

[Signed]  
Juan Carlos Palacios Burneo,  
President  
Ecuadorian Scientific and Technical Commission  
ESTC

cc: Ambassador Patricio Zuquilandia, Minister of Foreign Affairs  
Ambassador Edwin Johnson, Vice Minister of Foreign Affairs





## Annex 12

### **DIPLOMATIC NOTE DPM/CDR N° 20125 FROM THE COLOMBIAN ACTING FOREIGN MINISTER TO THE ECUADORIAN FOREIGN MINISTER, 7 APRIL 2004**

*(Archives of the Ministry of Foreign Affairs of Colombia)*

#### REPUBLIC OF COLOMBIA MINISTRY OF FOREIGN AFFAIRS

Bogota, D.C. 7 April 2004

Excellency:

I have the honor to write to Your Excellency in order to refer to your kind Note No. 15715/2004- GM, dated 9 March 2004, regarding the Action Strategy of the Colombian Government for eradication of illicit crops by means of aerial spraying.

With regards to this topic, I would like to mention that the decision of spraying illicit crops is part of the strategy for eradication of illicit crops, based on the National Development Plan 2002-2006, which aims at fighting this negative phenomenon, all its environmental, social and economic effects, and its related activities.

Taking into account the complexity of the problem, and the need to fight the World Drug Problem comprehensively in all its phases, the National Government strategy for eradication of illicit crops is complemented with alternative development programs, which include among their objectives, to avoid the reappearance of these crops where they have already been eradicated.

Likewise, the National Government, understanding the great importance of guaranteeing the security throughout the country, is making big efforts in order to expand and keep presence of the Public Force all over the Colombian territory, including the border with our brother country of Ecuador, to prevent people engaged in illicit crops activities and other crimes from disturbing the binational harmony that has always characterized the relations between the two countries.

His Excellency  
Mr. PATRICIO ZUQUILANDIA DUQUE  
Minister of Foreign Affairs of Ecuador

The determined action of President Uribe Administration in the fight against the World Drug Problem has resulted in reduction of illicit crops within Colombian territory to approximately 90.000 hectares during 2003. This statistical data is proof of the efficiency of the current anti-drug strategy, which brings benefits to Colombia and the whole International Community affected by the scourge of illicit drugs.

Being absolutely aware of the need of not giving any truce to the activities of production, processing, and trafficking of narcotic drugs, Colombia will continue to carry out the current strategy of illicit crops eradication, which includes performing aerial sprayings anywhere in the national territory where the Antinarcotics National Police determines the existence of these illicit crops.

I avail myself of this opportunity to renew to Your Excellency the assurances of my highest and distinguished consideration.

[Signed]

CAMILO REYES RODRIGUEZ  
Vice Minister of Foreign Affairs  
Acting Minister of Foreign Affairs

## Annex 13

### **NOTE N° SARE-142 FROM THE DIRECTOR OF THE NATIONAL NARCOTICS DIRECTORATE OF COLOMBIA TO THE PRESIDENT OF THE SCIENTIFIC AND TECHNICAL COMMISSION OF ECUADOR, 14 APRIL 2004**

*(Archives of the Ministry of Foreign Affairs of Colombia)*

Ministry of the Interior and Justice  
Republic Of Colombia

National Narcotics  
Directorate

Bogota, D.C. 14 April 2004

SARE – 142

Mr.

JUAN CARLOS PALACIOS BURNEO

Chairman

ECUADOR'S SCIENTIFIC AND TECHNICAL COMMISSION

Diego de Almagro No. 1550 y la Pradera

Edf. Posada de las Artes Kigman, Piso 4

Quito, Ecuador

Ref: Letter No. CFMS-46-2004 Rec. DNE E-2004-19728 DATED 23/03/04

Dr. Palacios;

In reply to the letter in reference I want to make the following considerations:

1. Regarding the first point, I inform you that the Colombian counterpart has scheduled a coordination meeting with the technicians on 5 April. By then, we expect to have preliminary date to make the joint visit.

It should be noticed that logistic and security issues will be the responsibility of each country on its territory. Should any sampling be made on Ecuador's side, expenses will be on the Ecuadorian counterpart.

2. INFORMATION ABOUT PREVIOUS SPRAYING ACTIVITIES  
2.1 Background of sprayings in the border area with Ecuador

DATE	MUNICIPALITY	SPRAYING (Has)
January 1 to February	San Miguel	3.900

15, 2002	Puerto Asís	310
	Valle del Guamuez	627
TOTAL OPERATION		4.837
July 28 to December 30, 2002	San Miguel	1.295
	Puerto Asís	17.534
	Valle del Guamuez	4.208
	Puerto Leguizamo	44
TOTAL OPERATION		23.081
May 5 to July 19, 2003	San Miguel	2.728
	Puerto Asís	1.114
	Valle del Guamuez	2.206
TOTAL OPERATION		6.048

Ministry of the Interior and Justice  
Republic Of Colombia

National Narcotics  
Directorate

## 2.2 Methodology:

Program for the Eradication of Illicit Crops by Aerial Spraying with Glyphosate (PECIG) is founded on 3 processes that ensure that operations are technical and accurate. The processes are:

### -Detection:

With this process, the exact location and quantity of areas with illicit crops all over the national territory is determined. It is made by interpreting satellite images combined with overflights and intelligence reports for information validation and updating.

### -Spraying.

With this process, technical and controlled application of herbicide glyphosate on crops previously detected is applied. It is carried out under the technical parameters established in the Environmental Management Plan for the Program for the Eradication of Illicit Crops by Aerial Spraying with Glyphosate (PECIG), approved by the Ministry of the Environment, Housing, and Territorial Development and technically upheld by the Colombian Farming Institute (ICA).

### -Verification:

This process allows to evaluate compliance with the technical parameters approved by competent authorities, to determine the efficacy percentage of applications for illicit crops control and, process complaints filed in accordance with Resolution 017 of 2002 issued by the National Narcotics Council. It establishes the procedures to address and compensate alleged damages that may

be associated with the Program for the Eradication of Illicit Crops by Aerial Spraying with Glyphosate.

### 2.3 Route

During the spraying process, operations are programmed in a digital way under a satellite positioning system called DELNORTE. It is previously programmed with the cartography showing the operations area, target coca plots, alert systems for special protection areas such as vegetation and elements different from coca crops. Besides, it is fed during spraying, so it can record routes and spraying lines that can be later on cross-matched with satellite images and cartography. Thus, a detailed and technical record of sprayed plots is obtained.

### 2.4 Variable factors taken into account

The Environmental Management Plan for the Program for the Eradication of Illicit Crops by Aerial Spraying with Glyphosate (PECIG) includes operational parameters for spraying such as flight altitude, temperature, relative humidity, cloudiness, rainfall, type of nozzle, droplet size, and dosage, among others. If any of these parameters is not met, the spraying mission is cancelled.

## 3. MATHEMATICAL MODEL TO CALCULATE DRIFT

The mathematical model implemented by the Program for the Eradication of Illicit Crops by Aerial Spraying with Glyphosate (PECIG), which includes the variables: terminal velocity (gravitational acceleration-droplet diameter-droplet

Ministry of the Interior and Justice  
Republic Of Colombia

National Narcotics  
Directorate

density-air viscosity), flight altitude, aircraft speed, and droplet size, is the model established to determine drift in any aerial spraying operation. It is defined as follows:

Calculation of terminal velocity:

$$\text{Stokes' law is applied: } V_t = \frac{G * D^2 * W}{18 A}$$

Where,

V<sub>t</sub>: Settling velocity

G: Gravitational acceleration (m/s)

- D: Droplet diameter in micras  
 W: Droplet density (Kg/m<sup>3</sup>)  
 A: Air viscosity newton – second per square meter  
 1 Ns/m<sup>2</sup>= 10P (Poise) = 181 uP at 20 °C

Concentrations used for coca crops spraying:

Mixture of Glyphosate, water, and adjuvant 23,65 lt/ha (10,4 lt of Glyphosate/ha)

Spraying of 1,04 ml per m<sup>2</sup>.

Maximum concentration 480mg/l

Every m<sup>2</sup> sprayed receives 0,499 ml of active ingredient.

Concentration below critical values and way far from LD-50 and LC-50

Temperature:

Prevailing temperature at the moment of spraying may significantly affect spraying quality according to SYNGENTA\*.

See chart on next page

[Seal] Ministry of the Interior and Justice  
 Republic Of Colombia

[Seal] National Narcotics  
 Directorate

DROPLET SIZE	TEMP. 20-22 °C R.H X 80%	TEMP. 30 °C R.H X 50%
50 μ	15 sec	3.5 sec
100μ	50 sec	14 sec
200μ	200 sec	56 sec
300μ	300 sec	84 sec

\* SYNGENTA Technical applications principles and basis (arosemana Km 2/5 Edificio Berlin) Guayaquil Ecuador.

Calculation Potential Area for Drift

Formula:  $D = H \times U/Vt$

Where:

D: Drift (meters)  
 H: Release height (meters)  
 U: Horizontal wind speed m/s  
 Vt: Terminal velocity

For evaluation of potential risk, the following is considered:

H: Highest release height (25 meters in compliance with technical parameters)  
 U: Speed (4.8 km/h or 1.3 m/s)  
 Vt: Average droplet (650 micra according to technical parameters), for a 650 micra droplet, Vt is 270 cm/s.

Drift in PECIG:

Formula:  $\text{Drift} = H^* \times U/Vt$

Where:

H: Highest release height  
 U: Speed  
 Vt: For average droplet

$$\text{Drift} = \frac{25 \text{ m} \times 1.3 \text{ m/s}}{2.7 \text{ m/s}}$$

Maximum drift = 12 Meters

[Seal] Ministry of the Interior and Justice  
 Republic Of Colombia

[Seal] National Narcotics  
 Directorate

4. With regard to health issues, I am enclosing the progress report of Record No. 7 of PECIG's Environmental Management Plan carried out by the National Health Institute – INS. It reports on the project “Evaluation of glyphosate and other pesticides effects on health in areas where PECIG operates”. This is a pilot project of what could be done to make monitoring on human health. Likewise, during the coordination meeting it will be recommended that the National

Health Institute contact the Ecuadoran counterpart and start a systematic process of information exchange.

5. On the other hand, analyses made in Colombia on possible effects on human health associated with herbicides are already known to you. They show no effects. For information purpose, I am enclosing the document *El espejismo de esas hojas* [The mirage of those leaves] by UNICEF. It shows that effects on health and the environment are caused by the indiscriminate use of chemicals and agrochemicals when illicit crop growers and drug producers plant and process drugs.
6. Finally, we attach the following documents:
  - Toxicity Study on Laboratory Animals (Poppy). Inmunopharmos Ltda. 2002
  - Technical Data Sheet for Cosmoflux 411F adjuvant used in the PECIG. It has chemical and toxicological aspects and general characteristics of that product
  - EPA Guidelines (United States Environmental Protection Agency)

Sincerely,

[Signed]  
LUIS ALFONSO PLAZAS VEGA  
Director

Attachment: the aforementioned

MEHF/lfb



## **Annex 14**

### **DIPLOMATIC NOTE VRE/DAA/CAL N° 18067 FROM THE COLOMBIAN VICE-MINISTER OF FOREIGN AFFAIRS TO THE ECUADORIAN VICE-MINISTER OF FOREIGN AFFAIRS, 14 APRIL 2004**

*(Archives of the Ministry of Foreign Affairs of Colombia)*

#### **REPUBLIC OF COLOMBIA MINISTRY OF FOREIGN AFFAIRS**

VRE/DAA/CAL No. 18067

Bogotá D.C., 14 April 2004

Mister Vice-Minister:

I refer to your note No. 22082 GVM-2004, dated 12 April, which expresses the Ecuadorian concern regarding the spraying operations that are being carried out again in the borderline area and requests the immediate suspension of such activities.

In this respect, I reassert the contents of notes VRE No. 32759 of 18 September 2003, DM/DBR No. 8092 of 23 February 2004 and DPM/COR 21125 on 7 April 2004, through which the Government of Colombia informed the Honorable Government of Ecuador about the national importance of the fight against the global problem of drugs and all offenses related with this activity, as well as the national policy for eradication of illicit crops, emphasizing that the Anti-Narcotic Police of Colombia was not carrying out spraying activities at that moment due to the planned schedule for the year, and that in case of aerial recognition of new illicit crops, the spraying program would continue.

With regards to the results of the official meetings held between the Scientific and Technical Commissions of the two countries, I must state that the Colombian Government was surprised about the allegations contained in the notification since the Colombian Government has never accepted to subject its national policy for the eradication of illicit crops, including aerial operations, to the results of the aforementioned Scientific and Technical Commissions, and has never manifested or acquired any obligation with respect to their suspension. The Government could never

be contradictory in relation to an issue that is vital to the fight against illicit drugs and all crimes related with this activity.

His Excellency  
Ambassador EDWIN JOHNSON LÓPEZ  
Vice-Minister of Foreign Affairs  
Ministry of Foreign Affairs of Ecuador  
Quito

Taking into account all given information, I would like, Mister Vice-minister, to express the desire of the Colombian Government to arrange an additional meeting of the Scientific and Technical Commission to comply with the commitment agreed by the Presidents Uribe and Gutiérrez, last March. We are looking forward to hearing from the Ecuadorian Government about the acceptance of the date proposed by Colombia and the members of the Ecuadorian delegation.

I avail myself of this opportunity to renew to Your Excellency the assurances of my highest and distinguished consideration.

[Signed]

CAMILO REYES RODRÍGUEZ  
Vice-ministry of Foreign Affairs

REPUBLIC OF COLOMBIA  
MINISTRY OF FOREIGN AFFAIRS

DAA/CAL No. 18065

Bogotá D.C., April 15th, 2004

Ambassador

MARÍA PAULINA ESPINOSA DE LÓPEZ

Embassy of Colombia

Quito

Honorable Madame Ambassador:

I respectfully write to you in order to submit the original document of the Diplomatic Note VRE/DAA/CAL No.18067 of April 14th, 2004, through which the Honorable Minister of Foreign Affairs, Camilo Reyes Rodríguez, gives response to the notification 22082 GVM 2004 of April 12th, regarding the Ecuadorian concern about the spraying operations that are being carried out again in the borderline area and where they request the immediate suspension of such activities.

I kindly request that you forward this note to the proper recipient.

Sincerely yours,

MAURICIO BAQUERO PARDO

Director of America (e)



## **Annex 15**

### **DIPLOMATIC NOTE VR/ST/CVICE N° 27776 FROM THE COLOMBIAN VICE-MINISTER OF FOREIGN AFFAIRS TO THE ECUADORIAN AMBASSADOR IN BOGOTÁ, 9 JUNE 2004**

*(Archives of the Ministry of Foreign Affairs of Colombia)*

#### **REPUBLIC OF COLOMBIA MINISTRY OF FOREIGN AFFAIRS**

VR/ST/CVICE No. 27776

Bogotá, D.C., 9 June 2004

Mister Ambassador:

I have the honor to write to Your Excellency in order to refer to the field visit carried out by the Colombo-Ecuadorian Scientific and Technical Commission to the borderline between the Province of Putumayo and the Province of Sucumbíos, from 26 to 27 May 2004, complying with the commitment made in the Joint Declaration signed during the official visit of Mister President Lucio Gutiérrez Borbúa, on 17 March.

This Office would like to stress that we understand this matter is of high interest for the Ecuadorian Foreign Affairs Office; nevertheless, the results of the aforementioned visit do not reflect this position.

Firstly, several joint visits were scheduled with the purpose of inspecting and assessing the potential areas for aerial spraying, through an inter-institutional effort that implied high transportation costs, and for which the Colombian Government appointed a team of eight officers of the highest technical and scientific level from various entities, including toxicologists, doctors, agronomists, researchers, epidemiologists and environmental interventors, among other professionals. On the other side, the Ecuadorian team was composed of high level officers, but did not have representatives from the Ministries of Health or Agriculture, essential to verify the allegedly effects claimed by the community.

His Excellency  
Mister Ambassador of Ecuador  
City

Also, although the visits were scheduled with proper anticipation, included three field trips in Ecuadorian territory, only one was effectively carried out. What concerns us even more is that five visits in Colombian territory were scheduled for the second journey, but the Ecuadorian delegation did not attend the meeting. Therefore, only one visit of the eight that were scheduled, took place.

I hope you understand that coordinating the logistic and security details required to carry out the visits in our country implied a great effort and a significant costs for us, which were all in vain due to the absence of the Ecuadorian delegation the scheduled journeys.

For all the previous reasons, I respectfully reassert the interest of the Colombian Government in supporting these kind of processes, implemented to answer the concerns of the community regarding the actions executed by our countries appealing to their right of sovereignty, but it also generates discontent to continue with these activities given that scheduled commitments are not being complied with.

I avail myself of this opportunity to renew to Your Excellency the assurances of my highest and distinguished consideration.

[Signed]  
CAMILO REYES RODRÍGUEZ  
Vice-minister of Foreign Affairs

## **Annex 16**

### **DIPLOMATIC NOTE VRE/DAA/CAL N° 28511 FROM THE COLOMBIAN VICE-MINISTER OF FOREIGN TO THE ECUADORIAN VICE-MINISTER OF FOREIGN AFFAIRS, 17 JUNE 2004**

*(Archives of the Ministry of Foreign Affairs of Colombia)*

#### **REPUBLIC OF COLOMBIA MINISTRY OF FOREIGN AFFAIRS**

VRE/DAA/CAL No. 28511

Bogotá, D.C., 17 June 2004

I respectfully refer to the Colombo-Ecuadorian Technical and Scientific Commission III Meeting on Aerial Spraying on the Borderline, held out on 26 and 27 May 2004, in compliance with the directive given by the Presidents of both countries, on 17 March in Bogotá.

I received the report written by the Colombian Delegation, and I would like to bring to your attention the following points:

1. With regard to the purpose of the meeting, which was to verify the alleged effects caused by aerial spraying with glyphosate on human health and the environment on Ecuadorian territory, Colombia considers that it would have been relevant that the Ecuadorian delegation cluded technicians from the Ministry of Health and the Ministry of Agriculture of the country, in order to resolve the speculations and political debate in relation to aerial spraying activities.

His Excellency  
Mister Edwin Johnson López  
Vice-ministry of Foreign Affairs  
Quito

REPUBLIC OF COLOMBIA  
MINISTRY OF FOREIGN AFFAIRS

2. We deeply regret this opportunity was not used to check the situation on Colombian territory, where the aerial spraying is actually taking place, since the members of the Ecuadorian Delegation did not show up at San Miguel International Bridge, the meeting point defined to make the trip to the sites located in the province of Putumayo. Colombian authorities had made all the relevant security arrangements required for this inspection activity.
3. The observations made by the Colombian Delegation in this visit are limited to Puerto Mestanza, the only place on Ecuadorian territory that was inspected, since the visits scheduled to Chone1 and Puerto Nuevo were cancelled. Along these lines, the members of the community that attended this informal meeting, reported that the last aerial spraying activity whose 'drift effect' could have affected the area was carried out on October, 2000. Also, they informed that their skin problems, and gastrointestinal and respiratory diseases had been occurring many years before, and complained about the lack of drinking water, health services, and poor technical assistance for agricultural and livestock activities

From this meeting with the community the Colombian Delegation could conclude that the damages on crops reported by farmers in Mestanza are the result of incorrect practices in agricultural and livestock activities and the lack of technical assistance.

4. Skin problems suffered by some members of this community were diagnosed by the doctors that attended the meeting as scabies and pyoderma, diseases that are not directly related in any way to spraying or to the handling of any other kind of agrochemical substances, and which are the result of the poor health and sanitary conditions of this population and that have been occurring in the area for a long time, as informed by its inhabitants.

Taking all this into account, and having in mind that a joint report was not made due to the absence of the Ecuadorian Delegation in the last scheduled meeting, I kindly put to your consideration that the conclusions submitted before the Honorable Presidents, in compliance with the directive given in relation to the matter on 17 March are made taking into account the report presented by the Colombian Delegation and including all the points exposed in this document.



I avail myself of this opportunity to renew to Your Excellency the assurances of my highest and distinguished consideration.

[Signed]

CAMILO REYES RODRÍGUEZ  
Vice-ministry of Foreign Affairs



## Annex 17

### JOINT DECLARATION OF THE PRESIDENTS OF COLOMBIA AND ECUADOR, ESMERALDAS, ECUADOR, 15 OCTOBER 2004

*(Archives of the Ministry of Foreign Affairs of Colombia)*

[...]

[Page 2]

#### **DRUG TRAFFICKING**

7. The Presidents of Ecuador and Colombia recognized that efforts made by both Governments must be redoubled given the complexity of the drug problem. In this sense, they gave instructions to control authorities from their corresponding countries to evaluate the alternatives leading to fight the illicit drugs trafficking, smuggling of chemical substances and precursors, gasoline smuggling, as well as kidnapping, extortion, and the trafficking of illicit weapons, munitions, and explosives. Besides, the two Presidents gave instruction for exchange of information on additional measures adopted in each country for the elimination of smuggling, traffic, and deviation of chemical substances and precursors.

8. Both Presidents decided to promote and support la adoption of instruments in the framework of the Andean Community of Nations to fight the illicit drugs and chemical precursors trafficking phenomena.

9. The Presidents of both countries expressed they were pleased with the presentations by experts in the workshops that have taken place in that regard, and with the delivery of studies conducted in Colombia on the possible effects of the sprayings with

10. All technical measures aiming at keeping sprayings from reaching Ecuadorian territory were taken into consideration.

11. The President of Colombia informed the President of Ecuador about his decision to request the CICAD – OAS to carry out a study on the possible effects on human health, fauna and flora, and the environment associated with sprayings with glyphosate. On this regard, he suggested that a meeting of the Scientific and Technical Commission is held once the CICAD has presented the results of the said study.

[...]



## Annex 18

**NOTE N° DSF 40.1/3.1.3-4-00421 FROM THE EXECUTIVE SECRETARY OF THE INTER-AMERICAN COMMISSION ON HUMAN RIGHTS TO THE COLOMBIAN FOREIGN MINISTER, 12 SEPTEMBER 2005**

*(Archives of the Ministry of Foreign Affairs of Colombia)*

DSF 40.1/ 3.1.3-4-00421  
INTER – AMERICAN COMMISSION ON HUMAN RIGHTS  
COMISION INTERAMERICACA DE DERECHOS HUMANOS  
COMISSAO INTERAMERICANA DE DIREITOS HUMANOS  
COMMISSION INTERNAMÉRICAINNE DES DROITS DE L'HOMME

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*ORGANIZATION OF AMERICAN STATES*  
WASHINGTON, D.C. 20006 U.S.A.

12 September 2005

REF: Transboundary Effects of Sprayings in Colombia  
187-05 Colombia  
Request of information

Madam Minister:

I have the honor to write to Your Excellency on behalf of the Inter-American Commission on Human Rights (IACHR) in reference to the request for precautionary measures received by the IACHR related to the transboundary effects of the sprayings in Colombia.

The request for provisional measures, a copy of which is annexed to this letter, indicates *inter alia* that as result of the sprayings carried out in Colombian territory during recent years, transboundary harm has been caused on both people and environment along borderline with the Ecuadorian provinces of Esmeraldas, Carchi and Sucumbios. It is alleged that as a result, sprayings with glyphosate, POEA, Cosmoflux and fusarium oxiporum [sic, oxysporum] chemicals said to make up *Roundup Ultra* might have entered Ecuadorian territory, and would have caused bodily harm to the inhabitants of the area and environmental damage such as pollution of the land, water from rivers, and death of crops and animals.

Among other data, the studies annexed to the request indicate that the glyphosate herbicide would be used in a higher concentration (26%) than recommended by the manufacturing company (1%) and by the U.S. Environmental Protection Agency and that the effect of the mixture used (Glyphosate - POEA- Cosmoflux 411 F) on the animals would not have been studied in depth, in spite of which it would be sprayed directly on people by aerial spraying from 15 to 60 meters of height.

Her Excellency  
Madam Carolina Barco  
Minister of Foreign Affairs of Colombia  
Bogota D.C.  
Republic of Colombia

The studies annexed also indicate that, as a result, people exposed to the abovementioned chemicals showed varied symptoms in the skin, eye irritation, headaches and diseases, and that 100% of the people analyzed at the border who were in contact with the sprayings showed signs of intoxication and injuries in the 36% of their body cells. It also indicated that the genetic damage caused to these people would be in a 800% higher than the control group studied simultaneously in the city of Quito, and 500% higher than populations with similar characteristics of the Amazonian region, who live 80km away from the area of study.

Without prejudging a possible opening of proceedings on precautionary measures in favor of the affected people on both sides of the border area, I wish to ask Your Excellency to send to this Secretariat, in a period of 20 days from receipt of this note, the information you deem appropriate on the situation to be referred to the petitioner and in particular the concentration of glyphosate used and the effects of chemicals combination used in sprayings on the health of people and the environment in which they live, in light of the studies that the Government of Your Excellency has carried out in field.

I avail myself of this opportunity to renew to Your Excellency the assurances of my highest and distinguished consideration.

[Signed]  
Santiago A. Canton  
Executive Secretary

## Annex 19

### **DIPLOMATIC NOTE N° DDH. 58003 FROM THE COLOMBIAN FOREIGN MINISTRY TO THE EXECUTIVE SECRETARY OF THE INTER-AMERICAN COMMISSION ON HUMAN RIGHTS, 18 SEPTEMBER 2005**

*(Archives of the Ministry of Foreign Affairs of Colombia)*

REPUBLIC OF COLOMBIA  
MINISTRY OF FOREIGN AFFAIRS  
HUMAN RIGHTS AND INTERNATIONAL HUMANITARIAN LAW DIRECTION

DDH.58003

Washington D.C., 18 September 2005

Excellency,

I have the honor to write to you on behalf of the Colombian Government to respond to your request on information about the transboundary effects of sprayings in Colombia (187-05) covering the following issues:

- I. Preliminary considerations
- II. Legislation and International Instruments, regarding the Fight against the World Drugs Problem and related crimes,
- III. Colombian Institutional framework in the fight against the World Illicit Drugs Problem,
- IV. Program for the Eradication of Illicit Crops through Aerial Spraying with Glyphosate Herbicide –PECIG,
- V. Studies and Technical Reports
- VI. Analysis of arguments presented in the Ecuadorian request
- VII. Conclusions

#### **I. Preliminary Considerations**

Although the present document is the response to an information request that the Honorable Commission sent to Colombia based on a petition for precautionary measures, and that as such, it does not constitute a prejudgment on whether the measures are issued, the Colombian Government deems it important to briefly highlight the reasons why, in its opinion, the petition in this case lacks foundation.

In fact, an exceptional protection mechanism as the precautionary measures must be kept within the strictest parameters to preserve its effectiveness, that is, they must be issued and maintained in cases of serious and urgent situations to prevent irreparable harm to persons, as Article 25 of the Rules of the Commission stipulates.

Regarding the serious and urgent situation the State does not consider that this element is evident taking into account the arguments presented throughout this document and the fact that spraying has been taking place since 2000.

In reference to the purpose of the measures, which is to avoid irreparable harm to persons, according to the enclosed studies, harm on human health is not caused.

His Excellency  
SANTIAGO CANTON  
Secretary  
Inter-American Commission on Human Rights  
Washington, D.C.

[...]

[Part IV]

#### **IV. Program for the Eradication of Illicit Crops through Aerial Spraying with Glyphosate Herbicide –PECIG**

The PECIG is the plan adopted by Colombia with the objective of eradicating illicit crops on the national territory and mitigating the serious environmental impacts caused by these crops and their subsequent processing into drugs such as cocaine and heroin. The PECIG is carried out in three integrated phases: detection, spraying, and verification.

*The detection phase* has the purpose of identifying and characterizing the areas affected by illicit crops and determining special management or exclusion zones based on satellite images.

*The spraying phase* is the execution of the planned eradication operations.

*The verification phase* is carried out by evaluating compliance with the established technical parameters for the eradication activities. This phase is concluded with the submission of reports on the results of the operation that are later subject to an auditing process.

#### **Legislative Framework:**



The Program for the Eradication of Illicit Crops through Aerial Spraying with Glyphosate Herbicide (PECIG) is ruled by the following national administrative acts:

Decree 1843 of 1991 by the Health Ministry, today Ministry of Social Protection, which rules the use of pesticides in the national territory.

Resolution 0013 of 27 June 2003 by the National Narcotics Council, which adopted a new procedure for the Program for the Eradication of Illicit Crops.

Resolution 031 of 26 September 2003 by the National Narcotics Council, which specifies the Audit mechanism for the PECIG.

Resolution 1054 of 2003, by the Ministry of the Environment, Housing, and Territorial Development, which amends the Environmental Management Plan (EMP) of the PECIG.

#### The Environmental Management Plan

The legal framework is given by Resolution 1054 of 2003 by the Ministry of the Environment, Housing, and Territorial Development, which amends the Environmental Management Plan (EMP) of the PECIG and establishes that all and each of the activities integrating the program and its components must comply with, pursuant to environmental legislation in force in accordance with the National Constitution, the obligation to protect the diversity and integrity of the environment, preserve the areas of ecological interest, and promote education to fulfill such goals.

In consequence, the PECIG is carried out in accordance with the Environmental Management Plan and with strict observance of environmental and human health care legislation in force.

The Environmental Management plan establishes the actions that must be implemented by the agencies in charge of executing the program to make a strict follow-up and control on the aerial spraying processes. Verification of compliance with the Plan is done by the Ministry of the Environment, Housing, and Territorial Development, by means of follow-up visits to different areas where spraying operations are taking place. The Environmental Management Plan is made up of three specific programs:

##### *a. Spraying Operations Management*

The objective of spraying operations management is to comply with the technical and environmental procedures and parameters for aerial spraying leading to an effective eradication of illicit crops located on the national territory. To do so, illicit crops areas, exclusion zones (zones that cannot be sprayed in compliance with Article 87 of Decree 1843), as well as the warning zones are identified, characterized and mapped. Additionally, effectiveness of the application of the mix used (Glyphosate, Cosmoflux, and water) on coca leaves crops is tested.

*b. Detection,*

- **Satellite Detection System:** In the detection process, coca crops plots are georeferenced by the interpretation of satellite images.
- **Prior Aerial Reconnaissance System:** With aerial reconnaissance prior to spraying activities, the interpretation of satellite images is confirmed with the purpose of having total certainty about the location of the illicit crops area.

*c. Spraying*

Once the detection process is done, both with the satellite system and with aerial reconnaissance, the pilots reach with accuracy each of the plots to be sprayed. This procedure implies a strict record and control of coordinates of sprayed areas, which allows to carry out the verification and monitoring procedures.

Spraying must comply with a series of technical parameters (flight altitude, maximum herbicide release, droplet size, foreseen drift, temperature, relative humidity, and maximum wind speed) that guarantee that the mixture used is targeted exclusively towards the targeted eradication vegetation, that is to say, the illicit crops, therefore minimizing any possible effect due to drift.

In spraying operations, the flight altitude is determined in reference to the highest vegetation cover found in the target coca plots. It is not above 25 metres. Additionally, spraying operations are subject to operational parameters. It ensures a maximum drift (displacement of the mix due to wind action outside the target area) of 12 metres.

**Verification**

The Eradication Program by means of aerial spraying with glyphosate is subject to verification during this operational phase with the purpose of evaluating the efficiency and effectiveness of the foreseen environmental management measures.

## Environmental Monitoring

The environmental monitoring aims at making follow-up on the vegetation regeneration process in sprayed areas, as well as determining the magnitude of residues of glyphosate in soil and water and its possible relation with their physical chemical and biological properties. The Colombian Agriculture and Livestock Institute (ICA) takes water and soil samples before and after the spraying operations, with 0, 30, 60, 90, and 180-day intervals, with the purpose of determining the residual effect of the metabolite AMPA (Amino Methyl Phosphoric Acid). The water samples are subsequently analyzed at the ICA laboratory and the soil samples are analyzed in laboratories in the United States.

## Soil Sampling

For this, during the monitoring activities analyses of the behavior of soil and water in the samples collected in the different areas of the country where spraying have taken place have been carried out. The results of the laboratory analysis have shown that there is no effect of the herbicide on the soil. The verification has permitted to corroborate the presence of food crops weeks after sprayings, confirming the restart of agricultural activities after aerial spraying.

## Water Sampling

The laboratory analyses carried out by the Colombian Agriculture and Livestock Institute (ICA) show that the contents of the molecule of glyphosate, as well as its metabolite AMPA, are below the admissible values in water for human consumption, in accordance with what is established in Decree 475 of 1998, which establishes the quality technical standards for drinking water. In two of the sites that have been monitored no presence of the molecule nor its metabolite has been detected, whereas in running water is practically undetectable.

Regarding the environmental effects, and based on the results from the water and soil samples, the ICA has found in the monitoring process on spraying operations that glyphosate adheres tightly to soil, avoiding contamination of drinking water sources closed to the sprayed areas. The average lifespan of glyphosate in water is of very few days

Public Health Program

This program is carried out by the National Health Institute with the purpose of implementing management measures for an adequate monitoring on human health in the spraying process.

According to the *Monitoring System on Human Health*, with the data obtained and analyzed, together with the local and regional data on morbidity available and the toxicological and scientific information existing about glyphosate, researchers have not established a co-relation aerial sprayings with glyphosate and the diseases or other health problems, which shows that there are many other factors that cause the health problems of people who live near the areas where spraying operations took place.

### Complaints

The PECIG has a system to receive and process complaints thanks to which all complaints related with possible damage on lawful crops caused by spraying or its effects on human health are thoroughly investigated. These reports are canalized through different entities of the Colombian Government including the Antinarcotics Direction of the National Police (DIRAN), the National Narcotics Directorate (DNE), The National, The Public Ministry, the Ombudsman's Office, the Ministry of the Environment, Housing and Territorial Development, the National Police or the office of the Environmental Auditor. The complaints are initially analyzed to determine if the records of the SATLOC system (Satellite Information Recording System) show that aerial spraying actually took place in that area and on the day stated. This first review usually dismisses 50% of complaints. The other complaints are investigated by means of field visits to determine if the damage on the lawful crops was really caused by glyphosate and if the said crops had been mingled with coca leaf crops. In almost all cases, lawful crops had been planted next to coca leaf crops.

Not a single complaint for effects on human health associated with the spraying program has been confirmed.

### Mixture used in the Program

The composition of the mixture used in the Spraying Program is in accordance with the international standards established for the use and handling of this type of substances. Regarding this topic, it is important to highlight that the mixture used in the spraying operations does not contain biological agents such as *Fusarium Oxysporum* (vegetal fungus).

The mixture used to carry out eradication of illicit crops by means of aerial spraying consists of *Glyphosate, Cosmoflux, and water*.

Glyphosate: It is one of the most commonly used herbicide since the 70's. There is an undetermined number of international studies and scientific reports on its use and possible effects. They have determined that given its chemical and physical characteristics, it is classified as a low toxicity herbicide and environmentally safe.

Chemically, glyphosate is a substance that corresponds to phosphomethyl glycine, of which there are many commercial formulations such as Roundup, Faena, and Rocky, among others. All of them are registered for use and distribution according to rules contained in the Andean Community Decision 436. With regard to Roundup Ultra it is important to notice that it is not used in the mixture used in the PECIG for spraying operations.

#### Uses of Glyphosate

With respect to uses of the herbicide, the Colombian Agriculture and Livestock Institute (ICA) states that. *“Glyphosate is used in Colombia for weed control in rice, cotton, soy, plantain, and banana, among other crops. In sugarcane crops, it is used as for ripening to increase the contents of sucrose. Application of this herbicide is aerial and/or terrestrial. In soy crops, it is used for weed control and it is applied immediately after planting.”*

Glyphosate herbicide is used in over 100 countries in agro-industrial activities. It is even used for weed control in national parks and ecosystems as fragile as that of Galapagos Islands, according to the “Manual of the Identification and Management of Weeds on the Galapagos Islands” ([www.darwinfoundation.org/.../guia\\_id\\_manejo\\_malezas.pdf](http://www.darwinfoundation.org/.../guia_id_manejo_malezas.pdf)).

This manual, written by the Charles Darwin Foundation and financed by UNESCO, classifies Roundup as one of the environmentally safe herbicides. The manual states that *“[T]he following recommended herbicides are not residual, that is to say, they do not remain in the environment very long; if due measures are taken, they do not pose danger neither to human health nor to animals.”* Then, it describes each of the herbicides that it recommends and as for glyphosate it states: *“Roundup. Ranger. The active ingredient is Glyphosate salt. It is one of the chemicals that at low concentrations are effective for pastures, bushes, and certain species of trees control. It is not residual since its average active action in the environment is 48 hours.”*

### *Cosmoflux*

It is an adjuvant, applied in a 1% ratio, whose purpose is to make the drop heavier, reducing the “drift effect” and facilitating the herbicide adherence on the plant leaf.

### POEA (Polyoxyethyl amine alkilamine)

It corresponds to a compound that is used as surfactant in many commercial formulations of glyphosate.

### Dose and concentration of the mixture used in the PECIG

The mixture used in the PECIG is made up of 10,4 litres of commercial formulation (480 grams of isopropyl amine salt of glyphosate), 230 cm<sup>3</sup> of Cosmoflux and 13 litres of water. The fusarium oxysporum fungus is not used because it has not been approved in Colombia and because it is physically impossible to mix it with chemical agents.

The dosage used is 10,4 litres of commercial formulation per hectare, with a concentration of 480 grams of isopropyl amine salt (glyphosate), which equals 4.992 grams of isopropyl amine salt of glyphosate per hectare, out of which, 3.744 grams correspond to glyphosate as acid.

It is not true that the PECIG uses a glyphosate dose 26 times higher than the one recommended by the manufacturer. Every year, the Department of State of the United States of America certifies before the Congress of that country that the PECIG uses a glyphosate dose that is within the manufacturer’s recommendations for similar use in the United States. This certification is issued after consulting the Environmental Protection Agency of the United States (EPA), which in 2003 and 2004 determined that: *“application rates for both coca and poppy eradication in Colombia are within the parametres listed on labels of glyphosate products in the United States.”*

### Glyphosate rates in illicit and lawful crops:

Traditionally, glyphosate is used in commercial agriculture, according to the information printed on the label, residues of the product do not persist in soil because they become inactive and upon being in contact with it. Thus, planting activities may be carried out 24 to 36 hours after the application of the product on the field. Glyphosate does not have effects on weed control in seeds; it can be applied on crops avoiding contact with the green parts of the plant to clear weed plots that compete with the commercial crop.

The amount of commercial product applied to control weeds varies depending on their growing pattern:

- Herbaceous: the rate ranges between 2 and 4 litres per hectare.
- Perennial: It is applied when they are between the start of blossoming and full blossoming. (rate from 2, 5 to 6 litres per hectare).

<b>CROPS</b>	<b>APPLICATION MIXTURE</b>	<b>RATE PRODUCT (L / Ha )</b>	<b>RELATIVE HUMIDITY (%)</b>	<b>WIND SPEED (m / s)</b>
LAWFUL	15-50	12	>60%	<3
ILLCIT	23.7	2.5-10.4	>90%	<4

In a year, it is possible that sorghum, rice, corn, citrus, etc. growers apply up to 12 litres of pure glyphosate per hectare per year, according to the dose recommended for such commercial formulations for planting and replanting or postharvest.

The PECIG uses up to 10.4 litres of commercial formulation per hectare, which represents 8.3% less than growers of lawful crops use.

<b>PRODUCT</b>	<b>QUANTITY (LITRES)</b>	<b>QUANTITY (GALLONS)</b>
Commercial formulation, with Glyphosate active ingredient (480 grams per litre) per hectare	10.40	2.75
Cosmoflux per hectare.	0.23	0.06
Water per hectare.	13.01	3.44

Herbicide, adjuvant, and water mixture used by the National Police for coca eradication

Of these 23, 66 litres, currently 43.9% corresponds to the commercial formulation. Thus,

The ratio in the components of the spray mixture for coca crops is given in function of the ingredients and the concentration.

In lawful aerial applications, growers use a total volume of 15 to 50 litres of application mixture per hectare, whereas in spraying operation on coca crops carried out by the Antinarcotics Police, 23,67 litres of application mixture per hectare are used.

<b>Ingredient</b>	<b>Concentration (% of total volume)</b>
Glyphosate active ingredient as isopropyl amine salt of N(Phosphomethyl) glycine (480 g/L).	17.99
Cosmoflux 411F Adjuvant	1
Other surfactants in the commercial formulation	5.86
Antifoaming in the commercial formulation	0.88
Water	74.27

Concentration of ingredients used by the National Police % total volume used in the eradication of coca crops.

With the objective of increasing absorption speed and reducing loss for drift and wash away, the Antinarcotics Police adds an adjuvant to the mixture. Its brand name is Cosmoflux 411F in a 1% ratio of the total volume, to offer the following advantages:

- Reduction of superficial tension
- Increase of emulsion effect, humectation and adherence of the mixture to the leaf.
- Achieving uniformity in the mixture
- Adding weight to the droplet
- Reducing foam in the mixture
- Keeping the chemical composition of the commercial formulation

Its properties guarantee high effectiveness in the application of herbicide, making it unnecessary to apply supplementary quantities to compensate loss of effectiveness caused by the use of hard water (water with high concentration of calcium, magnesium, and other harmful salts for human health).

[...]



## Annex 20

**NOTE N° DSF 40.1/3.1.3-4-00423 FROM THE EXECUTIVE SECRETARY OF THE INTER-AMERICAN COMMISSION ON HUMAN RIGHTS TO THE COLOMBIAN FOREIGN MINISTER, 18 NOVEMBER 2005**

*(Archives of the Ministry of Foreign Affairs of Colombia)*

DSF 40.1/ 3.1.3-4-00423

INTER – AMERICAN COMMISSION ON HUMAN RIGHTS  
COMISION INTERAMERICACA DE DERECHOS HUMANOS  
COMISSAO INTERAMERICANA DE DIREITOS HUMANOS  
COMMISSION INTERNAMÉRICAINNE DES DROITS DE L’HOMME

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ORGANIZATION OF AMERICAN STATES  
WASHINGTON, D.D. 2 0 0 0 6 U.S.A.

18 November 2005

REF: Transboundary Effects of the Sprayings in Colombia  
187-05  
Colombia

Madam Minister:

I have the honor to write to Your Excellency on behalf of the Inter-American Commission on Human Rights (IACHR) in order to acknowledge receipt of your note dated 18 September 2005 and received on 24 October 2005 about the request of information related to the transboundary effects of the sprayings in Colombia.

In this opportunity I wish to inform you that the IACHR considered in its 123rd regular session period, the request of precautionary measures and the response of the Republic of Colombia to the request for information. In that regard, after considering all the available information on this issue that has been matters of concern for the IACHR due to its characteristics, it was decided that for the moment there was no basis for invoking the mechanism of provisional measures provided for in Article 25 of its Rules.

I avail myself of this opportunity to renew to Your Excellency the assurances of my highest and distinguished consideration.

[Signed]  
Santiago A Canton  
Executive Secretary

Her Excellency  
Madam Carolina Barco  
Minister of Foreign Affairs  
Bogotá D.C.  
Republic of Colombia

## Annex 21

**UNITED NATIONS, TERMS OF REFERENCE OF THE “SCOPING MISSION FOR A DETAILED ASSESSMENT STUDY ON THE POTENTIAL IMPACT TO HUMAN HEALTH, THE ENVIRONMENT AND AGRICULTURE THAT OCCURS IN ECUADOR’S TERRITORY AS A RESULT OF GLYPHOSATE FUMIGATIONS DONE BY THE GOVERNMENT OF COLOMBIA IN THE BORDER AREA WITH ECUADOR”, JANUARY 2006. (ENCLOSURE TO NOTE N° E-104/032 FROM THE COLOMBIAN AMBASSADOR IN QUITO TO THE COLOMBIAN FOREIGN MINISTER, 27 JANUARY 2006)**

*(Archives of the Ministry of Foreign Affairs of Colombia)*

EMBASSY OF COLOMBIA  
Quito – Ecuador

No. E – 104/032  
Quito, January 27 2006

Madam  
MINISTER OF FOREIGN AFFAIRS  
(America Direction)  
Bogotá D.C.

Madam Minister;

With kind greetings, I am sending a copy of the letter FAOR-057 CA7/1 dated 20 January 2001 that was delivered to me by Mr. Ivan Angulo Chacon, Representative of FAO in Ecuador. In said letter written by Ms. Maria Jose de O. Zimmerman, Representative of FAO in Colombia, as you can see reference is made to the study on the “real impact caused by applications of glyphosate herbicide”, in which the participation of this International Organization is stated.

Likewise, I am submitting the “Terms of Reference” of the mission that is visiting Quito to make an exploratory analysis the aforementioned study.

Truthfully yours,

[Signed]  
CARLOS JOSE HOLGUIN  
Embassy of Colombia

Enclosure: The announced

## Terms of Reference

### **Scoping Mission for a Detailed Assessment Study on the Potential Impact to Human Health, the Environment and Agriculture that Occurs in Ecuador's Territory as a Result of Glyphosate Fumigations Done by the Government of Colombia in the Border Area with Ecuador**

#### **Background**

By note verbale dated 19 September 2005, the Government of Ecuador (GoE) expressed its concern for the spraying of glyphosate [by the Government of Colombia] to eliminate illicit crops in the vicinity of the border between Colombia and Ecuador. The GoE went on to request that the UN Secretariat carry out a study on the "real impact" that the above-mentioned fumigations are having [on the health of the Ecuadorian population living in that area as well as on the agricultural crops planted in the border areas with Colombia]. In a speech to the UN General Assembly on 18 September 2005, the President of Ecuador asked the UN to promote an integral and trustworthy study of the real impact of these fumigations, given that studies to date on the issue have been technically and methodologically deficient. The UN Secretary General has confirmed in an interview at the recent Ibero-American Summit in Salamanca, Spain that this study "is in the UN agenda".

On 7 December 2005, the Ministers of External Relations of both Colombia and Ecuador issued a joint press release based on a meeting that same day in which they discussed a number of issues including the aforementioned fumigations. In this joint communication, the Government of Colombia took due note of the GoE's request to the UN to carry out a prospective study on the impact of these fumigations, and the Government of Colombia also agreed to participate in the definition of the terms of reference for this study. Colombia also agreed to analyze the results of the study and to evaluate the adoption of the pertinent measures.

As a first step, the UN specialized agencies of WHO/OPS and FAO will carry out an initial scoping mission to determine the most appropriate type of study that should be carried out to address the issue, and to develop the terms of reference and budget required to undertake a detailed assessment study on the topic. These terms of reference in hand relate to the initial scoping mission.

#### **Objective**

The purpose of this scoping mission is three-fold:

1. To identify the different types of studies that could address the potential impact of concern, and to recommend the most appropriate of these;
2. Based on the recommendation from point one, to develop the terms of reference for a detailed assessment study on the potential impact to human health, the environment and agriculture that occurs in Ecuador's territory as a result of glyphosate fumigations that are done by the Government of Colombia in the border area with Ecuador; and
3. To determine the budget required to carry out the aforementioned study.

#### **Mission Team**

The scoping mission will be undertaken and completed by a team that will consist of at least two international experts, one from FAO and one from WHO/OPS. While in Ecuador, the mission team will be accompanied by a member of the technical staff from the Office of the UN Resident Coordinator in country, and will receive the support of the local offices of FAO and WHO/OPS.

The Office of the UN Resident Coordinator will act as the counterpart to the principal government interlocutor for this scoping mission, the Subsecretary for National Sovereignty and Border

## **Annex 22**

### **MINUTES OF MEETING OF THE BI-NATIONAL TECHNICAL COMMISSION ON HEALTH, ATACAMES , ESMERALDAS, 2-3 MARCH 2006**

*(Archives of the Ministry of Foreign Affairs of Colombia)*

[Page 1]

#### **VICINITY AND INTEGRATION COMMISSION BI-NATIONAL HEALTH TECHNICAL COMMISSION, Atacames – Esmeraldas, 2 AND 3 MARCH 2006**

#### **MINUTES**

The meeting of the Bi-national Health Technical Commission between Colombia and Ecuador was held on 2 March 2006 at 09:30 hours in the Club del Sol Hotel, in Atacames.

[...]

In his turn, Ambassador Claudio Cevallos, General Director, Border Relations between Ecuador and Colombia of the Ecuadorian Ministry of Foreign Affairs, pointed out the most relevant aspects of the joint communiqué dated 7 December 2005, issued by the two Ministers of Foreign Affairs such as the strengthening of health services in the border, implementation of surveillance and vaccination programs; he also emphasized Colombia's experience in pesticide management. He ended his speech by saying that he hoped that all objectives of the meeting are achieved and that the results can be recommended in the Vicinity Commission meeting to be held soon in the city of Quito.

[...]

[Page 3]

[...]

Next, Doctor Eulalia Narvaez from the Epidemiology Office of Ecuador presents the ASIS methodology for health diagnose. She points out that the said methodology is the result from the work that teams from the Ministries of Public Health and Social Protection of Ecuador and Colombia and the PAHO-WHO, whose general objective is

the health-disease analysis in relation with the conditioning factors and the response given health problems in the border.

[...]

[Page 4]

[...]

Doctor Elizabeth Trujillo, Acting Director of the Nariño Province Health Institute, made a joint presentation of the Andean and Pacific corridors, showed the indicators in both corridors, without the ASIS methodology and presented the advances of joint actions taken as well as the commitments agreed on in the Ipiales and Pasto bi-national meetings.

[...]

## **Annex 23**

### **HEALTH AND ENVIRONMENT INTEGRATING BORDERS, PROPOSAL FOR TECHNICAL COOPERATION BETWEEN COUNTRIES COLOMBIA-ECUADOR: EPIDEMIOLOGICAL SURVEILLANCE, PESTICIDES, AND WATER QUALITY, 2007**

*(Archives of the Ministry of Foreign Affairs of Colombia)*

#### **HEALTH AND ENVIRONMENT INTEGRATING BORDERS PROPOSAL FOR TECHNICAL COOPERATION BETWEEN COUNTRIES COLOMBIA-ECUADOR**

##### **1. INTRODUCTION**

The purpose of the Technical Cooperation Project between countries, “Epidemiological surveillance, pesticides and water quality in the borderline”, with the participation of the Ministry of Social Protection and the National Health Institute of the Republic of Colombia, and the Ministry of Public Health of the Republic of Ecuador, to enhance the development of health infrastructure in the borderline, sharing the capabilities and potentialities of both countries. Representatives from the Pan American Health Organization/World Health Organization (PAHO/WHO) in both countries are accompanying this project through the Technical Cooperation strategy, as an instrument of solidarity, horizontal cooperation and strengthening of the institutional capabilities of both countries, in order to cover the health needs in the shared borderline.

##### **1. REPORT OF ACTIVITIES**

The following are the activities carried out within the result No. 1 'Strengthening of local surveillance and control of occupational and environmental risks associated to the use of pesticides'.

##### **ACTIVITY**

1. Implementation of the Surveillance in Public Health System for intoxications due to pesticides in Ecuador based on the experience in Colombia

##### **TASK**

1.1 National workshop to discuss the Epidemiological Surveillance protocol developed by both countries, and instrument analysis.

## ACCOMPLISHMENT

The workshop was carried out in Lago Agrio, Province of Sucumbíos, from 27 to 30 November 2006.

Topics:

- Contextualization of the system for epidemiological surveillance of intoxications due to pesticides.
- Protocol for the Surveillance in Public Health of intoxications due to pesticides.
- Notification format for intoxications with chemical substances.
- Guide document for the analysis of current health situation (ASIS), experience with Colombia and Venezuela
- Epidemiological surveillance committee for Andean, Amazonian, and Pacific regions
- Alternative technologies for water and basic sanitation, and conceptualization of the healthy environments strategy.
- Aquatox pilot plan.
- Training material for clinical handling, diagnosis, treatment, and surveillance of intoxications due to pesticides.
- Laboratory techniques, biological markers and laboratory tools for the diagnosis of intoxications due to pesticides.
- Strategies to teach the adequate use and handling of pesticides in communities.

Documents submitted by Colombia:

- Protocol for the Surveillance in Public Health of intoxications due to pesticides.
- Notification format for chemical substances.
- Training manual for technicians.
- Health training manual for the visitor.
- Health training manual for the facilitator.

## ACTIVITY

2. Training for health teams in clinical handling, diagnosis, treatment, prevention, and surveillance of intoxications due to pesticides, especially for those in the Colombo-Ecuadorian borderline.

## TASK



2.1 Training workshop for health team tutors in clinical handling, diagnosis, treatment, prevention, and surveillance of intoxications due to pesticides, especially for those in the Colombo-Ecuadorian borderline.

#### ACCOMPLISHMENT

The workshop was carried out in Puerto Asís, Putumayo, from 12 to 16 March 2007. Staff from the following institutions received training: Dasalud Putumayo E.S.E., Hospital San Francisco de Asís de Puerto Asís E.S.E., Hospital San Gabriel Arcángel de Villa Garzón E.S.E., Hospital Sagrado Corazón de Jesús de La Hormiga E.S.E., Hospital Jorge Julio Guzmán de Puerto Guzmán A.R.S., Selva Salud E.P.S., Saludcoop E.P.S., Unimap and the Health Office of Valle de Guamuez.

#### ACTIVITY

4. Training for the community in prevention, use, and handling of pesticides.

#### TASK

4.1 Training workshop in prevention, use, and handling of pesticides for facilitators and visitors, especially for those in the Colombo-Ecuadorian borderline.

#### ACCOMPLISHMENT

The training workshop for the community in prevention of risks due to the exposure to pesticides was carried out from 7 to 9 May 2007. The objective of this activity was to share the experience in community training using the SARAR Methodology with the health professionals of the Provinces of Carchi, Sucumbios, and Esmeraldas (Ecuador) in order to promote the prevention of risks associated to the exposure of the community to pesticides.

Submitted material:

- 10 Booklets for visitors 'Preventing intoxications – avoiding contamination'
- 10 Booklets for facilitators 'Preventing intoxications – avoiding contamination'
- 100 Posters with the topics included in the booklets

#### TASK

4.2 Training workshop in prevention, use, and handling of pesticides communities, especially for those in the Colombo-Ecuadorian borderline.

## ACCOMPLISHMENT

Colombia has carried out training sessions in several departments during the first semester of 2007. These community training sessions are being monitored.

The last meeting of the Technical Cooperation Project will take place from 16 to 20 July in Quito, and the following topics will be discussed:

- Compilation and discussion of research about pesticides carried out by both countries.
- Formulation of a research or intervention project for the common issues related to the exposure to pesticides in the borderline.
- Structuring of the Pesticides Binational Committee.

## Annex 24

### **DIPLOMATIC NOTE DM/VRE/DPM/CDR/DDA/CAL N° 44664 FROM THE COLOMBIAN FOREIGN MINISTER TO THE ECUADORIAN FOREIGN MINISTER, 5 SEPTEMBER 2006**

*(Archives of the Ministry of Foreign Affairs of Colombia)*

#### REPUBLIC OF COLOMBIA MINISTRY OF FOREIGN AFFAIRS

DM/VRE/DPM/CDR/DDA/CAI No. 44664

Bogotá, D.C., 5 September 2006

Mister Minister:

I have the honor to write to Your Excellency in order to refer to the conversation we had last 16 August in Quito. I would like to inform the Honorable Government of Ecuador that, after consulting with the Executive Secretariat of the Inter-American Drug Abuse Commission –CICAD/OAS-, we consider of great interest and importance the participation of Ecuador, as an observer, in the execution of the second phase of the Study on the Effects of the Program for the Eradication of Illicit Crops with Glyphosate (PECIG) on Human Health and the Environment.

The aforementioned study will be carried out by a team composed by scientists and experts from various countries in fields such as pathology, environment, toxicology, tropical horticulture, medicine, and veterinary sciences, which will have the responsibility of studying and analyzing the following aspects:

1. Impact on human health, analysis of the genetic and toxic risks;
2. Scope of the spray drift of Glyphosate and Cosmo-Flux®, when used with the specifications of the Colombian eradication program and under real conditions;

To His Excellency  
Mister FRANCISCO CARRIÓN MENA  
MINISTRY OF FOREIGN AFFAIRS  
Quito - Ecuador

REPUBLIC OF COLOMBIA  
MINISTRY OF FOREIGN AFFAIRS

3. Proximity of surface waters to the areas with coca and poppy crops;
4. Identification of Glyphosate and adjuvants mixture which can minimize potential toxicity:
5. Formulation of Glyphosate-Cosmo-Flux® and its toxicity on amphibians.

Taking all this into account, I respectfully request Your Excellency to accept the invitation extended by the CICAD/OAS to the Honorable Government of Ecuador to participate in the previously mentioned Study.

I avail myself of this opportunity to renew to Your Excellency the assurances of my highest and distinguished consideration.

[Signed]

MARIA CONSUELO ARAUJO  
Minister of Foreign Affairs

## Annex 25

### **DIPLOMATIC NOTE N° 39064/06-VM/SSNDF/DGRFC FROM THE ECUADORIAN FOREIGN MINISTER TO THE CICAD EXECUTIVE SECRETARY, 20 SEPTEMBER 2006**

*(Archives of the Ministry of Foreign Affairs of Colombia)*

#### REPUBLIC OF ECUADOR MINISTRY OF FOREIGN AFFAIRS

No. 39064/06-VM/SSNDF/DGRFC  
Quito, 20 September 2006

Mr. James Mack  
Executive Secretary  
Inter American Commission on Drug Abuse Control  
Organization of American States  
Washington

Mister Executive Secretary:

I have the honor to refer to the information provided in your kind letter SMS/CICAD-474-06, dated 23 August 2006, with which you informed that CICAD will start a second phase of the study on the effects on health and the environment derived from aerial spraying with glyphosate herbicide and its adjuvants, in the framework of the Program for the Eradication of Illicit Crops. On that regard, as you know, the President of the Republic of Ecuador, Dr. Alfredo Palacio, in his speech in the General Assembly of the United Nations 66<sup>th</sup> session, in September 2005, asked the Secretary General of the United Nations the making of a scientific study on the impact of these spraying operations on the population and biodiversity in the Ecuadorian side of the border.

The request by the Ecuadorian President was accepted by the Secretary General of the United Nations and to that effect, the UNO appointed a preliminary technical mission that visited Ecuador in February. It wrote a report, a copy of which I am sending for your knowledge. This report recommends carrying out 5 alternatives of study in order to determine the impact of sprayings with glyphosate and its chemical components on health, the environment, and productive processes.

The content of said report was made known to the Government of Colombia, to the effect of the commitment acquired by former Minister of Foreign Affairs, during the Meeting of Ministers of Foreign Affairs of Ecuador and Colombia, which was included in the Joint Declaration, a copy of which I am also enclosing for your illustration. In said document, the Government of Colombia asked to take part in the process of elaboration of the terms of reference for the aforementioned studies, which was reiterated by the Foreign Minister Francisco Carrion to the current Minister of Foreign Affairs of Colombia, Maria Consuelo Araujo, in the latest meeting of Ministers of Foreign Affairs of Ecuador and Colombia held in Quito on 16 August 2006.

As you can see mister Executive Secretary, the Government of Ecuador, after requesting to the United Nations the making of the aforementioned scientific study and having the relevant report, is only awaiting for the Colombian Government statement to continue with this process, with the assurance that it shall determine the real effects that have been detected on the Ecuadorian side bordering with Colombia.

As for the rest, the Ecuadorian Government values the decision of the Colombian Government in the sense of keeping aerial spraying suspended in a 10 km strip within the border line with Ecuador. A formal acknowledgement has also been expressed by the United Nations, which considers that it “has contributed to de implementation of a “positive agenda” that both countries share and which includes the Binational Plan for the Development of the Frontier Integration Zone to be signed by the Governments of Ecuador and Colombia soon.”

I avail myself of this opportunity to express to you the assurance of my highest consideration and appreciation.

[Signed]  
Diego Ribadeneira Espinosa  
Acting Minister of Foreign Affairs

## **Annex 26**

### **DIPLOMATIC NOTE FROM THE COLOMBIAN FOREIGN MINISTRY TO THE ECUADORIAN EMBASSY IN BOGOTÁ, 20 DECEMBER 2006**

*(Archives of the Ministry of Foreign Affairs of Colombia)*

#### **REPUBLIC OF COLOMBIA MINISTRY OF FOREIGN AFFAIRS**

The Ministry of Foreign Affairs of Colombia presents its compliments to the Honorable Embassy of the Republic of Ecuador and has the honor to write in order to refer to the Note No. 52025-GM/SSNDF/DGSN dated 14 December, addressed to the Embassy of the Republic of Colombia in Quito, regarding the decision of the Colombian Government to resume aerial spraying operations within ten kilometres from the borderline shared by the two countries, and the study requested by the Honorable Government of Ecuador to the United Nations Organization in relation to the effects of these operations.

As expressed in the Press Release issued by the Ministries of Foreign Affairs and National Defence on 12 December 2006, the Colombian Government decided to resume aerial spraying tasks within ten kilometres from the borderline shared by the two countries due to the significant increase of illicit crops in this area, which are used to promote narcoterrorism activities, posing a great risk to people and democracy in Colombia. In this connection, the Ministry of Foreign Affairs kindly reasserts to the Honorable Government of Ecuador the invitation to understand this measure that the Colombian Government was forced to take for obvious reasons of national security, and in compliance with the obligations our country has in the fight against the World Drug Problem, a scourge with devastating effects, not only in Colombia but in the entire region.

The Ministry of Foreign Affairs respectfully ensures to the Honorable Government of Ecuador that the Program for Eradication of Illicit Crops with Glyphosate – PECIG – is executed under the strictest technical measures which guarantee the protection of the environment and human health, also preventing the sprayed mixture to reach Ecuadorian territory. The composition of the mixture used in the PECIG complies with the international standards established for the use and handling of these substances and it does not exceed the maximum doses in regular usage. In fact, the document 'Environmental health criteria No. 159, GLYPHOSATE, United Nations Environmental Program (UNEP-WHO-ILO), Geneva WHO, 1994' allows doses of up to 13.4 kilograms of glyphosate per hectare in forestal use, a dose that significantly exceeds the 3.744 kilograms per hectare used in the PECIG..

With regards to the study of the United Nations, point 20 of the Press Conference issued by the two Ministries aforementioned on 7 December 2005, established that “Bearing in mind that both Governments have not reached an agreement on the innocuousness of the effects of the glyphosate herbicide and its adjuvant on health and the environment, the Government of Colombia has duly noted the request made by the Ecuadorian Government to the United Nations for a prospective study on this issue and has agreed to participate in the definition of the terms of reference of the study. Colombia further agreed to review the results of the study and evaluate the adoption of relevant measures.”

The Ministry of Foreign Affairs avails itself of this opportunity to renew to the Honorable Government of the Republic of Ecuador its intention to comply with the commitments agreed on the Joint Press Release, in the sense of participating in the definition of the terms of reference of the prospective study requested by the Government of Ecuador to the United Nations, and analyzing its findings and evaluating the possibility of taking relevant measures.

Nevertheless, the ‘Report of the United Nations Preliminary Technical Mission to Propose Studies about the Impact of Aerial Spraying and Supplementary Actions in the Northern Ecuadorian Border’ does not acknowledge the request of the Honorable Government of Ecuador to perform a prospective study of the matter and suggests, instead, to carry out five studies, two of them prospective. Additionally, the Colombian Government is concerned about the fact that institutions and organizations proposed to participate in the table 6.3 of the Report do not include regional and multilateral instances with the experience and knowledge of the CICAD/OAS and the UNODC.

In consequence, the Ministry of Foreign Affairs of Colombia proposes to hold a meeting, as soon as possible, with the participation of the Governments of Colombia and Ecuador, and the United Nations Organization, in order to discuss and resolve all the concerns of the Colombian Government, allowing compliance with the commitments agreed on the issue in the Joint Press Conference issued on 7 December 2005. For this purpose, the Ministry considers relevant to include and review the findings of the study carried out by the CICAD/OAS on the ‘Effects of the Program for the Eradication of Illicit Crops with Glyphosate (PECIG) on Human Health and the Environment’, which is currently in its second phase of execution.

The Ministry of Foreign Affairs avails itself of this opportunity to renew to the Honorable Embassy of the Republic of Ecuador the assurances of its highest and distinguished consideration.

Bogotá, D.C., 20 December 2006



## **Annex 27**

### **NOTE FROM THE PRESIDENT OF COLOMBIA TO THE PRESIDENT OF ECUADOR, 21 DECEMBER 2006**

*(Archives of the Ministry of Foreign Affairs of Colombia)*

#### **REPUBLIC OF COLOMBIA**

21 December 2006

Mr. President:

I have the honor to write to Your Excellency to refer to your note dated December 19, regarding our phone conversation on December 5, which mentions the decision made by the Colombian Government a year ago, to temporally suspend the aerial sprayings of illicit crops within Colombian territory located near to Ecuadorian border.

With respect to that matter, and taking into account the alarming proliferation of illicit crops as a result of that decision, as well as the unfortunate consequences that those illicit crops have in the fight against the world drug problem and narco-terrorism, I was compelled to resume the above-mentioned sprayings.

This decision was made, considering also the devastating effect that these crops have on my country, their contribution to financing terrorism and the worst expressions of delinquency, and at the same time, complying with all the technical requirements and taking into consideration the studies carried out by the Inter-American Drug Abuse Control Commission of the Organization of American States, CICAD/OAS, on the effects on the environment and human health.

His Excellency  
ALFREDO PALACIO GONZALES  
President of Ecuador  
Quito

Nevertheless, and in response to the difference in the views of the governments we have the honor to represent, I renew to Your Excellency the willingness of

my Government to hold relevant meetings in order to resume the dialogue about this issue and look for joint elements and solutions as soon as possible.

I avail myself of this opportunity to renew to Your Excellency the assurances of my highest and distinguished consideration.

[SIGNED]  
ALVARO URIBE VELEZ

## **Annex 28**

### **DIPLOMATIC NOTE DM/VRE N° 6454 FROM THE COLOMBIAN FOREIGN MINISTER TO THE ECUADORIAN FOREIGN MINISTER, 9 FEBRUARY 2007**

*(Archives of the Ministry of Foreign Affairs of Colombia)*

#### **REPUBLIC OF COLOMBIA MINISTRY OF FOREIGN AFFAIRS**

DM/VRE No. 6454

Bogotá, D.C., 9 December 2007

Your Excellency:

I have the honor to write to Your Excellency in order to refer to the Note verbale No. 5446/2007-GM submitted to our Embassy in Quito, which expresses the concerns of the Honorable Government of Ecuador in relation to the spraying activities being carried out in the province of Nariño. With regard to this matter, I respectfully bring to your attention that these activities are part of the last stage of the program that began in December 2006, and which was appropriately notified and discussed back then.

Additionally, I wish to inform that on this date the aforesaid spraying program was concluded and next week, the manual eradication program, to which over 2,200 people will be devoted, begins.

As expressed in the note VRE 6055 submitted yesterday, the Colombian Government has the honor to propose to your Honorable Government the implementation, as of Tuesday, 13 February, of the agreements negotiated by the Presidents of Colombia and Ecuador in Managua on January 10th, that were also mentioned during the meeting we held on 19 January, in Rio de Janeiro.

His Excellency  
Madame MARÍA FERNANDA ESPINOSA  
Minister of Foreign Affairs of the Republic of Ecuador  
Quito

REPUBLIC OF COLOMBIA  
MINISTRY OF FOREIGN AFFAIRS

In this connection, I respectfully inform to Your Excellency that Mister Alberto Gómez Mejía, Environmentalist and Lawyer from Universidad Javeriana de Colombia, and with special studies in Socio-economic Sciences, has been appointed as Director of the Colombian team for the structuring of the Commission proposed in the aforementioned agreements.

This team will also have the participation of eight representatives from public and private institutions.

If your Honorable Government agrees, we could hold a meeting next Tuesday, February 13<sup>th</sup>, in Quito or Bogotá, to start the negotiation process that will allow structuring the Commission.

I avail myself of this opportunity to renew to Your Excellency the assurances of my highest and distinguished consideration.

[Signed]  
MARIA CONSUELO ARAUJO  
Minister of Foreign Affairs

## **Annex 29**

### **MINUTES OF THE BILATERAL EVALUATION MEETING, “HEALTH AND THE ENVIRONMENT INTEGRATING BORDERS: STRENGTHENING OF SURVEILLANCE IN PUBLIC HEALTH, PESTICIDES, AND WATER QUALITY”, IPIALES, NARIÑO, 12 DECEMBER 2007**

*(Archives of the Ministry of Foreign Affairs of Colombia)*

REPUBLIC OF COLOMBIA

REPUBLIC OF ECUADOR

#### **MINUTES OF THE BILATERAL EVALUATION MEETING HEALTH AND ENVIRONMENT INTEGRATING BORDERS:**

#### **“STRENGTHENING OF SURVEILLANCE IN PUBLIC HEALTH, PESTICIDES AND WATER QUALITY”**

Date: 12 December 12 2007

Place: Ipiales -- Nariño - Colombia

In the city of Ipiales, Province of Nariño, Colombia, on 11 and 12 December 2007, representatives of the Foreign Office and the Ministry of Social Protection of the Republic of Colombia and Ministry of Public Health of the Republic Ecuador, Representatives of the Pan American Health Organization/World Health Organization (PAHO/WHO) in both countries, Territorial Technical Teams of Nariño and Putumayo Provinces of Colombia, the Provincial Directorates of Health of Sucumbíos, Carchi and Emeralds of Ecuador and delegates of the Technical Teams premises of the Municipalities in the border area, got together to develop the following:

Objectives:

1. Verify compliance with the proposed activities in the Colombia Ecuador Technical Cooperation Project “Health and Environment Bringing Boundaries Together” Strengthening of Surveillance in Public Health, Pesticides and Water Quality
2. Propose new actions for the expansion of Technical Cooperation Project with two expected results

- a- Strengthening the capacity of the Local Health Authority to monitor the Millennium Development Goals -- MDGs - , based in the development of the Surveillance in Public Health and Analysis of Current Health Situation --ASIS-.
- b- Developing the capacity of the health system at local level for the responsibilities compliance of detection, notification and control of events in the International Health Regulations framework.

## MEETING DEVELOPMENT

The meeting is opened by the representatives of the Ministry of Public Health of Ecuador, the Ministry of Social Protection of Colombia and the Sectional Health Institute of Nariño.

## WORK METHODOLOGY

For the achievement of the goal No. 1, three working tables were proposed - one per result expected - with technicians of the two countries, a moderator and a teller named per work table, to verify compliance with the issues, establish some observations of limiting, weaknesses, worthy aspects to highlight and determine the percentage of compliance of each activity.

For the work presentation unification within the work tables, it was proposed to execute a set of matrices previously sent and concerted.

**RESULT 1:** Strengthening of the Surveillance in Public Health over prevalent diseases and events of interest in public health and analysis of current health situation in both countries.

Moderator: Madam Judith Cazares, Ecuador

Teller Madam María Belén Jaimes, Colombia

The effort and exercise conducted by the countries is considered as very important, despite the fact that the weighted compliance was 42.5%.

The ASIS issue progress is consistent with the development achieved in the field of working with the Andean countries, in order to harmonize a single guide for all countries.

It is recalled to continue to strengthen the actions of Surveillance in Public Health across the border

It is recommended to take into account that the next Technical Cooperation Project will be directed on the actions with limitations and difficulties in its development.

It is important to display a joint work between the two countries for the implementation of International Health Regulations.

It is important to analyze the reasons why there were not some activities initially raised, with the purpose of corrective measures.

It is suggested take into account the recommendations obtained in the evaluation as a starting point for the next Technical Cooperation Project.

**RESULT 2:** Strengthening of local surveillance and control of occupational and environmental risks associated to the use of pesticides.

Moderator: Madam Marcela Varona, Colombia

Teller Beatriz Buitrón, Ecuador

Most of the activities were complied in a 100% thanks to the collaborative effort of the two countries. It is important to emphasize the commitment of Ministries and National Institute of Health of Colombia levels, as well as the local level for the achievement of the goals.

For Ecuador it is very important to implement all the goals developed in the Technical Cooperation Project on all border level, and to establish at a national level, the Public Health Surveillance System for Pesticide Intoxication and the Single Notification Record for Intoxications due to pesticides which Colombia has implemented several years ago.

With regard to the creation of the Pesticides Binational Committee, Delegations of Colombia and Ecuador, felt that it was a very ambitious activity raised within the Technical Cooperation Project, although the guidelines for the formation of the same were established; the structure of the Committee requires that each country works previously in order to allow its creation.

The acquisition of four (4) *lovibond* equipment was something very positive, whereupon the determination of the acetyl cholinesterase enzyme by Ecuador, who may confirm the cases of intoxications due to organophosphates and carbamates pesticides; Colombia trained Ecuadorians technicians in running of the team and analyzing the enzyme mentioned.

The group concludes that it's necessary to consider the continuity and strengthening of the actions and results in the next Technical Cooperation Project.

**RESULT 3: Strengthening of Surveillance in Public Health, Pesticides and Water Quality for human consumption, improvement of conditions of drinking water and sanitation and hygiene of the communities of the borderline area. Moderator Madam Mónica Garcés, Ecuador.**

Teller Mister Javier Ríos, Colombia

Most of the activities were complied in a 100% thanks to the coordination and effort of the two countries. It is important to emphasize the commitment of Ministries and local level for the achievement of the goals.

For Ecuador is very important to implement all the goals developed in the Technical Cooperation Project on all border s level, and to institutionalize these goals on national level.

The delegations of Colombia and Ecuador consider that the stipulated time for the Technical Cooperation Project does not allow sustainable results so time should be extended to the activities can be replicated and executed in the majority of communities.

The transfer of AOUATOX technology was very important for Ecuador because that allows us to provoke interest of students and teachers in research and care of the environment and the protection of water sources that may be used as Healthy Environments strategy.

The delegations of Colombia and Ecuador consider that some strategies must be sought allowing that the Amazonian -Putumayo border to be involved in the activities of this work table.

If an activity is not satisfied with regard to the educational material production is recommended to incorporate some educators and communicators for health coordination in the Ministries of Education in both countries.

For the achievement of the Goal No. 2, the two proposed results are introduced that is to say, 1. Implementation of International Health Regulations. 2 Implementation of the Strategy of Healthy Environments and Management of Territorial Development - Local. The proposed work in plenary defining tasks and activities is annexed to this act.

**CONCLUSIONS:**



1. The result of the assessment of Technical Cooperation Project allowed verifying the compliance of the 100% of the proposed activities in the second and third results. 42.5 % of compliance in the first result was caused in part by a budget decrease assigned in Ecuador.
2. The technical countries teams consider the development of this Technical Cooperation Project as a successful experience of Bilateral working that leaves lessons for a second phase and that can be replicated in other locations.
3. The Ministry of Public Health of Ecuador, the Ministry of Social Protection of Colombia with the technical support of PAHO/WHO welcomed the proposal to extend the Technical Cooperation Project
4. It is agreed by countries delegations to establish two expected results in the expansion of the Technical Cooperation Project: 1. Implementation of International Health Regulations. 2. 2 Implementation of the Strategy of Healthy Environments and Management of Territorial Development - Local

#### RECOMMENDATIONS:

1. In a global vision of borders social services attention and taking into account the several challenges facing the two countries in the region, it is suggested to prioritize the actions of intervention to be developed within Technical Cooperation Project expansion.
2. The actions and statements made in the Technical Cooperation Project must be articulated in development and health territorial plans –locally in each country.
3. It should be take into account the resolutions of the REMSAA concerning health surveillance, compliance with Regulations of International Health and PASAFRO which frame the work at the border and consequently the activities and the expansion of Technical Cooperation Project.

For attestation, this document is signed in Ipiales on December 12, 2007.

WASHINGTON ESTRELLA  
Health General Direction Adviser -  
Ministry of Public Health  
Ecuador

GUILLERMINA AGUDELO MATIAS  
Specialized Professional Cooperation  
Office – Ministry of Social Protection  
Colombia



## Annex 30

### COLOMBIAN DECREE 1843 OF 1991

(*Official Journal* No. 39.991, 26 August 1991. Articles 87, 102)

#### DECREE No. 1843 OF 22 JULY 1991

*“Whereby Titles III, V, VI, VII, and XI of Law 09 of 1979, on the use and handling of pesticides, subject of pesticides are partially regulated.”*

[...]

Article 87 – Safety strip. The application of pesticides in rural areas may not be carried out within 10 meters if land-based and 100 meters for aerial [spraying] as safety strips in relation to bodies of water or watercourses, main roads, human or animal nuclei, or any other area that requires special protection

Following recommendation from regional, district, regional or specific advisory councils and with prior adoption by health authorities, measures of the safety strip may be increased taking into account technical criteria such as:

- a) Characteristics of the pesticide: Form, dose, toxicological category, application means, formulation, and
- b) Type of crops or exploitation, application area, and environmental conditions of the zone. near inhabited areas

[....]

Article 102 – Pilots liabilities. Pilots must comply with all pertinent regulations set out in this decree and also with the following:

- a) Carrying out application taking into consideration wind speed, temperature and relative humidity conditions, flight speed and height, in accordance with what is established by the corresponding agricultural and livestock and civil aviation authorities.
- b) Making application with fixed signing;
- c) Not overflying towns, drinking water sources, schools, and other sites that pose risk for human health and animal and vegetation preservation;
- d) Not applying pesticides on houses located within the field to be treated, areas of water sources protection, natural parks, reserve zones o areas for such purpose;
- e) Not taking part in handling pesticides. Only trained and authorized personnel can do it, and

f) Keeping application equipment of the aircraft in perfect calibration and working conditions.

[....]

## **Annex 31**

### **COMMUNIQUÉ OF THE NATIONAL NARCOTICS COUNCIL OF COLOMBIA TO PUBLIC OPINION ON THE ERADICATION OF ILLICIT POPPY CROPS, 31 JANUARY 1992**

*(Archives of the Ministry of Foreign Affairs of Colombia)*

### **COMMUNIQUÉ OF THE NATIONAL NARCOTICS COUNCIL TO PUBLIC OPINION ON THE ERADICATION OF ILLICIT POPPY CROPS, SANTA FE DE BOGOTA, 31 JANUARY 1992**

Poppy is a crop that has started to significantly spread along the national territory, posing a potential and increasing danger for the country's public order because it constitutes an additional source of violence, it impairs the economic development of the country, not to forget that products obtained from poppy –opium, morphine, and heroin– are highly dangerous narcotic drugs for those who consume it.

The national Government considers that it is the time to strengthen the program for the eradication of poppy crops all over the national territory with the objective of preventing the expansion of this terrible crop.

To that effect, the available methods and techniques will be used in accordance with the recommendations made by the National Narcotics Council.

#### **A. PROBLEM DESCRIPTION**

Currently in Colombia, 2,900 hectares of waste land in most part are being used for poppy crops. This phenomenon is increasingly affecting 12 provinces located mainly in the Andean region of the country.

The vertiginous spreading of such crops, the increasing effects on our provinces, the deforestation of the lots primary vegetation, the ecological damage that is being caused, the protection offered by illegal armed groups to this activity, the high risks and costs of police operations in this fight, and the social and economic deterioration that it has been causing in affected areas, compel us to take rapid and effective eradication measures that will have scientifically proven not to pose danger to human life and not to cause damage to the ecosystem.

#### **B. ACTION STRATEGY**

Consistent with the problem dimension and the action to be taken to control it, the following action strategy is considered:

1. RECONNAISSANCE OF CROP AREAS

Prior phase it will be possible to identify with precision the location of the crop, its extension, surroundings, potential risk, the use and existence of traditional crops, and location.

This reconnaissance phase will be carried out in coordination with officials from ICA [Colombian Agriculture and Livestock Institute], INDERENA [National Institute for Natural Renewable Resources], and the Health Ministry in their corresponding competence areas.

2. SELECTION OF AREAS AND METHODS FOR CROPS ERADICATION

Taking into account the topography and extension of the terrain, the environmental effects in the mid and long term, the proximity of human settlements, and the mingling with other crops, eradication will be:

a. Manual

This method will be applied taking into account the topography or special biodiversity conditions or preferably when it comes to small crop areas, or when the planting of poppy is significantly mingled with food crops or they are located closed to human settlements. The community will be engaged in the eradication efforts.

b. Controlled Aerial Spraying

When there are large crops extensions and poppy is the only crop. This eradication method will be experimental and will be subject to permanent monitoring and evaluation.

Selection of areas under this method will be coordinated by officials from ICA and INDERENA

3. OPERATIONAL PLANNING

The destruction of these poppy crops will be under the responsibility of the National Police, through the Antinarcotics Police. To that effect, it will use the adequate technical and human resources to carry out this task.

Fulfillment of this task will be in each case the result of the elaboration of a specific plan materialized in a Service Order that will include, among other, the following aspects:

- 3.1. Definition of application sites
- 3.2. Determining human resources to be used (Antinarcotics Police).
- 3.3. Determining the equipment to be used
- 3.4. Composition of the scientific and advisory team of the mission.
- 3.5. Establishing specific and priority rules to be observed in the police procedure.

#### 4. COORDINATION WITH LOCAL AUTHORITIES

To ensure the correct implementation of the poppy crops destruction operations, the action will be coordinated with military, administrative, and judicial authorities from the corresponding jurisdiction and with the permanent presence of a representative from Regional Public Ministry

#### 5. CIVIC – POLICE ACTION

In the development of these police operations, towns most affected by this scourge will be identified and selected, with the purpose on implementing there civic – police actions that help to solve the basic needs and to persuade people to voluntarily quit this illegal activity.

Likewise, and in an immediate way, a Technical Commission with experts from the above mentioned entities will be created so that it issues a concept on the use glyphosate for poppy eradication regarding aspects such as efficacy of the herbicide, environmental impact and risks for human and animal health.

The Health Ministry, which has recommended the generalization of the manual and mechanical method for poppy eradication, will carry out sanitary and epidemiological surveillance programs.





## **Annex 32**

### **COLOMBIAN LAW 99 OF 1993**

*(Official Journal No. 41.146, 22 December 1993, Article 57)*

#### **LAW 99 OF 1993**

Whereby the MINISTRY FOR THE ENVIRONMENT is created the Public Sector in charge of management and preservation of the environment and renewable natural resources is re-structured, the National Environmental System –SINA- is organized and other issues are ruled

[...]

ARTICLE 57. – Of the Environmental Impact Assessment. Environmental impact assessment is understood as the set of information that shall be submitted to the relevant environmental authority by the applicant of an environmental license.

The environmental impact assessment will include information about the location of the project and the biotic and abiotic and socio-economic elements of the milieu that may suffer deterioration by the corresponding work or activity that for their execution are required to have a license, and an evaluation of the impacts they may cause. It will also include the design of the plans for prevention, mitigation, correction, and compensation for impacts and the environmental management plan for the work or activity.

The relevant environmental authority entitled to grant the license will set the terms of reference for the environmental impact assessment in a term that cannot exceed sixty (60) working days, counted upon request by the interested party.

[...]



**Annex 33**

**COSMOFLUX 411F, SALES REGISTRATION N° 2186 OF 19 APRIL 1993**

(Colombian Agriculture and Livestock Institute)

REPUBLIC OF COLOMBIA  
MINISTRY OF AGRICULTURE AND RURAL DEVELOPMENT  
COLOMBIAN AGRICULTURE AND LIVESTOCK INSTITUTE  
MANAGEMENT OFFICE SECTION OF PREVENTION AND CONTROL  
AGRICULTURAL SUPPLIES DIVISION

SALES REGISTRATION

---

IN ACCORDANCE WITH DECREES AND RESOLUTIONS IN FORCE, THE  
SALES REGISTRATION No. **2186** IS GRANTED SINCE **19 APRIL 1993** WITH  
INDEFINITE EXPIRATION DATE

---

TO: COSMOAGRO LTDA

---

TO SELL IN THE NATIONAL TERRITORY THE PRODUCT CALLED  
COSMO-FLUX 411F

---

WITH A GUARANTEED COMPOSITION OF:

ACTIVE INGREDIENT (S):

MIXTURE OF TENSOACTIVE STEREO SPECIFIC	LINEAR
ALCOHOL ETHOXYLATES ARYL ETHOXYLATE	17%
NON-IONIC, LINEAR ALCOHOL ETHOXYLATES	

ADDITIVE AND INERT INGREDIENT (S): LIQUID ISOPARAFFINS  
83%

ISOPAR V

TOXICOLOGICAL CATEGORY

IV: SLIGHTLY TOXIC  
LP-0593-93

---

ADJUVANT  
APROVED LABEL

SPECIFIC USE  
IN ACCORDANCE WITH THE

---

PHYSICAL STATE

EMULSIFIABLE CONCENTRATE  
(EC)

---

PACKAGING OR CONTAINERS

PLASTIC CONTAINERS BY 1 AND 4 LITERS; METAL CONTAINERS BY 50  
AND 200 LITERS OF NET CONTENT ( 27 Aug. 1997)

---

[signed]  
ORLANDO IBAÑEZ RAMIREZ  
CESAR OCAMPO PALACIO  
SPECIALIZED PROFESSIONAL  
ASSITANT MANAGER RESEARCH POLICIES

[signed] CARLOS A. VILLAMIZAR QUESADA  
DIVISION DIRECTOR

[signed]

**Annex 34**

**PROVISIONAL TOXICOLOGICAL OPINION LP-0593-93 (COSMO-FLUX 411F),  
COLOMBIAN HEALTH MINISTRY, 30 JULY 1993**

*(Archives of the Ministry of Foreign Affairs of Colombia)*

**REPUBLIC OF COLOMBIA  
HEALTH MINISTRY**

SPT-1624-93

Santafé de Bogotá D.C.,  
30 July 1993

Mr.  
CARLOS HERNÁN RICO  
Chairman Agricultural Supplies Division  
Colombian Agriculture and Livestock Institute  
City.

Dear Sir,

In accordance with the Sanitary Regulation on Use and Handling of Pesticides, set out in Decree 1843 of 1991 and with its implementing Resolutions 992 of 1992 by ICA [Colombian Agriculture and Livestock Institute] and 10834 of 1992 of the Health Ministry,

**THE HEALTH MINISTRY ISSUES THE FOLLOWING  
TEMPORARY TOXICOLOGICAL CONCEPT, LP-0593-93**

1. **TOXICOLOGICAL CLASSIFICATION**  
ADJUVANT COSMO-FLUX 411F, by the COSMOAGRO LTDA Company.  
WITH COMPOSITION:

ACTIVE INGREDIENT (S)

CONCENTRATION

TENSOACTIVE STEREO  
SPECIFIC NON-IONIC

MIXTURE OF TENSOACTIVE  
NON-IONIC BASED ON  
LINEAR ALCOHOLS 17%

<u>ADDITIVE INGREDIENT (S)</u>	<u>CONCENTRATION</u>
LIQUID ISOPARAFFINS	83%

REPUBLIC OF COLOMBIA  
HEALTH MINISTRY

SPT-1624-93

CORRESPONDS TO TOXICOLOGICAL CATEGORY IV, SLIGHTLY  
TOXIC

2. USE AUTHORIZATION

ADJUVANT COSMO-FLUX 411F, by the COSMOAGRO LTDA company, can be used in the national territory for AGRICULTURAL USE, provided that established regulations are complied with and that necessary requirements to avoid harm on health according to TOXICOLOGICAL CATEGOTY IV, SLIGHTLY TOXIC, are adopted.

3. This concept repeals the previous one: BP-3887-92 issued for COSMO-PLUS. The change in the name is made upon request by the manufacturing company.

Sincerely,

[Seal]  
[Signed]  
JORGE HERNAN BOTERO TOBON, M.D.

[Seal]  
[Signed]  
LUIS ENRIQUE GOMEZ B.

Chairman Potentially Toxic  
Substances Division

Under-Director Environmental Risk  
Factors Control

c.c. COSMOAGRO LTDA  
Mr. DIEGO FERNANDO PARRA  
Production Director  
Calle 42 No. 30-39 PALMIRA

RG/Gloria





## Annex 35

### **NOTE FROM THE GENERAL MANAGER OF INDERENA (NATIONAL INSTITUTE FOR RENEWABLE NATURAL RESOURCES AND THE ENVIRONMENT) TO THE DIRECTOR OF THE NATIONAL NARCOTICS DIRECTORATE OF COLOMBIA, 8 OCTOBER 1993**

*(Archives of the Ministry of Foreign Affairs of Colombia)*

#### REPUBLIC OF COLOMBIA MINISTRY OF AGRICULTURE

INDERENA

GENERAL MANAGEMENT

0.0.

Santa Fe de Bogota, D.C.

08 October 1993

Mr.

GABRIEL DE VEGA PINZON

Narcotics General Director

National Narcotics Directorate

Mail office 12 October 1993

Dear Sir:

I am referring to your letter No. 11709 of 3 September of this year with the document cannabis crops eradication, to support the authorization to spray with herbicide the illicit coca and cannabis crops throughout the country.

It is important to recall the “National Narcotics Council Communiqué to public opinion on the eradication of illicit poppy crops (Santa Fe de Bogota, 31 January 1992)”. It sets out an action strategy based on: previous detection; choice of method and eradication areas, and the operational planning. Regarding the latter aspect, the communiqué establishes that it is necessary to fix priority specific and technical parameters to be complied with during the police procedure.

When the spraying process started in the Province of Huila, the Antinarcotics Police established ten (10) parameters, among which it is important to highlight the ones referring to environmental aspects: the herbicide will not be sprayed on inhabited areas, fish ponds, apiaries, poultry, or other animals, and on Special Management Areas; spraying will not be conducted in sites closed to water streams or sources; not to over flight water pipe reservoirs, schools or other sites that pose risk to human health and the environment.

Under these conditions, INDERENA ratifies the acceptance of the action strategy set by the National Narcotics Council in its communiqué dated 31 January 1992, pointing out the importance that must be given to compliance with the specific and technical parameters established for the eradication process of poppy crops and that must be kept for eradication of coca and cannabis crops.

Page 2

Mr. Gabriel De Vega Pinzón

Similarly, observations made by INDERENA in the letter addressed to Ministers of Defense and Justice (February 5 1992) regarding competence of the Regional Autonomous Corporations [*Corporaciones Autonomas Regionales*] in their jurisdiction and that of INDERENA in all National Natural Parks and the need to have an Environmental Audit for environmental supervision and control of the illicit crops eradication process are still valid.

Sincerely,

NATIONAL INSTITUTE FOR RENEWABLE NATURAL  
RESOURCES AND THE ENVIRONMENT  
INDERENA

[Signed]

MANUEL RODRIGUEZ BECERRA

-----  
General Manager INDERENA

Copy: Under Management Office of the Environment, INDERENA

NATIONAL INSTITUTE FOR RENEWABLE NATURAL RESOURCES AND THE  
ENVIRONMENT  
Apartado Aéreo 13458 – Telex44428 INDECO – Telefax 2859987 – Bogota –  
Colombia

## Annex 36

### NOTE FROM THE COLOMBIAN HEALTH MINISTER TO THE DIRECTOR OF THE NATIONAL NARCOTICS DIRECTORATE, 11 OCTOBER 1993

*(Archives of the Ministry of Foreign Affairs of Colombia)*

#### REPUBLIC OF COLOMBIAN HEALTH MINISTRY

001998

Santa Fe de Bogotá. 11 October 1993

Mr. Gabriel De Vega Pinzón  
Narcotics General Director  
City

Dear Dr. De Vega:

Regarding the opinion requested by that Directorate about spraying illicit coca and cannabis crops with herbicides requested in your letter of last September, I allow myself to remind your Office that in January 1992, the National Narcotics Council established an action strategy based on universal principles on prior detection of crop areas, choice of application method, and operation parameters.

Additionally, the Health Ministry presented the Narcotics Council a Health Plan based on the epidemiological surveillance principles, which becomes, together with the environmental audit, a safeguard for human health and environmental protection.

Based on the previous considerations, this Office considers appropriate to ratify validity and convenience of the action strategy established in the Communiqué issued by the National Narcotics Council on 31 January 1993 regarding the parameters that guide the poppy eradication process, which must be kept in the new use proposed.

Sincerely,

[Signed]

JUAN LUIS LONDOÑO DE LA CUESTA  
Health Minister



## **Annex 37**

### **RESOLUTION N° 001 OF 11 FEBRUARY 1994 OF THE NATIONAL NARCOTICS COUNCIL OF COLOMBIA**

(National Narcotics Council of Colombia)

#### **RESOLUTION 0001**

(11 February 1994)

#### **THE NATIONAL NARCOTICS COUNCIL**

further to its legal powers, and especially those conferred on it by article 91, paragraph g) of Law 30 of 1986,

#### **WHEREAS:**

There are still and have increased areas used for production of raw material for narcotic drugs, and for this reason there is a noticeable increase of illicit activities linked to production, processing, trafficking, and consumption of such substances.

Existence of such illicit crops brings about harmful social consequences because it causes public order disturbance due to settlement of strangers in the regions where they are grown and the linked criminal activities committed, which alter the communities peace and harmony.

In many regions of the country, the existence of such illicit crops is accompanied by the presence of guerrilla groups and backed up by illegal armed groups, deteriorating tranquility and political stability.

Serious and very harmful environmental consequences have been detected as a result of such illicit crops because the ecosystems where they are planted suffer deforestation and irrational use of chemical substances, especially the uncontrolled use of pesticides and herbicides that pollute the country's water sources.

Law 30 of 1986 establishes an illicit crop eradication procedure and designates the National Drug Council, in particular, to arrange for the eradication of marijuana, coca and other crops from which addictive substances may be extracted, using the means most appropriate for this purpose and with the concurrence of the agencies commissioned to safeguard public health and guarantee preservation and stability of the nation's ecosystem (Sub-section g, Article 91)

The United Nations Organization guides for the fight against drugs establish the following methods for illicit crops eradication:

Manual

Mechanic

Burn  
Biological  
Chemical

It is the National Government to maintain public order in the Country by safeguarding the necessary security, health, and moral conditions for peaceful and harmonic community living together and every strategy aimed at overcoming the complex drugs problem contributes to it, since such a goal is part of the State's commitments, as a necessary application and development of legislative decisions contained in the National Narcotics Statute.

In January 1992, the National Narcotics Council authorized controlled aerial spraying of poppy illicit crops with the use of chemical agent Glyphosate, due to the unexpected increase in such crops as a last resort control mechanism, in compliance with law.

Eradication activities of illicit poppy crops by means of aerial spraying with glyphosate are being carried out in the country under the strictest technical parameters and adequate audit and control mechanisms, with no adverse effects on human health or the environment reported.

According to the latest reports by the State security agencies, in particular, the National Police –Antinarcotics Directorate, there has been a significant increased in the marihuana and coca illicit crops extension.

Because of the national topography the growers' intention, illicit crops are located in geographical areas with very difficult access, which makes it considerably difficult to exercise the State due legitimate control on them. Similarly, such control is obstructed by the presence of guerrilla and illegal organized crime groups that fight the presence of public authorities in the mentioned areas.

As an additional and last resort mechanism, according to suitable methods for such a purpose, in the framework of the National Government social strategy of security, it is considered necessary to use controlled aerial spraying with the herbicide Glyphosate, as an effective mechanism for eradication of illicit crops, provided that it is carried out under required technical conditions and strict control procedures that guarantee achievement of goal and no adverse effects on people or the environment.

In compliance with Article 91, sub-section g) of Law 30 of 1986, approving concept was requested and obtained from the Health Ministry and the National Institute for Renewable Natural Resources and the Environment –INDERENA- as stated in the letters dated 11 and 8 October 1993, respectively, signed by the Health Ministry and the General Director of that Institute, the authorities commissioned to safeguard public health and guarantee preservation and stability of the environment. The pertinent extracts from the letters read as follows:

“Regarding the opinion requested by that Directorate about spraying illicit coca and cannabis crops with herbicides requested in your letter of last September, I allow

myself to remind your Office that in January 1992, the National Narcotics Council established an action strategy based on universal principles on prior detection of crop areas, choice of application method, and operation parameters.”

“Additionally, the Health Ministry presented the Narcotics Council a Health Plan based on the epidemiological surveillance principles, which becomes, together with the environmental audit, a safeguard for human health and environmental protection.”

“Based on the previous considerations, this Office considers appropriate to ratify validity and convenience of the action strategy established in the Communiqué issued by the National Narcotics Council on 31 January 1993 regarding the parameters that guide the poppy eradication process, which must be kept in the new use proposed.”

“Sincerely JUAN LUIS LONDOÑO DE LA CUESTA, Health Minister (Signed)”

INDERENA’s General Manager has a similar view when he states that:

“...It is important to recall the “National Narcotics Council Communiqué to public opinion on the eradication of illicit poppy crops (Santa Fe de Bogota, 31 January 1992)”. It sets out an action strategy based on: previous detection; choice of method and eradication areas, and the operational planning. Regarding the latter aspect, the communiqué establishes that it is necessary to fix priority specific and technical parameters to be complied with during the police procedure.”

“...Under these conditions, INDERENA ratifies the acceptance of the action strategy set by the National Narcotics Council in its communiqué dated 31 January 1992, pointing out the importance that must be given to compliance with the specific and technical parameters established for the eradication process of poppy crops and that must be kept for eradication of coca and marihuana crops.”

“Sincerely, MANUEL RODRIGUEZ BECERRA. General Manager INDERENA (Signed)”

RESOLVES:

To extend and clarify authorizations granted for destruction and eradication of illicit crops in the country by suitable means established for that purpose, taking into consideration the following operational parameters:

1. SURVEILLANCE OF CROP AREAS. Illicit crops location, extension, surroundings, characteristics, potential risks, as well as use, existence, and location of traditional crops will be accurately determined. This detection phase will be carried out in coordination with ICA [Colombian Agriculture and Livestock Institute], INDERENA, and Health Ministry officials.

2. PERTINENCE OF THE CONTROLLED AERIAL SPRAYING METHOD. When there are large crop extensions -over two (2) hectares)- and the illicit crop is the only crop, taking into account topographic conditions and closeness to human settlements, controlled aerial spraying with chemical agent glyphosate will be carried out. This eradication method will be experimental and will be subject to permanent monitoring and evaluation

Selection of areas under this type will be coordinated by ICA and INDERENA.

3. OPERATIONAL PLANNING. The National Police, through the Antinarcotics Directorate, will be responsible for eradication of illicit crops. To accomplish this task, it will use the most suitable technical and human resources, taking into account experience accumulated in the eradication of illicit poppy crops in the Country.

Accomplishment of this task will in every case comply with the elaboration of a specific plan implemented in a Service Order that must include, among others, the following aspects:

3.1 Defining application sites

3.2 Determining human resources to be used (Antinarcotics Police)

3.3 Determining equipment to be used

3.4 Appointing the mission advising and coordinating scientific team

3.5 Establishing top priority specific and technical parameters to be complied with in the procedure

4. COORDINATION WITH LOCAL AUTHORITIES. To ensure correct development of illicit crops destruction operations, the action will be coordinated with military, administrative, and judicial authorities from the corresponding jurisdiction and with the permanent presence of a representative from the Ombudsman Office, the Regional Ombudsman Office, and the Attorney General Office.

5. CIVIC AND POLICE ACTION. While developing these police actions, towns most affected by the presence of illicit crops will be identified and chosen to carry out civic and police actions that help to solve top priority basic needs and to deter people from



participating in illegal activities. All this in the framework of the Government social policy guidelines and the democratic and participative orientation of Colombian State according to terms foreseen in the 1991 Political Constitution.

6. PERIODIC REVIEW OF RESULTS. As this plan is carried out, results evaluation meetings will be held, which will allow people in charge and representatives from involved Agencies to make required adjustments.

Similarly, a Technical Commission will be immediately created with experts from the mentioned agencies. It will state a concept on the use of the chemical agent glyphosate in eradication of illicit crops regarding aspects such as the herbicide efficacy, impact on the environment, and risk for human and animal health.

7. ENVIRONMENTAL AUDIT: The National Government, through the National Narcotics Council, will immediately contract the service of an Environmental Audit, which will be in charge of controlling and supervising the technical and correct execution of the authorized eradication strategy. For doing so, it will use the Auditing model that is being used in the poppy illicit crops eradication.

#### 8. SPECIAL MANAGEMENT AREAS AND NATURAL RESERVES

Eradication of illicit crops in Special Management and natural resources Areas will be carried out by means of regular procedures such as manual and mechanic operations. If, under exceptional circumstances evaluated by the National Narcotics Council, another procedure is needed, an approving concept by the Ministry for the Environment will be required in order to guarantee preservation of ecological balance.

#### 9. SOCIAL, ECONOMIC, AND ECOLOGICAL REHABILITATION PROGRAMS

The National Narcotics Council, in accordance with the alternative develop paper that the Economic and Social Policy National Council –CONPES adopts, will coordinate aspects regarding implementation of social, economic, and social rehabilitation projects in areas affected by the presence of illicit crops. Such programs will be carried out in a complementary way to the execution of destruction and eradication strategies for such crops. In agricultural economy zones they will focus on four aspects of the affected communities life: environment, unmet basic needs, social-cultural values, and economy of regions with illicit activities. The aim is to prevent, constrain, and reduce illicit crops in the country.

This resolution will be in force on the publication date

LET IT BE PUBLISHED AND OBSERVED

Issued in Bogotá D.C. on 11 February 1994

(Signed)  
ANDRES GONZALEZ DIAZ  
President

(Signed)  
MARGARITA HERNÁNDEZ CORTES  
Executive Secretary

## Annex 38

### COLOMBIAN DECREE 1753 OF 1994

(Official Journal No.41.477, 5 August 1994, Articles 1, 38)

#### MINISTRY FOR THE ENVIRONMENT

Decree No. 1753 of 1994  
(3 August)

*Whereby Titles VIII and XII of Law 99 of 1993 on Environmental Licenses are partially regulated*

#### Article 1. **Definitions**

[...]

**Environmental Management Plan:** Is the plan that, in a detailed way, establishes the actions required to prevent, mitigate, control, compensate, and correct the possible negative environmental effects or impacts caused in the implementation of a project, work or activity. It includes follow-up, evaluation, and monitoring plans and contingency plans.

[...]

**Article 38: Transition Regime.** Any projects, works or activities that, in compliance with legislation in force before issuing of this decree, obtained the required environmental permits, concessions, licenses, and authorizations will be allowed to carry on, but the competent environmental authority may require, by means of a reasoned administrative act, the submission of environmental management, recuperation or restoration plans.

Any projects, works or activities that, prior to this Decree, started all procedures pursuant to obtaining environmental permits, concessions, licenses, and authorizations in compliance with legislation in force at that moment, will continue the process in compliance with such legislation and if they eventually obtain them, they will be allowed to carry out the project, work, or activity, but the environmental authority may require, by means of a reasoned administrative act, the submission of environmental management, recuperation or restoration plans.

Any projects, works or activities that started operations prior to Law 99 of 1993 will not require Environmental License. Projects under the Regional Autonomous Corporations authority that started operations prior to this Decree will not require Environmental License either. Such projects, works or activities shall still comply with the environmental legislation in force, except for the Environmental License requirement.

[...]

**Annex 39**

**ROUNDUP SL: SALES REGISTRATION N° 0756 OF 11 AUGUST 1997**

(Colombian Agriculture and Livestock Institute)

REPUBLIC OF COLOMBIA  
MINISTRY OF AGRICULTURE AND RURAL DEVELOPMENT  
COLOMBIAN AGRICULTURE AND LIVESTOCK INSTITUTE  
MANAGEMENT OFFICE SECTION OF AGRICULTURAL PROTECTION AND  
REGULATION  
COORDINATION CHEMICAL PESTICIDES FOR AGRICULTURAL USE  
[Seal]

IN ACCORDANCE WITH DECREES AND RESOLUTIONS IN FORCE,

SALES REGISTRATION No. 0756

IS GRANTED SINCE 11 AUGUST 1993 WITH INDEFINITE EXPIRATION DATE  
TO:

---

S.C.A

COMPañIA AGRICOLA COLOMBIANA LTDA. & CIA.

---

TO SELL IN THE NATIONAL TERRITORY THE PRODUCT CALLED  
ROUNDUP SL

---

WITH A GUARANTEED COMPOSITION OF:

ACTIVE INGREDIENT (S):

GLYPHOSATE: Isopropylamine salt of N-(phosphonomethyl) glycine 480 g/l  
equivalent to 360 g/l glyphosate acid, at 20 °C formulation.

ADDITIVE INGREDIENT (S):

Surfactant polyoxyethylene amine

Water

C.S.P 1 LITER

TOXICOLOGICAL CATEGORY IV: SLIGHTLY TOXIC  
LP-0173-93

---

SPECIFIC USE

ADJUVANT

---

PHYSICAL STATE

SOLUBLE CONCENTRATE (SL)

---

PACKAGING OR CONTAINERS

Plastic containers of 200, 250, 500 and 750 milliliters; of 5, 50 and 100 liters of net content. (13/09/2007 Eduardo Lomanto)

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[signed]

JAIME CÁRDENAS LOPEZ

MANAGEMENT OFFICE SECTION OF AGRICULTURAL PROTECTION AND  
REGULATION

Prepared by: Eduardo Lomanto Del C. [Initialed]

Reviewed by: René A. Castro J. [Initialed]

## Annex 40

### **“ENVIRONMENTAL IMPACT CAUSED BY CHEMICAL SUBSTANCES, ILLICIT CROPS AND RELATED ACTIVITIES”, NATIONAL NARCOTICS DIRECTORATE OF COLOMBIA, STRATEGIC AND RESEARCH DIVISION, 2000**

(National Narcotics Directorate, Strategic And Research Division, *Impacto Ambiental Ocasionado por las Sustancias Químicas, los Cultivos Ilícitos y las Actividades Conexas*, 2000 pp. 5, 6, 12. Available at: <http://www.dne.gov.co/?idcategoria=790> (last visited 21 February 2010))

[...]

[Page 5]

#### a. Choice of areas

In Colombia, illicit crops are located in areas strategically chosen by drug traffickers and that meet certain requirements they consider essential. Some of these requirements are:

- Geographic zones isolated from urban centers where the State presence becomes difficult because there are no access ways and there are large forest areas, especially in the provinces of Caquetá, Guaviare, Meta, Vichada, Putumayo, Santander, and Guainía.
- Existence of abundant bodies of water that can be used in production process, waste disposal, and food preparation. Furthermore, the presence of navigable rivers favors transport of chemical substances, by means of open smuggling coming from neighboring countries and transport of great amounts of finished product.

In Colombia, some of the coca and cocaine producing areas are located in the high valleys of Apaporis and Caquetá, whose name changes to Japurá in Brazil, as well as in the high valleys of Vaupés and Putumayo, Called Ica in Brazil. Colombian Andean valleys connect with Manaus through Venezuela, with most roads paved. [...]

[Page 6]

- [...] Ecosystems with abundant plant biomass which makes it difficult to spot crops, crop fields, laboratories, and warehouses for chemical substances.

- Ecosystems that meet the climate conditions required for the plant varieties to be grown. In this regard, our country has thermal floors [all ranges in temperature depending on altitude] that allow an excellent development of species used to obtain psychotropic substances.
- Areas with presence of illegal armed groups that hinder the authorities' action and that presumably provide security services for crops and processing facilities.

[...]

[Page 12]

[...]

It has been established that there are no significant differences between producers in the region where coca is grown as to the intensity of agrochemicals use whether they are small or industrial crops. In this regard, URIBE (1999) states the use of at least 75 different brands of agrochemicals. Regional difference regarding the type of substance used is determined by its availability in the market, taking into account that many of them are directly smuggled into the crop areas.

#### **Herbicides used in coca crops**

<b>Trade brand</b>	<b>Active ingredient</b>	<b>Use %</b>	<b>Toxicological classification</b>
Gramoxone <sup>4</sup>	Paraquat	61.3	II LD Oral: 150mg/kg
Faena	Glyphosate	10.7	IV LD Oral: 4300mg/kg
Anikilamina	2,4D	9.7	I LD Oral: 699 mg/kg
Round up	Glyphosate	8.4	IV LD Oral: 4300mg/kg
Atrazine	Atrazine	4.8	III LD Oral: 1780mg/kg
Karmex	Diuron	2.6	III LD Oral: 5000mg/kg
Other	n.a	2.6	



It is important to highlight that Glyphosate is substances among the most commonly used by growers (about 20%). However, when this substance is used by authorities to eradicate such crops, farmers who usually use it say that they are being attacked because of the toxicity of the product.

---

4 Among the chemicals used in illicit crops are those considered worldwide as the so-called “Dirty Dozen” that have been banned in most industrialized countries. In addition to Paraquat, the use of Lindano for pediculosis control is common; pentachlorophenol is used as a pesticide and Parathion, a potent herbicide with action ranging from pest control in foodcrops to insect extermination.

[...]



## **Annex 41**

### **RESOLUTION N° 005 OF 11 AUGUST 2000 OF THE NATIONAL NARCOTICS COUNCIL OF COLOMBIA**

(National Narcotics Council, excerpts)

#### **RESOLUTION 0005 OF 2000 (11 August)**

Whereby Resolution No. 0001 of 11 February 1994 is amended.

The National Narcotics Council in exercise of its legal powers, especially those conferred by Articles 91, sub-section g) and 92 of Law 30 of 1986

#### **WHEREAS**

By Resolution No. 0001 of 1994, the National Narcotics Council extended and defined permits granted for destruction and eradication of illicit crops in the country with the use of suitable means for such a purpose.

In the areas where there are illicit crops, there are guerrilla groups and other illegal armed groups, which affects public peace and security generating massive displacement of population as well as impact on the environment, human health, and agricultural and livestock activities.

Target areas for planting, processing, and eradication of illicit crops by means of aerial spraying with glyphosate must receive protection and environmental recovery programs.

Pursuant to Law 99 of 1993, Decree 1843 of 1991, and Resolution 3079 of 1995, the Ministries of Health Ministry, Agriculture and Rural Development, and the Environment are responsible for establishing the mechanisms to watch and control risks associated with the use and handling of pesticides.

The scope of functions and responsibilities of institutions engaged in the illicit crops eradication program must be set. Thus, it is necessary to determine the procedures that allow for local coordination and participation in the solution of problems caused by the program.

According to the scope of their competence the authorities to carry out environmental, sanitary, and epidemiological follow-up to the illicit crops eradication program are: nationwide, the Ministries of Health Ministry, Agriculture and Rural Development, and the Environment through the Colombian Agriculture and Livestock Institute, at regional level: the Governors' Office, Autonomous Regional Corporations, Regional Health Offices, and the ICA [Colombian Agriculture and Livestock Institute]; at the local level, the Municipalities through mayors and the UMATA's [Agriculture and Livestock Technical Assistance Municipal Unit].

It is necessary to strengthen effective control, follow-up, and monitoring mechanisms that make it possible to evaluate environmental, agronomic, and health impacts generated by the illicit crops eradication program. Likewise, it is necessary to establish specific criteria for the execution of the aforementioned program.

Given the increase in complaints made people in different regions of the country before different national authorities such as the Ministries of Agriculture and Rural Development (through the Colombian Agriculture and Livestock Institute), Health and of the Environment, the National Narcotics Directorate, and the National Police – Antinarcotics Directorate, due to alleged damages caused to the people, the environment, and agricultural and livestock activities as a result of alleged spraying with glyphosate, it is necessary to find suitable, technical-scientific mechanisms leading to guarantee protection of rights and compliance with liabilities of citizens.

It is the State's responsibility to safeguard the right to a sound environment for every body (Article 79 of the Political Constitution).

By Law 99 of 1993 the Ministry for the Environment was created as the organ in charge of managing the environment and renewable natural resources; the National Environmental System was organized; and among others, ruled suppression and liquidation of INDERENA (National Institute of Renewable Natural Resources).

In compliance with subsection 18 of article 5 *ibidem*, in accordance with that stated in Decree 1125 of 1999, the Ministry for the Environment, through the Special Administrative Unit of the National Natural Parks System is responsible for managing the areas that form the National Natural Parks System and coordinating and implementing the Protected Areas National System –SINAP-.

With the purpose of preventing alteration of the environment of the areas of the National Natural Parks System, Decree 622 of 1977, which implemented Law 2811 of 1974 on "National Parks System", article 30 states, among other prohibitions, introducing, distributing, using toxic or polluting substances that may affect ecosystems or cause harm to them and using any chemical product with residual effects.

[...]

## **RESOLVES**

Article 1. Amend Resolution No. 0001 of 11 February 1991, in numbers 1 to 9, with the purpose of establishing the procedures foreseen in the following articles.

Article 2. Number 1 in Resolution No. 0001 of 11 February 1991 will read as follows:

### **Surveillance of illicit crops**

This surveillance will be carried out by identifying and locating illicit crops, their extension, surroundings, characteristics of the social, cultural, economic, epidemiological, sanitary, and environmental context, potential risks, as well as use, existence, and location of lawful crops.

Paragraph 1. Identification, location, extension and surroundings of illicit crops will be coordinated by the National Narcotics Directorate and will be executed by the National Police – Antinarcotics Directorate.

Paragraph 2. With the objective of characterizing the social, cultural, epidemiological, sanitary, economic, and environmental context; determining potential risks, as well as use, existence, and location of lawful crops, the National Police – Anti-narcotics Directorate will request information on these issues from Governors, Agriculture Offices, Mayors, Regional Autonomous Corporations, ICA regional offices, Provinces Health Offices, Universities, Scientific Research Institutes, and Non-Government Organizations, and any other public or private institution that has information on these issues.

Authorities will have a ten (10)-day term to provide such information, starting from the information request. In case such information is not provided, this fact will be kept in a record.

The National Police – Anti-narcotics Directorate and the National Narcotics Directorate will be in charge of analyzing and assessing both information provided by authorities mentioned in this article and that one obtained according to paragraph 1 with the purpose of determining potential risk for human health, the environment, and agriculture and livestock activities in the target areas for aerial spraying with glyphosate.

Article 3. Number 2 in Resolution No. 0001 of 11 February 1991 will read as follows:

When there are large crop extensions -over two (2) hectares)- and the illicit crop is the only crop, taking into account topographic conditions and closeness to human settlements, controlled aerial spraying with chemical agent glyphosate will be carried out.

Aerial spraying with glyphosate will also be used on areas where illicit crops are proved to be: split and/or mingled with lawful crops, which are ways used to evade actions of the eradication program with the herbicide.

Paragraph. The aerial spraying with glyphosate method will not be used on programs approved by the National Narcotics Council

Article 4. Regarding the previous article these definitions will apply:

Split crop area: is that field area divided by means of living and/or artificial barriers, sequences of lawful crops, food crops or native forest with illicit crops

Mingled crop area: Is that illicit crop holding both illicit and lawful plants.

Article 5. Clarify number 3 in Resolution No. 0001 of 11 February 1991, which will read as follows:

### **Operational planning**

The National Police, through the Antinarcotics Directorate, will be responsible for eradication of illicit crops. To accomplish this task, it will use the technical and human resources that allow preventing and minimizing possible damages that may derive from this activity

Accomplishment of this task will in every case comply with the elaboration of a specific plan implemented in a Service Order that must include, among others, the following aspects:

Defining application sites

Determining human resources to be used (Anti-Narcotics Police)

Determining equipment to be used

Appointing the mission advising and coordinating scientific team

Establishing top priority specific and technical parameters to be complied with in the procedure

Article 6. Number 6 in Resolution No. 0001 of 11 February 1991 will read as follows:

Be the **Inter-Institutional Technical Committee** created, as an Advisory organ of the National Narcotics Directorate, for the execution of the Illicit Crops Eradication Program.

The Inter-Institutional Technical Committee will be chaired by National Narcotics Director as coordinator of the National Plan for Fight against Drugs and it will be comprised by representatives from the National Police – Anti-narcotics Directorate, the Ministry of the Environment, the Colombian Agriculture and Livestock Institute, the Health Ministry, the Alternative Development National Plan, the Technical Audit, the National Health Institute, the Hydrology, Meteorology, and Environmental Studies Institute, the Agustin Codazzi geographical Institute, and one representative from Directors of the Autonomous Regional Corporations with jurisdiction in the areas where the Program for the Eradication of Illicit Crops by Aerial Spraying with Glyphosate is carried out.

Representatives from public and private sectors may be invited to attend the Committee sessions.

Article 8. The Inter-Institutional Technical Committee will have the following functions:

1. Studying, analyzing, and assessing the information referred to in article 2 of this Resolution.
2. Recommending the areas to be spraying taking into account the social, environmental, epidemiological, sanitary, and operational aspects, based on the characterization made and submitted by the National Narcotics Directorate.
3. Recommending the prevention, mitigation, and compensation measures according to the characteristics of the areas.

4. Issuing concept about the Program for the Eradication of illicit Crops with Glyphosate, which will be submitted to the National Narcotics Directorate for its consideration.

5. Knowing the results of research carried out by competent authorities related to complaints filed by communities for alleged damages caused by the Program for the Eradication of illicit Crops.

6. Designing training programs about activities related to eradication of illicit crops. They will be publicized.

1.[7] Setting the profiles for professionals that will take part in the technical oversight referred to in paragraph of article 10 in this Resolution.

2. [8] The Committee will hold ordinary meeting every three months and extraordinary meeting when at least 2 of its members request call it.

Article 9. Number 7 in Resolution No. 0001 of 11 February 1991 will read as follows:

#### **Technical audit**

The National Government, through the National Narcotics Directorate, will contract the service of a Technical Audit, which will make a follow-up of the Program for the eradication of Illicit Crops with glyphosate regarding technical and operational aspects, as well as the assessment of impacts on the environment, human health, and on agricultural activities. The Colombian Agriculture and Livestock Institute will approve the technical and operational parameters for aerial spraying of illicit crops with glyphosate.

Paragraph 1. The National Narcotics Directorate will set the terms of reference to contract the Technical Audit taking into consideration the advise from the Inter-Institutional Committee stipulated in article 6 of this Resolution.

Paragraph 2. The Technical Audit will have an autonomous and external Technical Oversight, which will be stipulated in the contract.

Article 10. The Technical Audit will have the following functions:

1. Supervising the correct execution of the Program for the Eradication of Illicit Crops.
2. Making assessments after the eradication of illicit crops.



3. Submitting quarterly reports to the National Narcotics Directorate and the Inter-Institutional Technical Committee about the evaluations carried out by the Technical Audit.

4. Recommending the corresponding corrective measures to the National Narcotics Directorate and the Police Anti-narcotics Directorate

Article 11. Amend number 8 of Resolution No. 0001 of 11 February 1991, which will read as follows:

National Natural Parks System and other protected areas

Eradication of illicit crops in areas of the National Natural Parks System, as well as in other protected natural areas at regional and local level will be made using manual and/or mechanical methods. If, under exceptional circumstances assessed by the National Narcotics Council, another method is needed, a concept will be requested to the Ministry of the Environment.

Article 12. Amend number 9 of Resolution No. 0001 of 11 February 1991, which will read as follows:

Social, economic, and ecological rehabilitation programs

The National Narcotics Council, in accordance with article 26 of Law 333 of 1996 and article 82 of Decree 266 of 2000, will seek the financial resources necessary to implement rehabilitation, social investment, economic, and environmental projects in the areas where programs for the eradication of illicit crops are executed. Similarly, the National Narcotics Council will seek additional resources through Plan Colombia, Plante, and other programs created for such purpose.

Projects to be developed in zones where the above mentioned projects are implemented must be set in the framework of a participative planning strategy and take into consideration processes implemented by the communities and local and regional authorities.

Article 13. Be numbers four and five of Resolution No. 0001 of 11 February 1991 abrogated.

Article 14. This resolution will enter into force from the date of publication.

Be it published and observed.

Issued in Santa Fe de Bogotá, D.C., on 11 August 2000

The President,  
Romulo González Trujillo

The Executive Secretary  
Oscar Manuel Farías Cortés

## Annex 42

### COMMUNIQUÉ OF THE MINISTRY FOR THE ENVIRONMENT OF COLOMBIA TO THE PUBLIC, OCTOBER 2000

*(Archives of the Ministry of Foreign Affairs of Colombia)*

#### MINISTRY FOR THE ENVIRONMENT

BOGOTA, OCTOBER 2000

#### COMMUNIQUÉ TO PUBLIC OPINION

The Ministry for the Environment, as the highest environmental authority in the country, in regard to the possible experimentation, use or application of the *Fusarium oxysporum* fungus as a means for eradication of illicit crops in the national territory, reiterates the following:

1. The Ministry for the Environment **DID NOT accept** the proposal advanced by the United Nations International Drug Program (UNDCP), to conduct tests with *Fusarium oxysporum* Erythroxyllum mycoherbicide, given that it considers that any external agent to our country's native ecosystems might pose serious hazards to the environment and human health.
2. This Ministry will take the task of guaranteeing the protection of biodiversity, searching solutions jointly with the communities located in the areas affected by coca and poppy crops and supporting economic alternatives different from illicit crops.
3. In this sense, the Ministry for the Environment, with the support from technical and scientific institutions of the country, from environmental and governmental authorities, and in general from civil society, will promote research processes to generate social environmentally friendly alternatives that can contribute to sustainable development of the regions affected by illicit crops. These processes will comply with criteria of no affecting ecosystems and human health.
4. Finally, this Ministry considers that manual eradication agreed on with the communities is an alternative to solve the illicit crops problem because it is the one with the lowest impacts on the environment. That is why, the

Ministry for the Environment will be open to initiatives submitted in this regard.

## **Annex 43**

### **RESOLUTION N° 017 OF 4 OCTOBER 2001 OF THE NATIONAL NARCOTICS COUNCIL OF COLOMBIA**

*(Official Journal No. 44.588, 20 October 2001)*

#### **RESOLUTION No. 0017 OF 2001**

(October 4)

*Whereby a procedure to address complaints of alleged damages caused by aerial spraying with the herbicide glyphosate within the Program for Eradication of Illicit Crops is adopted*

#### **THE NATIONAL DRUG COUNCIL**

In exercise of its legal faculties and pursuant to Article 91, sub-sections a, b, c and particularly sub-section g, and Article 92 of Law 30 /1986

#### **WHEREAS**

Law 30 of 1986 establishes an illicit crop eradication procedure and designates the National Drug Council, in particular, to arrange for the eradication of marijuana, coca and other crops from which addictive substances may be extracted, using the means most appropriate for this purpose and with the concurrence of the agencies commissioned to safeguard public health and guarantee preservation and stability of the nation's ecosystem (Sub-section g, Article 91);

Resolution No. 0001 of February 11, 1994 was amended by the National Drug Council under Resolution No. 0005 of 2000 to reinforce control, follow-up and monitoring mechanisms aimed at evaluating the impact of the Program for Eradication of Illicit Crops on the environment, agriculture and health, and to establish specific criteria for its implementation;

The National Narcotics Directorate (DNE), pursuant to Resolution No. 0005 of 2000, is the agency responsible for coordinating the Program for Eradication of Illicit Crops, and the Anti-narcotics Direction is responsible for planning the program from an operational standpoint;

The Single Convention Governing Narcotic Drugs, 1961, amended by the 1972 Protocol Amending the Single Convention Governing Narcotic Drugs, 1961, ratified by Colombia under Law 13 of 1974, considered that effective measures against abuse of narcotic drugs require coordinated and universal action, that such action calls for international cooperation guided by the same principals and aimed at common objectives, and desired to provide for continuous international cooperation and control for the achievement of the aims and objectives set forth in the aforementioned Convention;

A Letter of Agreement on Cooperation to Prevent and Control the Drug Problem was signed on 7 September 1999 by the government of Colombia, represented by the Director of the National Narcotics Directorate, and the government of the United States, represented by the Director of the Narcotics Affairs Section at the American Embassy;

The parties to the aforementioned agreement promised to supply the resources and to undertake all action specified therein, including, as outlined in Point II - Project Description, a build-up in the technical and logistic capacity and equipment of the National Narcotics Directorate to implement, coordinate, monitor and evaluate the National Plan for the Fight against Drugs.

The Narcotics Supply Reduction strategy outlined in the National Plan for the Fight against Drugs contains Objective No. 2, which calls for Goal No. 1 - Technical and Controlled Eradication of Illicit Crops.

Eradication of illicit crops by aerial spraying with the herbicide glyphosate might produce collateral effects with an impact on legal crops in the vicinity;

The Program for Eradication of Illicit Crops has new systems and advanced satellite information technology for illegal crop detection, including medium- resolution satellite images, high-resolution color and panchromatic aerial photographs and satellite location systems aboard the aircraft used for spraying, all of which facilitate more and better protection for the rights of individuals in areas where the Program for Eradication of Illicit Crops operates;

Complaints from citizens in several regions of the country have increased due to alleged damages to agriculture from aerial spraying with the herbicide glyphosate, making it necessary to issue regulations to ensure these complaints are addressed promptly and effectively;

## RESOLVES:

## CHAPTER ONE

**Procedure**

Article 1. *Objective.* The purpose of this resolution is to help guarantee the protection of fundamental rights pursuant to the terms of the Colombian constitution by adopting a simple procedure for due attention to complaints from individuals presumably affected by aerial spraying with the herbicide glyphosate as part of the Program for Eradication of Illicit Crops.

Article 2. *Responsible authorities.* The National Narcotics Directorate and the Anti-Narcotics Direction of the Colombian National Police are the authorities responsible for handling complaints from people allegedly affected by the herbicide glyphosate used in the Program for Eradication of Illicit Crops, with due consideration for speed, effectiveness, transparency, good faith and promptness, in addition to all other principles provided for by law.

Article 3. *Receipt of complaints.* Complaints related to illicit crop eradication by aerial spraying with the herbicide glyphosate shall be received by the Municipal Ombudsman Offices, in their capacity as the Public Ministry representatives in towns throughout the country.

Article 4. *Filing a complaint.* Complaints may be filed verbally or in writing and shall include the following required information:

1. Full name and identification of the person filing the complaint
2. Name and location of the allegedly affected property, as stipulated in the paragraph of this article.
3. A copy of the deed to the property in question or a statement of the title under which the allegedly affected property is being used.
4. The economic activity now developed on the property in question
5. A list of damages, indicating the quality and quantity of affected goods or property

6. Date and time of spraying
7. The objective of the petition
8. A list of all documents and evidence attached to the complaint
9. Home address or place where a reply may be sent
10. Signature of the petitioner and the official with whom the complaint is filed.

Paragraph: For added clarity and quicker verification of the facts related to the complaint, a form shall be adopted with the foregoing items and with an attached map of the municipality. It shall be filled out in the presence of the municipal ombudsman offices, and the municipal ombudsman shall identify the allegedly affected property or properties on the map attached to the form.

*Article 5. Preliminary verification of the facts connected with the complaint.* Once the municipal ombudsman receives the complaint, he shall immediately ask the local ICA [Colombian Agriculture and Livestock Institute] and/or UMATA [Agricultural and Livestock Technical Assistance Municipal Unit] official to visit the site indicated in the complaint for preliminary verification of the facts in question. A record of this field visit shall be drawn up and attached to the complaint for delivery to the National Narcotics Directorate.

Paragraph: A guide or format for verifying the information shall be adopted to this end. It shall be filled out by the ICA and/or UMATA official and by the municipal ombudsman, and is to be accompanied by full identification of the allegedly affected property on the map provided for this purpose.

*Article 6. Submitting the complaint to the National Narcotics Directorate.* Within two (2) days subsequent to preliminary verification, the municipal ombudsman shall send the complaint and a record of preliminary verification to the Anti-narcotics Direction of the Colombian National Police, with a copy of the complaint to the National Narcotics Directorate (DNE). This shall be done simultaneously, and the municipal ombudsman shall inform the petitioner accordingly.

*Article 7. Prior report.* Within five (5) days after receipt of the complaint, the Anti-narcotics Direction of the Colombian National Police (DIRAN) shall certify whether or not the zone in question was sprayed. This certification shall be based on satellite location flight reports, copies of spraying records and polygrams, and reports from illicit



crop detection and monitoring systems used by the Program for Eradication of Illicit Crops in the municipality or area related to the complaint.

If it is concluded, on the basis of the foregoing certification, that no aerial spraying was conducted in the area connected with the complaint, DIRAN shall immediately inform the municipal ombudsman and the DNE to this effect.

*Article 8. Field visit and reply.* If DIRAN certification indicates the area in question was sprayed by the Program for Eradication of Illicit Crops, the complaint group created for this purpose shall conduct a field visit within ten (10) days thereafter to:

Verify the basis for the complaint

Determine existence of the damage and its relation to aerial spraying with the herbicide glyphosate as part of the Program for Eradication of Illicit Crops.

If the conclusion, based on this verification, is that damage was done and is the result of aerial spraying, the complaint group shall estimate its amount and sign a damage recognition certificate.

However, if the complaint group concludes that no damage was inflicted, it shall advise the municipal ombudsman within two (2) days after the visit, explaining the reasons for this decision.

Paragraph: The field visit mentioned in this article shall be ruled out in cases where public unrest prevents an inspection of this type. Such unrest is to be certified by the National Police.

## CHAPTER TWO

### **Crop replacement**

*Article 9. Crop replacement.* The complaint group shall reimburse only those whose lawful crops are affected as a direct consequence of aerial spraying with the herbicide glyphosate by the Program for Eradication of Illicit Crops, provided they have not taken pre-legal or legal action.

*Article 10. Deadline for filing a complaint.* Complaints filed sixty (60) days after the date of aerial spraying with the herbicide glyphosate by the Program for Eradication of Illicit Crops shall not be processed.

Article 11. *Crop classification and replacement criteria.* To replace legal crops that have been damaged, these shall be classified as permanent or temporary.

Permanent crops have a vegetation period of more than one year and are harvested more once during that time.

Temporary crops, for genetic or technical reasons, yield only one harvest during their vegetation period, which is one year or less.

Permanent crop replacement shall include:

- a) Investment in installation
- b) The market value of the impaired harvest, based on CORABASTOS prices.
- c) The cost of reinstalling the crop
- d) The value of future harvests, calculated up to the time the new plantation becomes fully productive.

Temporary crop replacement shall include only:

- a) The value of the impaired harvest, based on CORABASTOS prices.

Article 12. *Calculating replacement.* The complaint group shall estimate the replacement cost of the probable harvest according to the number of plants affected, with maximum possible production calculated on this basis and in accordance with the tables established for this purpose by the Colombian Agriculture and Livestock Institute.

Article 13. *Required evidence.* To proceed with crop replacement, the crop in question must be certified as being legal and the damage as being a direct result of aerial spraying with the herbicide glyphosate used in the Program for Eradication of Illicit Crops.

For the aforementioned, the following evidence of damage is required:

1. Anti-Narcotics Direction of the Colombian National Police (DIRAN) certification of aerial spraying in the zone connected with the complaint.
2. Copy of satellite location flight reports

3. Copies of spraying records and polygrams
4. Copy of the report from the illicit crop detection and monitoring system of the Program for Eradication of Illicit Crops in the municipality or area connected with the complaint.
5. Copy of the field visit report
6. Other evidence that may be considered relevant or appropriate.

Article 14 *Payment*. To acknowledge the replacement of affected crops and to proceed with payment, the complaint group coordinator and the beneficiary shall sign a damage recognition certificate.

If the beneficiary is not available at the time of this procedure, the damage recognition certificate duly signed by the complaint group coordinator shall be deposited at the office of the municipal representative for subsequent signature by the beneficiary.

Once this procedure is complete, the certificate in question shall be sent to the Anti-narcotics Direction of the Colombian National Police and, as of that moment, steps shall be taken to effect payment in the most suitable way.

## CHAPTER THREE

### **General provisions**

Article 15. *Formation of the complaint group*: The National Narcotics Directorate and the Anti-narcotics Direction of the Colombian National Police shall form an interdisciplinary group to address the complaints referred to in this resolution.

Article 16. *Case file*. A case file shall be established at the National Narcotics Office and at the Anti-narcotics Direction of the Colombian National Police with copies of all action to which this resolution refers. The file shall constitute a documentary report and evidence of how complaints have been addressed.

Article 17. *Validity*. The regulations contained in this resolution apply as of the date of its publication. Failure to observe them on the part of officials from the proper agencies shall constitute inappropriate conduct and be cause for pertinent disciplinary action.

Let it be published, made known and observed.

Issued in the city of Bogota on October 4, 2001.

[Signed]

Rómulo González Trujillo,  
Director

[Signed]

Mercedes Vasquez de Gomez,  
Executive Secretary

**Annex 44**

**TOXICOLOGICAL OPINION N° 0685, REGARDING THE TOXICOLOGICAL  
CLASSIFICATION OF THE MIX GLYPHOSATE + POEA + COSMO-FLUX(1%),  
COLOMBIAN HEALTH MINISTRY, 8 OCTOBER 2001**

*(Archives of the Ministry of Foreign Affairs of Colombia)*

REPUBLIC OF COLOMBIA  
HEALTH MINISTRY

Bogota, D.C., October 8 2001

000685

Mr.  
GABRIEL MERCHAN BENAVIDES  
Director National Narcotics Directorate  
Carrera 16 No. 79-08  
Bogota, D.C.

REFERENCE: YOUR REQUEST FOR TOXICOLOGICAL  
CLASSIFICATION OF THE MIXTURE GLYPHOSATE + POEA +  
COSMOFLUX (1%)

Dear Sir,

In response to your request stated in the reference, I am enclosing a copy of the concept issued by this Ministry regarding the toxicological classification of the mixture GLYPHOSATE + POEA + COSMOFLUX (1%), which corresponds to Category III - Moderately toxic and the Final Report – Studies about the complaints effects on health associated with aerial spraying in Colombia – Province of Nariño, El Tablon de Gomez Municipality – September 2000 – Uribe Cualla Clinic

Best regards

[Signed]  
SARA ORDOÑEZ NORIEGA  
Health Minister

Enclosure: the aforementioned (2 pages)

REPUBLIC OF COLOMBIA  
HEALTH MINISTRY

Bogota, D.C., October 4 2001

Ms.  
SARA ORDOÑEZ NORIEGA  
Health Minister  
Bogota, D.C.

REFERENCE: YOUR REQUEST FOR TOXICOLOGICAL  
CLASSIFICATION OF THE MIXTURE GLYPHOSATE + POEA +  
COSMOFLUX (1%)

Madame Minister:

I am glad to inform you that after analyzing the documentation from international institutions with well-known scientific work such as the United States Environmental Protection Agency and the World Health Organization, among others, on herbicide glyphosate and POEA, it was found that they have the same standpoint stated by this Ministry on several occasions regarding the toxicological evaluation of glyphosate, especially with regard to the toxicological category IV slightly toxic assigned to the active ingredient Glyphosate. It ratifies our standpoint that it is a non carcinogenic, non mutagenic, non teratogen agent.

Glyphosate has been classified in the country by the Health Ministry according to the procedures required for toxicological evaluation and classification stipulated in Decree 1843 of 1991 and in the Handbook of procedures for toxicological evaluation and classification of chemical substances published by this Ministry. This classification corresponds to category III moderately toxic for formulations that contain POEA (Polioxyetilen amine) as additive ingredient and category IV slightly toxic for the active ingredient and the other formulations found in the market.

Regarding the product Cosmo Flux 411F, it is important to point out that it has been classified in the country by the Health Ministry in toxicological category IV slightly toxic. In that sense, the use of the mixture GLYPHOSATE + POEA + COSMOFLUX (1%) would result in a toxicological category III moderately toxic. The use of the mixture Glyphosate + POEA + Cosmoflux (1%) would fall into toxicological category III (Moderately Toxic), without the addition of such additives posing inadmissible risks.

It should be recalled that pesticides within that category are admissible, in accordance with their intended action, for use in household environments, as is the case of common pesticides such as Baygon spray, Raid mosquitoes and flies, Rayol spray, Rodasol, Cupex for flying insects killer and even in applications for public health purposes such as Malation, Fenitrothion, and Solfac which are used for malaria and dengue control.

As for the Final Report- Studies about the complaints effects on health associated with aerial spraying in Colombia – Province of Nariño, El Tablon de Gomez Municipality – September 2000 – Uribe Cualla Clinic, the submitted study is consistent with our interpretation of the reports on glyphosate certified by the Nariño Health Office in November 2000.

PROVINCE	REPORTED CASES	TOWN	SYMPTOMS
NARIÑO	6	TUMACO	EYE IRRITATION IN ONE PATIENT AND SKIN IRRITATION IN ALL PATIENTS THERE ARE NOT CONFIRMED CASES
	12	SAN PEDRO DE CARTAGO	DIGESTIVE SYMPTOMS ARE NOT CONFIRMED CASES
	9	LA CRUZ	DERMATITIS, CONJUNTIVITIS, ALERGIC RINITIS ARE NOT CONFIRMED CASES
	50	EL COVE	THERE ARE NOT CONFIRMED CASES
	NONE	BARBACOAS, MAGUI, PAYAN, ROBERTO PAYAN	
	5	EL ROSARIO	THERE ARE NOT CONFIRMED CASES

Lastly, it is here reiterated that as stated in the Minute 08 of the inter-institutional technical committee permanent meeting held on April 11, 2001 (copy annexed) the use of additive COSMO IN D in the mixture used for eradication of illicit crops is not recommended because this Ministry has classified it in category I extremely toxic due to its severe eye irritation effects. It may increase health risk for people directly and indirectly exposed to spraying.

Best regards

[Signed]

JORGE HERNAN JARAMILLO BOTERO. I.Q.  
Specialized Professional, Health Protection Group  
Public Health General Directorate

Annex: Minute 08 of 2001  
JHJB 04-10-01



## Annex 45

### **RESOLUTION N° 1065 OF 26 NOVEMBER 2001 OF THE MINISTRY OF THE ENVIRONMENT OF COLOMBIA, REASONING, SECTION 3, TECHNICAL VISIT (EXCERPT NOT TRANSLATED IN EM, VOL. II ANNEX 15)**

(Ministry for Environment, Housing and Territorial Development of Colombia)

#### **RESOLUTION No. 1065** (26 November 2001)

*“WHEREBY A MANAGEMENT PLAN IS IMPOSED AND OTHER DECISIONS ARE MADE”*

#### **THE MINISTER FOR THE ENVIRONMENT**

Pursuant to the powers conferred by Law 99 of 1993 and especially by Article 38 of Decree 1753 of 1994 and

WHEREAS:

[...]

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### **3. TECHNICAL VISIT**

According to the visit paid, whose report is part of the technical opinion already referred to, the following considerations are made:

Regarding the herbicide handling at the visited base, it was possible to observe that it has good storage, there are the necessary elements to deal with spill of herbicide, taking into account the recommendations made in the records of environmental management and in the Contingency Plan.

It is recommended that the glyphosate empty containers are tripled washed before its final disposal, in compliance with record No. 4. Solid Waste Management Program.

For handling of fuels and fires (record No. 3) it has the support from the program of Civil Aeronautical and from the command of national army that is 10 minutes away from the base. In case of a specific release while spraying, the Contingency Plan (record 13) is set to be applied.

Inside the visited base, handling of oily water from workshops, water with possible pesticide residues must be improved, as well as handling of integral solid residues. This point is already incorporated in the EMP submitted (Record No. 5. Management of residual water)

According to the ocular inspection of the crops sprayed in this forest area, it can be concluded that complying with the technical conditions of the operation airplane, the drift effect is minimum.

A great entropic intervention was also observed with significant deforestation of the forest. The clear areas are usually used for cattle raising, and partial alternate bushes grow.

In the areas where the herbicide has fallen on directly, it is observed that natural regeneration has started, with the characteristic succession dynamics of the area. Some pasture, moss and insects populations are observed.

In accordance with all aforementioned, this Ministry considers viable from the technical environmental perspective to impose the Environmental management Plan to National Narcotics Directorate (DNE) with and each consideration previously presented.

[...]

**Annex 46**

**GLY-41: SALES REGISTRATION N° 4294 OF 2 JULY 2002**

(Colombian Agriculture and Livestock Institute)

REPUBLIC OF COLOMBIA  
MINISTRY OF AGRICULTURE AND RURAL DEVELOPMENT  
COLOMBIAN AGRICULTURE AND LIVESTOCK INSTITUTE  
MANAGEMENT OFFICE SECTION OF AGRICULTURAL PROTECTION AND  
REGULATION  
COORDINATION CHEMICAL PESTICIDES FOR AGRICULTURAL USE

IN ACCORDANCE WITH DECREE No. 1840 OF 1994 AND RESOLUTION 3079  
OF 1995 BY ICA, SALES REGISTRATION No.

4294

IS GRANTED SINCE:

11 AUGUST 1993 WITH INDEFINITE EXPIRATION DATE TO:

---

COMPañIA AGRICOLA COLOMBIANA LTDA. & CIA.  
S.C.A

---

TO SELL ON THE NATIONAL TERRITORY THE PRODUCT CALLED  
GLY-41

---

WITH A GUARANTEED COMPOSITION OF:

WITH A GUARANTEED COMPOSITION OF:

ACTIVE INGREDIENT (S):

GLYPHOSATE  
Isopropylamine salt of  
N-(phosphonomethyl) glycine  
480.0 g/l

ADDITIVE AND INERT INGREDIENT (S): POLYOXYETHYLENE  
ALKYLPHOSPHATE ESTER  
AMINE  
POLYETHOXYETHYLENE ALKYL  
POLYETHYLENE GLYCOL  
DIPROPYLENE GLYCOL  
FD&C BLUE DYE No. 1  
POLYDIMETHYLSILOXANE  
SILICONE BLEND  
WATER

C.S.P 1 L

TOXICOLOGICAL CATEGORY IV: SLIGHTLY TOXIC  
LP-12499-2002

---

SPECIFIC USE

ADJUVANT

---

PHYSICAL STATE

SOLUBLE CONCENTRATE (SL)

---

PACKAGING OR CONTAINERS

PLASTIC CONTAINERS OF: 1, 4, 10, 60 and 200 LITERS OF NET CONTENT.  
(20/06/02 cjrh)

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[Initialed]  
CJRH  
PATERNOSTRO  
SPECIALIZED PROFESSIONAL

[signed]  
CARLOS A. KLEEFELD  
  
MANAGEMENT OFFICE SECTION OF  
AGRICULTURAL PROTECTION AND  
REGULATION

COPY PRODUCT FILE



**Annex 47**

**NOTE N° 00500 FROM THE ASSISTANT MANAGER FOR AGRICULTURAL PROTECTION AND REGULATION OF THE COLOMBIAN AGRICULTURE AND LIVESTOCK INSTITUTE TO THE DIRECTOR OF THE NATIONAL NARCOTICS DIRECTORATE, 28 JANUARY 2003**

( National Narcotics Directorate)

MINISTRY OF AGRICULTURE AND RURAL DEVELOPMENT  
COLOMBIAN AGRICULTURE AND LIVESTOCK INSTITUTE

Reply reference number  
00500

Bogota, 28 January 2003

Colonel ( R )  
LUIS ALFONSO PLAZAS VEGA  
Director  
National Narcotics Directorate  
Carrera 16 A No. 79-08  
Bogota, D.C.

Ref: Your letter 2003-01789 dated 24 Jan 2003

Dear Colonel;

In response the letter in reference and with the objective of supporting the authorization that the Ministry of the Environment must grant for the temporary use of the dose of 10.4 lt/ha of glyphosate commercial formulation for coca crops spraying, we temporarily recommend the 10.4 lt/ha dose for such purpose based on the analyses of efficacy results with this dose submitted in the enclosed report of you're your letter.

Similarly, we remind you that in carrying out these sprayings all technical measures continue to be applied regarding nozzles calibration, proper mixture preparation. These spraying shall be carried out in accordance with environmental parameters for this type of spraying.

Sincerely,

[signed]

CARLOS A. KLEEFELD PATERNOSTRO

MANAGEMENT OFFICE SECTION OF AGRICULTURAL PROTECTION AND  
REGULATION

Maria del Pilar

27-01-2003



## **Annex 48**

### **RESOLUTION N° 099 OF 31 JANUARY 2003 OF THE MINISTRY FOR THE ENVIRONMENT OF COLOMBIA**

(*Official Journal* No. 45.104, of 21 February 2003, Excerpts)

[...]

[Page 6]

### **RESOLUTION NO. 099 OF 2001** (January 31)

*Whereby Resolution 1065 dated 26 November 2001 is partially amended*

The (Acting) Vice Minister of the Environment in exercise of its legal faculties conferred to under Law 99 of 1993, Decree 1728 of 2002, and especially the functions delegated on under Resolutions 0843 and 0920 of 2002, and

#### **WHEREAS**

The Ministry of the Environment by Resolution 1065 of 2001 imposed the Environmental Management Plan submitted by the National Narcotics Directorate – DNE- for the activity called “Program for the Eradication of Illicit Crops by Aerial Spraying with Glyphosate” (PECIG) on the national territory;

[...]

[Page 7]

Pursuant to the provisions of Resolution 1065 of 2001, the Ministry for the Environment accepts the opinion issued by the *Instituto Colombiano Agropecuario* [Colombian Agriculture and Livestock Institute], ICA, for the provisional increase of the dose of the commercial formula of the glyphosate herbicide to 10.4 liters/ha, the mix being Roundup 480 SL (10.4 liters/ha) + Cosmo-Flux 411 (0.25 liters) + water (13 liters), for the eradication of coca crops, in the framework of the Program for the eradication of illicit crops with glyphosate [PECIG] in the national territory,

[...]

## RESOLVES

Article 1. Modify the reasoning part of Resolution 1065 of 2001, by which an Environmental Management Plan was imposed on the National Narcotics Directorate – DNE- for the activity called “Program for the Eradication of Illicit Crops by Aerial Spraying with Glyphosate”, PECIG, in the national territory, by accepting the recommendation issued by the Colombian Agriculture and Livestock Institute, ICA, for the provisional increase of the dose of the commercial formula of the glyphosate herbicide to 10.4 litres/ha, the mix being Roundup 480 SL (10.4 litres/ha) + Cosmo-Flux 411 (0.25 litres) + water (13 liters), for the eradication of coca crops, in the framework of the Program for the eradication of illicit crops with glyphosate [PECIG] in the national territory, in accordance with the reasoning section of this administrative act.

Article 2. The National Narcotics Directorate, DNE, is granted a twelve (12)-month term, starting from the date this administrative act enters in force, to submit to the Ministry for the Environment the results of the evaluation of efficiency of glyphosate application, of its residual action and the one of its metabolite AMPA in soils.

Article 3. Ratify the other parts of Resolution 1065 dated 26 November 2001.

Article 4. The National Narcotics Directorate, DNE, will inform in writing to contractors and in general all personnel involved in the activity described in Article 1 about the adopted modifications.

Article 5. The Ministry for the Environment, the Colombian Agriculture and Livestock Institute, and the Health Ministry within their competences will supervise the execution of the activity and are entitled to verify at any moment compliance with guidelines and obligations established in the present ruling.

Article 6. Notify the content of this resolution through the License Division of this Ministry to the National Narcotics Directorate, DNE, [...]

[Page 8]

[...] the Ombudsman’s Office, the Legal Representative of Fundepublico or those legally acting on its behalf, and Ms. Claudia Samper and Hector Suarez, who are a third party in this process.

Article 7. The National Narcotics Directorate, DNE, must publish the heading and the ruling part of this administrative act in a nationwide circulation newspaper and send a copy of it within the following 10 days after being notified to be kept in file 793.

Article 8. Send copy of this administrative act through the License Division to Environmental and Agricultural Affairs Section of the Public Ministry, to the Health Ministry, the Colombian Agriculture and Livestock Institute, the National Narcotics Council, and the Autonomous Regional Corporations and Sustainable Development Corporations, with jurisdiction in the provinces where the activity mention in article 1 of this administrative act is carried out.

Article 9. Appeal for reversal may be filed against this resolution. It shall be filed before this Ministry within 5 days after notification, and fulfill all legal requirements stated in articles 50, 51, and 52 of the Administrative Contentious Code.

Be it notified, communicated, published, and observed.

The Acting Vice Minister for the Environment  
Leonardo Muñoz Cardona



## **Annex 49**

### **RESOLUTION N° 013 OF 27 JUNE 2003 OF THE NATIONAL NARCOTICS COUNCIL OF COLOMBIA**

*(Official Journal No. 45.264, 30 June 2003)*

#### **RESOLUTION 0013 OF 2003**

*(June 27)*

*Whereby the Resolutions 0001 of 11 February 1994 and 0005 of 11 August 2000 are revoked and a new procedure for the Program for the Eradication of Illicit Crops is adopted*

#### **THE NATIONAL NARCOTICS COUNCIL**

further to its legal powers, and especially those conferred on it by article paragraph a), b), c), and specially, paragraph g) of Law 30 of 1986, and

#### **WHEREAS:**

The drug trafficking business produces adverse effects on democratic governance;

Some areas in the country are still devoted to the planting of illicit crops suitable for the development of narcotic drugs and that, for that reason there are illicit activities associated with the production, processing, trafficking and consumption of these substances;

The presence of such illicit crops generates harmful social consequences, whenever it brings disturbance of public order, due to the presence of strangers in the crops regions and the perpetration of associated criminal activities. These activities alter peace and harmony, which are necessary for in a communitarian State;

In many regions of the country the planting of illicit crops involves the presence of guerrilla and illegal armed groups, who violate the democratic security;

In accordance with article 79 of the Political Constitution it corresponds to the State to ensure the right to a healthy environment for all the people;

That the National Government has the obligation to maintain public order in the country, through the security conditions conservation, the health and morality required

for the harmony coexistence and so any strategy contributes to overcome the complex problem of drugs, as that purpose is encompassed within the duties of the State, as required application and development of the legislative decisions contained in the National Drug Control Policy;

The manuals of the United Nations Organization for the fight against drugs prescribed the following methods for the eradication of illicit crops: Manual, mechanical, by burning, biological and chemical;

In January 1992, the National Narcotics Council authorized the aerial controlled spraying of illicit cultivation of poppy, through the use of glyphosate chemical agent, facing the unusual increase in those crops and as a mechanism of control, in compliance with law;

Paragraph a) of article 91 of Law 30 of 1986, assigns to the National Narcotics Council the role of "Formulate, for adoption by the National Government, policies, plans and programs that the public and private entities should advance to the fight against the production, trade and use of dependence-producing drugs. Also, the Council will propose measures to control the illicit use of such drugs";

Paragraph g) of article 91 of Law 30 of 1986, assigns to the National Narcotics Council the role of "Instruct the destruction of marijuana and coca crops, and other plantations of which substances can be extracted and cause dependence, using the most suitable means, prior approval of the responsible organisms to ensure the population health and the preservation and balance of the country ecosystem";

A favorable concept on this issue was requested and obtained, in terms of article 91, (g) of Law 30 of 1986, to the Ministry of Health and the National Institute of Renewable Natural Resources and the Environment, INDERENA, as reflected in the letters dated 11 and 8 October 1993, respectively, signed by the Minister of Health and by the General Manager of the Institute, authorities responsible to ensure the population health and environment prevention. Said letters read as follow in the relevant parts:

“Regarding the opinion requested by that Directorate about spraying illicit coca and marijuana crops with herbicides requested in your letter of last September, I allow myself to remind your Office that in January 1991, the National Narcotics Council established an action strategy based on universal principles on prior detection of crop areas, choice of application method, and operation parameters”

“Additionally, the Health Ministry presented the Narcotics Council a Health Plan based on the epidemiological surveillance principles, which becomes, together with the environmental audit, a safeguard for human health and environmental protection”.

“Based on the previous considerations, this Office considers appropriate to ratify validity and convenience of the action strategy established in the Communiqué issued by the National Narcotics Council on 31 January 1999 regarding the parameters that guide the poppy eradication process, which must be kept in the new use proposed. Regards, Juan Luis Londono de la Cuesta Minister of Health (signed)”.

In the same direction the General Manager of INDERENA said:

“It is important to recall the “National Narcotics Council Communiqué to public opinion on the eradication of illicit poppy crops (Santa Fe de Bogota, 31 January 1992)”. It sets out an action strategy based on: previous detection; choice of method and eradication areas, and the operational planning. Regarding the latter aspect, the communiqué establishes that it is necessary to fix priority specific and technical parameters to be complied with during the police procedure”

"... Under these conditions, INDERENA ratifies the acceptance of the action strategy set by the National Narcotics Council in its communiqué dated 31 January 1992, pointing out the importance that must be given to compliance with the specific and technical parameters established for the eradication process of poppy crops and that must be kept for eradication of coca and cannabis crops. "Regards, General Manager INDERENA (signed)";

The National Government intends to strengthen the strategy to fight drug trafficking and control actions of illicit crops through forced eradication, by means of aerial spraying with the glyphosate herbicide;

The Illicit Crops Eradication Program with Glyphosate Herbicide, PECIG, must be considered as the mitigation plan done by the State for negative environmental impacts caused by the illicit growers ;

Forced eradication by aerial spraying will be the deterrent element toward the population link up to the illicit cultivation;

Forced eradication will be implemented through three integrated phases: detection, spraying and verification;

Detection will have to identify and characterize the affected areas by illicit crops, as well as determining the exclusion zones, based on satellite images;

During the phase of spraying planned operations of eradication it will take place in conjunction with the environmental authorities and national and regional order control agencies;

During verification phase the performance of the technical parameters will be assessed and reports of operation results will be prepared;

According to Law 99, 1993, Decree 1843 of 1991 and Resolution 3079 of 1995, it corresponds to Ministry of Social Protection, Ministry of Agriculture and Environment and Rural Development, Ministry of Housing and Land Development, to establish mechanisms to monitor and control risks arising from the use and handling of pesticides

The scope of the roles and responsibilities of the entities engaged in the program for the eradication of illicit crops that enable the coordination and participation in the solution of problems caused by the program should be clarified;

According to their jurisdiction, the authorities who must follow environmental, health and the epidemiological PECIG are: at national level, the Ministry of Social Protection, Ministry of Agriculture and Environment and Rural Development, Ministry of Housing and Land Development through the Colombian Agricultural Institute, ICA; at regional level: the Governorates, the Regional Autonomous Corporations, the Sectional Health and the ICA. At the municipal level through the Mayor Office and respective secretariats;

According to Law 99 of 1993, management and conservation of environmental and renewable natural resources corresponds to Ministry of Agriculture and Environment and Rural Development;

The tenor of paragraph 18 of article *ibidem* 5, according to the provisions of Decree 1124 to 1999, the Ministry of Environment, Housing and Land Development, through the Special Administrative Unit of the System of National Parks it corresponds to the management and administration of the areas integrating the National Parks System and coordination and implementation of the Protected Areas National System, SINAP;

In accordance with article 87 of Decree 1843 1991 “security strip”, provides that the application of pesticides in rural areas may not be made to less than 10 meters by land



and 100 meters by air for security strip, in relation to courses of water, roads, human and animal centers or any other area requiring special protection;

Based on article *ibidem* 188, the Ministry of Social Protection is competent to coordinate plans for the epidemiological surveillance and sanitary control of pesticides for the execution harmonically by responsible entities;

In accordance with article 19 of Decree 205 of 2003 it corresponds to the Ministry of Social Protection - Overall Public Health Direction, to coordinate and guide the Monitoring System in Public Health and disease control of binding record; direct, monitor and control the actions made by the entities of the sector and the General System for the security in Health prevention and control of diseases and public health surveillance;

In regard of the above, the Ministry of Social Protection, by Resolution 1066 of 2003, the National Institute of Health has been delegated with functions relating to the National Directorate of Public Health, especially as regards to develop, implement and support projects or control work and research of public health problems in the country, in coordination with the institutions involved;

Law 599 of 2000 - article 375 of the Criminal Code - criminalizes the Conservation or financing of marijuana plantations, or any other plant that may arise cocaine, morphine, heroin or any other drugs producing dependency, if it exceeds 20 plants;

Through aerial detections, satellite information, aerial surveys and intelligence reports, made by the Defence and Security of the State Agencies, strategies on the part of the growers of illicit crop production have been brought out, in order to evade the implementation of the Program for the Eradication of Illicit Crops through aerial spraying with glyphosate, splitting them and/or mixing them with licit crops or livestock;

By the said means, an increase of illicit crops to the interior of the Natural Parks National has been detected, suggesting that the restriction of PECIG operation within them is exploiting;

Article 2 of Decree 423 of 1987, adopted as permanent legislation by article 1 of Decree 2253 of October 3 1991, provides: "The Antinarcotics National Police Directorate will be responsible for the planning and direction of police operations in regard to prevention and suppression, in the national territory, of the criminal behavior or misdemeanors related to the production, manufacture, export, import, distribution,

trade, use and possession of drugs, the same as cultivation of plants from which they occur, according to the provisions of Law 30 of 1986 and other provisions added or reformed";

In accordance with the established content in article 12 of Law 785 of 2002, it corresponds to the environmental authority to develop implementation and control of environmental management plan for the purposes of forced eradication of illicit crops;

In accordance with the established content in article 13 of Law 785 of 2002, it corresponds to National Narcotics Directorate to advise and support the National Narcotics Council and the National Government, in the policies and programs formulation in the fight against the production, trafficking and abuse of drugs producing dependency;

In agreement with what was approved by the National Narcotics Council; the policy of reducing the offer will be coordinated by the Ministry of National Defense,

#### RESOLVES:

Article 1°. The Program for the Eradication of Illicit Crops with glyphosate herbicide, hereafter PECIG, under the responsibility of the National Police- Antinarcotics Direction will operate in all regions of the country where presence of illicit crops is determined. The areas of illicit crops split and/or mingled with lawful crops, which correspond to forms of cultivation used to evade the actions of PECIG, will also be target of the program.

The PECIG shall have an Environmental Management Plan designed, implemented and controlled by the Ministry for Environment, Housing and Territorial Development in coordination with the National Police – Anti-Narcotics Direction.

Paragraph 1°. Definitions:

Split crops area: That area of land that is divided by live and/or artificial barriers, sequence of plantations licit, cultivation of food crops or native forest, with illicit crops.

Mingled crops area: That planting that presents licit and illicit plants.

Paragraph 2°. Natural National Parks System. Taking into account that there is evidence of illicit crop within these areas, which threatens their conservation and sustainability, the implementation of PECIG is authorized therein, following the submission to the

National Narcotics Council of the environmental and social characterization of the areas to be sprayed. This characterization must be prepared by the Special Administrative Unit of the System of National Parks, UAESPNN, in coordination with the National Police- Antinarcotics Directorate, which will submit it to the Council consideration. The application of Glyphosate must be done within the illicit cultivation, without affecting surrounding forest. This operation must always be accompanied by officials of the Ministry of Environment, Housing and Land Development and the UAESPNN.

Article 2. The National Police - Antinarcotics Direction, for the implementation of PECIG should take into account the following parameters and establish the relevant coordination:

#### Operational planning

For the implementation of this function, human technical and financial resources, will be used to prevent and minimize the potential damage which may derive from such activity, through strict compliance with internal procedures stipulate in their regulations.

#### Reconnaissance of illicit crops areas

This reconnaissance will be done through the identification and location of illicit crops, its extension and surrounding environment.

#### Operation

To this effect, mobile and fixed bases will be available, which must comply with Environmental Management Plan described in article 1 of this resolution.

Paragraph. The identification, location, size and surrounding environment of illicit crops, it will be done by the National Police - Antinarcotics Directorate, with the support of the project Monitoring System of Illicit Crops, SIMCI, while the convention of the draft is in effect with the United Nations or another project to replace it.

Article 3°. Create the Technical inter-institutional Committee for implementation of to PECIG, as an advisory body of the National Narcotics Council. The Committee will be composed of the National Narcotic Director, or his delegate, who serves as chairman, and a representative of the following entities: Ministry of Justice and the Interior, Ministry of Environment, Housing and Land Development, Ministry of Social Protection, Ministry of Agriculture and Rural Development, National Police

Antinarcotics Direction, Office of the National General Attorney, Plan Colombia, Geographical Institute Agustin Codazzi - Soil Laboratory, Colombian Agriculture and Livestock Institute and an Assistant Director of the National Narcotics Directorate.

The representatives or delegates from each institution should be responsible in each of the areas whose functions are related to the development of PECIG.

The representatives of public and private sector may be invited to meetings of the Committee.

Article 4°. The Technical Inter-institutional Committee will have the following features:

1. Carry out, when deemed necessary, internal audits to the PECIG, and to report the results to the National Narcotics Council.
2. Know about the results of complaints attention of alleged damage caused by the PECIG.
3. Recommend training programs on the activities inherent in the PECIG.
4. Promote the contracting of the Technical External Audit, in terms of article 5 of this resolution.
5. Know about the results of the Technical External Audit, which will be presented to the National Narcotics Council by the National Narcotic Director.
6. The Committee will have ordinary meetings each three months, and extraordinary meetings when one of its members so requests it.

Paragraph 1°. The logistical support for members or delegates of the Committee transportation to the operation bases and areas of spraying corresponds to the National Police – Antinarcotics Directorate.

Paragraph 2°. The costs required by the entities of the Committee for their functions development, which are not covered in the respective operating costs, may be applied to the National Narcotics Council, with activities to be done and the projected budget supports. The said request must be processed through the Executive Secretariat of the Council.

Article 5°. External Technical Audit. The PECIG shall have a technical external audit, preferably hired with international cooperation resources, as public or private universities recognized for their academic and scientific trajectory.

The general tasks of the technical audit will be the following:

1. Validate whether the execution of the PECIG's operative activities adhered to the procedures and guidelines set in the PMA (Environmental Management Plan).
2. Submit to the Technical Inter-institutional Committee exam reports and assessments on a quarterly basis.
3. Recommend corrective actions.

Paragraph. The logistical support for auditors transportation to the operation bases and areas of spraying corresponds to the National Police – Antinarcotics Directorate.

Article 6°. This resolution will be in force on the publication date and revokes as a whole Resolutions 001 of February 11, 1994 and 0005 of 11 August 2000 by the National Narcotics Council and all other provisions that are opposed.

Let it be published and observed.

Issued in Bogota, D. C., on June 27 of 2003.

President,

Fernando Londoño Hoyos.

Executive Secretary,

Juan Carlos Zambrano Rengifo.



## **Annex 50**

### **RESOLUTION N° 1054 OF 30 SEPTEMBER 2003 OF THE MINISTRY FOR THE ENVIRONMENT OF COLOMBIA**

(Ministry for the Environment, Housing, and Territorial Development of Colombia)

#### **RESOLUTION No. 1054** (30 September 2003)

*"Whereby an Environmental Management Plan is modified and other decisions are made."*

#### **THE MINISTER FOR THE ENVIRONMENT, HOUSING AND TERRITORIAL DEVELOPMENT,**

**further to its legal powers, and especially those conferred on her by Law 99 of 1993, Decree 1753 of 1994 and Decree 1180 of 2003, and**

#### **WHEREAS**

The "Program for the Eradication of Illicit Crops by Aerial Spraying with Glyphosate" (PECIG) is being executed in Colombia.

Each and every activity and component of this program should be set within the context of current environmental regulations so that constitutional assumptions can be complied with, which impose a duty on the State to protect environmental diversity and integrity, preserve areas of special ecological importance, and stimulate education so that these goals may be attained.

The State should likewise, in furtherance of PECIG, prevent and control factors which might harm the environment, impose legal sanctions, and demand redress for damage caused.

Article 144 in Law 9 of 1979, the National Sanitary Code, which is currently in force, establishes that waste material from application operations should not be poured directly into water courses or reservoirs, the ground or the air. They should be subjected to treatment and disposed of in such a way that they do not pose health risk.

Article 87 in Decree 1843 of 1991, which regulates Law 9 of 1979, reads as follows: *"The Safety Strip. The application of pesticides in rural areas may not be carried out within 10 meters if land-based and 100 meters for aerial [spraying] as safety strips in*

*relation to bodies of water or watercourses, main roads, human or animal nuclei, or any other area that requires special protection".*

The "Program for the Eradication of Illicit Crops by Aerial Spraying with Glyphosate" (PECIG) has an Environmental Management Plan which was imposed by this Ministry by means of Resolutions 1065 of 2001 and 108 of 2002, and this contains measures for ensuring that the program is executed in accordance with current environmental regulations.

According to the provision stipulated in Ministry Resolution No. 099 dated 31 January 2003, the dose used on coca crops in the "Program for the Eradication of Illicit Crops by Aerial Spraying with Glyphosate" is 10.4 l/ha.

The aforementioned Environmental Management Plan was imposed at the time on the National Narcotics Directorate (DNE), as this was the competent entity for controlling development and execution of National Government policy on narcotics control, prevention and repression, to which PECIG refers, in the terms stated under Number 2 in Decree 2159 of 1992, modified by means of Decree 1575 of 1997.

In an official document which was filed with this Ministry under number 3111-1-12366 on 12 August 2003, the National Narcotics Directorate (DNE) submitted an application for the Environmental Management Plan imposed by means of Resolution 1065 of 2001 to be modified, and this application was complemented by official document number SPD-383, which was filed with this Ministry on 18 September 2003.

Modifying Environmental Management Plan records as requested is legally viable, as established in Article 28 in Decree 1180 of 2003, the first and third paragraphs of which read as follows.

*"TRANSITION REGIME. Any projects, works or activities for which permits, concessions, licences and authorisations of an environmental nature have been obtained under regulations which were in force prior to the date on which this decree is issued shall continue their activities under the terms and conditions and with the obligations stated in the administrative acts thus issued.*

(.....)

*In the aforementioned cases, the environmental authorities shall continue to carry out the necessary control and follow-up activities, with a view to establishing whether environmental regulations are being complied with. They may likewise stipulate, by means of a reasoned administrative act, any additional environmental management*



*measures which they might deem necessary and/or adjustments to those currently being implemented".*

The "Program for the Eradication of Illicit Crops by Aerial Spraying with Glyphosate" (PECIG) was being executed prior to the date on which Decree 1180 of 2003 came into force, under the provisions governing it at the time, and was subject to the terms, conditions and obligations stipulated in the respective administrative acts that were issued.

The Environmental Management Plan is a dynamic instrument which can be adjusted in line with the individual features of the activity and environmental conditions in the area where the project is being executed, and the modification document submitted by DNE accordingly proposes a strategy consisting of adjusting the thirteen (13) records which make up the present Environmental Management Plan for the Program for the Eradication of Illicit Crops by the Herbicide Glyphosate" (PECIG), as follows.

1. RECORD 1. SPRAYING OPERATIONS MANAGEMENT PROGRAM. This combines Record No. 1 - Spraying Operations Management - with Record No. 6 - Spraying Operations Inspection, Verification and Control Program, with certain objectives and activities in these adjusted.
2. RECORD 2. OVERALL SAFETY PROGRAM AT OPERATIONS BASES. This combines Record No. 2 - Glyphosate Management Program at Operations Bases - with No. 3 - Fuel, Vehicle, Equipment and Transportation Management Plan - and No. 11 - Overall Safety Program at Operations Bases - in the current plan.
3. RECORD 3. SOLID WASTE MANAGEMENT PROGRAM. This corresponds to the present Record No. 4 - Solid Waste Management Program.
4. RECORD 4. WASTE WATER MANAGEMENT PROGRAM AT PECIG BASES. This corresponds to the present Record No. 5 - Waste Water Management Program.
5. RECORD 5. ENVIRONMENTAL MONITORING PROGRAM. This combines Record No. 7 - Representative and Demonstrative Plot Research Program - with No. 8 - Environmental Monitoring Program - in the present Environmental Management Plan.
6. RECORD 6. SOCIAL MANAGEMENT AND COMMUNICATION PROGRAM. This combines Record No. 9 - Social Management Program - with No. 10 - Educational Communication Program - and No. 12 - Environmental Administration and Inter-Institutional Coordination Program.

7. RECORD 7. PUBLIC HEALTH PROGRAM. This corresponds to the health care activities included in Record No. 9 - Social Management Program - in the present Environmental Management Plan. It is added to the Environmental Management Plan as a new public health program.

8. RECORD 8. CONTINGENCY PLAN. This corresponds to the present Record No. 13 - Contingency Plan - in PECIG.

The proposed amendments to the PECIG Environmental Management Plan were evaluated in Technical Opinion No. 1059 dated 24 September 2003, which stated the following.

*"The National Narcotics Directorate (DNE) proposal is based on experience gained during execution of the Program and application of the environmental management records, and this has revealed that a number of them can be combined in that they have similar scopes and objectives, and if this is done, it will allow greater control to be exercised in PECIG environmental management measures and improve coordination relations with the different entities involved in the program.*

*We should also remember that because of the characteristics of the illicit crop eradication activity, a dynamic Environmental Management Plan is required, one which simplifies effective execution of the proposed activities in line with the varied environmental, social and safety conditions in the country.*

*The National Narcotics Directorate has said that the National Police Anti-Narcotics Direction, as the entity responsible for executing the Program for the Eradication of Illicit Crops with the Herbicide Glyphosate, is faced with risks all the time in its eradication activities because illegal armed groups are harassing and attacking the aircraft as they spray the herbicide Glyphosate, and in many cases this is preventing the environmental management records being implemented adequately.*

*This situation has been verified by the Ministry during Eradication Program Environmental Management Plan follow-up activities, when it has also been noted that illicit crop growers use a number of strategies to prevent areas where coca is planted from being sprayed. These include mixing illicit crops with licit ones, planting only sections of illicit crops, fixing wires between trees in order to try and get the fumigation aircraft to overturn when it descends, and having extremely high isolated trees on plots to make it more difficult for spraying aircraft to manoeuvre; these latter two situations seriously endanger the lives of the pilots and in some cases force them to modify program operating parameters".*

**Ministry of the Environment, Housing and Regional Development Considerations with Respect to the Content of the Proposed Records.**

An interdisciplinary technical review of the proposed modification to the PECIG Environmental Management Plan records leads to the conclusion that this will not alter the goal that is sought, namely prevention, mitigation, control and correction of and compensation for any possible negative environmental effects which might result from the illicit crop eradication activity, and the proposal is viewed as being a technical adjustment to the present Environmental Management Plan. The technical review by the Ministry raised the following considerations about the proposed records.

*RECORD 1. SPRAYING OPERATIONS MANAGEMENT PROGRAM. This combines Record No. 1 - Spraying Operations Management - with Record No. 6 - Spraying Operations Inspection, Verification and Control Program, with certain objectives and activities in these adjusted.*

The Ministry is of the opinion that that these two records should be combined, since the objectives and activities set forth in the present Environmental Management Plan are related, and the proposed record therefore meets environmental requirements for managing spraying operations. As far as the operating parameters established in Table No. 1 in the said record are concerned, these should be brought into line with what is established by the competent authority.

*RECORD 2. OVERALL SAFETY PROGRAM AT OPERATIONS BASES. This combines Record No. 2 - Glyphosate Management Program at Operations Bases - with No. 3 - Fuel, Vehicle, Equipment and Transportation Management Plan - and No. 11 - Overall Safety Program at Operations Bases - in the current plan.*

The Ministry authorises the records to be altered and combined as proposed by DNE.

*RECORD 3. SOLID WASTE MANAGEMENT PROGRAM. This corresponds to the present Record No. 4 - Solid Waste Management Program.*

The Ministry agrees to the amendment to the record proposed by DNE.

*RECORD 4. WASTE WATER MANAGEMENT PROGRAM AT PECIG BASES. This corresponds to the present Record No. 5 - Waste Water Management Program.*

The Ministry agrees to the amendment to the record proposed by DNE.

*RECORD 5. ENVIRONMENTAL MONITORING PROGRAM. This combines Record No. 7 - Representative and Demonstrative Plot Research Program - with No. 8 - Environmental Monitoring Program - in the present Environmental Management Plan.*

The Ministry is of the opinion that it is viable to agree to the record proposed by DNE, since the objectives set forth in Record No. 7 in the plan that is to be modified, namely studying ecological regeneration and dynamics in sprayed areas and determining glyphosate residue levels in the soil and how these have affected the physical and chemical properties thereof, are contained in the proposed record for carrying out under real conditions on the ground in each PECIG operation nucleus. This evaluation will thus be carried out at the same time as the environmental monitoring that is described in the proposed record.

Meanwhile, and as a result of the considerations under Record No. 8 - Environmental Monitoring Program - in the present Environmental Management Plan with respect to the water, soil, vegetation cover, land use, and health of the population in sprayed areas components, the objective is to carry out follow-up of the effects on these components. It is thus considered that the proposed record adequately covers the activities and indicators of the two earlier records (7 and 8).

*RECORD 6. SOCIAL MANAGEMENT AND COMMUNICATION PROGRAM. This combines Record No. 9 - Social Management Program - with No. 10 - Educational Communication Program - and No. 12 - Environmental Administration and Inter-Institutional Coordination Program.*

The Ministry authorizes the records to be altered and combined as proposed by DNE.

*RECORD 7. PUBLIC HEALTH PROGRAM. This corresponds to the health care activities included in Record No. 9 - Social Management Program - in the present Environmental Management Plan. It is added to the Environmental Management Plan as a new public health program.*

The Ministry authorizes the activities proposed in the record since they complement the Environmental Management Plan.

*RECORD 8. CONTINGENCY PLAN. This corresponds to the present Record No. 13 - Contingency Plan - in PECIG.*

The Ministry agrees to the amendment to the record proposed by DNE.

The Environmental Management Plan which is modified hereby shall consist of eight (8) records, containing the "Program for the Eradication of Illicit Crops by Aerial Spraying with Glyphosate" (PECIG) environmental management measures.

Decree 2568 of 2003 establishes that the National Narcotics Directorate (DNE) has the following duties, amongst others: to direct, coordinate, supervise and control execution of the duties and programs of the National Narcotics Directorate and officials thereof, to establish policy and adopt general plans relating to the institution, and to direct and control the objectives of the institution and see that these are achieved, in line with established development plans and policies.

The National Police Anti-Narcotics Direction - DIRAN - has a duty to reduce the drug supply by, amongst other things, the technical aerial spraying of illicit coca, poppy and marijuana crops, as established in Decree 1512 of 2000.

The entities listed below shall be responsible for executing the modified Environmental Management Plan records which will be authorized hereby:

1. National Police Anti-Narcotics Direction - DIRAN - will be responsible for dealing with Records Nos. 1, 2, 3, 4 and 8.
2. With respect to Record No. 5, each of the entities stated therein shall be responsible, with operational support from the National Police - Anti-Narcotics Direction, based on the activities stated below.

#### 2.1. VEGETATION SUCCESSION ANALYSIS

This covers the following activities:

2.1.1. Taking aerial photographs and videos by the National Police - Anti-Narcotics Direction as part of environmental monitoring, with the results to be sent to this Ministry;

2.1.2. Vegetation cover analysis over periods of time, produced by SIMCI (Integrated Illicit Crop Monitoring System), a project that is the responsibility of the Ministry of Justice, which will send results to this Ministry.

#### 2.2. GLYPHOSATE AND AMPA RESIDUE ANALYSIS

This covers the following activities:

2.2.1. Monitoring will be planned in conjunction with the National Police - Anti-Narcotics Direction, the National Health Institute, and the Agustín Codazzi Geographical Institute.

2.2.2. The taking of water and soil samples and the packing of these will be done by IGAC technicians in the case of soil samples and INS or technicians trained by INS in the case of water samples.

2.2.3. Samples will be sent to laboratories by the technicians who took them.

2.2.4. IGAC and INS, respectively, will carry out soil and water laboratory analyses and publish results.

2.2.5. The National Narcotics Directorate (DNE) will compile results for the nuclei and with the frequencies stated in the record and submit them to this Ministry.

3. National Narcotics Directorate (DNE) - Record Number 6.

4. The Ministry of Social Protection (National Health Institute at national level and Regional Health Divisions in Provinces, Districts and Towns) will be responsible for Record No. 7.

Technical Opinion No. 1059 dated 24 September 2003 concludes that it is technically and environmentally viable to modify the Environmental Management Plan for the Program for the Eradication of Illicit Crops with the Herbicide Glyphosate (PECIG) in the manner proposed by the National Narcotics Directorate (DNE) and in accordance with the aforementioned considerations, with the obligations which will be established in the resolution part of this ruling.

By virtue of the foregoing, this Office hereby reassumes the competence which was delegated in Resolution 307 of 2003, and in the resolution part of this ruling will proceed to modify the Environmental Management Plan which was imposed for the activity referred to as "Program for the Eradication of Illicit Crops by Aerial Spraying with Glyphosate" (PECIG) in Colombia.

By virtue of the foregoing, it is hereby

**RESOLVES:**

**Article 1.** To modify Resolution 1065 dated 26 November 2001 and Resolution 108 dated 31 January 2002, in order to adjust the Environmental Management Plan records

submitted by the **NATIONAL NARCOTICS DIRECTORATE (DNE)** for the activity referred to as "Program for the Eradication of Illicit Crops by Using Aerial Spraying with Glyphosate" (PECIG) in Colombia under the terms and conditions established in the Premises hereto and the resolution part of this administrative act.

**Article 2.** The entities listed below shall be responsible for complying with the Environmental Management Plan records which are modified by means of this administrative act:

1. The National Police Anti-Narcotics Direction - DIRAN - shall be responsible for dealing with Records Nos. 1, 2, 3, 4 and 8.
2. The Ministry of Health - National Health Institute, The Ministry of Justice, the National Police Anti-Narcotics Direction - DIRAN, the National Narcotics Directorate - DNE, and the Agustín Codazzi Geographical Institute - IGAC shall be responsible for Record No. 5, based on the activities established therein and in accordance with the first part of this ruling.
3. The National Narcotics Directorate (DNE) shall be responsible for Record Number 6.
4. The Ministry of Social Protection (National Health Institute at national level and Regional Health Divisions in Provinces, Districts and Towns) will be responsible for Record No. 7.

**Article 3.** The entities detailed under the preceding Article should do the following:

1. submit half-yearly reports containing details of activities carried out in furtherance of the modification to the Environmental Management Plan records, including training programs undertaken during the said period, with specific details of activities carried out for complying with the safety strips for environmental elements;
2. submit a Schedule and General Budget for the modified Environmental Management Plan for execution of PECIG within a period of sixty (60) days; and
3. inform contractors, and all personnel in general who are involved in the activity, in writing of the obligations, control measures and prohibitions established in this ruling and in the Environmental Management Plan modification document submitted, and demand that they comply strictly therewith.

**Article 4.** The Environmental Management Plan which is hereby modified covers only those works or activities which are described in the Environmental Management Plan modification document and in this Resolution.

Each of the entities listed in Article Two hereinabove should inform the Ministry of the Environment, Housing and Regional Development in writing of any modification to Environmental Management Plan conditions, so that these may be evaluated and approved.

**Article 5.** The Ministry of the Environment, Housing and Regional Development shall supervise execution of the activity and may at any time check that the guidelines and obligations established in this ruling and in the Environmental Management Plan are being adhered to.

**Article 6.** The entities which are referred to in Article Two hereinabove shall be responsible for any environmental deterioration and/or damage which might be attributable to them and has been caused in furtherance of the "Program for the Eradication of Illicit Crops by Aerial Spraying with Glyphosate", within the scope and extent of their competence and the responsibilities which are assigned to them herein.

**Article 7.** The National Narcotics Directorate (DNE) should publish this administrative act and the eight (8) records which make up the Environmental Management Plan within ten (10) days of the date on which it is notified thereof, and should submit a copy of the same to this Ministry.

**Article 8.** The Delegate Attorney's Office for Environmental and Agricultural Affairs, the Colombian Agriculture and Livestock Institute (ICA), the National Narcotics Council, the Regional Autonomous Corporations and the Sustainable Development Corporation are to be notified of the present ruling through the Legal Secretariat of this Ministry.

**Article 9.** Motion to set aside applies with respect to this Resolution, and may be filed with this Ministry within five (5) days of notice being served hereof subject to all legal requirements being met, as stipulated in Articles 50, 51 and 52 in the Administrative Code.

**BE IT NOTIFIED, COMMUNICATED, PUBLISHED AND COMPLIED WITH.**

(signed)

**CECILIA RODRIGUEZ GONZALEZ RUBIO**

**Minister**

**SPRAYING OPERATIONS MANAGEMENT PROGRAM**



## **RECORD #1**

### **1. ACTIVITY DESCRIPTION**

While executing aerial spraying operations using the mixture of this herbicide, some quite specific conditions may occur that may generate potential environmental and social impacts, from the very moment the airplane takes off until it lands. During the trajectory, it may even be necessary to dump the herbicide in flight to ensure the lives of the crew, due either to attacks by terrorists or to aircraft failure.

The elimination of illicit crops in Colombia is justified because it hinders the negative impact related to the production and trafficking of narcotics and to the harm of deteriorating the environment. It also enables introducing new plant species aimed at extracting psychoactive substances. There are several available eradication methods (manual, mechanical, burning, biological, and chemical). However, taking into consideration the location of the illicit crop fields, the characteristics of the landscape, the opposition of the farmers who cultivate plants for illegal purposes, and the presence of outlawed armed groups, the most efficient and least dangerous strategy is aerial spraying with herbicides.

### **2. OBJECTIVES**

- To follow the procedures and technical and environmental parameters for aerial spraying, which result in the efficient eradication of illicit crops sown throughout the national territory, pursuant to the responsibilities assigned, in order to protect and preserve the environment.
- To identify, characterize, and delimit zones with illicit crops.
- To identify and delimit exclusion zones and alert zones.
- To verify that environmental management measures are effectively applied during PECIG operations.

### **3. ACTIVITIES TO BE CARRIED OUT**

#### **3.1. Prevention Measures**

- Do maintenance and checks on and calibration of the spraying equipment on the aircraft.
- Comply with the technical and operational parameters used for applying the herbicide, as set forth herein.
- Comply with the environmental zoning criteria herein.

### *Maintenance, Checks, and Calibration*

Before every mission, the technical personnel at the National Police Anti-Narcotics Direction (DIRAN is the Colombian acronym) operations base must check the operational condition of the spraying equipment, and if need be, adjust the equipment.

DIRAN will keep a file of maintenance, check, and calibration reports.

## **3.2 Technical and Environmental Specifications in the Different PECIG Phases**

The spraying process is carried out in three phases: detecting the illicit crops to be sprayed, spraying, and verification.

### **3.2.1. Detection Measures**

The purpose of the detection process is to identify, characterize, and locate the zones with illicit crops and the zones to be excluded from the programs, using geographical coordinates.

Such characterization will be supported by satellite imagery, aerial photography, and cartography. The ARECI-DIRAN personnel will do the field work to carry out this activity and its main objective is to identify how the soil is used, the presence of settlements, and the delimitation of National Protected Area System zones, ecologically fragile zones and environmentally, socially, and economically sensitive zones, in order to create the basic environmental zoning for each operation.

To do so, there must be strict compliance with 1991 Decree 1843 Article 87 referring to security zones and with Article 1, Paragraph 2 in National Narcotics Council Resolution 0013 dated June 27, 2003.

The environmental zoning will be delivered, in accordance with the available cartography for operations already carried out and with the frequency stipulated by the Ministry of the Environment, Housing, and Territorial Development.

### **3.2.2. Spraying Measures**

For reasons of security and due to the location of and access to the fields with illicit crops, the spraying must be done using proper aircraft that comply with the parameters in Chart # 1.

#### **3.2.2.1. Operational Parameters**

During the spraying operations, bear in mind all technical navigation and spraying requirements, in order to mitigate the potential impact of the spraying on vegetation or on neighboring crops not covered by the PECIG. These parameters include flying altitude, the size of the drops, dosage, wind velocity, and other favorable weather conditions.

The effect of the drift or side movement of some of the mixture being sprayed could be an inconvenience, considering the consequences that it may have on the ecological surroundings of the plants being sprayed; therefore, the PECIG will be carried out under proper conditions (see Chart # 1).

### Chart # 1

## PROGRAM FOR THE ERADICATION OF ILLICIT CROPS BY AERIAL SPRAYING

### OPERATIONAL PARAMETERS

PARAMETER	UNIT OF MEASURE	VALUE OR RANGE	VALUE OR RANGE
		COCA	POPPY
Flying Altitude	Metres	The highest application altitude will be 50 meters; notwithstanding, the operation will be conditioned to the height of the obstacles present in the target spray zones.	
Maximum Release of Commercial Formula with Glyphosate	Litres / Hectare	10.4	2.5
Droplets size	Micra	300 - 1,000	
Foreseen Drift	Metres	< 5	
Maximum Outside Temperature during Application	Degrees Celsius	35	20

Maximum Wind Velocity	Knots	5
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For this purpose, there must be strict compliance with 1991 Decree 1843 Article 102 that refers to the pilots' obligations. Likewise, all other articles therein applicable to the program must be taken into account.

### **3.2.2.2. Other Factors to Bear in Mind during the Spraying Operations**

There are other factors that enable increasing the operational efficiency of aerial spraying using Glyphosate, without exceeding technical and economical thresholds; therefore, we recommend not spraying when:

- The fields are plowed or have very limited foliage (only stalks or crops harvested).
- There is imminence of rain or there is rain nearby
- There is evidence of the phenomenon of inverse currents or clouds near the ground. This phenomenon occurs especially in hilly or mountainous areas and in the wee hours of the morning in rainforest zones.
- The pilot has doubts about being able to identify the illicit crop to be sprayed.
- The aircraft is attacked, the equipment damaged or the operational personnel is ill.

### **3.2.3. Verification**

The Eradication Program by aerial spraying with Glyphosate must be verified in order to evaluate the efficiency and effectiveness of the environmental management measures.

#### **3.2.3.1. Measures to Verify Environmental Impact**

In parallel with the verification activities directly related to the efficacy of the illicit crop spraying, an environmental evaluation must be made, for the purpose of qualitatively estimating its magnitude (light / moderate / severe). This will be done, bearing in mind:

- Identification of the number of houses on the sprayed parcel, by their location in the airplane trajectory

- Identification of still bodies of water (lagoons, lakes, and similar ones) located in the airplane trajectory, as well as streams or rivers susceptible of receiving the herbicide
- Drift. The drift depends on the lateral wind velocity, the flying altitude, the initial size of the particles being sprayed, the density of the chemical compound, the outside temperature, and the pilot flying the aircraft's experience. To verify the presence of drift, an *Operations Precision Index* will be estimated, consisting of the ratio of the quotient of the total sprayed area over the intended controlled area.

If the quotient is more than 1, that is a direct indication of over-preciseness. And if the quotient is less than 1, there is not enough precision. The more the quotient approaches 1, the more the precision of the application technique reaches the optimum level.

The technical verification consists of the following activities:

- Selecting the areas to be acknowledged
- Selecting the sample
- Selecting and gathering the participants
- Evaluating the efficacy of the operation
- Verifying the impact on the surroundings
- Writing up the final report

### **3.2.3.1.1 Selecting the Areas to Be Acknowledged**

The Verification Program must be carried out using a sample of illicit crop parcels that have been sprayed. The zones are the Putumayo-Caqueta, Guaviare-Meta, Cauca-Nariño, Antioquia, and Norte de Santander nuclei.

### **3.2.3.1.2. Selecting the Sample**

The sampling unit will be the breadth of the passing selected, based on satellite localization records chosen at random. Also factors such as security in the zones to be sampled, operating costs, availability of equipment, and variability of the sample universe will be taken into account.

### **3.2.3.1.3. Selecting and Gathering Participants for the Verification Process**

To determine a reliable, consensual estimate of the area effectively eradicated, each participating entity must appoint and assign its delegates.

Also, the Ministry of the Environment, Housing, and Territorial Development, the Ministry of Social Protection, the Colombian Agriculture and Livestock Institute, the National Attorney General's Office, the National General Prosecutor's Office, Plan Colombia, and other institutions that it is deemed relevant to summon may be invited to participate in the verification process, as observers.

#### **3.2.3.1.4. Writing up the Final Report**

The results of the verification process must be submitted in a document containing:

- The verification activity participants
- Verification acts
- Process methodology
- Results
- Recommendations
- Photographic record or video of the sampled parcels and sectors.

#### **4. FOLLOW-UP**

DIRAN will be in charge of the follow-up on the different activities herein. Therefore, it must have the records of the results achieved in the spraying operations.

#### **5. ENTITY IN CHARGE**

The National Police Anti-Narcotics Direction is in charge of carrying out the activities indicated herein.

### **END OF THE RECORD SPRAYING OPERATIONS MANAGEMENT PROGRAM**

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### **INDUSTRIAL SAFETY PROGRAM ON THE OPERATIONS BASES RECORD # 2**

#### **1. ACTIVITY DESCRIPTION**

An industrial safety program is related to the proper handling of substances used for spraying illicit crops, fuels, lubricants, equipment, aircrafts, ground vehicles and machinery, as well as the occupational health care and industrial safety measures on the operations bases and in the air, whose improper performance may increase the

vulnerability and cause accidents of any nature, including actions by outlawed armed groups, with the subsequent generation of effects on the environment and on people's health.

Accidents lead to an increase of operation costs, supplementary costs (indemnities, compensations, repairs and replacements) associated with a negative program effect.

In order to carry out aerial spraying operations, it will be necessary to transport, store, load and dispose of farming chemical products, fuel, lubricants, and parts for the usage and maintenance of equipment, aircrafts and vehicles in the PECIG on the operations bases; as well as the final disposal of debris, waste and packing materials.

Among the risks that may arise on the different operations bases, we name the following:

- *Contamination of Bodies of Water.* This contamination is linked to the spillage of farming chemicals used for illicit crop spraying and their eventual dumping into nearby water sources.
- *Soil Contamination.* It may also be derived from the substances spilled on the base, which may affect the physical, chemical and biological conditions of the soil.
- *Operations Personnel's Exposure to Chemicals.* Farming chemicals and fuels may enter the human body orally, through the respiratory tract, through the skin or eyes, when the personnel is handling such substances.
- *Spills.* Spills may occur during the storage, handling and transportation of substances (farming chemicals, fuels and lubricants), and they may result in undesired personnel exposure and exposure to the environment.
- *Fires.* They may have different causes (accidents, terrorist attacks, sabotage, natural phenomenon) and they represent an evident risk for the personnel's health as there are flammable substances among the products used.

There are other activities that deserve industrial safety management, such as:

- Handling machinery, equipment and parts, including aircraft for spraying and for support.
- Handling fuels and lubricants used in the general equipment and machinery.
- Controlling the noise generated by the aircraft for spraying and for support.

In order to ensure a proper total safety program, it is necessary to have the training plans for the operation base personnel.

## **2. OBJECTIVE**

To prevent, control and mitigate the adverse or undesired events related to the improper handling of farming chemicals, fuels, lubricants, equipment, aircrafts, ground vehicles and machinery.

### **3. ACTIVITIES TO BE CARRIED OUT**

#### **3.1. FARMING CHEMICAL PRODUCT MANAGEMENT**

For the storage, handling, application, transportation and disposal of debris and residues, apply the measures embodied in the norms in force in 1986 Resolution 2309, 1991 Law 430, 1991 Decree 1843 and the regulations that modify them, add to them or substitute them, as well as in applicable environmental standards.

The specific activities are consigned in the National Police Anti-Narcotics Direction instructions that address total safety measures for the operations base platforms.

#### **3.2. RAW MATERIAL AND EQUIPMENT MANAGEMENT**

##### **3.2.1 FUEL AND LUBRICANT MANAGEMENT**

For the storage, handling, application, transportation of fuels, lubricants and disposal of debris and residues, implement the measures embodied in the following Colombian technical standards 1899, 1417, 4643, 5011 and in the 2002 Regulation Decree 1609 and in the standards that modify it, add to it or substitute it and that are applicable to it, given the special characteristics of this program.

##### **3.2.2 AIRCRAFT, GROUND VEHICLE, EQUIPMENT AND MACHINERY MANAGEMENT**

For the operation and maintenance of aircrafts, ground vehicles, equipment and machinery available on the operations bases, follow the guidelines available at the National Police Anti-Narcotics Direction and especially the instructions contained in the manufacturer's operating manuals.

#### **3.3. OCCUPATIONAL HEALTH AND INDUSTRIAL SAFETY MEASURES**

Follow the measures embodied in the National Police Occupational Health and Industrial Safety internal regulations, as well as the standards provided for in 1979 Law 9, Heading III Occupational Health and the decrees that regulate it.



Both the illicit crop eradication area and the police aviation area have their own instructions regarding total industrial safety and occupational health measures.

### **3.4 SIGNALLING**

The Operation Bases will be equipped with signaling for prevention, regulations, and information purposes, following industrial safety guidelines to prevent program-associated risks.

### **3.5. TRAINING**

#### **3.5.1 TRAINING FOR FARMING CHEMICAL PRODUCT MANAGEMENT**

Pursuant to the provisions in 1991 Decree 1843 Article 172 and following, all personnel working with pesticides must be trained once a year to ensure proper farming chemicals product management. DIRAN must keep the corresponding records of such training sessions, including topics covered, attendance sheet, duration, and training entity.

#### **3.5.2 TRAINING ON OCCUPATIONAL HEALTH AND INDUSTRIAL SAFETY MEASURES**

DIRAN will forward a training program, according to the specific activities carried out by the personnel involved in the PECIG, including the following topics:

- Risk evaluation and management
- First aid
- Use of personal protection items
- Air Salvage and Rescue (SAR is the Colombian acronym)
- Fire and spillage control
- Evacuation and contingency plans (please refer to Record # 8 Contingency Plan)

DIRAN must keep the corresponding records of these training sessions, including topics covered, attendance sheet, duration, and training entity.

### **4. FOLLOW-UP**

DIRAN will be in charge of the follow-up on the different activities included herein. To do so, DIRAN must have the records of the results of the inspections and verifications, as follows:

- Inspection of the farming chemical and fuel storage and pumping systems, to detect possible potential risks and incidents.
- Inspection of and follow-up on the following activities:
  - Operation and maintenance of the aircrafts used for spraying
  - Operation and maintenance of the machinery and equipment used in PECIG activities
- Verification of and follow-up on training programs.
- Verification of occupational health and industrial safety measure compliance.

The follow-up will be done on a monthly basis.

## 5. ENTITY IN CHARGE

The National Police Anti-Narcotics Direction is in charge of carrying out the activities herein.

## **END OF THE RECORD INDUSTRIAL SAFETY PROGRAM ON THE OPERATIONS BASES**

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### **SOLID WASTE MANAGEMENT PROGRAM RECORD # 3**

#### 1. ACTIVITY DESCRIPTION

Carrying out the activities proper to the National Police Anti-Narcotics Direction and the spraying operations using the herbicide mixture produces various types of solid waste:

- Solid domestic waste (SDW): due to its condition, nature, composition, and volume, this waste is produced from man's domestic activities or from his activities in any establishment similar to a home; it consists mainly of organic matter (food waste), paper, cardboard, glass, plastic, etc.
- Solid special waste (SSW): it consists of packing discards, oil, grease, used lubricants, epoxy paint and polyurethane-base paint containers, vinyl paints, solvents, accelerators, rain proofing elements, materials contaminated with used oils, fuel or petroleum derivatives, shavings, rubber packings, used packages and wrappings, and electrochemical batteries.
- Solid waste linked to farm chemical handling (ASW): it consists of empty plastic containers and other types of plastic and cardboard recipients.

#### 2. OBJECTIVE

To manage the solid waste on the bases where spraying is done and to establish mechanisms to prevent its impact on the environment.

### **3. ACTIVITIES TO BE CARRIED OUT**

#### **3.1. Domestic Solid Waste (DSW) Management Plan**

Because the program generates domestic solid waste on the bases where spraying is done, the regulation embodied in Decree 2104 dated July 26, 1983, through which solid waste management is regulated, will be applied. In addition to the above, instructions must be given to the personnel on the operations base for them to classify solid waste in its place of origin, in order to facilitate its management.

#### **3.2. Management of Special Solid Waste (SSW) and Solid Waste linked to Farming Chemical Management (ASW)**

Because the program generates special solid waste on the bases where spraying is done, including farming chemical containers, the regulation embodied in 1991 Act 430, in Decree 2104 dated July 26, 1983, in 1986 Resolution 2309 and in 1991 Decree 1843 issued by the Ministry of Health, through which solid waste management is regulated, must be obeyed.

In addition to the above, instructions must be given to the personnel on the operations base for them to classify solid waste in its place of origin, in order to facilitate its management. An instructions booklet and environmental education workshops will complement the solid waste management program for the operators on the bases.

Due to the low toxicity of the mixture used for the PECIG, the empty recipients of the mixture can be used to collect garbage or for building barriers (trenches) on the military bases, provided they are completely washed and perforated, to avoid their being used to transport water or other materials for human consumption.

With the above exceptions, they can be re-used by the same farming chemical manufacturing company.

### **4. FOLLOW-UP**

DIRAN will be in charge of the follow-up on the different activities included herein. To do so, it must have the records for each one of the activities:

- Inspections of the temporary solid waste storage sites
- Inspection of, follow-up on, and verification of the collection, separation, and disposal of solid waste.
- Verification of and follow-up on the training programs.
- Verification of compliance with occupational health and industrial safety measures
- Preparation of a six-month report on the results of such inspections.

Follow-up will be done every six (6) months.

## **5. ENTITY IN CHARGE**

The National Police Anti-Narcotics Direction will be in charge of carrying out the activities described herein.

**END** **OF** **RECORD**  
**SOLID WASTE MANAGEMENT PROGRAM**

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## **OPERATIONS BASE WASTEWATER MANAGEMENT PROGRAM**

### **RECORD # 4**

#### **1. ACTIVITY DESCRIPTION**

There are three (3) types of wastewater produced on a National Police Anti-Narcotics Direction operations base:

*Sewage:* the product of satisfying individual and group domestic needs

*Industrial Wastewater:* the product of washing the spraying devices of the aircraft, machinery, filling equipment, and of mixing and storing farming chemicals. This also includes water used to wash the facilities. In the wastewater from the general maintenance and washing of the facilities, we foresee a greater content of solids in suspension, detergents and, possibly, emulsified grease and oils.

*Rainwater:* This goes to a collecting system and is evacuated from the operations base or is infiltrated into the ground. Rainwater full of sediments that it drags on the ground may contain total solids as well as solids in suspension.

Some PECIG areas of operation are located in airports or next to them; the airports are equipped with their own sewer system or the sewer systems are part of the municipal sewer systems. The measures for collecting and treating the wastewater established below only apply to the bases that do not have connections to public sewer system networks for emptying purposes.

## **2. OBJECTIVES**

### **2.1. General Objective**

**To prevent, control, and mitigate the possible impact associated with the production and disposal of wastewater.**

### **2.2. Specific Objectives**

- To give proper treatment to the emptying processes, in order to prevent significant contamination to local and regional water resources.
- To avoid wastewater spillage and maintain natural water quality conditions in the waterways located in the operations base area of influence.

## **3. ACTIVITIES TO BE CARRIED OUT**

### **3.1. Wastewater Management**

Wastewater management will be handled, taking where the wastewater is produced into account:

- Sewage (S)
- Industrial Wastewater (IW)

No sewage is produced on mobile bases because the operations personnel do not stay inside these areas nor do these areas have cafeterias or lodgings.

On the fixed bases where there is no connection to the public sewer system, connection may be made to an alternate wastewater treatment system or at least to a septic tank with a grease trap or a membrane, which meets minimum waste disposal standards.

The bases will have a fixed or mobile system for collecting and re-using industrial wastewater. See Annex.

Precipitate solids produced in sewage treatment processes will be managed as domestic solid waste (DSW) and special solid waste (SSW), pursuant to the provisions in Record # 3 regarding solid waste management.

### **3.1.1. Wastewater Treatment**

#### *Sewage Treatment System*

The bases that produce sewage directly related to spraying operations will have treatment systems according to need; they will obey the allowable limits set forth in the regulations in force, and will ensure proper, permanent maintenance.

#### *Liquid Industrial Waste from Washing the Airplane Tanks (SLW)*

The industrial wastewater produced from washing the aircraft used to apply the mixture will be re-used in the spraying process.

### **3.1.2. Final Disposal**

Once the wastewater meets the conditions required at the emptying site, based on the use of the water in the receiving trench, it can be dumped, pursuant to the provisions in 1978 Decree 1541 and to 1984 Decree 1594.

### **3.2. Dumping Control**

In order to establish basic sanitary parameters (DBO, DQO, total solids and solids in suspension, pH, total coliforms and faecal coliforms), a characterization aimed at proving the efficiency of the domestic wastewater treatment system and compliance with regulations must be made.

A wastewater dumping analysis must be made once every six (6) months or at least once during the operation on bases that operate for less than six months, in order to establish that the emptying was limited to the provisions set forth in 1984 Decree 1594 regarding the use of wastewater and liquid waste.

The wastewater treatment system will be located where it will not lead to the contamination of any well, spring or other source of water supply. In addition, it will be located in a place that has the slope specified for evacuating the treated wastewater. The location must have the proper terrain and must be easily accessible.

The bases where wastewater is emptied into systems other than municipal sewer systems will obtain permits and keep them effective.

### **3.3. Training**

Training and educational programs will be given to those who operate the treatment system for the wastewater plants and for the re-use of industrial wastewater, in order to guarantee their proper maintenance and operation.

## **4. FOLLOW-UP**

DIRAN will be in charge of the follow-up on the different activities included herein. To do so, it must have the records of the results achieved in each one of these activities, as follows:

- Inspections of the bases, to verify the proper functioning of the wastewater treatment systems: collection system, treatment, and disposal of domestic wastewater and of water from washing the spraying equipment and the filling and storage equipment.
- Verification of and follow-up on training programs.

Follow-up will be done every six (6) months.

Implementing the measures included in this program will be subject to the budget assignments that the National Government allots for this purpose.

## **5. ENTITY IN CHARGE**

The National Police Anti-Narcotics Direction is in charge of carrying out the activities indicated herein.

**END OF THE RECORD  
OPERATIONS BASE WASTEWATER MANAGEMENT PROGRAM**

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**ENVIRONMENTAL MONITORING PROGRAM  
RECORD #5**

### **1. ACTIVITY DESCRIPTION**

Although the scientific studies available show that there are is no significant impact from applying Glyphosate on the soil, water, and plant components that surround the illicit crops being sprayed, it is necessary to carry out follow-up and verification actions regarding the effectiveness of the spraying operations and the estimation of the possible impact on the environmental components.

This technical follow-up will be done on parcels that meet the following criteria:

- The soil and the vegetation correspond to types common to the region or nucleus.
- The weather corresponds to the weather predominant in the nucleus.
- It is possible to do the proposed measuring (access and security). Consequently, this activity will only be carried out on parcels with coca crops because it is impossible to descend into the zones with poppy crops.
- In order to guarantee efficient resource and security management, selecting the parcels and sampling and monitoring will be implemented based on the spraying operations carried out as established in the National police Anti-Narcotics Direction work schedule.

## **2. OBJECTIVES**

- To follow-up on the PECIG activities, in order to measure or evaluate the real impact that they cause on the environment, and especially on soils, bodies of water, and the vegetation.
- To determine the amount of Glyphosate and of its metabolite MPAA residues on soils and bodies of water and the possible relation to soil and water physiochemical and biological properties.

## **3. ACTIVITIES TO BE CARRIED OUT**

### **3.1. Plant Succession Analysis**

To become familiar with the plant succession process, a qualitative regeneration characterization (percentage of vegetation layers) will be done before and after each spraying, using videos, digital photography, and satellite imagery.

In zones where there is no access either due to public order problems or to topographical conditions, available images will be used in order to determine any change in the vegetation layers.



To do this analysis, the following Records must be borne in mind:

*Size*

The parcel to be evaluated will be geo-referenced and will have a minimum area of one hectare.

*Number*

A total of two (2) parcels will be analyzed regarding vegetation layers, for each PECIG target nucleus:

- Putumayo / Caqueta Nucleus
- Guaviare / Meta Nucleus
- Cauca / Nariño Nucleus
- Norte de Santander Nucleus

*Periodicity*

Verification must be done before the spraying, immediately thereafter, at 60 days and, if justified, at 90 and at 180 days.

To forward the environmental monitoring of the spraying operations on poppy crops, aerial monitoring will be done, given the topographical, meteorological, public order, and typical logistic support conditions in these zones.

### **3.2 Glyphosate and MPAA Residue Analysis**

To determine the behavior of the Glyphosate and its metabolite MPAA residues, samples will be taken from the same parcels, in compliance with the ICA-approved protocol for soil and water sample-taking, in accordance with the studies required to obey the provisions in 2003 Resolution # 0099.

*Size*

The parcel to be evaluated will be geo-referenced and will have a minimum area of one hectare.

*Number*

A total of two (2) parcels will be analyzed regarding vegetation layers, for each PECIG target nucleus. For soils, a compound sample will be made up of minimum three (3) samples taken from each parcel. For bodies of water, a compound sample will be made up of minimum two (2) samples taken from each parcel.

- Putumayo / Caqueta Nucleus
- Guaviare / Meta Nucleus
- Cauca / Nariño Nucleus
- Norte de Santander Nucleus

### *Periodicity*

In each parcel selected, a compound sampling will be used taken from the first 20 cm. of horizon A, before the spraying, immediately thereafter, at 60 days and, if justified, at 90 and at 180 days.

### **Indicators**

For the purpose of understanding the dynamics of Glyphosate and its metabolite MPAA and their effect on the physiochemical and biological properties of soil and water, we intend to evaluate the impact that the application has, by comparing the parcels from which the samples were taken, sprayed and not sprayed. The following parameters will be measured through laboratory analysis:

*Soil:* pH, Cationic Interchange Capacity (CIC), relation of interchangeable bases, nitrification (nitrates, ammonia and nitrites), percentage of organic matter, texture, concentration of Glyphosate and AMPA, new count of bacteria, actinomycetic fungus and nitrogen fixative, phosphate solubilizers, total phosphorous and available phosphorous.

*Water:* Concentration of Glyphosate and AMPA, pH, electrical conductivity, temperature, dissolved oxygen, chemical oxygen demand, nitrification (nitrates, nitrites and ammonia), dissolved phosphate, magnesium, and calcium.

*Vegetation Layer.* The indicator will be a percentage estimate of the area with new vegetation.

## **4. FOLLOW-UP**

In coordination with the entities involved, DIRAN will ensure compliance of the work schedule established to carry out the proposed activities and to send the samples to the

Agustin Codazzi Geographical Institute (IGAC is the Colombian acronym) Soil Laboratory and to the National Health Institute (INS is the Colombian acronym) National Referencing Laboratory .

## **5. ENTITIES IN CHARGE**

### **Plant Succession Analysis**

- The National Police Anti-Narcotics Direction will do the aerial photography and videos, as part of the environmental monitoring. The results will be sent to the Ministry of the Environment, Housing, and Territorial Development.
- The Ministry of the Interior and of Justice is in charge of the project to analyze the vegetation layer over time, which is a product of the Total Illicit Crop Monitoring System (SIMCI is the Colombian acronym). That Ministry will remit the results to the Ministry of the Environment, Housing, and Territorial Development.

### **Glyphosate and MPAA Residue Analysis**

- Monitoring Planning will be done with the intervention of the National Police Anti-Narcotics Direction, the National Health Institute, and the Agustin Codazzi Geographical Institute.
- IGAC technicians will take soil samples and pack them and the INS or whomever the INS trains to do so, will take water samples and pack them.
- The technicians who take the samples will send them to the labs.
- IGAC and INS will do the lab analysis and supply the results, for soil and water, respectively.
- The National Anti-narcotics Agency (DNE is the Colombian acronym) will compile the results for the nuclei and periodicity indicated herein and will send them to the Ministry of the Environment, Housing, and Territorial Development.

**END OF THE RECORD  
ENVIRONMENTAL MONITORING PROGRAM**

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**COMMUNICATION AND SOCIAL MANAGEMENT PROGRAM  
RECORD # 6**

## **1. ACTIVITY DESCRIPTION**

The development of a program of the nature of the PECIG implies a series of interactions with the communities in the program target zones, either to inform them of its characteristics, results or progress or to solve the concerns that they may have regarding said program.

## **2. OBJECTIVES**

To develop a set of prevention, training and information activities aimed at the national, regional and local environment, as well as to the communities regarding the PECIG nature and scope, its results and its risks, and regarding the environmental protection measures involved in the EMP.

## **3. ACTIVITIES TO BE CARRIED OUT**

The Communication and Social Management Program has four (4) strategies: communication, training, inter-institutional coordination and complaint handling.

### **3.1. Communication**

Through a communication strategy, keep the society and the community at large informed nationally, regionally and locally, especially the communities located in the areas of influence of the Glyphosate spraying nuclei, regarding aspects, such as:

- Illicit crop problems
- Eradication policies
- PECIG results (detection, spraying and verification)
- Complaint handling system
- Risk prevention and management

This information must be disseminated through media such as web pages, bulletins, publications, campaigns, among others.

### **3.2. Training**

The training will be aimed at institutional officials involved in the program, PECIG technical and operational personnel, health care authorities, among others, and will be related to the Environmental Management Plan. See training aspects in Records # 1, 2, 3, 4, 7, and 8.

To develop this strategy, prepare a Training Plan with the different topics to be addressed in the EMP, the workshop date, the technical, financial and human resources

required, the entities in charge, the number of persons to be trained, the workshop evaluation and follow-up. The DNE will require this Plan in order to consolidate it into one sole document.

### **3.3. Inter-institutional Coordination**

The Program for the Eradication of Illicit Crops by Aerial Spraying with Glyphosate (PECIG) is a strategy that the Colombian State uses to reduce the supply of illicit drugs.

To carry out the activities included in the PECIG and in its Environmental Management Plan, we boast, at a national level, the participation and commitment of the different institutions involved in the PECIG, which have direct responsibility, pursuant to the provisions in the National Narcotics Council Resolution 0013 dated June 27, 2003, and to the Records in this plan.

The purpose of this coordination is to ensure compliance with the activities contained in the EMP.

In order to carry out these actions, we may establish *inter-institutional covenants* with technical, public and private organizations who can support the PECIG.

### **3.4. Complaint Handling**

The entities in charge in the PECIG will design and execute the most proper mechanisms to handle the complaints for affectations that may have been caused as a result of the Program.

#### **3.4.1. Farming and Livestock Activities**

Complaints of affectations that may have been caused by working with legal crops not mixed with or that are rotated with illicit crops will be handled pursuant to the provisions in Resolution 0017 dated October 4, 2001 or in any other regulation that modifies it, adds to it or substitutes it.

#### **3.4.2. Environmental Management**

Should there be possible damage to zones in the National Natural Park Systems or other forest zones or State-owned natural zones, the Environmental Authority (Regional Autonomous Corporations) or the Natural National Park Special Administrative Unit

(UAESPNN is the Colombian acronym) will present the complaints to DIRAN, who must handle said complaints pursuant to the standards in force regarding administrative actions.

### **3.4.3. Health Care Management**

The possible complaints that may arise for alleged health affectations will be handled pursuant to the mechanisms set forth in the General Health Social Security System described in Record # 7.

## **4. FOLLOW-UP**

On a monthly basis, DNE will verify the progress status of the scheduled activities vs. the activities carried out for each strategy defined herein.

Each entity committed to the implementation of strategies will appoint one delegate who will be in charge of all coordination with DNE.

## **5. ENTITY IN CHARGE**

DNE is responsible for coordinating the implementation of the strategies provided for herein.

# **END OF THE RECORD COMMUNICATION AND SOCIAL MANAGEMENT PROGRAM**

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# **PUBLIC HEALTH PROGRAM RECORD # 7**

## **1. ACTIVITY DESCRIPTION**

This program describes the set of activities and procedures aimed at the prevention, mitigation, correction, and compensation of risk situations for the health of the population in the PECIG application zones.

## **2. OBJECTIVES**

### **2.1. General Objective**

To develop risk management measures for the prevention, mitigation, correction, and compensation of the effects on health that may be associated with spraying using Glyphosate in the PECIG operations zones.

## **2.2. Specific Objectives**

- To carry out community information activities aimed at reducing the risks of exposure to pesticides and at inducing the demand for timely medical care to diagnose and manage possible accidents with these substances.
- To strengthen the institutional capacity of health services and environmental sanitation at a local level, in order to ensure timely, proper attention to possible risk situations that may affect the population's health.
- To define and develop mechanisms to evaluate possible affectations to people's health, for them to receive attention.

## **3. STRATEGIES AND ACTIVITIES**

The strategies to be developed are related to information, care, and evaluation regarding health complaints.

### **3.1. DETERMINING THE HUMAN HEALTH RISK PANORAMA**

The Ministry of Social Protection will create the Panorama for Risks to Human Health, which may be caused by exposure to the mixture used in the PECIG. Based on medical and scientific literature, medical histories and risk levels as well as foreseeable adverse effects can be described.

Using that panorama, the scope and development of the other activities included herein based on the occurrence of each risk will be established and specific measures to eliminate or effectively control the provoked adverse effect will be prepared.

### **3.2. INFORMATION FOR PREVENTING EXPOSURE AND ACCIDENTS CAUSED BY ILLICIT CROPS AND THEIR ERADICATION**

Within the general framework to develop the information, education, and communication strategy, there will be workshops and training sessions on the contents of the PECIG Environmental Management Plan and its components. The training will be aimed at institutional officials who participate in the program, PECIG technical and

operational personnel, and administration, health, and environmental authorities in the municipalities involved.

The specific information actions to which this component refers are aimed at the communities in the areas of influence of the zones in which the PECIG intervenes, in order to reduce risks of exposure to pesticides and to induce the demand for timely medical care for the diagnosis and management of possible accidents with pesticides. Such activities will be permanently carried out in all of the zones scheduled in the PECIG, with certain priority before the spraying occurs and during the period immediately after the spraying. The activities include the following:

- Designing and developing informational messages aimed at the community regarding prevention measures and management of possible situations of exposure to pesticides, which will be permanently broadcast in the zones scheduled for spraying in the PECIG. The massive media will broadcast these messages, thus ensuring that this information will be of public domain.
- Designing and developing informational bulletins of a technical nature aimed at health and environmental authorities that direct prevention and control actions for possible situations associated with the spraying.
- Carrying out basic information activities aimed at the local authorities related to this program, in the municipalities scheduled for spraying in the PECIG.
- Disseminating the results obtained while carrying out the program.

The local health and environmental authorities will be in charge of carrying out the above-mentioned activities, using the guidelines and technical assistance of local, provincial, and national level authorities.

### **3.3. HEALTH CARE FOR AFFECTATIONS RELATED TO ILLICIT CROPS AND THEIR ERADICATION**

The actions aimed at guaranteeing timely, proper attention to possible risk situations or affectations effects to the population's health include:

- Preparing and strengthening health care services in the service network that exists in the areas of influence of the zones scheduled for spraying in the PECIG. Each Territorial Health Division will define in its area of influence the health establishments where sufficient institutional development will be done to be able to respond and manage such cases.



- Carrying out activities to induce the demand of services to provide the diagnosis and management of possible cases of exposure to pesticides among the population in the areas of influence of the sprayed zones, by actively seeking to develop health brigades and by performing channeling actions with community leaders.
- Carrying out training programs aimed at community leaders and health professionals and technicians involved in the service network that exists in the areas of influence of the zones to be sprayed, and aimed at the health authorities and other officials involved in performing the PECIG. In the areas of influence, the local health authorities will replicate training programs every time there is a turnover of the assigned health personnel. On the bases where the spraying is done, these programs must be set up every time a new operation starts, keeping a record of each activity.

The training programs are:

#### **a) Training Municipal and Provincial Health Team Personnel**

The purpose of the health division personnel training contents and methodologies will be to contribute to strengthening the capacity of municipal and provincial management for the prevention, supervision, and control of problems caused by pesticides, including those that may be produced as a result of spraying in the PECIG.

#### **b) Training Medical / Health Care Service Personnel**

The objective here is to improve the capacity to detect, diagnose, and clinically manage cases of exposure and intoxications caused by pesticides. To do so, the Ministry of Social Protection will prepare health care manuals and guidebooks.

#### **c) Training Environmental Health Technical Personnel**

The purpose of training this type of personnel is to develop their skills in identifying, monitoring, and controlling circumstances of risk to the population, associated with the use and management of pesticides, as well as to develop their abilities to investigate cases within the public health supervision process and community education for preventing and controlling risks at a domestic level. To do so, the Ministry of Social Protection will prepare care manuals and guidebooks.

#### **d) Educating Personnel from Other Entities and the Community at Large**

The Territorial Health Divisions will carry out information and education activities aimed at personnel in other sectors and the community at large, regarding the risks and potential effects of pesticides, as well as general prevention, supervision, and control

measures. To do so, the Ministry of Social Protection will design proper educational material.

The objective of this activity will be to encourage the participation and integration of persons and institutions to supervise and control problems related to the use and handling of and management of pesticides. Special emphasis will be given to coordination with the ICA Regional Offices, the Regional Autonomous Corporations, SENA, the UMATAS, and Municipal Ombudsmen's Offices.

#### **e) Training the Operational Personnel Who Work with the Mixture Being Sprayed**

Regarding this topic, the Territorial Health Divisions will support the training processes carried out by the entities in charge of guaranteeing the safety and industrial hygiene of the operations base operators, pilots, and personnel. In all cases, the provisions set forth in 1991 Decree 1843 regarding the use and handling of pesticides, especially those in Chapters IX, X, XIII, and XIV (see reference in the contents of Record # 2) will be obeyed.

#### **f) Establishing and Institutionalizing a Standard Protocol for Attending Patients**

The General Health Social Security System will attend alleged events of exposure in accordance with its normal procedures and it will determine if there is a cause and effect relationship between the exposure to the sprayed mixture and the condition of the patient under study, pursuant to the protocol set forth by the Ministry of Social Protection.

To do so, a standardized protocol will be established and institutionalized to attend patients who have symptoms that make us suspect exposure or who have symptoms compatible with intoxication caused by pesticides. The protocol will include the following procedures:

- Preparing a complete medical chart including occupational background.
- Filling out the specific form for evaluation of exposure to pesticides and other chemical substances.
- Doing a physical exam seeking signs compatible with intoxication caused by pesticides.
- Taking samples to determine pesticides, pursuant to the criteria in the public health supervision protocol.
- Giving medical care as required based on the established diagnosis.
- In the event of the death of a patient where there is suspicion of intoxication caused by pesticides, performing a legal medical autopsy, pursuant to the procedures set forth by the Institute of Legal Medicine and Forensic Sciences.

- Filling out the Notification Form for Intoxication Caused by Pesticides, if such is the diagnosis, and sending the notification to the Local Public Health Supervision Unit.

### **3.4. EVALUATION OF COMPLAINTS REGARDING AFFECTED HEALTH**

Health entities are responsible for establishing a possible cause and effect relationship between affected health and the Glyphosate used in the PECIG. To do so, they have medical professionals duly trained to evaluate each case and pronounce a decision, pursuant to the protocol that the national health authority defines to evaluate and determine the possible damage to people's health related to Glyphosate. The evaluation will be made maximum ten (10) days after the alleged exposure to the herbicide.

All health complaints received or remitted to entities other than health care service centers or to public health supervision units will be immediately referred to the above-mentioned health agencies set up in each territorial agency, to proceed with the medical evaluation and determine possible relations between the medical situation that motivated the consultation and exposure to Glyphosate and other related substances. Along those lines, information must be given to the persons involved as well as to the authorities and officials of the distinct agencies, for said evaluation to be done in a timely manner.

At any time, both entities that receive health complaints and the population at large may demand that health organizations make an evaluation of the health condition of persons who file complaints or who accede to services for consultation when they suspect the existence of physical signs and symptoms that they believe are associated with pesticides.

### **4. FOLLOW-UP**

Follow-up will be done on a monthly basis to check scheduled activities against activities carried out. The Ministry of Social Protection General Director's Office will be the entity that will do the plan follow-up and monitoring.

### **5. ENTITY IN CHARGE**

At the national level, the Ministry of Social Protection and the National Health Institute will be in charge of the health component; at the provincial, district and municipal levels, the Territorial Health Divisions will be in charge.

# END OF THE RECORD PUBLIC HEALTH PROGRAM

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## CONTINGENCY RECORD # 8

## PLAN

### INTRODUCTION

Given the fact that the Program for the Eradication of Illicit Crops sprays using Glyphosate, a broad spectrum herbicide, and, although the environmental risk evaluation reported the high degradability of Glyphosate in the different environmental surroundings, the operation of the program itself is subjected to several risk factors (outlawed armed groups, aircraft mechanical failures, environmental aspects, to name a few), which endanger human lives and the natural environment when, due to these facts, it is necessary to immediately dump all of spraying product.

The Contingency Plan (CP) is a document that provides response strategies to attend the emergencies that may arise during the different stages of Glyphosate handling, for the purpose of illicit crop eradication (transportation, storage, handling and spraying). Among the possible events that may occur, we include dumping (immediately dumping all of the Glyphosate from the aircraft), which action, in the oil sector, would correspond to spillage. For all events analyzed, we have established the responsible parties to be in charge of the CP operation as well as the mechanisms to supply basic information on the possibly affected areas. Likewise, we have established action procedures that must be followed when facing each type of situation, the parties to whom to request support, the equipment and production factors that would be required for each action.

By creating the Program for the Eradication of Illicit Crops contingency plan, the Anti-Narcotics Police aims not only to respond in a timely manner to the contingencies that arise from the operation, but also to follow the National Total Emergency Attention Policy, with the support and participation of the different government entities and institutions, each one handling its portion, based on its mission and objectives.

### 1. GENERAL CONSIDERATIONS

The Contingency Plan (CP) is a set of activities and operations that must be planned and carried out, in order to anticipate, prevent and / or correct any eventuality that may arise due to operating, natural or exogenous failures, and that may cause some type of negative impact on people, their assets or on the environment.

The CP also seeks to:

- Minimize the environmental impact in the event of a disaster
- Minimize the injuries that the emergency could cause to the program management personnel or to the communities located in the area of influence
- Minimize financial losses
- Reduce claims and costs derived from the civil liability when facing possible damages
- Reduce the area of influence of the Glyphosate spraying outside the borders of the illicit crops.

## **2. CONTINGENCY PLAN STRUCTURE**

The Contingency Plan is basically comprised of a Strategic Plan, an Operating Plan and a Database, with the following basic components:

### **2.1 STRATEGIC PLAN**

The purpose of the strategic plan is for each responsible person or entity to clearly know its *functions and responsibilities* within the plan, to perform the functions assigned and to efficiently use the resources available to take care of emergencies.

The Contingency Plan covers the spraying program operations zones. Therefore, the National Police Anti-Narcotics Direction bases will have the equipment, mechanisms and personnel trained to handle possible incidents or accidents related to the aerial spraying processes.

Within the specific PECIG implementation zones, the following have been defined as priority action zones within the Contingency Plan:

- National Police Anti-Narcotics Direction bases and surrounding areas
- Zones in which the aircraft used for spraying flies and routes between the bases and the application zones
- Areas neighboring illicit crops

These zones were determined according to spraying operation characteristics and to existing threats and risks to carrying out such operations.

The CP structure is mainly based on the creation of a Permanent Emergency Committee (PCE is the Colombian acronym) for each base, responsible for the following activities:

- Planning the actions to follow in the case of any eventuality
- Establishing and organizing reactions in order of importance
- Assigning pertinent functions
- Directing and coordinating the actions to be followed
- Evaluating the CP application results

**BASE PERMANENT EMERGENCY COMMITTEE (PEC)**

<b>Emergency Groups</b>	<b>Internal Support Group</b>	<b>External Support Entities</b>
Base Operations Commander Spraying Operations Commander Spraying Group Coordinator Environmental Management Plan Technician	Spraying Mobile Group Commander Farming chemical and Fuel Blending Technicians Environmental Management Plan Technician Communications Chief	Fire Department National Army Red Cross Colombian Civil Defense Corresponding National Police Department DNE Ministry of the Interior Disaster Attention Office, if so required.

**2.2 OPERATING PLAN**

This is the part of the CP where *emergency procedures* are established to enable rapid mobilization of human and technical resources, to start up the immediate response actions established.

The Coordination Centers for activating the Contingency Plan will be the National Police Anti-Narcotics Direction spraying bases, where the required equipment is available for communication between the disaster attention team and the operations center.

The purpose of this plan is to establish the basic procedures of the Contingency Plan operation. It also defines notification, organization and operation principles and mechanisms.

- Prevention and control measures
- Communication with the internal support team
- Communication with external support entities
- Alarm activation
- Contingency Plan activation
- Evacuation during emergencies
- Post-evacuation measures
- Fire control in the storage area
- Explosion control in the storage area
- Spillage control in the storage area
- Fire control in the spraying area
- Explosion control in the spraying area
- Spillage control in the spraying area
- Contingency Plan evaluation
- Training programs

Below we list the procedures or protocols to be followed in each Operating Plan component:

### **2.2.1 Prevention and Control Measures**

On the operations base:

- The Spraying Operations Commander will take the necessary steps to acquire the required materials and equipment for the Contingency Plan implementation, such as communications equipment, fire extinguishers, and first aid kits; and will order their installation in the corresponding sites. Fire extinguishers will be placed in the areas that are most vulnerable to fire.
- The technician responsible for the Environmental Management Plan will be responsible for installing the fire and explosion signaling equipment and for their periodical checks, for the signaling in all areas on base: NO SMOKING, RESTRICTED AREA, AUTHORIZED PERSONNEL ONLY, USE SAFETY PROTECTION ELEMENTS, EMERGENCY EXIT, EVACUATION ROUTE, HIGH TENSION AREA, FIRE EXTINGUISHER, ETC... . That person will also manage the communications equipment maintenance.
- The Environmental Management Plan technician will be responsible for managing the fire extinguisher maintenance for all risk areas and for the revision and maintenance of the first aid kits.

- The Spraying Group Coordinator will develop simulacrum to verify the procedures for handling spills, fires and explosions caused by fuels in the corresponding areas.

### **2.2.2 Communication with the Internal Support Group**

The existing communication systems must be used to inform all personnel on the base of the emergency at hand for them to immediately arrive and give the pertinent recommendations.

### **2.2.3 Communication with External Support Entities**

When the internal groups cannot control the contingency, the Spraying Operations Commander will contact the existing external entities specialized in emergency attention to inform them of the type of emergency at hand, and to request their immediate arrival and support.

The Spraying Operations Commander will coordinate the actions with the internal and external support groups to respond to the emergency.

In the case of dumping, the Spraying Operations Commander will report and coordinate the necessary support with the different pertinent entities.

The Spraying Operations Commander will prepare an initial dumping report that will contain the basic information regarding the specific circumstances (where, when, and how), in order to preliminary estimate the magnitude and severity of the event.

For initial notification purposes, Form # 1 INITIAL REPORT will be used, (see Annex), taken from the National Contingency Plan and customized to the spraying program operation conditions.

### **2.2.4 Alarm Activation**

In case of emergency, the Spraying Operations Commander must trigger the emergency alarm.

If there is any other person in the emergency room, this person must immediately inform the Spraying Operations Commander for him / her to trigger the alarm.

Once the corrective actions are initiated, the Spraying Operations Commander may order the alarm deactivation.



To activate the CP, we will take the customized levels from the National Contingencies Plan.

### **2.2.5 Contingency Plan Activation**

Once the emergency is reported, the Spraying Operations Commander will proceed to:

- Immediately plan the corrective measures regarding security and emergency local plans.
- Immediately communicate with the internal support groups, ordering their immediate arrival, and will coordinate activities.
- Face the emergency pursuant to the procedures and protocols established below.
- If required, request the arrival of external support entities.
- Order the suspension of all activities that interfere with properly attending the emergency.
- Supervise the rescue of the exposed personnel or of the personnel affected by the emergency.

The CP activation may have different levels, according to the characteristics of the emergency:

#### **Level 1: Partial CP Activation in Alert Mode**

In this type of event, the Program will take measures aimed at controlling the situation, by activating its maximum operating response level for attending the event, maximum three (3) hours after activation.

#### **Level 1: Partial CP Activation in Alert Mode**

This occurs in remote zones within the program operation coverage, and is coordinated with the internal support groups and external support entities. This level will be activated 24 hours after the event.

### **TABLE 1. CP ACTIVATION LEVELS, OBTAINED AND EDITED FROM THE NATIONAL CONTINGENCY PLAN**

<b>LEVEL</b>			
<b>HIGH VALUE</b> This occurs in zones of human settlements, National Natural Park System zones, water supply sources			<b>N3</b>
<b>MEDIUM VALUE</b> It is developed in wooded zones with high drainage density.		<b>N2</b>	
<b>LOW VALUE</b> Partial or total dumping on pastures or legal crops, in areas far from sensitive ecosystems	<b>N1</b>		
	<b>IMMEDIATE</b>	<b>LOCAL</b>	<b>REGIONAL</b>

### **Level 3: Instantaneous Total CP Activation. Disaster Highest Volume and Severity, within the Local CP Coverage Area**

The event is totally out of the program operation area control, and exceeds the capacity of the requested local or regional assistance systems. National level agencies are required to organize the actions. This level will be developed if the event exceeds the level 2 operations capacities 48 hours after its occurrence, for which it will have the support of national level agencies.

#### **2.2.6 Priority Criteria in the Response Operations**

The highest priority is to protect and preserve the lives of persons threatened by the incident.

When there are resource and time limitations, it will be necessary to first protect the resources that are most valuable and important for the security and welfare of the base personnel and of the population in the surrounding area. Next, we will protect resources with a high ecological value and the greatest sensitivity, such as primary and secondary woodlands with native vegetation, in order to ensure sustainability of the ecosystems.

And last, we will protect socio-economically and ecologically threatened resources that have a risk indicator of medium or low, such as legal crops or brush.

If we have to select between protecting two threatened resources of high value to the community, but with different risk indicators, priority will be given to the most sensitive one. If there are two resources with equal risk value, we will opt to protect the resource that, if affected, would cause greater socioeconomic impact on the human population at a short or mid term.

If any of the above-mentioned measures cannot be applied, we will proceed to do emergency dumping at an altitude of 5,000 feet, and to do follow-up on the area if the public order conditions so permit; otherwise, we will notify the pertinent entities to do follow-up on the possible effects.

## **2.2.7 Operational Procedures or Response Protocols**

### **2.2.7.1 Evacuation and Assistance in the Event of Fire or Explosion on the Base due to Failures of an Operational Nature**

Once the Spraying Operations Commander activates the alarm in the event of fire or explosion for failures of an operational nature, all base personnel must follow the recommendations below.

- The Spraying Operations Commander will order the support groups to suspend their activities and prepare to deploy the corresponding protocol in response to the emergency.
- The Spraying Operations Commander will direct the area evacuation in a rapid, organized manner, will stop people from returning to the evacuated areas, will make sure that all of the personnel has been evacuated; otherwise, he/she will do a rapid inspection of the area.
- The health personnel will provide first aid services to those persons who suffered injuries or who fainted.

After the evacuation:

- The Spraying Operations Commander will check to make sure that all personnel is unharmed, report missing persons, and prevent personnel from re-entering the hazardous area, except for the internal support group personnel.

- The Spraying Operations Commander will make sure that personnel only return to their work sites after the risk has been mitigated.

### **2.2.7.2 Fuel and Glyphosate Spills**

#### **a. Spills for Tank Truck Turn Over during Transportation**

The following procedure will be delivered to the transportation entity contracted for transporting farming chemicals.

- Verify the condition of the driver and of other accompanying personnel, in order to protect human lives, providing first aid services to those who so require, staying away from the vehicle in case of a possible fire or explosion
- Isolate the area by digging ditches so that the liquid does not reach bodies of water and / or intakes sources or areas with wildlife
- Inform local authorities for them to report the emergency
- Quantify the amount of product spilled
- Isolate the area with security bands
- Proceed to do cleaning if the security conditions so permit
- Isolate existing sewers or drains so that the affected area does not expand
- When the spillage has occurred in bodies of water, the company must inform such situation as soon as possible to the personnel who operate intakes downstream; absorbent barriers must be installed around the intakes located downstream once the emergency has been declared. It is necessary to go along the edge of the affected body of water to identify the spots affected, and proceed to isolating and cleaning them; then, inform the local authorities and experienced external groups, if the spill exceeds the transportation company's possibility to clean it.
- When the spillage has occurred on the ground, the transportation company will isolate the area with security bands, will proceed to do the cleaning, and will isolate the existing sewers or drains so that the affected area does not expand.

#### **b. Glyphosate and Fuel Spilling on the Base**

- The Spraying Operations Commander must order the personnel responsible for farming chemicals and fuel to suspend their activities, and to prepare to deploy the corresponding procedure in response to the emergency.
- Verify the condition of the person who does the mixing and of the other personnel exposed to the spill, in order to prevent any affectation, and provide first aid services to those who so require.
- Isolate the area by digging ditches so that the liquid does not reach bodies of water or areas with wildlife
- Quantify the amount of product spilled
- Isolate the area with security bands
- Proceed to do cleaning if security conditions so permit
- Isolate existing sewers or drains so that the affected area does not expand
- When the spillage has occurred on the ground, the transportation company will isolate the area with security bands, will proceed to do the cleaning, and will isolate the existing sewers or drains so that the affected area does not expand.

#### **2.2.7.4 Fire and Explosion Control on the Base due to Operational Failures**

- The Spraying Operations Commander must order the immediate arrival of the fire protection and evacuation group
- The evacuation group will proceed to evacuate, pursuant to the corresponding procedure.
- The fire protection group will isolate the area where the fire is, evaluate the type of fire to select the most appropriate fire extinguishing equipment. Small fires may be put out by using extinguishers nearby. Recharge or replace the equipment used after the fire is controlled.
- The Spraying Operations Commander will contact the fire department if the internal groups cannot easily control the fire and if explosions occur due to operational failures.

#### **2.2.7.5 Attacks against the Base**

- The Spraying Operations Commander must have the personnel available and must notify them to activate the defense plan for the facilities.
- The Spraying Operations Commander will notify the civilian personnel on the base, for them to occupy their assigned places in order to ensure their safety; if security conditions so permit, civilian personnel must be evacuated immediately.
- The Spraying Operations Commander will request military support if required.
- All base personnel will prepare to defend the most vulnerable areas on the base that represent the greatest risk if there is a threat of explosion or fire, such as storage system areas.

#### **2.2.7.6 Response Procedure for Attending Disasters during Spraying**

**a. Primary Incident Report.** The aircraft pilot must report the events right after they occur.

It is possible that the pilot not report the incident immediately after the event occurs, due to damages that may affect the aircraft communication systems or to the pilot's not detecting the incident in a timely manner or if the incident ended up in a fatality (aircraft accident).

When the incident is detected and the communication systems have not been affected, the pilot must immediately report to the base, specifically to the Spraying Operations Commander, who verifies the pilot's integrity and, along with him/her, makes a primary or initial evaluation of the damage.

When the aircraft has suffered an incident, no matter if the incident is of low, medium or high severity, it must return to the base. Prior to returning to the base, the pilot and the Spraying Operations Commander, after having evaluated the incident, establish the need to dump the product, based on the following order of importance:

- Illicit crop zones
- Pasture zones
- Secondary woodlands or high brush zones
- Primary woodland zones

- Altitudes over 5,000 feet

The incidents in the illicit crop eradication process will be classified according to the following criteria:

**Low Severity Incident.** We include incidents where the safety of the aircraft and, therefore, the pilot's safety are not seriously endangered. In this type of incident, no product dumping is considered. In this case, the aircraft suspends the operation and immediately returns to the base.

**Medium Severity Incident.** The pilot has operational and airworthiness capacity that enables him / her to evaluate the zone for product dumping. Priority is given to pre-established zones in the spraying zone characterization. The pilot immediately returns to the base after dumping the product.

**High Severity Incident.** This is an event of great risk, where the pilot lacks sufficient airworthiness to select the spot to dump in, thus he/she has to dump the product immediately and return to the base.

**Fatal Severity Incident.** These are incidents where the final result is fatal; they usually end up in the aircraft being shot down.

The follow-up on the operation as described in the CP is established within the environmental monitoring program.

**b. Response Team Activation.** This operating level relates to all activities carried out to activate the emergency attention group during the spraying process. Among them is the reconfirmation of the exact place of the incident, the security study of the area in which the incident occurred, going to the area, the evaluation of the need of taking corrective measures or not, and dumping, if required.

**c. Emergency Attention Group.** It will carry out activities aimed at taking the corrective measures specified in the Contingency Plan, in events related to the possible total or partial dumping of the product.

The Spraying Operations Commander is responsible for the Response Team coordination, who, as soon as the incident is reported, becomes the emergency attention team coordinator.

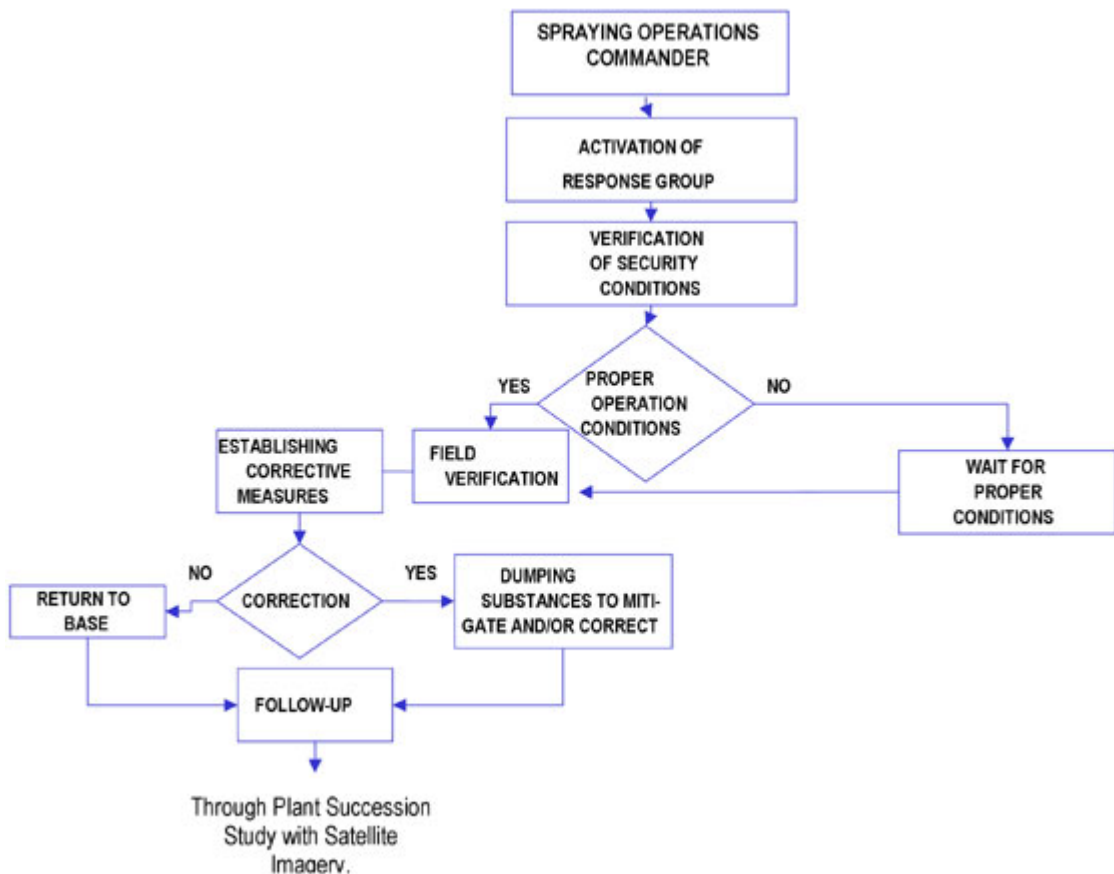
**d. Verification of Security Conditions.** When an aircraft has been forced to do a total or partial dumping operation, this activity usually occurs due to criminal action (the

aircraft is shot at, obstacles on the parcels, etc.), aircraft technical failures, environmental conditions or human failure.

Due to the need of performing the contingency action in the same zone where the incident occurred, the priority lies in verifying the security conditions in the product dumping area, in order to avoid the incident from reoccurring before the Response Team can arrive and work. The security study is obtained from the intelligence reports supplied in due fashion by the Military in the area and from the information obtained by the technicians who do the technical study of the incident.

When the security conditions are not adequate for the Emergency Attention group to arrive, it is necessary to notify the Eradication Area in order to apply environmental monitoring measures. Meanwhile, the spraying operations will continue in other zones.

## RESPONSE GROUP ACTIVATION





**e. Geographical Reconfirmation of the Area.** Through the Satellite Localization System, the Spraying Operations Commander proceeds to geographically locate the place in which the aircraft was forced to dump the product.

**f. Arrival of the Emergency Attention Group at the Specified Site during the Spraying.** If safety conditions allow, the group arrives, according to the parameters set forth in the protocols for crop eradication operations using aerial spraying.

**g. Evaluation of the Area Affected by Product Dumping.** The Emergency Attention Group evaluates if dumping water over the affected areas is justified or not. This procedure analyzes if the product dumping was done on legal crops, illicit crops, bodies of water, populated areas, among others.

**h. Application of Corrective Measures.** Depending on the physiographical characteristics, weather and security conditions, the planes will dump from 200 to 300 gallons of water on the affected site.

**The dumping will be done during this period of time, provided that the evaluation of the security conditions so permits.**

**i. Information Report.** From the moment when the pilot or the accompanying security team reports the incident, the Spraying Operations Commander activates this operational level. It is aimed at establishing the information flow for coordinating how to respond to the emergency.

**j. Incident Technical Report.** This is a careful revision of the aircraft done by the technical personnel in the National Police Anti-Narcotics Direction Aviation Area assigned to the base where the event occurred and by the Eradication Program advisors. The evaluation is aimed at verifying the possible damages caused to the aircraft during the incident and to certify the results obtained. If the contingency is caused by human failure, the technical report must include an initial evaluation that will be used to carry out an investigation and make corrections.

**k. Filling Out the Initial Report Format.** The Spraying Operations Commander, who has become the Emergency Attention Group coordinator, will make an initial report of the dumping, bearing in mind the Incident Technical Report, which will contain the basic information of the specific circumstances (when, where, and how) in order to have a preliminary estimate of the magnitude and severity of the event.

**l. Final Technical Report.** With the support of the Emergency Attention Group, the Spraying Operations Commander will present the final written Technical Report,

addressed to the Eradication Area, in order for the latter to submit it to the National Narcotics Agency maximum 20 days after the date on which the dumping occurred, in order to obtain detailed knowledge of the circumstances of the event, its attention and control.

The final written report on the event must contain the following:

- Event date and time
- Emergency end date and time
- Dumping location: The cartography used in the program will be presented, with the exact dumping location shown through satellite imagery.
- Dumping cause
- Dumping volume
- Determination of affected zones (Terrains, Natural Resources, Facilities)
- Determination of possible communities affected
- Operating Plan developed and response times used for controlling the event
- Description of prevention, mitigation, correction and monitoring measures
- Support required (requested / obtained)

In addition to the above information, a dumping evaluation will be made using technical criteria to evaluate the capacity of attention given and, in turn, to identify immediate risks in upcoming spraying operations. The aspects to be considered in evaluating the dumping are:

- Origin of the dumping.
- Determination of possible risks to the personnel involved in the emergency, both community members and operations personnel.
- Approximate estimate of the maximum potential dumping volume.
- Evaluation of the prevalent environmental and weather conditions.
- Expected dumping path.
- Identification of threatened resources.
- Equipment available: Evaluate equipment resource availability for controlling the dumping.

**J. Filing a Criminal Claim.** The Spraying Operations Commander and the pilot involved in the emergency will file a criminal claim with the corresponding authorities, to investigate the responsible parties, for the damage caused to the aircraft and damages caused by the incident.

### **2.2.8 Contingency Plan Evaluation**

Once the emergency is over, the Spraying Operations Commander will carry out a series of activities in order to determine the final closing of the operation, evaluate the consequences of the dumping as concerns the efficiency of the actions performed and the impact on the environment.

### **Evaluation of the Response to the Emergency**

In order to perform a proper control and be able to evaluate the actions taken, the Contingency Plan must keep a log that must contain the daily report of all dumping control and attention activities, as well as of all actions performed. This log will be the base for preparing official reports and for handling possible claims.

Once the event is over, based on the action reports, a detailed evaluation will be made of the effectiveness of the plan, the reference being how the event was handled. Said evaluation will enable determining the most important aspects that must be considered for recreating and redesigning the Contingency Plan, based on the experience obtained from the emergency.

To make this evaluation, the following aspects will be analyzed:

- Origin of the emergency
- Alarm activation speed
- Evacuation mechanisms and time
- Emergency response procedures
- Sufficient available equipment
- Knowledge available during the emergency
- Response levels
- Operational and natural risk analysis
- IT Plan Structuring. Existence of charts, maps, drawings. Information on critical zones, control equipment inventories, list of authorities, etc.

### **2.2.9 Training Program**

It is a fact that in order for a Contingency Plan to be effective, it not only needs the organization and equipment required to handle the emergency, but it also requires a basic element that is the personnel's quality and efficiency, and that may only be achieved through training.

For training purposes, it will be necessary to use all environments and materials required, which DIRAN will establish and provide.

It is necessary to have specific training programs for:

**Technical Aspects.** Storage and handling in spraying equipment operation areas, raw material handling, and work team organization.

**Environmental Aspects.** Acknowledgement of the operational zones as distinct ecosystems with different sensitive levels.

**Operational Aspects.** Information on physiochemical properties and their inactivation methods.

### **2.3 INFORMATION SYSTEM OR DATABASE**

This is a tool that provides, in a quick, timely manner, *communication* with the group personnel and with the external support entities.

The Contingency Plan database will supply the required information for the Strategic Plan and the Operating Plan to be effective. All information required by the Contingency Plan will be gathered and permanently updated by DIRAN, through its Spraying Group Coordinator.

The Contingency Plan requires information presented as geographical information, general lists, appendixes, which are consolidated into the following types of information: legislation, referencing, logistics, statistics and environmental aspects, among others.

Through a specific project, DIRAN will have software, hardware, personnel and logistic support to administer and process existing information.

### **3. ACTIVITY SCHEDULE**

This program must be ongoing.

### **4. ENTITIES IN CHARGE**

The National Police Anti-Narcotics Direction is responsible for contingency activation and attention.

Upon the request of the National Police Anti-Narcotics Direction, the National Narcotics Agency will process the support requests to national level agencies, such as

the Ministry of the Environment, Housing and Territorial Development, the Ministry of Social Protection, and the Ministry of the Interior and of Justice.

**END OF THE RECORD  
CONTINGENCY PLAN**

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**FORM # 1**

**NATIONAL POLICE  
ANTI-NARCOTICS DIRECTION  
ILLICIT CROP ERADICATION AREA**

**EMERGENCY DUMPING REPORT**

**BASE FOR SPRAYING:**

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**DUMPING DATE:**

**TIME \_\_\_\_\_ DAY \_\_\_\_\_ MONTH \_\_\_\_\_ YEAR \_\_\_\_\_**

**RANK AND FULL NAME OF THE PERSON WHO DETECTED THE DUMPING**

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**DUMPING CAUSE**

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**LOCATION (Provincial Municipality Settlement Other Information)**

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**DUMPING COORDINATES**

N: \_\_\_\_\_ W: \_\_\_\_\_

DUMPING ALTITUDE

\_\_\_\_\_ meters

WEATHER CONDITIONS WHILE DUMPING

Temperature: \_\_\_\_\_ °C Wind Velocity: \_\_\_\_\_ Km / hr. Rain: \_\_\_\_\_

DESCRIPTION OF THE AFFECTED AREA: (Prepare a schema of the dumping site, the affected surface, and the area of influence)

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ESTIMATED DUMPING AMOUNT

\_\_\_\_\_ Gallons

IMPACT ON NATIONAL RESOURCES TERRAINS FACILITIES

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IMPACT ON COMMUNITIES

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ACTIONS CARRIED OUT

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SUPPORT REQUIRED

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COMMENTS

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## **Annex 51**

### **NOTE REC'D N° 29157 FROM THE DIRECTOR OF THE NATIONAL NARCOTICS DIRECTORATE (HEAD OF THE COLOMBIAN DELEGATION TO THE JOINT COMMISSION) TO THE COLOMBIAN FOREIGN MINISTER, 6 APRIL 2004**

*(Archives of the Ministry of Foreign Affairs of Colombia)*

National Narcotics  
Directorate

DMR Rec'd 29157

Ms.  
CAROLINA BARCO ISAKSON  
Minister of Foreign Affairs  
City

Dear Minister;

As you well know, on 9 February, this year, the meeting of the Colombian-Ecuadorian Scientific and Technical Commission was held in Quito, Ecuador with the objective of continuing the analysis on aspects related to the Program for Spraying of Illicit Crops with Glyphosate in the provinces of the border area with Ecuador, as well as factors associated with crops that have an impact on the environment and, therefore, on the communities.

Following on the aforementioned, I submit the report of the meeting that I had the responsibility to preside on behalf of the Colombian Commission, as well as the conclusions that were drafted in coordination between the representatives of both countries.

Best regards,

[Signed]  
LUIS ALFONSO PLAZAS VEGA  
Director National Narcotics

HBC

**ANNEX No. 3**

## **MEETING SCIENTIFIC AND TECHNICAL COLOMBIAN-ECUADORIAN COMMISSION CONCLUSIONS**

QUITO, ECUADOR – 10 February 2004

The following are the conclusions agreed to between the Colombian and Ecuadorian delegations of the Colombia-Ecuador Scientific and Technical Commission:

1. Development of a model that avoids mistakes in aerial sprayings, instead of referring to a distance to spray from the borderline. On this regard, it was highlighted that it is important to share information about the technical aspects of spraying processes. Director of the DNE [National Narcotics Directorate] made clear that for security reasons under no circumstances the activities schedule would be informed.
2. Need for Colombian-Ecuadorian Scientific and Technical Group to visit Sucumbios (border zone) in the framework of security and objective proposed. This meeting will have the same technical and scientific characteristics previous meetings were based on, it will not have in any manner political connotations.

It is important to mention that Director DNE made clear that a visit to the border zone is difficult to make before 2 March this year.

3. Exchange of information related to research processes discussed in this last meeting.
4. Considerations about possible binational agreements involving health and social issues, among others, in the common border areas. It is important to review and expand agreements already signed and to strengthen the “Hospital Ship” proposal in the border area.
5. Analysis of the work presented by Dr. Maldonado (CIF) [Border Integration Committee]
6. Submitting (Colombia) the Records of the Environmental Management Plan of the PECIG.
7. Inform and ask the CONSEP and the control and regulation authorities of Ecuador to strengthen the control and surveillance systems for chemical and agrochemical substances in the border zones.

8. It is important that the scientific studies carried out in areas affected by illicit crops do not focus only on glyphosate, but also consider effects caused by chemicals and agrochemicals frequently used in their establishment.

NOTA: A copy of the hand-written conclusions drawn by Dr. Oscar f. Izquierdo – Cabinet of Vice Ministry of Foreign Affairs of Ecuador- discussed and agreed upon at the end of the meeting is annexed.

ANNEX No. 4

[Hand writing]

Conclusions:

1. Model that avoids mistakes in aerial sprayings, instead of referring to a distance to spray from the borderline
2. Need of a joint visit to Sucumbios in the framework of security and objective proposed.
3. Exchange of information discussed today.
4. Considerations about possible binational agreements on health and social issues
5. Need to comment the observations about the CIF.
6. The CCTE [Ecuadorian Scientific and Technical Commission] requested the CCTC [Colombian Scientific and Technical Commission] report on environmental impact.
7. Inform and ask the CONSEP to strengthen the control and surveillance systems.



## Annex 52

### REPORT FROM THE COLOMBIAN DELEGATION, JOINT SCIENTIFIC AND TECHNICAL COMMISSION ON AERIAL SPRAYINGS, ORITO, PUTUMAYO, 25-28 MAY 2004

*(Archives of the Ministry of Foreign Affairs of Colombia, pp. 1, 4 ,5)*

[Page 1]

Pursuant to what Colombian and Ecuadorian Governments agreed on regarding overflights with landings on some points at both sides of the Colombia – Ecuador border, the following report detailing the accomplished actions is presented:

1. The two delegations agreed to meet on May 26 at San Miguel International Bridge to start the scheduled activities. Due to weather conditions, the Colombian delegation informed that the start of activities should be postponed until 14:00 hrs.

The meeting with Ecuadorian delegation started at 14:40 hrs. The Ecuadorian delegation was comprised of the following officials: Mr. José Nuñez, Chief of Staff of the Undersecretary of Ecuadorian Ministry of Foreign Affairs, Mr. Luis Alberto Reinoso from Universidad Central del Ecuador, Dr. Ramiro Castro, PhD. In chemistry, Ecuadorian Commission on Atomic Energy; Agronomy Engineer Santiago Salazar, Ministry of the Environment.

[Picture]

Delegations meet at San Miguel Bridge

It is important to notice that although the objective of the visit was to inspect in situ the alleged effects on both human health and the environment on Ecuadorian territory caused by aerial sprayings with glyphosate, in the Ecuadorian delegation there were no officials from the Health Ministry and the Ministry of Agriculture. Besides, it is necessary to emphasize that conformation of the [...]

[...]

[Page 4]

The Isaac Newton School teacher (elementary to 7<sup>th</sup> grade education), in which 25 children study was asked if she knew about the effects caused to children by the sprays and she answered that both skin and gastrointestinal problems, as well as respiratory, were chronic since several years and that additionally, there isn't a health care center, and thus they have to be taken to Lago Agrio, but very few times they do it. Most of them are treated with home remedies. She said that health campaigns are scarce and that they are carried out by the Red and that peri-natal mortality and miscarriages are frequent.

[...]

3. Although at the end of the first day it was agreed with the Ecuadorian delegation that on the following morning they would be picked up in the vicinity of the San Miguel International Bridge, in order to conduct the field visit to the locations in the Putumayo province, the representatives of the neighboring country did not show up. The Ecuadorian delegation had agreed to confirm their attendance by radio through the army bases at Lago Agrio and Orito, but they did not send any communication.

Thanks to the security operation that the Colombian army deployed, to secure the surroundings of San Miguel International Bridge, the Colombian delegation arrived by helicopter at 11:30 hrs in order to pick up the Ecuadorian counterpart and stayed there waiting for half an hour. In the meantime, 2 Colombian delegates went to the Lauro Guerrero army base of Ecuador, where they were informed by Lieutenant Amable Almagro that she did not have confirmation about the presence of Ecuadorian officials, and that she had not received any notice about it.

For this, the Colombian delegation notes for the record, that it fulfilled its share of the commitment, which could not be completed due to the no-show of the delegation of Ecuador, despite the efforts of the Energetic and Ways Special Batallion 9 of Orito [Putumayo province], that had deployed military units to cover all the locations marked [...]

[Page 5]

[...] for landings, not to count the costs involved in deploying a MI helicopter to fulfill the commitment.

CONCLUSIONS

The Colombian delegation after making field verification, states the following conclusions:

1. Damages on coffee, plantain, cocoa, beans, and pastures mainly, described by growers in the Mestanza zone could be more derived from physiological alterations in soils caused by their weakening due to continuous exploitation without the implementation of fertilization processes, even more taking into account that these soils are of the clay type and poor in organic matter. Likewise, it is noticed that the plant varieties grown are also in genetic wear-out process due to the continuous use of seed coming from the same crops or because of the aging of the semi-permanent production systems, such as coffee and cocoa. It is also important to highlight that the lack of technical assistance in the area results in bad agricultural and livestock practices.

As for the fish said to have died because of sprayings, no actual verification was known and its veracity is only possible if they had taken samples in a period not beyond a month immediately after spraying took place. Thus, the claim lacks technical foundation.

Finally, it was verified from direct observation that there are currently some crops such as corn, yucca, beans, and plantain, among others.





## Annex 53

### **NOTE N° SARE-321 FROM THE DIRECTOR OF THE NATIONAL NARCOTICS DIRECTORATE TO THE COLOMBIAN FOREIGN MINISTER, 11 AUGUST 2004**

*(Archives of the Ministry of Foreign Affairs of Colombia)*

Ministry of the Interior and Justice  
Republic Of Colombia

National Narcotics  
Directorate

Bogota, D.C.

R`ceid.11 Aug 2004

SARE – 321

Ms.  
Carolina Barco Isakson  
Minister of Foreign Affairs  
City

Dear Minister;

In relation to the trip to attend the IV Meeting of the Colombia-Ecuador Scientific and Technical Commission held in Quito on 2 and 3 last August I am reporting the following:

The Colombian Commission was comprised of the following officials: from DNE(National Narcotics Directorate), Colonel ( r ) Luis Alfonso Plazas Vega, Mr. Mario E. Hoyos Falla, Mr. Hector Hernando Bernal, and Dr. Camilo Uribe Granja (health consultant); from DIRAN (Anti-narcotics Direction of the Colombian National Police), Colonel Alvaro Velandia and Captain Miguel Tunjano; from the Ministry of Foreign Affairs, Mr. Ricardo Montenegro; from ICA (Colombian Farming Institute), Mr Herberth Matheus. It was not possible to have an official from the INS (National Health Institute) on the delegation despite persistent phone calls from Director of Multilateral Political Affairs of the Ministry of Foreign Affairs to the Director of the INS and the ones I made to the Secretariat General of the Ministry of Social Protection.

Monday 2 August

- In the morning, a coordination meeting was held between the whole delegation and Colombian Ambassador in Ecuador, Ms Maria Paulina Espinosa.

- At 14:30 IV Meeting of the Colombia-Ecuador Scientific and Technical Commission began. At 20:00 the minute of the meeting was signed. I am enclosing a copy of it. I want to acknowledge that the atmosphere in which the meeting was held was very friendly thanks to the excellent interventions by Ambassador Maria Paulina Espinosa. The existing differences were settled well, in particular, that relating to the drift of the Program for the Eradication of Illicit Crops – PECIG, issue concerning which it was agreed that conceptual differences and differences regarding mathematical formulae would never be settled on a blackboard; that this case in particular could be resolved by the presence of members of the Ecuadorian Scientific and Technical Commission in a validation process to which they would be invited, with the purpose of verifying PECIG's real drift on the field.
- The DNE believes that the invitation must be made when a verification process is carried out in Putumayo, otherwise they will say that other areas of the country have different topographic conditions.
- During the meeting, the Ecuadorian delegation presented the “PROPOSAL OF THE EPIDEMIOLOGICAL SURVEILLANCE SYSTEM ON EXPOSURES TO GLYPHOSATE AND ITS COMPOUNDS USED IN AERIAL SPRAYINGS IN THE NORTHERN BORDER OF ECUADOR”. About this topic, it was made clear to the Ecuadorian delegation that the issue is that Country's competence; that Colombia will provide cooperation by having the Ministry of Social Protection, Public Health General Directorate evaluate it, so that based on its experience on the topic it makes pertinent recommendations to the Ecuadorian Government for consideration and inclusion in its plan as far as possible. For that reason, I am enclosing a copy of the proposal so that you request the corresponding concept and send the pertinent recommendations to the neighbor Country by diplomatic channel.

Tuesday 3 August

- The seminar offered by Colombia started at 8:30. The agenda was accomplished, except for the topic “Surveillance of Glyphosate and other pesticides effects on human health in areas where the PECIG operates”, a lecture by the INS, which did not send any representative. The table was presided by the Vice Minister of Foreign Affairs of Ecuador, Mr. Edwin Jonson, Ms. Maria Paulina Espinosa, Colombian Ambassador in Ecuador and the Chairman of the National Narcotics Directorate, who had to leave after giving his presentation because he was called by the President of the Republic of Colombia to be

present that day in the afternoon during the visit of the US anti-drugs Czar, Mr. John Walters.

- Attendance was about 35 people, out of which 16 were from the media.
- Colombian Ambassador coordinated permanently interviews that I and the lectures gave to both radio and television media.

Wednesday 4 August

- During a visit by a DNE official to CONSEP of Ecuador, Mr. Cristian Córdova Cordero, Executive Secretary of that agency, submitted the *Plan Nacional de Prevención, Desarrollo Alternativo y Control de Droga 2004-2008* [National Plan for Prevention, Alternative Development, and Drug Control 2004-2008]. I am sending a copy of it for your analysis and point out that for Ecuador, Plan Colombia in the external context is part of the drug problem in that country (See page 19 number 3.1.2)

## Conclusions

- Arguments presented by Colombia were clear-cut. Ecuadorian public received great information and the media seem to have received it well, as it can be seen in the press articles I am sending a copy of.
- The Ecuadorian delegation at the Scientific and Technical Commission abandoned the request of setting a 10 km strip along the border between Colombia and Ecuador where the PECIG would not be carried out.
- The issue of the demand by Ecuador of setting a mathematical formula for spray drift was sorted out by the Colombian offer to invite delegates from the Ecuadorian Commission to a verification process, so that they observe in field the real spray drift of the PECIG.
- It is important to point out EL COMERCIO newspaper headline that sums up the results of the visit as: “Ecuador accepts that sprayings continue”.
- The activity of the Scientific and Technical Committee was finished to the extent that it was not deemed necessary to set a date for a new meeting.
- Both delegations agreed to share information related to standardized methodologies used in laboratory analysis.
- Colombian Ambassador acknowledged the work done by lecturers and said she was highly satisfied with the results and knowledge acquired on this issue,

which allows her to have excellent and renewed arguments for her work in the diplomatic mission.

- Colombia complied in the best manner with the commitments acquired before Ecuador.

Sincerely,

[Signed]

LUIS ALFONSO PLAZAS VEGA

Chairman

ANNEX:      Copy Minute of the IV Meeting of the Colombia-Ecuador Scientific and  
                  Technical Commission  
                  Copy of the Proposal of Epidemiological Surveillance System of  
                  Ecuador  
                  Copy of the IV Meeting Agenda  
                  An edition of the National Plan for Prevention 2004-2008 of Ecuador  
                  Copy of press articles on the IV Meeting

MEHF

## **Annex 54**

### **COUNCIL OF STATE OF COLOMBIA, JUDGMENT ON APPEAL FROM THE ADMINISTRATIVE TRIBUNAL OF CUNDINAMARCA, 19 OCTOBER 2004**

(Council of State, Excerpts)

#### **COUNCIL OF STATE PLENARY ADMINISTRATION SECTION**

**PRESENTING COUNCILLOR: NICOLAS PAJARO PENARANDA**

Bogotá, D.C., 19 October 2004

File: IJ-25000-23-25-000-2001-00022-02

Public Interest Action

Plaintiff: Claudia Sampedro Torres and Another

[Page 9 ]

#### **Conclusions**

It cannot be accurately inferred from the evidence outlined that Glyphosate causes irreversible damage to the environment when it is used for eradicating illicit crops; on the other hand, a number of facts lead to the conclusion that sprayed areas regenerate in [...]

[Page 10]

[...] a relatively short period of time and that many hectares of forest are destroyed when trees are felled by growers of illicit crops.

Clearly, the guidelines stated by the environmental authorities should be followed when illicit crops are being sprayed, and not even the slightest deviation from these should be permitted, which means that it is therefore necessary for permanent controls to be undertaken, with continuous evaluations, of any effects which might begin to appear. This nevertheless cannot lead to fumigation activities being suspended, since such a measure could weaken the state and at the same time would reinforce the different groups which finance themselves by illicit drug trafficking, something which without any shadow of doubt is a scourge on Colombian society and on mankind as a whole. The fact is not overlooked - because the evidence clearly demonstrates it - that certain

problems and complaints do arise, but these are not as serious as the plaintiff claims, and this means that permanent and strict controls of fumigation activities are required.

It should be stressed that there is no evidence whatsoever on the file to accredit any failure to comply with the measures that were imposed on the National Narcotics Division by the Ministry of the Environment in Resolution No. 341 of 2001, whereby decisions were made in connection with the Program for the Eradication of Illicit Crops by Aerial Spraying with Glyphosate, and that there is therefore no reason whatsoever to reproach the Ministry of the Environment for not penalizing the National Narcotics Division for such alleged default.

Finally, it should be said that Article 6 in Law 99 of 1993 cannot be used as legal justification for concluding that the suspension of aerial spraying activities should be decreed, as referred to in the suit, as an effective measure for preventing degradation of the environment, since there is no valid reason under the current circumstances for claiming that the danger exists of serious and irreversible damage, which such an extreme measure would imply. It is nevertheless advisable to order the Ministry of the Environment to continue to comply strictly with the Environmental Management Plan, and furthermore to not stop carrying out studies with a view to obtaining even more details of the effects of the chemical compound that is used in the spraying, with verification by the National Narcotics Division.

By virtue of the foregoing, the Council of State, Plenary Administration Section, administering justice on behalf of the Republic and as authorized in the law, hereby

#### RULES:

1. The first-level ruling is hereby annulled.
2. Instead thereof, the Ministry of the Environment, Housing and Regional Development is hereby ordered to continue its verification activities in order to ensure that the Environmental Management Plan is strictly adhered to, as stipulated in Resolution No. 1065 of 2001, and also the obligations stated under Articles 2, 6, 7 and 8 in Resolution No. 341 of 2001, both issued by the same Ministry.

[Pages 10, 11]

3. The Ministry of Social Protection should undertake studies involving groups exposed to Glyphosate, plus POEA, plus Cosmoflux, and a control group (not exposed), to include morbidity and mortality records, with a view to determining the effect of the chemicals in question on the health and lives of Colombians in sprayed areas, especially

in the area of influence of the Sierra Nevada de Santa Marta and in other areas where spraying is done, as chosen by the Ministry of Social Security, which should nevertheless include areas sprayed at different times.

4. The National Narcotics Division should verify the environmental effects of aerial fumigation with Glyphosate, plus POEA, plus Cosmoflux, for eradicating illicit crops in the fumigated areas selected as samples, so as to provide areas fumigated at different times, and this work shall receive the necessary supervision for ensuring that follow-up is carried out of the effects of fumigation.

5. As a result of this final ruling, the file should now be returned to the original Court. The above ruling was duly read, discussed and approved by the Section at its session on the said date.

(signed)

**ALEJANDRO ORDOÑEZ MALDONADO**

President

(signed)

**GERMAN RODRÍGUEZ VILLAMIZAR**

Vice-President

(signed)

**ALBERTO ARANGO MANTILLA**

(signed)

**CAMILO ARCINIEGAS ANDRADE**

(signed)

**TARSICIO CACERES TORO**

(signed)

**RUTH STELLA CORREA PALACIO**

(signed)

**REINALDO CHAVARRO BURITICA**

(signed)

**MARIA ELENA GIRALDO GOMEZ**

(signed)

**MARIA NOHEMI HERNANDEZ PINZÓN**

(signed)

**ALIER HERNANDEZ ENRIQUEZ**

**FILEMON JIMÉNEZ OCHOA**

Absent

(signed)

**JESÚS M. LEMOS BUSTAMANTE**

(signed)

**LIGIA LÓPEZ DÍAZ**

(signed)

**GABRIEL E. MENDOZA MARTELO**

(signed)

**OLGA INÉS ORTÍZ BARBOSA**

(signed)

**RAFAEL E. OSTAU DE LAFONT  
PIANETA**

(signed)

**NICOLÁS PAJARO PEÑARANDA**

(signed)

**JUAN ANGEL PALACIO HINCAPIE**

**DARIO QUIÑÓNES PINILLA**

Absent

(signed)

**HECTOR J. ROMERO DÍAZ**

(signed)  
**ALEJANDRO ORDOÑEZ MALDONADO**  
President

(signed)  
**RAMIRO SAAVEDRA BECERRA**

(signed)  
**MERCEDES TOVAR DE HERRAN**  
Secretary General



**Annex 55**

**NOTE N° 001727 FROM THE GENERAL DIRECTOR OF THE NATIONAL POLICE OF  
COLOMBIA TO THE COLOMBIAN FOREIGN MINISTER, 2 NOVEMBER 2004**

*(Archives of the Ministry of Foreign Affairs of Colombia)*

**NATIONAL POLICE  
GENERAL DIRECTORATE**

Bogotá, D.C.

No. 001727 : DIPON – DIRAN  
SUBJECT : Information  
TO : Minister  
CAROLINA BARCO ISAKSON

Dear Minister

In accordance with what was agreed on in the scientific and technical commission between Colombia and Ecuador countries, held on August 2 2004 in Quito, I kindly ask your Office to inform the Ecuadorian Government that the National Police – Antinarcotics Direction, will carry out from now and until the end of December spraying operations in the border area

For this reason, it is convenient to point out that said spraying operations will keep respect for Ecuadorian sovereignty, besides guaranteeing compliance with the technical and operational conditions established in the environmental management plan for the eradication program that prevent any impact that may be derived from the spraying operations on non-target areas.

Sincerely,

[Signed]

Major General JORGE DANIEL CASTRO CASTRO  
General Director National Police



## Annex 56

### **AIDE-MÉMOIRE “AERIAL SPRAYING ISSUE WITH ECUADOR”, MINISTRY OF FOREIGN AFFAIRS OF COLOMBIA, DIVISION OF MULTILATERAL POLITICAL AFFAIRS, SUB-DIVISION FOR DRUG AFFAIRS, SEPTEMBER 2005**

*(Archives of the Ministry of Foreign Affairs of Colombia)*

[PAGE 1]

*Division of Multilateral Political Affairs  
Sub-division for Drug Affairs*

### **AIDE-MÉMOIRE Aerial Spraying Issue with Ecuador September 2005**

#### **AERIAL SPRAYINGS**

According to the Ecuadorian authorities, Colombia should suspend aerial sprayings until it is completely ascertained whether the claims of the border populations in terms of health and environment, have their source in the aerial sprayings conducted by Colombia or not.

It must be noted that the Colombian Government has provided its full collaboration and attention in order to resolve Ecuadorian doubts on the effects of glyphosate, ever since that country first complained in 2002.

In light of these complaints and with the participation of the Government of Ecuador, in February 2002, in Bogota, the Seminar-Workshop on Eradication of Illicit Crops was held, in which the scientists and technicians that took part showed the absence of adverse effects of aerial spraying on ecosystems and human health to the Ecuadorian delegation. In the framework of this Seminar, the Ecuadorian delegation conducted, under the auspices of the Colombian Government, an *in situ* visit to an area [planted with] illicit crops in the south of the country where they witnessed spraying tasks and the preventive technical measures adopted therein.

As evidenced in the aforesaid Seminar-Workshop, the Anti-narcotics Police, national authority implementing the program of aerial spraying of illicit crops with glyphosate (PECIG), adopts every relevant safeguard to carry out this process, in conformity with

the precautionary principle embodied in the Rio Declaration on the Environment and Development of June 1992. Likewise, prior to spraying, there a satellite system for the detection of illicit crops is in place, ensuring the exact perimeter of the area to be sprayed. In addition, the technological devices of the aircraft performing these tasks allows for closing in on the target with accuracy.

During the first quarter of 2003, the Ecuadorian complaints and statements of inconformity with sprayings conducted in Putumayo [Colombia] continued, insisting that they affected the Ecuadorian population in the border area as well as the environment. Thus, during a visit of the then Foreign Minister of Ecuador, Nina Pacari, to Bogota, on 10 April 2003, she stated to the then Director of Plan Colombia, Sandra Suarez, the idea to create a bilateral commission of a technical character to assess the effects of the sprayings on the environment and human health in the border. However, at that time, no commitment from Colombia ensued.

Subsequently, the Ecuadorian pressures and complaints on the matter continued to arise, to the point that Ecuador even suggested...

[PAGE 2]

...concluding a bilateral agreement to regulate the sprayings in the border area and guarantee a 10-kilometre spraying-free strip, which Colombia rejected outright.

On 5 August 2003, a Colombia-Ecuador Meeting on the World Drug Problem and Related Crimes took place in Bogota, wherein the sprayings issue was discussed and the Colombian experts clearly substantiated and explained everything concerning the topic to the Ecuadorian delegation.

***Meeting of the Colombia-Ecuador Scientific-Technical Commissions on sprayings in the common border area***

At Ecuador's insistence and under Colombia's conciliatory intent, the Scientific-Technical Commissions were formed.

By early 2004, the Government of Ecuador at the time, desisted from its idea of a bilateral agreement regulating aerial spraying and stopped talking about the 10-kilometre strip, but had continued to insist through diplomatic channels on the creation of the scientific-technical commissions, to which Colombia finally acceded, expressly stating their strictly technical character. The first meeting took place on 14 October

2003, the second one was held on 9 February 2004 and the third, planned for late April 2004, has been postponed by Ecuador.

These Commissions lacked a diplomatic character, [the first] was held in Bogota, on 14 October 2003, and was coordinated by the National Narcotics Directorate. In that framework, and with regard to Ecuador's proposal to establish joint scientific verification protocols to ascertain the alleged affectations caused by the aerial sprayings of illicit crops with glyphosate, Colombia stated that there are recognized international standards of scientific research, such as the Andean rules, which could be specifically applicable. Also, the high index of unmet basic needs and the deteriorating health conditions of the border areas were recalled. Finally, a consensus was reached on the importance of conducting the scientific works with discretion, avoiding the Bilateral Commission's work to be influenced.

The second meeting of this mechanism was held on 9 February 2004, in Quito, in which progress was made on the topics proposed in the First meeting and the possibility of conducting visits to both sides of the border was proposed.

Between 26 and 27 May 2004, the III Meeting of the Scientific-Technical Commissions took place. The purpose of this visit was to conduct visits to both sides of the border, with the purpose of verifying the alleged effects of glyphosate sprayings in the area. The first day, it was only possible to conduct one visit on the Ecuadorian side of the border and on the second day, no visit was conducted because the Ecuadorian delegation did not show up at the agreed meeting location.

[PAGE 3]

The IV meeting of the commissions took place on 2-3 August 2004 in Quito. During the meeting, a scientific and technical workshop took place, and the delegations of both countries signed Minutes wherein it is evidenced that Colombia will continue with the sprayings ensuring the use of relevant measures so as not to affect Ecuadorian territory and giving timely notice to Ecuadorian authorities.

#### **CICAD-OAS study on the effects of glyphosate on the environment and human health**

Colombia, greatly interested in establishing the toxicity effects of glyphosate on the environment and human health scientifically and technically, signed a memorandum [of

understanding] with CICAD-OAS to conduct a study on the matter, whereby a group of scientists carried out such study.

On 22 April, the group of scientists divulged the study, the conclusions of which corroborate that glyphosate does not have the toxic effects alleged by the Ecuadorian communities located in the border.

Ecuador has made announcements with regard to conducting studies of its own on the impact of glyphosate (no additional information is available in that regard). Colombia stands by the Study conducted by OAS-CICAD.

Just as it was verified by the Ecuadorian government in December [2004], the sprayings observe norms that prevent them from reaching Ecuadorian territories and, according to the aforesaid study, as well as the information of the Anti-narcotics Police, spray drift is minimal and the toxicity of the same on plants, animals and humans is very low; it is not considered toxic, save for the possibility of transient eye and probably dermal irritation (with recovery from both).

In Colombia, the spraying tasks with glyphosate herbicide (PECIG) are regulated by the relevant environmental rules that are strictly enforced in the Program's implementation. Also, Decree 1843 of 1992 regulates the use and handling of pesticides in the national territory.

Spraying activities are conducted in a manner that ensures compliance with the provisions in force setting out a margin of maximum drift of 5 to 10 metres. Likewise, a buffer zone of 100 metres for aerial spraying and 10 metres for manual spraying is observed.

In that sense, sprayed glyphosate does not reach greater distances than those mentioned. Consequently, it is technically ensured that "drift effect" does not reach Ecuadorian territory, as verified by the Ecuadorian Government in December 2004, when the Vice-Minister of Foreign Affairs of that country headed the scientific-technical Commission that...

[PAGE 4]

...conducted sample-taking activities in the Sucumbíos Province, without finding glyphosate residues in the area.

If Ecuador were to consider that its scientific-technical studies contradict CICAD's study, it would be advisable for the Ecuadorian scientists to submit the results of their analyses to CICAD, in order for the OAS-CIAD to be able to clarify and dispel any doubts.

With regard to a study conducted by the National University of Colombia that criticizes the study conducted by CICAD, it should be noted that it is not a scientific-technical study. The document is a critique to the methodology used in the CICAD study. The document of the National University in no way bases its arguments on a scientific and technical analysis nor, even less, is it a study establishing the toxic effects of glyphosate through the scientific method. Thus, the conclusions of this document are not valid in order to question the results of the study of the experts contracted by CICAD.

### **Application before the IACHR**

On 18 August 2005, the Ecuadorian Ombudsman submitted an application against Colombia before the IACHR, whereby he requested precautionary measures in order to have the aerial sprayings to be suspended in the border area.

### **Meeting of Foreign Ministers, Quito 25 June**

The Foreign Ministers met to discuss the issue; no agreement was reached since Ecuador insists on no spraying within a 10-km margin.

### **Meeting of Foreign Ministers, Bogotá, Monday 29 August 2005-09-05 [sic]**

The Foreign Ministers of Colombia and Ecuador met to discuss, among others, the issue of Aerial Sprayings which took up most of the time of the meeting, without any agreement being reached.

The Foreign Ministers meeting was preceded by a meeting of experts and officials who agreed to entrust an international organization with having an expert institution conduct a study on the effects of glyphosate on human health and the environment.

However, when the time came to formalize the agreement between Foreign Ministers, Ecuador subjected its agreement to the creation of a 10-km buffer zone in the border area where no aerial spraying tasks are conducted.

Colombia offered, in addition to its agreement on conducting the study, to conduct strict monitoring of sprayings, with the involvement of Ecuadorian observers, as well as for Colombian experts to address *in situ* any complaints for damages...

[PAGE 5]

...on human health or the environment, in order to ascertain whether they are caused by aerial sprayings.

Likewise, the Colombian Vice-Minister of Defence invited the Ecuadorian Government to participate as an observer in a spraying mission.

Despite the above, for Ecuador, any offer by Colombia continues to be unacceptable unless the 10-km buffer zone is implemented, invoking the precautionary principle.

Days after the meeting, the Ecuadorian Foreign Minister has stated to the media that in light of Colombia's refusal to implement the 10-km safety strip where no spraying takes place, Ecuador will institute proceedings against Colombia before international courts.

## CONCLUSIONS AND COMMENTS

### **Colombia-Ecuador dialogue at a standstill**

It is evident that the talks between both countries have made no progress since they started, given that both countries have different assessments of the situation, for the following reasons:

#### **1- Political and institutional instability in Ecuador**

The sudden change of government in Ecuador made all the efforts and work undertaken with the previous government go to waste. The previous government had abandoned its claim to demand a 10-km border buffer zone for spraying and Ecuadorian officials[,] Foreign Vice-Minister Jhonson had acknowledged and understood that the environmental and health problems of the Sucumbios province were not caused by aerial sprayings.

The change of government led to a major overhaul of Ecuadorian officials, having to restart the process of conversations with Ecuador on the issue at ground zero.



It should be noted that glyphosate is a chemical product freely sold in Ecuador, used in industrial agriculture.

## **2- Contrasting perspectives from which the issue is analysed**

### **Colombia's scientific-technical view**

Talks have come to a dead end given that both countries have completely different perspectives of the problem.

[PAGE 6]

For Colombia, the issue of whether the sprayings reach Ecuadorian territory or not, is a strictly scientific and technical matter and has so approached the issue.

Therefore, Colombia has always based its arguments scientifically and technically, clearly showing that sprayed glyphosate cannot physically reach Ecuadorian territory. The experts of the Anti-Narcotics Police, DNE and the National Health Institute, have always explained the spraying process and why it is not possible for Ecuadorian territory to be affected, in minute technical detail, to the Ecuadorian delegates.

Colombian authorities have invited Ecuador to send observers on spraying proceedings in order for them to verify the way they are conducted; however, Ecuador has not accepted the invitation.

### **Ecuador's Political Perspective**

For the Ecuadorian Government, the problem is neither scientific nor technical, reason due to which the arguments given by Colombia do not satisfy Ecuadorian demands.

For Ecuador, it is a political problem, originating in the economic and social situation of the Sucumbíos province that has faced serious environmental, health and poverty issues for many years.

Ecuador does not have any scientific or technical argument to base its claims or that shows that glyphosate sprayed in Colombia is the cause of the health and environmental problems of the Sucumbíos province.

The problems of poverty, health and deterioration of the ecosystem in the Sucumbíos province find their source in the oil exploitation in the region which has pitched the population against the government and the oil companies, from whom [the population] claims indemnification for the damages caused to human health and the environment.

That situation has not been resolved by any of the Ecuadorian administrations and the State's neglect of the region remains unchanged and is evidenced in the lack of basic public services.

Peasant movements and organizations, with the support of NGO's of different kinds, exert strong pressures on the central government to demand that the region be vindicated and one of their and one of their sticking points in light of the arduous and unproductive struggle against the oil companies is to blame the aerial sprayings conducted in Colombia and to demand indemnifications and attention.

The impossibility, for the Quito Government, of resolving the environmental and health issues of the Sucumbíos province, as well as reaching an agreement with the oil companies, added to the political weight of NGO's and indigenous and peasant movements in such an unstable country, leads its...

[PAGE 7]

...leaders to turn a deaf ear to the scientific and technical evidences of Colombia and the OAS, demanding a 10-km spraying-free strip and threatening with proceedings before international bodies in order to show the Ecuadorian public opinion that they are being firm and that they do tend to the concerns of the population of the Sucumbíos province.

It is evident that this situation is not an unpleasant turn of events for the oil companies involved, since the complaints that the province's inhabitants have been making since the 1970s are now turned against Colombia and the aerial sprayings.

### **Inaccuracies in Ecuador's claims**

According to Ecuador, glyphosate sprayed in Colombia reaches 10 kilometres inside Ecuadorian territory dragged by the wind, causing the destruction of crops, deaths of domestic animals, destroying flora and fauna, as well as causing irreparable damages to human health, even of a genetic nature.

That statement is striking inasmuch as those damages and complaints are not present in the Colombian territory over which where the aerial spraying directly takes place.

Colombia has implemented an entire system of monitoring and receiving claims and complaints in order to establish any damage caused by the sprayings in an objective and impartial manner and compensate the affected parties. None of the claims and complaints processed in Colombia is even close to those portrayed by Ecuador. On the other hand, in Colombia the environmental damages alleged by Ecuador have not been complained of.

It is also noteworthy that none of the border populations in Peru, Venezuela or Brazil has stated the same complaints.

Likewise, it is incomprehensible to Colombia that Ecuador does not accept to take part in spraying missions in Colombia as observers, or to accompany the monitoring and verification carried out by the Anti-narcotics Police, the National Health Institute and the Ministry for the Environment following each spraying task.

Ecuador also does not accept that Colombian experts along with Ecuadorian experts carry out a verification and analysis of the specific complaints of Ecuadorian nationals *in situ*, as soon as these arise when a spraying task has been conducted in Colombia.

Ecuador invokes the application of the precautionary principle, arguing that if there are doubts as to the environmental and health impacts of a product its use should be suspended.

In that regard, it is noteworthy that for Colombia, that principle is not applicable because there is no doubt as to the effects of...

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...glyphosate on human health and the environment. There is no doubt whatsoever that as a pesticide, glyphosate is toxic, but Colombia is certain that the methodology used in aerial spraying ensures that its noxious effects are on coca crops and not on human beings and the environment.

If glyphosate did not fulfil the minimum requirements provided for in domestic regulations to ensure that the environment and human health are not harmed, it would not be used and both the National Health Institute as well as the Ministry for the

Environment who accompany the monitoring of spraying missions, would be under a constitutional and moral imperative to recommend the suspension of the sprayings if they were to corroborate that its effects are those alleged by Ecuador.

Colombia's arguments have been scientifically and technically endorsed by the study entrusted by CICAD-OAS to a group of scientists and experts of international stature. That study has been questioned and dissected by Ecuador in the media. However, the Ecuadorian Government has not submitted any formal comments to CICAD concerning its questioning of or qualms over it, which would allow one to think that Ecuador does not have scientific and technical elements in order to refute the study.

For its part, CICAD-OAS, despite not being aware of any formal comments to the study on behalf of Ecuador, has invited Ecuador to take part in the second phase of the study to which there has been no reply from Ecuador.

**Impossibility for Colombia to accept Ecuador's claim regarding a 10-km buffer zone in the border area where no spraying takes place**

Colombia cannot accept Ecuador's claim given that it is absolutely certain that the methodology and technology used by Colombia while conducting spraying missions ensures that sprayed glyphosate does not reach Ecuadorian territory.

Colombia possesses all the technical and scientific elements in order to show that glyphosate sprayed in Colombia cannot be the cause of the health and environmental problems in Ecuador. Therefore, the precautionary principle is not applicable.

Colombia already, in application of its domestic regulations, Decree 1843 of 1992 on the use and management of pesticides in the national territory, ensures vis-à-vis Ecuador that within a margin of 100 metres with respect to rivers and other water bodies as well as of inhabited localities, no aerial spraying with glyphosate, or any other herbicide, are carried out.

To accept the implementation of that strip would be tantamount to admitting that the effects of aerial sprayings are those claimed by Ecuador and that they reach Ecuadorian territory. At best, it would be tantamount to admitting...

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...that Colombia has serious doubts as to the effects of glyphosate and to disregard all the expertise, studies and evidence that the Anti-narcotics Police, the National Health Institute and the Ministry for the Environment have.

On the other hand, it would be tantamount to admitting, without any reason, that the national provisions regulating the use of pesticides in the country have been breached.

When accepting that strip, the national government would also have to suspend the aerial spraying in the entire national territory, because if doubts as to the effects of aerial spraying with glyphosate are admitted, and a precautionary principle with respect to the border with Ecuador is applied, how could it not apply the same with respect to the entire national territory, since according to that principle, human health and the environment throughout the national geography would have been put at risk.

The suspension of aerial spraying with glyphosate in Colombia would have a disastrous effect and entail an enormous setback for the policy for the eradication of illicit crops.

### **Proceedings before international bodies**

It has not yet been established whether the IACHR will admit the Application filed by the Ombudsman of Ecuador or not. It is unclear if the IACHR has jurisdiction and if the [Application] can be processed since it would first have to be determined whether this can be considered as an application of the Ecuadorian State against the Colombian State or not. The IACHR is expected to make a proper announcement in that regard.

On the other hand, the Ecuadorian Foreign Minister has stated to the media in his country, that a formal application will be submitted to international bodies, whether it be the International Court of Justice or the IACHR. It is not clear which body or when. Nor has there been a formal communication from Ecuador to Colombia to that effect; up to now, it has only been statements to the mass media.

Sub-division for Drug Affairs  
Division of Multilateral Political Affairs



## **Annex 57**

### **“PLAN COLOMBIA PROGRESS REPORT 1999-2005”, NATIONAL PLANNING DEPARTMENT OF COLOMBIA, OFFICE OF JUSTICE AND SECURITY, SEPTEMBER 2006**

(National Planning Department of Colombia. Available at:  
[http://www.dnp.gov.co/archivos/documentos/DJS\\_Documentos\\_Publicaciones/bal\\_plan\\_Col\\_ingles\\_final.pdf](http://www.dnp.gov.co/archivos/documentos/DJS_Documentos_Publicaciones/bal_plan_Col_ingles_final.pdf) (last visited 6 March 2010), pp. 7, 8, 10-12, 25-27, 33-40)

**PLAN COLOMBIA PROGRESS REPORT, 1999 - 2005**

**NATIONAL PLANNING DEPARTMENT (DNP)  
DEPARTMENT OF JUSTICE AND SECURITY (DJS)  
SEPTEMBER 2006**



## I. INTRODUCTION

This document presents the results for Plan Colombia (PC) relative to each one of its fundamental goals: to fight against the world drug problem, organized crime, and the violence they generate, to revitalize the economy and society, to strengthen democratic institutions, and to make progress in peace negotiations in Colombia.

The report is necessary to mark the progress made thanks to joint efforts by the national government and the government of the United States of America.

From the year the Plan was first executed, 1999, until now, significant changes have been wrought in Colombia. They include a reduction in violence and a recovery of security that are reflected in a decrease in the number of homicides, kidnappings, and massacres. Territorial control has increased thanks to the presence of the Public Security Forces<sup>1</sup> in all the urban centers of Colombian municipalities. Illicit cultivation of coca has been reduced<sup>2</sup> relative to its growth in the decade of the nineties, due to the efforts made in manual eradication and air fumigation, interdiction, and extradition. The economy has grown at close to 5% annually. And progress has been made in improving and increasing access to the justice system, and in the protection and promotion of Human Rights and International Humanitarian Law.

The document is divided into four sections, first of them is this introductions. The second explains what PC is, defines the objectives of the bilateral cooperation's comprehensive strategy, and breaks down the amounts of the financing between the contributions from the United States government and the contributions from the general budget of the nation.

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<sup>1</sup> The Public Security Forces include the Armed Forces (Army, Air Force, and Navy) and the Colombian Police.

<sup>2</sup> The official statistics on illicit crops in Colombia are provided by the SIMCI project, "Integrated Illicit Crop Monitoring System", an organization under the auspices of the United Nations, UN, which has been monitoring crops since 1999, with annual surveys that are published in the month of June.

The third section points out the results and achievements of PC from 1999 to 2005 in its four components:

- i. The fight against illegal drugs and organized crime
- ii. Economic and social revitalization
- iii. Strengthening democratic institutions
- iv. Progress in the Colombian peace process

Finally, the fourth section presents conclusions, which have the purpose of connecting the results of the first phase of Plan Colombia with a second phase whose formulation is described in another document. Given the evident success of the first phase, the document proposes further fortification of the components developed so far.

## **II. WHAT IS PLAN COLOMBIA? (OBJECTIVES AND FINANCING)**

PC is a comprehensive strategy for bilateral cooperation, whose overall goal is to fight against illegal drugs and organized crime, thus contributing to economic revitalization, and to obtaining peace in Colombia. At the same time it strengthens control over the supply of illegal drugs in North American streets. The agreement is based on the principle of shared responsibility, which recognizes that the world drug problem is a responsibility held in common and shared by the entire international community. An integral and balanced vision is demanded in order to confront the demand and supply of illegal drugs.

Moreover, PC seeks to strengthen the Colombian State and Colombian society in order to defeat the narco-terrorist threat, in a context of strengthening Democracy and Human Rights. At the same time PC seeks to improve the social and economic conditions of the most vulnerable groups in the population by offering them other alternatives than producing illegal drugs (See Table 1).

and 15.98% for economic and social revitalization. Within the components of strengthening democratic institutions and economic and social revitalization there are several programs specifically directed toward progress in Disarmament, demobilization and reintegration process.

### **III. ACHIEVEMENTS AND RESULTS OF PLAN COLOMBIA**

#### **A. Fight against the world drug problem**

With the goal of reducing the cultivation, production, and traffic of illegal drugs, as well as dismantling the infrastructure that supports it and curbing the violence generated by organized crime, the national government began an important process to strengthen the Armed Forces and the National Police. This process modernized, restructured, increased the professionalism, and provided HR training for those Forces.

Modernizing the Armed Forces has produced a notable improvement in air capacity to provide air fire support in combat, to accompany eradication operations, and to move provisions and personnel to and from areas where access by land or river is very difficult. The modernization has also led to improved capacity to carry out night operations, a growing implementation of technical intelligence in the operations of the public security forces, and the unification of communication systems.

As far as the restructuring, the introduction of the joint operation doctrine has led to specialization and complementation of the skills of each Force. This specialization is fundamental to effective control of territory and the fight against drugs and associated violence. The efforts in this aspect can be seen in the creation of the Caribbean Joint Command and the Southern Joint Task Force. Likewise, mobility and an offensive posture have become key factors in the doctrine of the public security forces with the formation of the Rapid Deployment Force (FUDRA from the initials in Spanish), twelve Mobile Brigades, and more than fourteen Mobile Carabineers Squads.

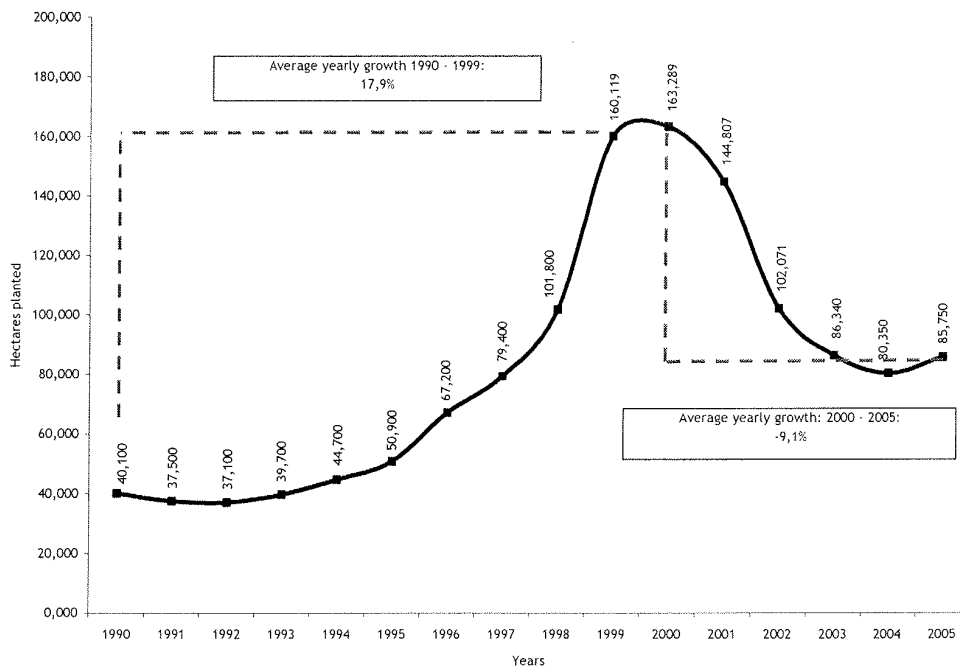
The professionalization of the Army soldiers and Navy personnel has also led to a change in the composition of the standing force, increasing the proportion of combatant

soldiers. Thus, the number of drafted soldiers was reduced by 40,312 between 1998 and July 31, 2005, and the number of professional soldiers was increased, going from 22,459 to 79,176 in the same period.

### ***Eradication***

Modernization, restructuring, and professionalization, combined with the emphasis given to the tasks of eradication, interdiction, and extradition generated an important change in the behavior of coca crops and coca trafficking in the country. In the nineties, and particularly after 1993, Colombia had a growing trend in the number of hectares planted with coca. This trend accelerated after 1995, and became most critical from 1998 to 1999, when the cultivations went from 101,800 to 160,119 hectares, increasing by 57% (Graph 1). This behavior, of course, led to a continuous increase in coca crops. Just two years of Plan Colombia, however, managed to reverse this growth trend.

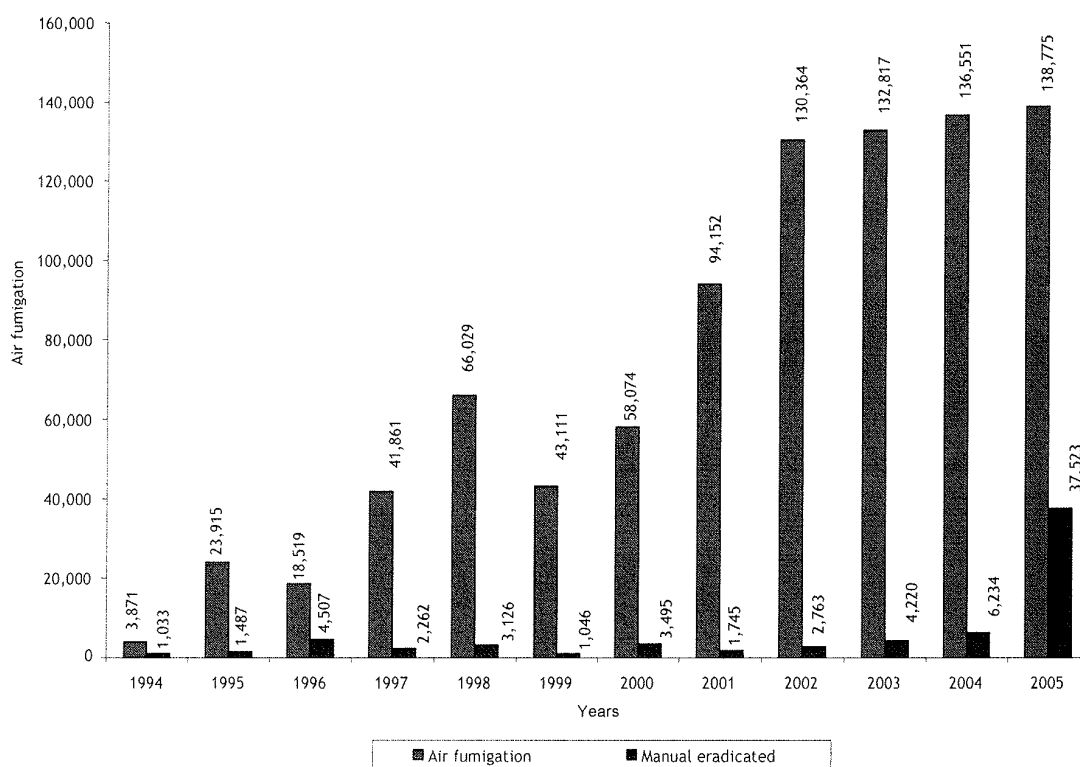
**Graph 1. Behavior of the number of hectares planted with coca in Colombia, 1990 - 2005**



Source: SIMCI, Colombian Police - Anti-Narcotic Department, UNODC and the United States of America Department of State.

Crops thus went down from 163,290 hectares in 2000 to 85.750 in 2005, representing a decrease of 47.5%. In particular, the active eradication campaign led to sprinkle, in 1999 - 2005, 732.125 hectares and to eradicate manually other 61.614 hectares<sup>3</sup> (Graph 2). In this sense, it is important to emphasize that the 46.4% decrease in the number of hectares planted with coca was achieved using Plan Colombia Phase I resources.

Graph 2. Sprinkled and manual eradicated hectares of coca, 1994 - 2005



Source: Colombian Drugs Observatory and Narcotics National Direction

The combined strategies of Plan Colombia and the Democratic Security Policy have also decimated the capacity of the Illegal Armed Groups (GAML) to upset the public order

<sup>3</sup> To get an idea of the productive capacity of these hectares, if production were to begin simultaneously on all of them, they could generate a total of 4,408 tons of cocaine in one year. At international market prices, that amount would have an estimated value of US\$ 104,812 million (At wholesale prices in the United States). Source: World Drug Report, 2004. United Nations Office on Drugs and Crime- UNODC and Anti-narcotics Police).

General Command formed three Air-transported Groups for Advanced Trauma Support (GATRA from the initials in Spanish), to offer immediate support to those wounded in combat, cutting the time needed to begin resuscitation and advanced attention to control critical injuries, and to stabilize and evacuate patients<sup>7</sup>.

### ***Infrastructure support***

In the area of infrastructure, support has been provided for building troop lodging and training installations located in Apiay (Battalions of the Seventh Brigade), Tolemaida<sup>8</sup>, Putumayo (Battalions of the Twenty-seventh Brigade) and in the Army Anti-narcotics Brigade in Larandia. The upgrading of runways and taxiing zones is another notable example of the cooperation received in the framework of PC with the goal of counteracting the narco-terrorist threat in the eastern mountain range.

The efforts made in the areas of modernization, restructuring, and professionalization of the Public Security Forces, combined with the strategies of eradication (both aerial and manual), interdiction, and extradition, have given the state better control over territory and produced a reversal in the growth trend in the cultivation of illegal drugs and in the violence financed by that industry.

## **B. Economic and social revitalization**

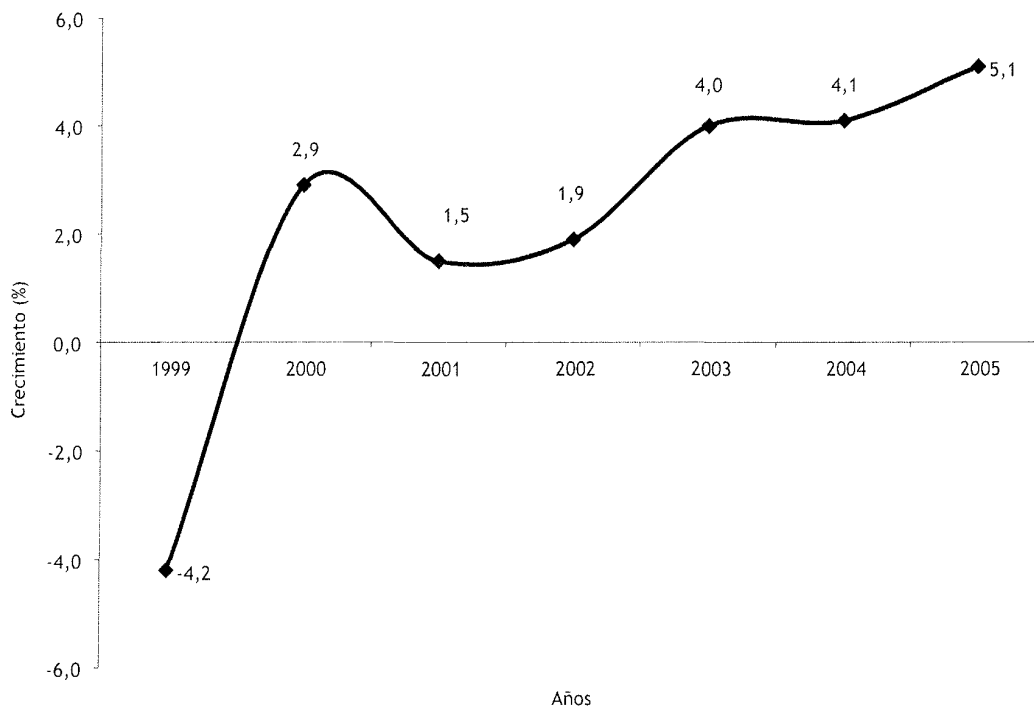
The advances made in security have fortified society and the economy. Between 2003 and 2005, in the economic arena, Colombia reached a growth rate of over 4%, the highest in the last eight years (See Graph 11).

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<sup>7</sup> Source: General Department of Military Health. 2004.

<sup>8</sup> This Base serves as the command center for the deployment of various Mobile Brigades and as a unit for education, training, and retraining in different specialties and skills. It also constitutes an essential point for support and service to the different activities carried out by the public security forces in the national territory.

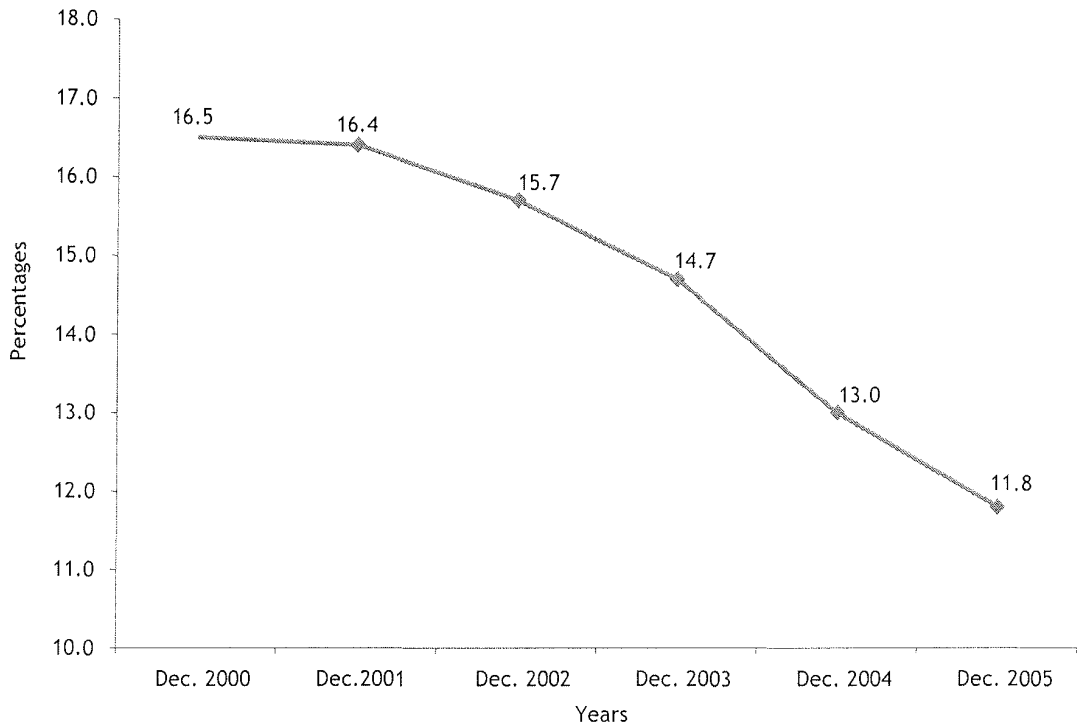
Graph 11. Growth in GDP (1999 - 2005)



Source: Department for Economic Studies (DEE) - DNP

The inflation rate was 4.85% in 2005, the lowest in the last decade. Similar achievements have been obtained in the unemployment rate, which went from 13% in December 2004 to 11.8% in December 2005 (See Graph 12).

Graph 12. Evolution in the unemployment rate



Source: National Administrative Department of Statistics - DANE

Based on these figures, Colombian economic perspectives are looking positive in the medium run. In fact, annual growth rates of 6% are projected, especially if the national government can maintain its policy of fiscal austerity and implement reforms to the pension system and the General Participation System.

### ***Tariff preferences as an engine for growth and economic development***

And there are hopes for even greater growth as a result of the expansion of trade opportunities with the United States and with other countries in the framework of the Free Trade Agreement (FTA).

### ***Social Reactivation***

Relative to social revitalization, a Social Support Network (RAS from the initials in Spanish) was designed and set up to mitigate the impact of the economic recession on



economic stabilization phase, and 0.2% for the phase for the prevention of displacement and for strengthening democratic institutions.

With the support of the United States Southern Command, the Coordination Center for Integral Action (CCAI) was created in 2004. The Center brings together various Colombian government entities that complement and support the military recovery of territory by means of social and economic programs. Through the CCAI, US\$ 35 million have been invested in 52 priority municipalities and in those municipalities most affected by violence.

### **C. Strengthening democratic institutions**

PC has also led to the long-term strengthening of democratic institutions in the country. Through help from the United States government, special human rights units have been established, an early warning system has been organized to prevent massacres or forced displacements, and legislation and standards have been created relative to money laundering and asset forfeiture. Contributions made to the justice system are also notable for their importance.

#### ***Support for the Accusatory Criminal Procedure System***

Emphasis should be placed on the support provided from the beginning for the implementation of the accusatory criminal procedure system. It has now entered its second phase of implementation, covering a total of 12 judicial districts of the 29 programmed for 2008.

The main activities financed are of a diverse nature and cover multiple needs. Four specific lines of work, however, can be identified:

- i. training
- ii. physical and technological infrastructure
- iii. Planning and management models
- iv. Strengthening of criminal investigative skills.

With respect to training, initiatives have been taken such as the formation and consolidation of a body of trainers, and the development of inter-institutional work networks. There has also been support for designing training modules for judges and district attorneys in procedural techniques and criminal law.

As far as adaptation of the physical and technological structure, there has been decisive support for building courtrooms and evidence storerooms at the Office of the Attorney General of the Nation and the jurisdictional sector, as well as a push for the adaptation of the technological platform for that same office and for the National Institute of Forensic Medicine and Forensic Scientists (INMLCF for the initials in Spanish), among other initiatives.

In the area of planning and design of management models, PC led to carrying out the *“Operative Plan for Implementation of Criminal Reform,”* which has become a key budget programming instrument for the resources allocated for the accusatory system. In addition, the support has permitted the design and validation of a management model, through a pilot laboratory in the specialized courts of Bogotá.

Lastly, in the area of strengthening criminal investigation skills, the PC support has allowed laboratories to be updated and fundamental equipment and tools to be acquired for the work of the Technical Investigation Corp (CTI) at the Office of the District Attorney. Photographic slides, genetics, and toxicology at the INMLCF have also been updated.

Thanks to the cooperation from the government of the United States, the results of the implementation of the accusatory system include processing a significant number of cases with high social relevance. Table 6 lists the district attorney offices and judicial districts that began to function under the new system in Phase I, and some of the high-impact cases that have received the longest sentences.

**Table 6. Symbolic cases in the Accusatory Criminal Procedure System Phase I (January - September 30, 2005)**

Section	Crime	N° of People Convicted	Sentence (Years)	Duration (Days)
National Anti-Narcotic Unit	Trafficking of Narcotics	9	10 - 23.6	25 - 94
National Anti-Terrorism Unit	Homicide and Aggravated Homicide, Illegal Carrying of Weapons, and Use of a False Document	3	17.5 - 22	21 - 52
	Attempted Aggravated Homicide	2	12.5	19 - 20
	Attempted Homicide	3	9.2 - 12.5	22 - 25
Armenia	Homicide	5	30	109 - 26
	Aggravated Homicide	1	18	22
Pereira	Homicide	5	30	109 - 59
	Attempted Homicide	1	8.6	181
	Conspiracy to Commit a Crime	3	10	69
	Others	1	1.9	63
Manizales	Homicide and Illegal Carrying of Weapons	2	16.1 - 40.1	35 - 117
	Aggravated Homicide	1	34.1	99
	Homicide	3	10.5 - 28.5	24 - 113
Bogotá	Homicide and Attempted Homicide and Illegal Carrying of Weapons	1	30	163
	Homicide	4	16.3 - 41	21 - 132

Source: Office of the Attorney General of the Nation, "Boletín estadístico N° 13" (Statistical Bulletin No. 13), July- September 2005

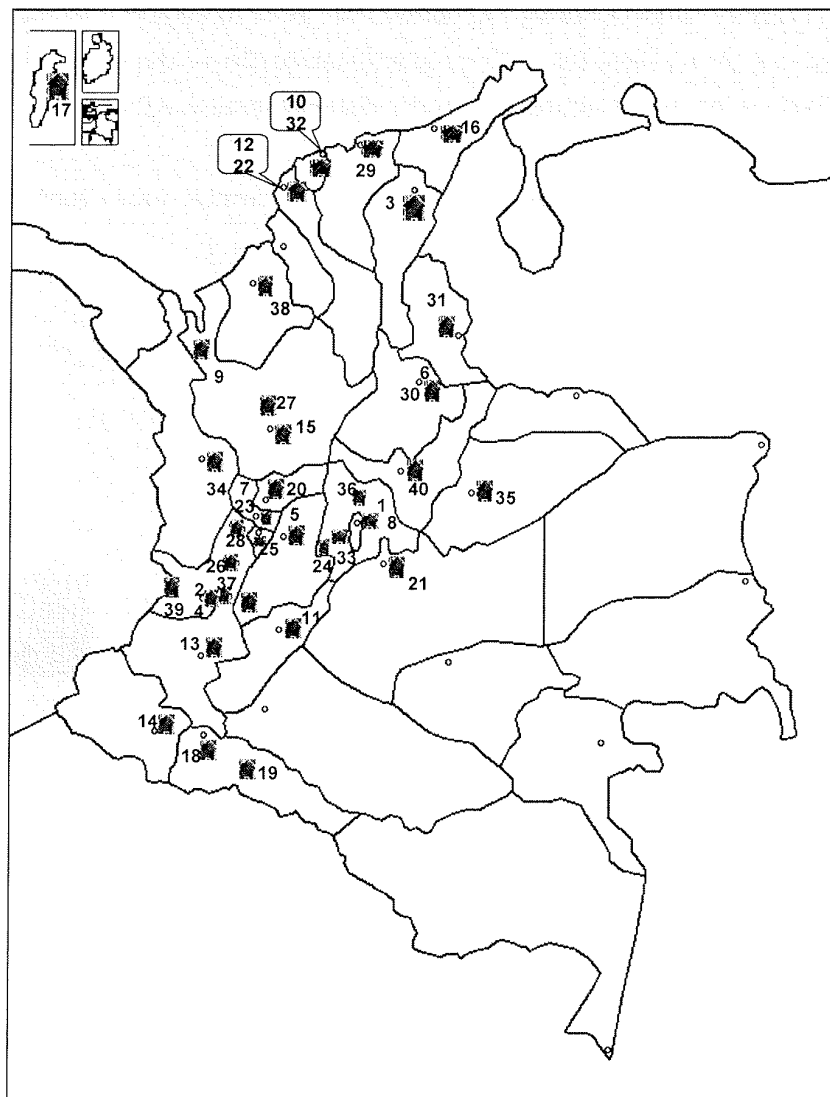
### ***Access to Justice***

The efforts to guarantee State presence and to strengthen the justice system through the creation of mechanisms for access to justice have been complemented by the Houses of Justice Program (CJ from the initials in Spanish). That program has established

the basis for coordinating the different channels of justice (formal and informal), and has provided alternatives for peaceful resolution of conflicts in communities located far from urban centers.

Thus, in the 10 years since they have been established, the CJs have made important advancements. According to information from the Ministry of the Interior and of Justice (MIJ), as of June 2005, there were 39 Houses of Justice in Colombia, distributed throughout the nation as shown on Map 1.

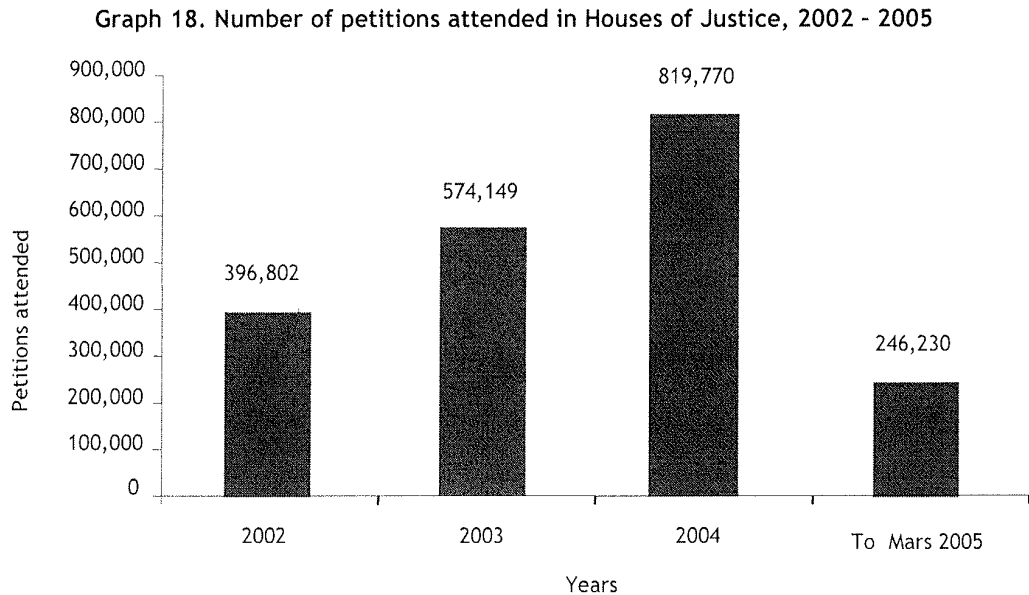
Map 1. Geographic distribution of the Houses of Justice



N.º	House of Justice	N.º	House of Justice	N.º	House of Justice	N.º	House of Justice
1	Armenia	11	Cali - Siloé	21	Manizales	31	Quibdó
2	Barranquilla - Simón Bolívar	12	Cartagena - Chiquinquirá	22	Medellín	32	Riohacha
3	Barranquilla - La Paz	13	Cartagena - Country	23	Mocoa	33	San Andrés
4	Bello	14	Cartago	24	Montería	34	Santa Marta - Funcionarios
5	Bogotá - Ciudad Bolívar	15	Chía	25	Neiva	35	Soacha
6	Bogotá - Suba	16	Chigorodó	26	Pasto	36	Tuluá
7	Bucaramanga	17	Cúcuta	27	Pereira - Villa Santana	37	Valledupar
8	Buenaventura	18	Floridablanca	28	Pereira - Cuba	38	Villavicencio
9	Buga	19	Girardot	29	Popayán	39	Yopal
10	Cali - Aguablanca	20	Ibagué	30	Puerto Asís	40	Tunja

Source: MIJ. "Celebración 10 años Casas de Justicia" (Celebration of 10 years of Justice). In: <http://www.mininteriorjusticia.gov.co/pagina5.asp?cat=26>, September 20, 2005.

From January 2002 to March 2005, the Houses of Justice have responded to a total of 2,036,951 petitions, as reflected in Graph 18. It is important to note that while the increase in demand for services during the period from 2003 to 2004 was 42.8%, by the end of the first quarter of 2005, they had already received 30% of the total petitions in that 2003 to 2004 period, which allows us to see a sustained growth pattern.



Source: MIJ. "Consolidado Nacional Casas de Justicia. Resultados primer trimestre de 2005." (National Total for House of Justice. Results from the first quarter of 2005). Obtained on September 20, 2005 at: <http://www.mininteriorjusticia.gov.co/pagina5.asp?cat=26>. Calculations: DNP - DJS - SJ.

According to the results from the first quarter of 2005, the Houses of Justice focused their activity on the following types of consultations: attention to family conflicts (33.1%), criminal problems (12.3%), and loss or absence of documents (10.1%).

Another initiative that has been supported through PC has been the creation of Citizen Coexistence Centers (CCC), headed up by the MIJ. The program aims, with the involvement of the regional authorities, to foment spaces, programs, and initiatives that will promote good citizenship and peaceful coexistence.

In the period from August 2002 to June 2005, 10 of the 14 CCC have been put in motion that were programmed for the period, representing 71% of the goal established.

Finally, PC support has helped to strengthen Alternative Mechanisms for Conflict Resolution such as equity conciliation. Since the year 2002, the Department of Access to Justice at the MIJ has been working hand-in-hand with international cooperation through USAID, regional entities, and non-governmental organizations across the country to build a sustainable public policy for equity conciliation.

The main achievement of this important synergy is the presence of the mechanism in more than 177 cities and municipalities of the country, and the naming of 2,424 equity conciliators. Table 7 summarizes the increase in conciliators approved since 2003.

**Table 7. Conciliators Approved by the Ministry of the Interior and of Justice, 2003- 2005**

Years	N. ° Consiliators approved
2003	823
2004	1.039
2005	562
Total	2.424

Source: MIJ - Department for Access to Justice

### ***Investment in Local Government***

Local governments have also benefited from the bilateral cooperation, through programs and projects to increase transparency and effectiveness. Municipal and rural infrastructure works have benefited local communities and, therefore, have strengthened communities' ties to government institutions.

The program for social infrastructure and community management helped to develop 740 social infrastructure works in 175 municipalities. Through it, more than 3.2 million Colombians have benefited from the recovery of 413 schools, 29 health posts, 198 sports facilities, and 100 centers for community development

### ***Protection of Human Rights and International Humanitarian Law***

Relative to the fight against impunity in cases of HR violations and IHL infractions, on March 6, 2006, the Colombian State approved a Conpes document<sup>9</sup> that seeks to strengthen the State's capacity for investigating, judging, and punishing these violations and infractions<sup>10</sup>. The policy, spearheaded by the Office of the Vice President of the Republic, implies a significant fiscal effort by the Nation, due to the fact that its implementation will require an investment of \$40,000 million, of which the nation will contribute \$22,344 million.

Progress has also been made in strengthening the institutions of the Armed Forces. Courses, seminars, and workshops on HR and Military Criminal Justice issues have been held for personnel from the Armed Forces and the National Police, with support from the cooperation and in coordination with different academic institutions. This aid includes materials and publications for dissemination, and logistical support for the participation of military and uniformed personnel in the programmed events.

International aid's contribution is reflected in the internalization of the principles of respect for Human Rights and the complete application of Military Criminal Justice. This has led to a decrease in HR infractions by the members of the public security forces. The workshops cover topics such as the preventive function, international protection of HR, legislation on ethnic and linguistic minorities, prevention of situations of forced displacement, and the law against forced disappearance.

Specialized officers have been trained in issues such as conflict resolution, HR, IHL, and public international law.

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<sup>9</sup> Conpes document N.° 3411 of 2006. Política de lucha contra la impunidad en casos de violaciones a los Derechos Humanos e infracciones al Derecho Internacional Humanitario, a través del fortalecimiento de la capacidad del Estado Colombiano para la investigación, juzgamiento y sanción (Policy on the fight against impunity in cases of Human Rights violations and International Humanitarian Law infractions, through the strengthening of the Colombian State's capacity for investigating, judging, and punishing). Bogotá: National Planning Department.

<sup>10</sup> The policy was put together with the leadership of the Office of the Vice President of the Republic and with the participation of the Office of the Attorney General of the Nation, the Inspector General of the Nation, the Superior Counsel of the Judicature, the Office of the Public Defender, the National Planning Department, the Ministry of the Interior and of Justice, and the Penitentiary and Prison Institute.



## Annex 58

### COMMUNIQUÉ OF THE MINISTERS OF FOREIGN AFFAIRS AND NATIONAL DEFENCE OF COLOMBIA, 12 DECEMBER 2006

*(Archives of the Ministry of Foreign Affairs of Colombia)*

December 12

Communiqué from the Ministry of Foreign Affairs

Bogotá, Dec. 12 (SNE) The following is the communiqué issued by the Ministry of Foreign Affairs of Colombia this afternoon:

1. The Ministry of Foreign Affairs and the Ministry of National Defense inform the following to the public:
2. In December 2005, in response to a request from the Government of the sister Republic of Ecuador to suspend aerial sprayings in a 10-km strip from the borderline, the Government of Colombia decided to temporarily suspend spraying tasks in the border zone with Ecuador.
3. Taking into account that it has been a year since this temporary suspension, and that it has resulted in a substantial increase of illicit crops in that strip, through which narco-terrorism is financed, the Government of Colombia has adopted the decision to resume the spraying tasks in that zone.
4. The Colombian Government has scientific and technical arguments regarding the innocuous effects on human health and the environment of the spraying mixture used in the Program for the Eradication of Illicit Crops by Aerial Sprayings with Glyphosate (PECIG) that it has implemented in different regions of the country, including the border zone with Ecuador. Those arguments are supported on multiple national and international studies, an outstanding one being the study published by the Inter-American Drug Abuse Control Commission (CICAD-OAS) in April 2005
5. The study “Environmental and human health assessment of the aerial spray program for coca and poppy control in Colombia” by CICAD-OAS was made by eminent scientists with well-known international background, under the supervision of Professor Keith R. Solomon from the Toxicology Center of the Environmental Biology Department of the University of Guelph, Canada. The

Second Phase of the Study started last November 2006. It will include scientific reports on the impact on human health with genetic-toxic risk analysis and the reach of spray drift, among other issues.

Bogotá, 12 December 2006

## Annex 59

### **ADDENDUM N° 1 TO TENDER N° 02 OF 2007, WITH THE PURPOSE OF “CONTRACTING THE AUDIT TO THE PROGRAM FOR THE ERADICATION OF ILLICIT CROPS BY AERIAL SPRAYING WITH GLYPHOSATE HERBICIDE”, NATIONAL NARCOTICS DIRECTORATE OF COLOMBIA**

(National Narcotics Directorate, *Addendum N° 1 to Tender N° 02 of 2007*, pp. 1, 6-7. Available at: <http://www.dne.gov.co/index.php?idcategoria=1467&download=Y>)

[Page 1]

#### ADDENDUM No. 1 PUBLIC TENDER 02 OF 2007

The National Narcotics Directorate informs that the scheduled established in the terms of reference regarding the Public Tender 02 of 2007, with the purpose of contracting the audit to the program for the eradication of illicit crops by aerial spraying with glyphosate herbicide was modified as follows:

[...]

[Pages 6 and 7]

[...]

#### 4.4.1.2 Activities

For fulfillment of the scope of this contract, the contractor shall carry out the following activities:

- Follow-up audit on the environmental management plan

Audit compliance with the application of prevention, mitigation, and compensation measures included in the records of the Environmental Management Plan in force (Resolution 1054 of 2003), on the basis of the information generated by the entities responsible for their implementation, observations, and counter-sampling (collecting water and soil samples in the areas of operation of the Program and the corresponding analyses) carried out by the audit. The audit shall include the cost of counter-samples analysis. The number of counter samples to be collected and analyzed within the duration of this contract will be established according to the following chart: [...]



## Annex 60

### PRESS RELEASE OF THE COLOMBIAN FOREIGN MINISTRY, 8 FEBRUARY 2007

*(Archives of the Ministry of Foreign Affairs of Colombia)*

#### MINISTRY OF FOREIGN AFFAIRS

#### COLOMBIA CEASED YESTERDAY THE AERIAL SPRAYINGS CARRIED OUT IN [THE PROVINCES OF] NARIÑO AND PUTUMAYO

Bogotá, 8 Feb (MFA). “The Minister of Foreign Affairs of Colombia, María Consuelo Araújo, announced that Colombia ceased yesterday the aerial sprayings carried out in the [Provinces] of Nariño and Putumayo – bordering Ecuador. Likewise, she confirmed the beginning of manual eradication works on 12 February”.

“Colombia is starting now the manual eradication phase and ceases the spraying phase and, therefore, there is a good atmosphere to start implementing the agreement between the presidents (Alvaro Uribe and Rafael Correa of Ecuador)” said the Minister.

She explained that 1,200 people will work on manual eradication in Nariño and Putumayo, in the framework of the “goal” that the National Government has set to eradicate 50 thousand hectares of illicit crops this year.

“We consider that the agreement between the presidents was clear in that once Colombia needs to start spraying tasks in that area, inspectors appointed by both countries via the Three-Party Commission will take part.”

Alberto Gómez Mejía was appointed by the Government of Colombia to represent the country in the Three-Party Commission (which also comprises of one delegate from Ecuador and one from the OAS) in charge of the verification process for sprayings to eradicate illicit crops that will be carried out within the Colombian territory bordering Ecuador.

(Fin/jna/jmr)

09/02/2007



## **Annex 61**

### **RESOLUTION N° 008 OF 2 MARCH 2007 OF THE NATIONAL NARCOTICS COUNCIL OF COLOMBIA**

*(Official Journal No. 46.639, 25 May 2007, Excerpts)*

[...]

[Page 35]

#### **RESOLUTION No. 008 OF 2007 (March 2)**

*Whereby Resolution 0017 dated 4 October 2001 that sets the procedure to address complaints derived from alleged damages caused by aerial spraying with glyphosate herbicide within the Program for Eradication of Illicit Crops is amended.*

#### **THE NATIONAL NARCOTICS COUNCIL**

In exercise of its legal faculties and pursuant to Article 91, sub-sections a, b, c and particularly sub-section g, and Article 92 of Law 30 of 1986,

#### **WHEREAS**

[...]

[Page 36]

The National Narcotics Council issued Resolution 0017 dated 4 October 2001 whereby it adopted the procedure to address complaints derived from alleged damages caused by aerial spraying with the herbicide glyphosate within the PECIG (Program for Eradication of Illicit Crops by Aerial Spraying with Glyphosate). That Resolution needs amending with the objective of adjusting it to the current circumstances of the country regarding the mentioned activity;

With the eradication of illicit crops by aerial spraying with glyphosate, collateral effects may be caused on neighboring crops due to adverse weather conditions, public order alteration, and technical reports on airplanes;

The Program for the Eradication of illicit Crops has new technological systems and advances of satellite information for detection of illicit crops, such as satellite images, aerial photographs, location systems on spraying airplanes, which permit a better and greater protection of people's rights in the areas under the Program;

As a result of the increase of aerial spraying operations on illicit crops with glyphosate in the different regions of the country, there has been a high number of complaints by people for alleged damages to their lawful agricultural activities;

Resolution 0017 dated 4 October 2001 establishes the procedure to address complaints filed by people and it is necessary to amend it in order to make its implementation faster and efficient and this way determine the alleged liability of the State;

According the constitutional ordering, administrative acts must be the result of a process in which the those involved in it have the opportunity and warranty of the exercise to defend and contradict and that way to express their opinions present and request evidence that prove their rights with full observance of legislation that regulates the matter, always in compliance with the described procedural terms and phases;

For the above stated,

RESOLVES:

CHAPTER 1

### **General Provisions**

Article 1. *Objective.* The objective of this Resolution is to adjust the procedure, through which economic compensation complaints file by people or businesses derived from alleged damage on their lawful agricultural activities within the framework of the Program for the Eradication of Illicit Crops –PECIG- are addressed, in accordance with the constitutional principles that cover the administrative acts.

Article 2. *Competence.* The Colombian National Police, through the Anti-Narcotics Direction, will be the entity in charge of processing and deciding on the admissibility or not of the economic compensation derived from damages that might be caused to lawful agricultural activities in compliance with the procedure established in this resolution and with the support from the authorities appointed for that purpose. It shall submit a monthly report to the National Narcotics Directorate, Regional Affairs and Eradication Division, on the decisions it makes.



Article 3.  *Holders of the complaint.* The person or business owner of the agricultural activity who consider upon basis that he or it has been directly affected the operations of aerial spraying with glyphosate has the right to file a complaint at the Mayor's Office of the corresponding Municipality, showing by any of the probative means established under law his or its relation with the goods presumably affected.

Article 4.  *Admissibility of compensation.* To effects of economic compensation, the claim will only be admissible for damages caused to the owner of the corresponding lawful agricultural activity, as long as his crops are not part of or are mingled with illicit crops.

Article 5.  *Admissibility of legal action.* The official in charge of receiving the complaint is under obligation in compliance with law to bring the corresponding lawsuit when it is identified that the claimant has admitted that there are split or mingled crops on the property presumably affected.

## CHAPTER II

### Preliminary actions

Article 6.  *Filing the complaint.* Complaints must be filed before the Mayor of the municipality within twenty (20) calendar days after the date on which the spraying with glyphosate within the framework of the Program for the Eradication of Illicit Crops presumably took place.

Article 7.  *Admissibility and submission of complaints.* Complaints will be admissible when it can be shown upon basis that the damage was caused as a direct consequence of the implementation of the Program for the Eradication of Illicit Crops with Glyphosate. Complaints must be submitted personally by writing or in the forms that the National Police, through the Antinarotics Direction, establishes for that purpose. These forms will be distributed at Mayors Offices in the Municipalities.

The complaint shall include the following information:

1. Full name and identification of the person filing the complaint
2. Name and location of the allegedly affected property, as stipulated in the paragraph of this article.
3. A copy of the deed to the property in question or a statement of the title under which the allegedly affected property is being used.
4. The economic activity now developed on the property in question
5. A list of damages, indicating the quality and quantity of affected goods or property

6. Date and time of spraying
7. The objective of the petition
8. A list of all documents and evidence attached to the complaint
9. Home address or place where a reply may be sent
10. Signature of the petitioner and the official who received the complaint.

Article 8. *Processing*. Once the complaint is received, the Mayor will proceed to evaluate if it is admissible to formally address the complaint. If so, the official will send it within five (5) days to the Antinarcotics Direction of the National Police. Or verify if there are any of the reasons for refusal listed in article 9. If so, the complaint will be closed.

Article 9. *Immediate refusal*. The complaint will be immediately rejected by the Mayor in the following cases:

1. If it is filed when the term provided in Article 6 is overdue.
2. When no probative means showing the right to complain are provided.

### **CHAPTER III** **Compensation Process**

Article 10. *Admission*. Once the complaint is received by the National Police – Antinarcotics Direction, a file will be opened and actions taken by the Municipal Mayor will be registered in it. Once the admissibility of the complaint is verified, it will be admitted; if not, it will be rejected and the case closed and a notice sent to the interested party through the Mayor’s Office.

Article 11. *Previous Report*. In the administrative act issued by the official that admitted the case, he will request within the following five days reports showing if spraying took place in the area mention in the information provided by the complainant. To that effect, [...]

[Page 37]

[...] relevant information regarding reports of flights satellite location, copies of minutes and spraying polygram, and reports of illicit crops detection and the monitoring system of the program for the eradication of illicit crops will be considered in the municipality or area where the complaint came from.

If based on the verification mentioned above, it is concluded that no spraying operations took place in the area the complaint comes from, it will be rejected, the interested party will be notified through the Mayor's Office and the case will be closed.

Article 12. *Proving period.* Once it is concluded that spraying took place, the National Police – Antinarcotics Direction, will establish, based on a previous pertinence and efficacy analysis, the evidence that shows the damage and its estimate. It can use the legally established proving means within a 40 working days period, extendible up to a similar term. In case DIRAN requires cooperation from other government institutions for the evidence process, it can request their participation stating how it is wanted.

Article 13. *Complaint verification visit.* With the purpose of getting a technical concept on the facts presumably subject to compensation, an inter-institutional technical group will be created for complaints verification. It will be coordinated by the National Police – Antinarcotics Direction. It will go to the place mentioned by the complainant to corroborate the evidence of the alleged damages.

The technical team will present a report upon making the field visit and it will become part of the file kept by the National Police-Antinarcotics Direction.

The team will be made up by the following institutions: Ministry for the Environment, Housing, and Territorial Development, the Colombian Agriculture and Livestock Institute, and the Antinarcotics Direction of the National Police, the coordinator of the team. Additionally, the team may invite technical institutions that it considers necessary.

Article 14. *Classification of Lawful Crops.* For compensation of damages caused to lawful crops; they will be classified in permanent and transitory.

Permanent crops are those crops with a lifespan over a year and yielding more than one harvest in this period.

Transitory crops are those crops that due to their genetic or technical aspect only yield a harvest in their lifespan, below a year.

Article 15. *Concepts for compensation:* The following concepts will be taken into account for compensation:

- a) Investment in installation;
- b) Value of the affected harvest at market prices in accordance with the closest markets to the allegedly affected area.

Compensation for transitory crops will exclusively include what is stated in letter b) of this article, the value of the affected harvest at market prices according to the tables of the closest market place to the allegedly affected area.

16. *Decision.* Once the proving term established in article 12 is over and all proofs are analyzed, the National Police –Antinarcotics Direction, will make a decision regarding the admissibility or no admissibility of the complaint and the amount to be compensated. To do so, it has to take into account there has been spraying operation, damages are proven, and there is cause-effect relation among them.

Article 17. *Appealing.* The decision made by the National Police-Antinarcotics Direction may be challenged. The appeal for reversal shall be filed within 5 days after de decision is communicated.

18. *Payment.* Once the decision that acknowledges the admissibility of compensation is ratified, payment of compensation will be made. The complainant must write a letter stating that the liability of the Program for the Eradication of Illicit Crops and its implementing institutions has ceased. The National Narcotics Directorate – Division of Regional Affairs and Eradications will be provided with a monthly report on the compensations paid.

#### **CHAPTER IV FINAL PROVISIONS**

Article 19. *Creating and keeping the file.* The file containing actions and decisions referred to in this resolution, must be kept by the Antinarcotics Direction of the National Police and will be documental and probative item of the process carried out.

20. *Validity.* The procedure contained in this resolution is in force upon its publication and amends in total Resolution 0017 dated 4 October 2001. Failure to comply with it will result in application of procedures and disciplinary penalties that may apply to officials from relevant institutions.

Article 21. *Transition.* Complaints filed prior to the date this resolution enters in force and that have not come to a final decision, will continue their process in accordance with this resolution and the topics not covered by it will be settled in compliance with the Administrative Contentious Code and the Civil Code.

Let it be published, communicated, and observed

Issued in Bogotá, D.C. on 2 March 2007.

The President,

Carlos Holguin Sardi

The Technical Secretary

Alejandro Velez Munera



## **Annex 62**

### **COMMUNIQUÉ OF THE COLOMBIAN FOREIGN MINISTRY, 12 JULY 2007**

*(Archives of the Ministry of Foreign Affairs of Colombia)*

#### **MINISTRY OF FOREIGN AFFAIRS**

**PRESS**

#### **COMMUNIQUÉ**

In relation to the recent statements by the President of the Republic of Ecuador, Rafael Correa, the Government of Colombia states the following:

- The programs for the eradication of illicit crops, and particularly eradication by aerial sprayings, have been conducted by Colombia in full exercise of its sovereignty, exclusively within the national territory.
- The Government of Colombia reiterates the importance of collaboration between neighboring countries in the fight against terrorism and the world drug problem, and within the framework of that effort, the consolidation of security in Colombia, that represents security for the region.
- Since the month of February of the current year, no aerial sprayings are being carried out in the vicinity of the border with Ecuador and instead, the manual eradication of illicit crops is being undertaken, efforts to which over 1,100 people are devoted.
- The Binational Scientific and Technical commission created by the Presidents of the two countries has remained active and last Monday, 9 July held its second meeting in Bogotá. As a result of its discussions, the need to undertake field work that allows this mechanism to corroborate the different prevention measures that Colombia takes in the activities of the Program for the Eradication of Illicit Crops by Aerial Spraying, and to verify in field the different claims made by Ecuador.
- The Government of Colombia reiterates its willingness to continue advancing in the bilateral talks that leads to clarifying any type of doubt that may exist about this issue.

Bogotá D.C., 12 July 2007





## Annex 63

### **“EXPENDITURES OF THE COLOMBIAN STATE IN THE FIGHT AGAINST DRUGS, 2005-2006”, NATIONAL NARCOTICS DIRECTORATE AND NATIONAL PLANNING DEPARTMENT, BOGOTÁ, 2008**

(National Narcotics Directorate, National Planning Department, *Expenditures of the Colombian State in the Fight against Drugs 2005-2006*, Bogotá, 2008 , p. 4. Available at: [http://odc.dne.gov.co/IMG/pdf/Gasto\\_Drogas\\_\\_2005-2006\\_\\_07\\_May\\_2009\\_VF\\_2\\_.pdf](http://odc.dne.gov.co/IMG/pdf/Gasto_Drogas__2005-2006__07_May_2009_VF_2_.pdf) (last visited 28 February 2010))

#### REPUBLIC OF COLOMBIA

National Planning Office

National Narcotics Directorate

Expenditures of Colombian State in the Fight against the Drug Problem (2005-2006)

National Planning Office  
Justice and Security Directorate  
Government Studies and Internal Affairs Group

National Narcotics Directorate  
Strategic and Research Division

Bogotá, 2008

[...]

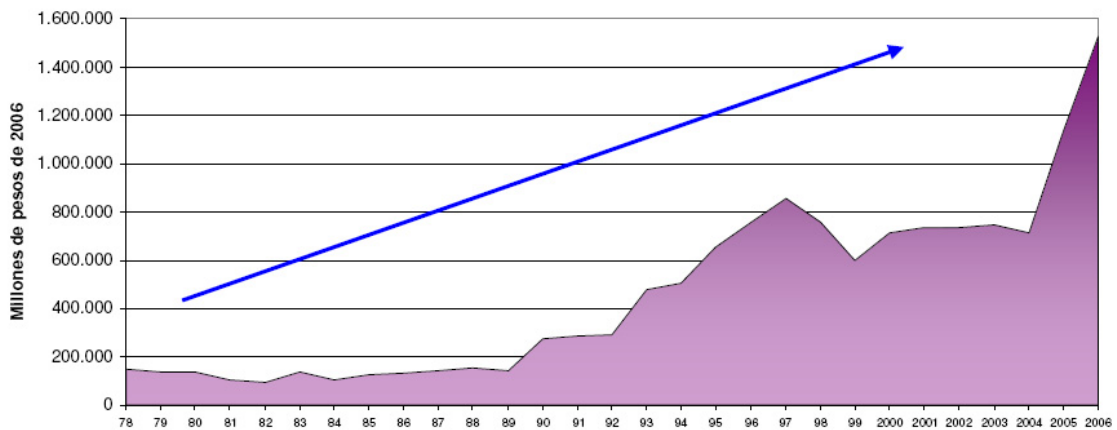
[Page 4]

#### **Section 1. Evolution of the drug problem and expenditures of the Colombian Government to fight it**

He we show the evolution of resources invested by the Colombian State in the fight against drugs for the 1978-2006 period, making a comparison between the budgetary effort and the events that occurred in relation with narcotraffic which may have had incidence on resources allocations regarding this issue.

Between 1978 and 2006 the real trend of direct expenses of the Colombia State in the fight against drugs has always been rising. In this period the total reached 13.3 billion constant Colombian pesos; it is equivalent to USD 4,781 million (Chart 1). Thus, expenditure has two clear trends: in the 80's the trend of financial resources was stable; expenditures were below 200,000 million 2006-constant pesos. Besides, in this period, the Colombian State directed 100% of resources against drugs to control of illicit drugs offer.

**Chart 1. Trend of Expenditures of the Colombian Government in drugs control 1978-2006**



Source: NND and NPO2

[...]

## Annex 64

### **“INVESTIGATION REGARDING POSSIBLE SECONDARY EFFECTS ON HUMAN HEALTH, ALLEGEDLY DERIVED FROM GLYPHOSATE SPRAYING IN THE RURAL AREA OF VILLANUEVA OF THE ORITO MUNICIPALITY, PUTUMAYO ON 6 AUGUST 2007”, FINAL REPORT, NATIONAL HEALTH INSTITUTE OF COLOMBIA, JUNE 2008**

*(Archives of the Ministry of Foreign Affairs of Colombia, pp. 1, 14-15)*

#### NATIONAL HEALTH INSTITUTE

#### FINAL REPORT

INVESTIGATION REGARDING POSSIBLE SECONDARY EFFECTS ON HUMAN ALLEGEDLY DERIVED GLYPHOSATE SPRAYING IN THE RURAL AREA OF ALTO VILLANUEVA OF ORITO MUNICIPALITY- PUTUMAYO ON 6 AUGUST 2007.

This report shows the final results of the investigation carried out by the National Health Institute of Colombia in the rural area of Alto Villanueva of Orito Municipality, Province of Putumayo, on the cases occurred in the epidemiological week 32 of 2007, regarding possible secondary effects on human allegedly derived glyphosate spraying. This report presents the results obtained as to 28 September 2008.

#### 1. INTRODUCTION

According to information obtained from the monitoring that the National Health Institute of Colombia makes on mass media news (newspapers, radio, and television), on Wednesday, 8 August, it was known that 18 people, most of them children, went to the Sagrado Corazón de Jesús Hospital in Valle del Guamuez Municipality (La Hormiga) allegedly because of secondary poisoning derived from aerial spraying with glyphosate in the area.

In accordance with the Protocol of surveillance on public health interest events for a possible event of chemical substances poisoning, Dr. Dyva Revelo, Chief of Epidemiology of the Health administration Office of Putumayo (DASALUD for its acronym in Spanish) informs by phone about the facts to the National Health Institute of Colombia and confirms the information broadcast by the media.

To address the possible event of chemical substances poisoning, the National Health Institute of Colombia created an Immediate Response Team (IRT) following the

outbreaks surveillance Protocol (Annex No. 1) with the aim of carrying out the field investigation. The Immediate Response Team (IRT) went to the area with the help from the Antinarcotics Police.

[...]

[Page 14 and 15]

[...]

#### 4. CONCLUSIONS

- No signs of spraying activities were found in the analyzed area, which was confirmed with the aerial spraying map provided by the Antinarcotics Direction of the Colombian National Police (Annexes No. 10 and 11).
- There is no evidence of symptoms of acute poisoning by chemical substances in the clinical records created at the Sagrado Corazón de Jesús Hospital of La Hormiga.
- Neither signs nor symptoms that might be linked to an acute poisoning by pesticides were found
- The water quality conditions together with findings in the medical assessment point the origin of the profile towards a microbiological agent of the disease and not towards a secondary event by chemical substances. This situation is consistent with the absence of findings that confirm spraying activities in aforementioned area.
- In the analyzed samples, it was found that water used for human consumption is not drinking water and in some cases the bacteria level makes it of high risk for health.
- In the physical chemical analysis of biological and environmental samples no evidence of glyphosate presence was found.
- No cause-effect relation between the symptoms of the examined population and glyphosate was found because no residues of the herbicide were found and the clinical profiles found correspond to gastrointestinal profiles attributable to non drinking water.

[...]

## Annex 65

### REPORT BY THE COLOMBIAN AGRICULTURE AND LIVESTOCK INSTITUTE (ICA), 29 JANUARY 2010

*(Archives of the Ministry of Foreign Affairs of Colombia)*

#### REPORT BY THE COLOMBIAN AGRICULTURE AND LIVESTOCK INSTITUTE

The Colombian Agriculture and Livestock Institute, ICA is a national public institution that is part of the National Science and Technology System, attached to the Ministry of Agriculture and Rural Development. Its functions are currently set out by Decree 4765 of December 2008.

ICA's institutional mission is to work towards the country's agricultural and livestock health, safety in primary vegetable and animal production, in order to project Colombia's agro-businesses to the world. The basis is the Institutional Quality policy, certified with Colombian norm ICONTEC GP – 1000.

Within the framework of the Program for the Eradication of Illicit Crops by Aerial Spraying with Glyphosate –PECIG, the Colombian Agriculture and Livestock Institute, ICA participates as an observer in the Verification Missions required by the Environmental Management Plan (Resolution 1054 of 2003 of the Ministry for the Environment, Housing, and Territorial Development, Record No. 1). This stipulates that “the Program for the Eradication of Illicit Crops by Aerial Spraying with Glyphosate must be subject to verification with the purpose of assessing the efficiency and effectiveness of environmental management measures.”

Additionally, the Colombian Agriculture and Livestock Institute, ICA is part of the Inter-Institutional Technical Committee for the implementation of the Program for the Eradication of Illicit Crops by Aerial Spraying with Glyphosate, created as an advisory body to the National Narcotics Council, by Resolution 013 of 2003 (Article 4).

Below is a more detailed description of the activities carried out by the Colombian Agriculture and Livestock Institute, ICA within the PECIG, in accordance with the above mentioned regulations and with its own Mission Statement:

#### **1. NATIONAL RELEVANT AUTHORITY FOR THE REGISTRATION OF AGRICULTURAL SUPPLIES (AGROCHEMICALS) IN COLOMBIA**

- a) ICA is the national regulatory authority for the registration (manufacturers and products) of agricultural supplies (chemical pesticides for agricultural use, adjuvants, physiological regulators, fertilizers, and bio-supplies).
- b) In accordance with national regulations in force<sup>1</sup> and supranational regulations regarding registration of chemical pesticides for agricultural use,<sup>2</sup> ICA issued the sales registrations for the products: Roundup SL, GLY-41 and Cosmo-Flux 411F granting authorization for their sale in Colombian territory for agricultural use, as herbicides for weed control in the case of Roundup SL and GLY-41 y Roundup SL, and as an agricultural adjuvant in the case of Cosmo-Flux 411F.

These products have been used in the PECIG program:

- Sales Registration No. 756 of 11 August 1997 for glyphosate formulation Roundup SL, as an herbicide for agricultural use.
- Sales Registration No. 4294 of 2 July 2002 for GLY-41, as an herbicide for agricultural use
- Sales Registration No. 2186 of 19 April 1993 for Cosmo-Flux 411F, as an adjuvant for agricultural use.

## **2. ASSISTANCE TO THE PECIG PROGRAM VERIFICATION MISSIONS (Resolution 1054 of 2003 by the Ministry for the Environment, Housing, and Territorial Development, Record No. 1)**

- a) At the request of the agency in charge of operating the PECIG – the Anti-narcotics Police- ICA has provided assistance and support to the 20 Verification Missions of the PECIG scheduled and carried out by that agency.
- b) This accompaniment and support has been provided with the participation of ICA's Agronomist Engineers, specialists in agricultural sanitation, agricultural epidemiology, and agronomy efficacy of agricultural supplies.
- c) These personnel, along with representatives from other participating agencies, assess the efficacy of applications to eradicate illicit crops in sprayed areas according to the protocol established to carry out verifications in the PECIG.

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<sup>1</sup> Decree 1843 of 1991 (Ministry of Health), Decree 1840 of 1994 and Decree 502 of 2003 (Ministry of Agriculture).

<sup>2</sup> E.g., Decision 436 of 1998 by the Andean Community of Nations.

### **3. PARTICIPATION IN THE INTER-INSTITUTIONAL TECHNICAL COMMITTEE (Resolution 013 of 2003 by the National Narcotics Council)**

Support to visits scheduled by the Anti-Narcotics Police with ICA Agronomist Engineers, specialists in agricultural sanitation, agricultural epidemiology, and agronomy, efficacy of agricultural supplies in order to verify complaints about alleged effects on lawful crops. Following the field visits to verify the complaints, the professionals issue a technical opinion on the crops' symptoms in order to determine whether they are caused by the effect of plagues, inadequate agricultural practices, or if they exhibit effects derived from the application of the herbicide.

### **4. TRAINING ON USE AND ADEQUATE HANDLING OF CHEMICAL PESTICIDES**

- Training sessions are given to Anti-Narcotics Police officers in the following topics: Types and characteristics of pesticides (herbicides, insecticides, etc.), herbicide classification and action from an agronomic perspective, and spraying equipment calibration. These training sessions are given by agronomists specializing in agricultural supplies.

### **5. SPRAY MIXTURE QUALITY CONTROL**

- ICA, through the National Laboratory of Agricultural Supplies, performs chemical analyses of both the glyphosate commercial formulation and the final mix used in the PECIG, with the purpose of determining the concentration of pure active ingredient there in as well as in the spray mix. Unannounced visits are conducted to the operation bases and mix samples are taken both in the mixing tanks and in the spraying aircraft tanks. Results from the analyses are submitted to the Anti-Narcotics Police and to the Ministry for the Environment, Housing, and Territorial Development, as well as to government agencies that may require them. The analyses performed have found that the concentration of the active ingredient glyphosate is in compliance with that authorized by the Ministry for the Environment, Housing, and Territorial Development and provided for in the Environmental Management Plan.

In witness whereof, this report is signed by LUIS FERNANDO CAICEDO LINCE, General Manager, on 29 January 2010, in his capacity as public servant and in charge of supervising the activities described above, entrusted to the Colombian Agriculture and Livestock Institute, ICA.

**[Signed]**  
**LUIS FERNANDO CAICEDO LINCE**  
**General Manager**  
**Colombian Agriculture and Livestock Institute, ICA**  
**Colombian ID N° 14.239.117**

**Bogotá, 29 January 2010**



## Annex 66

### REPORT BY THE NATIONAL NARCOTICS DIRECTORATE (DNE), 4 FEBRUARY 2010.

- APPENDIX: EXTERNAL ENVIRONMENTAL AUDIT

*(Archives of the Ministry of Foreign Affairs of Colombia)*

### REPORT BY THE NATIONAL NARCOTICS DIRECTORATE - DNE

#### *About the National Narcotics Directorate*

The DNE, an administrative unit of the Ministry of the Interior and Justice, pursuant to Decree 2568 of 2003, is the agency in charge of coordinating Colombia's policy with regard to the fight against illicit drugs, advising the Government on policy and program formulation in the fight against the production, trafficking and abuse of drugs. These tasks include the coordination and follow-up of the Program for the Eradication of Illicit Crops through Aerial Spraying with Glyphosate herbicide –PECIG, by heading the PECIG Program's Inter-institutional Technical Committee;<sup>1</sup> the involvement in the processes of environmental monitoring -within the framework of the Environmental Management Plan- and the technical environmental audit; the accompaniment to and follow-up of the processing of claims due to possible damages caused by spraying and the development of preventive socio-environmental strategies.

#### *Responsibilities in the implementation of the PECIG Program*

Art. 91 (g) of Law 30 of 1986 entrusted the National Narcotics Council, in its role as agency in charge of policy formulation in the fight against the production, trade and abuse of drugs causing dependency, with the task of "*providing for the destruction of*

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<sup>1</sup> Resolution 0013 of 2003 of the National Narcotics Council, Art. 3, creates the Inter-institutional Technical Committee for the implementation of PECIG, as an advisory body to the National Narcotics Council. The Committee is integrated by the National Narcotics Director, or his delegate, who will preside over the Committee, and representatives from the following agencies: Ministry of the Interior and Justice; Ministry for the Environment, Housing and Territorial Development; Ministry of Social Protection; Ministry of Agriculture and Rural Development; National Police – Anti-Narcotics Direction; Procurator General's Office; Plan Colombia; "Agustín Codazzi" Geographical Institute –Soils Laboratory; Colombian Farming Institute; Deputy Director of the National Narcotics Directorate. Art. 4 thereof, sets out the functions of the Committee: 1) To carry out, when deemed necessary, internal audits to the PECIG Program, and inform the results to the National Narcotics Council; 2) to learn of the results of the attention of complaints submitted due to alleged damages caused by the PECIG Program; 3) to recommend training programs concerning the activities inherent to the PECIG Program; 4) To promote contracting the External Technical Audit; 5) to learn of the results of the External Technical Audit.

*marihuana and coca crops, and any other crops from which substances causing dependence may be extracted, using the most adequate means, following prior favourable opinion of the agencies entrusted with protecting the health of the population, the preservation and the balance of the country's ecosystem”.*

To that effect, the following strategies were defined for the elimination of illicit coca, poppy and marihuana crops: a) Forced and voluntary manual eradication; b) the Program for the Eradication of Illicit Crops through Aerial Spraying with Glyphosate herbicide -PECIG, and c) the implementation of special social and productive development programs that ensure long-term non dependency on the production of coca leaf for economic subsistence in the areas affected by illicit crops and drug trafficking.

With regard to the forced and voluntary manual eradication and the special social and productive development programs, the Presidential Agency for Social Action and International Cooperation – ACCIÓN SOCIAL, is in charge of their implementation.

Concerning the Program for the Eradication of Illicit Crops by Aerial Spraying with Glyphosate herbicide -PECIG, the National Narcotics Council designed a clear and expeditious organizational structure for it, in which the Council is in charge of the political direction of the Program, the National Narcotics Directorate is the national coordinator of Program's Inter-institutional Technical Committee and the Anti-Narcotics Direction of the Colombian National Police operatively implements the Program. Also part of the scheme, are the advisory functions of the PECIG Program's Inter-institutional Technical Committee and an external Environmental Audit.<sup>2</sup>

Directly, DNE implements part of Record N° 5 and all of Record N° 6 of the Environmental Management Plan -EMP, as follows:

***Record N° 5: Environmental monitoring program:***

The National Narcotics Directorate aids in the completion of this record by carrying out the following activities:

- 1) Support to the multi-temporal analysis<sup>3</sup> of vegetation cover, carried out by the Illicit Crops Integrated Monitoring System -SIMCI Project, and submission of

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<sup>2</sup> Among the functions of the PECIG's Inter-institutional Committee is to contract an External Environmental Audit. See Appendix 1.

<sup>3</sup> The illicit crops monitoring program involves various technologies based on satellite imagery and field verification methodologies. The surveys of coca crops, based on satellite imagery interpretation,

the results thereof to the Ministry for the Environment, Housing and Territorial Development.

- 2) Oversight of the adequate implementation of the SIMCI Project.
- 3) Research development, jointly with the United Nations Office on Drugs and Crime – UNODC, relating to demand reduction.
- 4) Accompaniment to the environmental monitoring with the purpose of assessing impacts of aerial spraying on the environment. The monitoring is performed by the competent entities, by quantifying and qualifying the magnitude of glyphosate or its metabolite AMPA residues in soils and water.
- 5) Compilation and submission to the Ministry for the Environment, of the results of the laboratory analyses of the soil and water samples collected in sprayed areas.

***Record N° 6: Communication and social management Program:***

In the framework of the tasks foreseen in this Record, the DNE must:

- a) Continuously inform local authorities and communities in zones close to sprayed areas, on aspects such as: the problem of illicit crops, eradication policies, PECIG Program results, the system for tending to complaints for alleged adverse effects within the framework of the PECIG Program’s implementation, risk prevention and management, implementation and follow-up of the PECIG Program and its Environmental Management Plan.
- b) Train officials involved in the program.
- c) Convene the PECIG Program’s Inter-institutional Technical Committee and follow-up on its activities.
- d) Follow-up on complaints due to alleged damage to crops and human health, through accompanying field verification tasks, informing the community of the relevant procedures for that purpose, as well as issuance of technical opinions concerning such complaints.

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performed since 1999 by the SIMCI Project (UNODC), have provided a historical data series of the location of the crops. Spatial comparison of the survey results allows for a multi-temporal analysis, i.e., an assessment of the changes that the interpreted vegetable covers underwent over time.

The follow-up of the compensation program in place for dealing with alleged damages to crops, instituted in 2007 [sic, 2001] and amended in 2007, has shown that it is an effective mechanism to dispose of the vast majority of complaints that are proven to be unfounded following field verification, and to adequately address and compensate instances where damage has occasionally been caused to lawful crops located in the vicinity of sprayed coca crops. With regard to reported alleged effects on human health, to date no causal relation has been found to exist between the adverse effects complained of and the spraying operations, and in other cases the symptoms have been found to be related to a different cause.

### ***Follow-up and control activities***

In accordance with the provisions of Resolution 013 of 2003 (on the PECIG Program's implementation) and Resolution 1054 of 2003 (the Environmental Management Plan), the National Narcotics Directorate submits activity and compliance reports to the following entities:

- ❖ **Ministry for the Environment, Housing and Territorial Development:** The Directorate as a matter of course, replies to all the requirements from that Ministry with regard to compliance with the PECIG Program's Environmental Management Plan -EMP. In this regard, biannual reports on compliance with the EMP's Records are submitted, as well as quarterly implementation reports through the PECIG Program's Inter-institutional Technical Committee.
- ❖ **External Environmental Audit:** The Directorate, pursuant to Resolutions 013 and 031 of 2003 of the National Narcotics Council, contracts the external environmental audit. On a monthly basis, the DNE submits the materials required for the audit process concerning the compliance with the EMP, oversees the conduction of the audit and submits the results obtained in the audit process to the agencies implementing the EMP, on a quarterly and annual basis.
- ❖ **Office of the Comptroller General:** The DNE, pursuant to the provisions of Article 267 of the Constitution, Law 42 of 2003 and Resolution 5544 of 2003, replies to the requirements received through the integral focus governmental audit that consists in a special kind of audit, designed for the PECIG Program's environmental component.

The eradication of illicit crops by aerial spraying is an essential component of the overall strategy designed by Colombia in its fight against the world drug problem; it

addresses the needs and particular characteristics of the country. In particular, the PECIG is a highly technical program that is carried out pursuant to the strictest parameters in order to ensure that its implementation poses no risks to human health or the environment. The program is implemented in compliance with the legislation in force and with standardized protocols and procedures; therefore, it is carried out exactly the same way regarding operational parameters, dose and ingredients in the spray mixture, etc. All over the national territory where illicit crops are detected, including the border zone with Ecuador.

The National Narcotics Directorate, from its experience as coordinator for the implementation and follow-up to PECIG, and in accordance with its duties in the framework of the Environmental Management Plan, constantly verifies, and is in a position to certify –on the basis of verification missions and resulting scientific analyses -- the harmlessness of the PECIG and the program's success in progressively eradicating illicit crops in an effective manner.

In witness whereof, this report is signed by the National Narcotics Director, in his capacity as public servant and in charge of supervising the activities described above, entrusted to the National Narcotics Directorate.

*[Signed]*  
**OMAR ADOLFO FIGUEROA REYES**  
**NATIONAL NARCOTICS DIRECTOR**  
*Colombian ID N° 74.183.431 Issued in de Sogamoso*  
*Bogotá, 4 February 2010*



## Appendix to Annex 66

### EXTERNAL ENVIRONMENTAL AUDIT OF THE PROGRAM FOR THE ERADICATION OF ILLICIT CROPS BY AERIAL SPRAYING WITH GLYPHOSATE -PECIG NATIONAL NARCOTICS DIRECTORATE

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The National Narcotics Council established an External Environmental Audit from the beginning of the illicit crops eradication program, in order to ensure that the Program for the Eradication of Illicit Crops by Aerial Spraying with Glyphosate -PECIG complies with all the environmental parameters set out for its implementation and to assess impacts on the environment, human health and farming activities.

This external environmental audit was instituted by Resolution No. 0001 of 1994 of the National Narcotics Council. It was subsequently amended by Resolution No. 0005 of 2000 of the National Narcotics Council and Resolution No. 0013 of 2003 of the National Narcotics Council. The latter was subsequently amended by Resolution No. 0031 of 2003 of the National Narcotics Council.

The functions of the External Environmental Audit are:

1. Verifying that operation activities of the Program for the Eradication of Illicit Crops by Aerial Spraying with Glyphosate -PECIG comply with the established procedures. (In accordance with the Environmental Management Plan established by Resolution 1054 of 2003)
2. Submitting quarterly reports of the evaluations carried out to the Inter-institutional Technical Committee of the PECIG, in accordance with Resolution No. 0013 of 2003 of the National Narcotics Council.
3. Recommending relevant corrective measures.

Legislation requires the National Narcotics Council to contract this External Audit on a continuous and uninterrupted basis. Pursuant to this assignment, the National Narcotics Council has continuously contracted such an audit since 1992, even two years before the first resolution was passed, through a public tender process. In total 22 audit contracts have been entered into.

**[Signed]**

**OMAR ADOLFO FIGUEROA REYES**

***NATIONAL NARCOTICS DIRECTOR  
Colombian ID N° 74.183.431 Issued in Sogamoso  
Bogotá, 4 February 2010***



## Annex 67

### **REPORT BY THE ANTI-NARCOTICS DIRECTION OF THE COLOMBIAN NATIONAL POLICE (DIRAN), 8 FEBRUARY 2010**

*(Archives of the Ministry of Foreign Affairs of Colombia)*

### **REPORT BY THE ANTI-NARCOTICS DIRECTION OF THE COLOMBIAN NATIONAL POLICE (DIRAN)**

Pursuant to Resolution 013 of 27 June 27 2003 of the National Narcotics Council, the Anti-Narcotics Direction of the National Police implements the Program for the Eradication of Illicit Crops through Aerial Spraying with Glyphosate-PECIG-, under the measures foreseen in the Environmental Management Plan, authorized by Resolution 1054 of 2003 by the Ministry for the Environment, Housing and Territorial Development (which amended Resolution 1065 of 2001).

#### **1. MANAGEMENT OF SPRAYING OPERATIONS.**

Record No. 1 of the Environmental Management Plan (EMP) establishes the program for the management of spraying operations, the purpose of which is to comply with the procedures, technical and environmental parameters of aerial spraying, that ensure an effective eradication of illicit crops and the protection and preservation of the environment.

The program for the management of spraying operations is based on the processes of **Detection, Spraying, and Verification**, each of which includes a planning phase. With the purpose of implementing each of these processes, the National Police set up, within the organizational structure of the Anti-Narcotics Direction, the Division for Eradication of Illicit crops, formed by the Detection, Aerial Spraying and Verification Groups, by Resolutions 2029 of July 1998, 0066 of January 2002 and 2060 of June 2007.

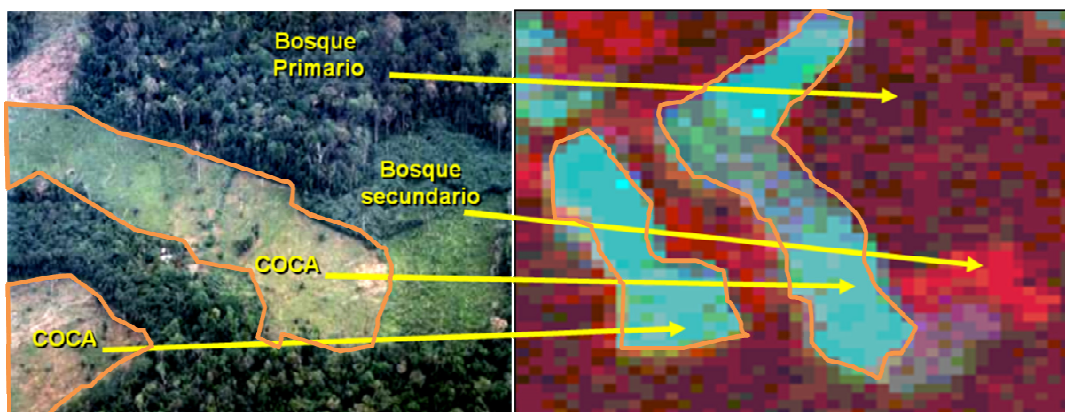
##### **1.1. Detection Process**

This has the purpose of identifying, characterizing and locating the areas affected by illicit crops and determining special management or exclusion zones of the Program, through the interpretation of SPOT/LANDSAT/IKONOS-type satellite imagery, processed by the Illicit Crops Integrated Monitoring System (SIMCI) project.

Once the presence of illicit crops is detected, the analysts of the satellite imagery perform the following tasks:

- Selection of an area representative of the cluster.<sup>1</sup>
  - Validation of the location of plots with illicit coca crops: province and municipality (exact location).
  - Assessment of areas covered by plots with illicit crops.
  - Approximate density of illicit coca crops.
  - Type of vegetation cover other than coca, present in the cluster.
  - Verification of special management zones (national natural parks and indigenous reservations) or exclusion zones (human settlements, water bodies or aqueducts).
- Once the special management or exclusion zones are identified, 100-meter safety strips are established around each area (pursuant to the provisions of Article 87 of Decree 1843 of 1991 of the Health Ministry, currently Ministry of Social Protection), in order to provide them with an additional protection area.

After illicit crops are detected, aerial reconnaissance of the clusters is conducted, on the basis of satellite imagery and official cartography, in order to perform a sampling of the areas where illicit coca crops have been identified and validate whether what is shown on the image corresponds to the actual situation on the field. Likewise, if necessary, adjustments are made to the clusters to be sprayed in order to add the illicit crops not identified on the satellite image but evidenced during the overflight, to the detection process.



*Comparison of the interpretation of coca plots (outlined in orange) in aerial photograph v. satellite image.*

<sup>1</sup> Clusters are areas where a concentration of plots with illicit coca crops is found, (often comprising several provinces) that may be sprayed from a single operation base.

[Other signs read: Primary Forest, Secondary forest]

## **2.2. Spraying Process**

Having identified the illicit coca crops, they are aeriually sprayed under strict observance of safety strips and special management areas. This process is carried out in the operation bases in the following stages:

### **2.2.1. Compilation of operational information**

Once the digital cartography of the illicit coca crops, exclusion and special management areas, and safety strips is ready, in accordance with what was explained above, the areas where aerial spraying operations for the eradication of illicit crops may be carried out are identified.

For those areas, the risk situation is analyzed, such as the identification of illegal armed groups operating in each region, as well as factors that might endanger the pilots or the spray aircraft.

Lastly, the products to be used are quantified in accordance with the approved dosage for herbicide spraying and the area to be eradicated.

### **2.2.2. Operational Planning Meeting**

The Commander of the Spraying Air Base convenes a daily meeting with the security commander, pilots, technical and security personnel, to thoroughly analyse the spraying procedure as follows:

#### **a) Comments on the latest mission**

Meeting participants report special situations occurred during the latest spray mission.

#### **b) Spray Mission Commander**

Personnel present at the coordination meeting are informed of who the Commander of the Spraying Base is, a duty performed by a superior officer of the National Police. He is in charge of coordinating with the Colombian military and government agencies, and with the contractor DynCorp, in order to adequately carry out the spraying operations. Also, the personnel assigned to the base are under his command.

c) **Safety issues and Environmental Management Plan**

Personnel present at the meeting will inform of possible situations that might endanger aerial and industrial safety during the operations, in order to find a solution thereto. Also, the Corpsman of the National Police, manager of the Environmental Management Plan (Environmental Promoter), will recall the rules governing the Program for the Eradication of Illicit Crops with Glyphosate herbicide (PECIG), particularly the provisions of the Environmental Management Plan, in order to preserve the levels of environmental and industrial safety.<sup>2</sup>

d) **Frequency and IOC (Instruction Operation Communication)**

It is confirmed that flight crews have received the daily work plan containing information concerning frequencies and UHF, VHF and HF radios to be used during the day's mission, information on the plots to be sprayed and emergency landing strips. It is verified that the personnel has its IOC<sup>3</sup> with updated codes.

e) **Contingencies**

Despite the fact that this type of situations do not normally arise during spraying operations, procedures are planned in order to counteract any type of circumstance that might affect the development of the operation.

\* **SEARCH AND RESCUE (SAR) SCENARIOS:** The various SAR scenarios are reviewed and the duties and responsibilities of each individual involved in them are recalled. In case of an attack against the spray aircraft, the aerial eradication operation is immediately cancelled and the personnel and aircraft are evacuated to the operations base.

\* **EMERGENCY LANDING STRIPS:** The strips closest to the areas to be sprayed are reviewed in the event of any contingency.

\* **CMI [for their Spanish acronym] (UNFORESEEN WEATHER CONDITIONS):** At the start of the mission, the team reviews the procedure to be followed when an aircraft loses visual flight conditions under any circumstance.

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<sup>2</sup> Record No. 2 of the EMP.

<sup>3</sup> IOC stands for Instruction Operation Communication. It consists of a printed form containing information on security codes for radio communication and emergency procedures to be implemented by pilots.

\* **PROCEDURE FOR HOSTILE FIRE:** When an aircraft is the object of hostile ground fire, the flight leader will cancel the spray mission and escort helicopters will back up the aircraft exit. The operations base will be informed of the situation and coordinates to the site, in order to coordinate as relevant with the National Army support aircraft.

\* **EVACUATION PLAN:** At the start of the operations, an officer designated by the Police Aviation Area will explain to the crews the procedure to be followed in case it is necessary to evacuate the Spraying Base's aircraft (within or outside the operation base).

\* **CODE WORD AND NUMBER:** At the start of operations, a code word and number are set, to be used in personnel rescue procedures.

f) **Mission cancellation**

The reasons for cancelling a spray mission are recalled to the meeting participants, such as:

\* **WIND:** When wind speed is above 5 knots.

\* **ROOF:** Roof is understood as the distance between the terrain's level and the first layer of clouds. For spraying tasks a minimum roof of 1,500 feet is required; otherwise, the mission is cancelled.

\* **VISIBILITY:** Must be above a distance of 3 miles.

\* **AIRCRAFT:** The mission will be cancelled when, for whatever reason, the minimum spray team is not available (3 escort helicopters, 1 search and rescue helicopter and 2 spray aircraft).

\* **INTELLIGENCE INFORMATION:** The mission may be cancelled if during its course, reliable information is received on possible attacks against the aircraft of the spray team.

**g) Supplies**

Personnel taking part in the spraying operations are informed, among others, of the available fuel and herbicide, both at the main base as well as at alternative supply locations.

**h) Eventual Helicopter Support by the Army**

An officer of the National Army reports the number of aircraft available to provide support in terms of security and search and rescue (if necessary), that the spray team might require.

**i) Intelligence analysis**

The officer in charge of the intelligence group of the National Police renders the analysis of the intelligence information on the area to be sprayed, as a result of the work of the other forces and security agencies. This information is used for making recommendations to the operation participants concerning the plots to be sprayed.

**j) Aircraft for the mission**

The flight leaders notify the number of aircraft available for the spraying operation.

**k) Leader and change of leader**

Flight information provided to the crews to recall who the flight leader is and who is to replace him in his absence.

**l) Plots to be sprayed**

In accordance with weather conditions, security information and logistic availability, the plots to be sprayed during the day are planned.

**m) Departure time and cancellation**

The flight leaders coordinate the time for the weather check (optimal weather conditions for spraying pursuant to the Environmental Management Plan); departure time and maximum ending time for spraying operations.

**n) Questions and considerations**

Lastly, personnel present at the meeting ask the **questions** or formulate the considerations or recommendations to successfully carry out the aerial spraying operations on illicit crops.

### **2.2.3. Development of the operation**

Once the daily planning is completed, the areas targeted for spraying, special management and exclusion areas, safety strips and international boundaries are input into the DELNORTE<sup>[T.N.]</sup> software on the aircraft, and the aircraft tank is filled with the spray mix authorized by the Ministry for the Environment (Glyphosate-based formulated product, Cosmoflux 411 F and water), according to the dosage and mix relation shown in Chart 1 below.

Likewise, the operational parameters foreseen in the Environmental Management Plan, such as flight altitude, maximum wind speed and herbicide dosage, are fully observed.

#### **a) Satellite monitoring system for accuracy of the operation**

The PECIG Program has a satellite monitoring system (the DELNORTE system is being currently used), installed onboard the spray aircraft in order for the operation to be carried out with accuracy, taking into account the locations registered in the detection process. The use of this system, aerial photographs, GPS, together with strict observance of all standard protocols and procedures, high expertise and continuing training of spraying pilots help ensure that spraying is carried out within Colombian territory and on targeted areas.

#### **b) Operational protocols of the Program**

The Environmental Management Plan establishes the operational parameters of the aerial spraying program, which are the result of various field tests conducted by the Colombian Agriculture and Livestock Institute (ICA) that ensure the effectiveness of the program, while preserving the environment.

Each operational parameter is stated as a set of maximum ranges covering the operation. Likewise, the spraying system has a digital calibration software that allows it to combine aircraft speed, the type and number of nozzles and the pressure of the pump, so

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[T.N.] In 2004 there was a change from SATLOC to DELNORTE Software.

that spraying is always done at the dosage set forth in the Environmental Management Plan.

**Chart 1. Application dosage and composition of the mix**

<b>PRODUCT</b>	<b>LITRES PER HECTARE*</b>
Commercial formulation with Glyphosate active ingredient (480 grams per litre of IPA <sup>4</sup> salt)	10,4
Cosmoflux 411 F adjuvant	0,25
Water	13
<b>MIX RELATION (%)</b>	
Commercial formulation with Glyphosate active ingredient (480 grams per litre of IPA salt)	44
Cosmoflux 411 F adjuvant	1
Water	55
<b>MIX DISCHARGE PER HECTARE (Litres/ha)</b>	
Mix discharge per hectare	23,65*

\*Resolution 0099 of 2003 – Ministry for the Environment, Housing and Territorial Development

### c) Agrochemicals and authorized dosages

The Program for the Eradication of Illicit Crops by Aerial Spraying with Glyphosate has been using a mixture ratio of active ingredient glyphosate (44%), adjuvant (1%), and water (55%). Between 26 November 2001 (when Resolution 1065 was issued) and 31 January 2003 (when Resolution 0099 was issued), both by the Ministry for the Environment, Housing, and Territorial Development, a mixture ratio of active ingredient glyphosate (34%), adjuvant (1%), and water (65%) was used. The commercial products and concentrations used are specified as follows:

#### Commercial products:

- \* Commercial formulated product ROUNDUP SL (Concentration of 480 grams of Glyphosate per litre of formulated product) until December 2004.<sup>5</sup>

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<sup>4</sup> Isopropylamine Salt.



- \* Commercial formulated product GLY-41 (Concentration of 480 grams of Glyphosate per litre of formulated product) since January 2005 to date.<sup>6</sup>
- \* Commercial adjuvant COSMOFLUX 411 F since 6 August 2000 to date.<sup>7</sup>

### **Concentrations:**

- \* The Program for the Eradication of Illicit Crops by Aerial Spraying with Glyphosate has been using a dosage of 10.4 litres per hectare of glyphosate active ingredient, 0,25 litres of adjuvant, and 13 litres of water. Between 26 November 2001 (when Resolution 1065 was issued) and 31 January 2003 (when Resolution 0099 was issued), a dosage of 8 litres of commercial formulation of glyphosate active ingredient, 0,25 litres of adjuvant, and 15.4 litres of water was used.
- \* Following analyses of control effectiveness with regard to mature crops (>1 year), on 23 May 2002, the DNE [National Narcotics Directorate] requested the Ministry for the Environment to authorize it to increase the dosage per hectare to 10.4 litres of glyphosate, 0.25 litres of adjuvant and 13 litres of water, for a discharge of 23.65 litres of mix per hectare. By Resolution 0099 of 31 January 2003,<sup>8</sup> the Ministry for the Environment authorized the dosage of 10.4 litres of glyphosate per hectare.

No other ingredients have been used in the program.

### **d) Execution of the action plan**

Aeronautic maintenance personnel from the Aviation Area begin pre-flight operations, consisting of readying the machines (an aviation protocol comprising the external and internal revision of the aircraft and security check to start aircraft engines).

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<sup>5</sup> Ministry for the Environment, Resolution N° 1065 of 2001 (Technical Considerations, “1 Follow-up to Article 9 of the Resolution 341 of 2000”, Tenth Article, second paragraph); Resolution 0099 of 31 January 2003, published in the Official Journal N° 45.104 of 21 February 2003

<sup>6</sup> As of 2005, with the purpose of avoiding the possible effects associated with the use of the POEA surfactant contained in Roundup SL, namely, the risk of eye irritation to workers in charge of preparing the mix at the operation sites, the Government decided to change it to GLY-41, another glyphosate-based formulated product, with a much smaller content of POEA.

<sup>7</sup> See fn 5.

<sup>8</sup> Published in the Official Journal N° 45.104 of 21 February 2003.

Fifteen minutes later, an aerial reconnaissance of the area is performed to determine temperature, rainfall, wind speed and direction conditions. If conditions allow, the reconnaissance aircraft confirms the operation and the preparation of the chemical products for the spraying begins.

Boarding of spray aircraft and of the operative security group onboard escort helicopters begins, determining the order of departure and arrival at the target site; these helicopters carry personnel selected during the planning stage. On occasion, they transport a delegate from the Public Ministry, a representative from the Environmental Audit or an official of the Ministry for the Environment. Aboard the SAR (search and rescue) helicopter is a paramedic specializing in aid and recovery. Likewise, a Hughes 530F helicopter is deployed, with the purpose of providing security and support in case of landing, accident or incident.

Thereafter, the aircraft departs towards the cluster targeted for spraying under the direction of the leader pilot of the aircraft and the leader commander of the helicopters. Upon reaching the target plot, the zone to be sprayed is secured by the helicopters.

The illicit crops are then sprayed by the spray aircraft, keeping the helicopters as escorts for immediate security. Weather conditions are constantly monitored by the spray aircraft and if they are not within the parameters allowed, the spray mission is cancelled or postponed.

Once the illicit crops of the area selected for that day's operation have been sprayed, the aircraft return to the operations base.

#### **e) Balance of the operation**

Once the operation is finished, records registering whether spraying operations took place or not on that date are completed. When the spraying has been carried out, the records include the place, hour, number of hectares, spraying locations, names of civilian authorities, participating pilots, and notes in the event of any occurrences calling for the implementation of the contingency plan.<sup>9</sup> Additionally, it states the amount of agricultural products used in the operation (glyphosate and adjuvant), the number of aircraft used, and the number of flight hours and technical parameters within which the operation took place.

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<sup>9</sup> Record No. 8 of the EMP.

The operational records are accompanied by the operational charts where departure and arrival times are recorded, as well as products used, occurrences on the aircraft, and other relevant data and facts of the operation.

### **2.3. Verification process**

The objective of this process is to assess the efficacy and effectiveness of the PECIG [Program] and possible collateral effects on the vegetation or crops adjacent to the illicit crops; also, to tend to the complaints filed due to eventual damages to agricultural activities.

#### **2.3.1. Verification of effectiveness**

This stage is carried out under the following procedure:

##### **a) Meeting of the Verification Technical Committee.**

The committee formed by officials from the Colombian Agriculture and Livestock Institute (ICA), the National Narcotics Directorate (DNE), Anti-Narcotics Direction of the National Police, and officers from the NAS (Narcotics Affairs Section of the United States Embassy), meets. The NAS takes part, since the United States Government contributes to the financing of spraying operations.

##### **b) Identification of time period and clusters subject to verification.**

The process of verification covers two periods; one between September (or October) and February, and another between March and August (or September) of each year. To that effect, the clusters where spraying operations took place within the period subject to verification are selected.

##### **c) Selection of swaths subject to verification.**

Once the sprayed zones or clusters are identified, two spray swaths for every 2,000 sprayed hectares are selected at random.

##### **d) *In situ* verification.**

Using aerial reconnaissance the Verification Technical Committee visits each selected swath and conducts an assessment of the effectiveness of the spraying and possible collateral effects on the vegetation adjacent to the illicit crops.

**e) Verification report.**

Once the field assessment is conducted, the Verification Committee prepares a final report where the effectiveness of the spraying operations is determined for the semester under evaluation. To date, 20 verification missions have been carried out since 1999. As a result, the selected spray swaths have been found to have taken place on illicit crops.

**2.3.2. Attention of complaints due to spraying**

The National Narcotics Council, by Resolution 0017 of 2001 amended by Resolution 008 of October 2007, entrusted the Anti-Narcotics Direction of the National Police to process economic complaints filed by individuals or companies due to the alleged impact on agricultural activities in the course of the Program for the Eradication of Illicit Crops by Aerial Spraying with Glyphosate.

DIRAN's experience as coordinator for the program of compensation for damages to lawful crops located around illicit crops has proven to be an efficient mechanism to expediently investigate the facts and grant the corresponding compensation in the event a causal link between the damage caused to the lawful crop and the aerial spraying program is verified. In the framework of this role, DIRAN has been able to corroborate that, following the scientific analyses and visits to the area, most of the reported complaints (96.3%) are unfounded, bear no relation whatsoever to the program's implementation, or refer to areas where lawful crops have been interspersed amongst illicit crops. On the other hand, the complaints that are indeed compensated show that affectation of lawful crops only occurs occasionally and at very short distances (generally  $\leq$  5 m) from sprayed plots.

**2.4. Suspension of spraying operations in the border area.**

The dates on which the Anti-Narcotics Direction of the National Police has suspended and resumed spraying operations within a distance of 10 kilometres from the boundary line with Ecuador, are as follows:

**For the Nariño Province:**

**First suspension:** 27 December 2005

**Restart of spraying operations:** 17 December 2006 until 14 January 2007.

**Second suspension:** 15 January 2007 to date.

**For the Putumayo Province:**

According to spraying schedules, for the year 2005, the first spraying operation in Putumayo –within a distance of 10 km. from the boundary with Ecuador- took place on 24 September 2005.

**First suspension:** 11 December 2005

**Restart of spraying operations:** 11 December 2006 until 21 January 2007.

**Second suspension:** 22 January 2007 to date.

**2.4. Management of solid waste and residual waters at spraying bases.**

At the spraying bases there is a program for solid waste management and another for residual waters management.

**2.4.1. Solid waste program<sup>10</sup>**

This has two components. One consists of managing the waste products of domestic origin, classified according to their characteristics (paper, cardboard, organic, glass, plastic and cans); these are delivered to the municipalities for recycling campaigns. The other component is for management of industrial waste products such as oils, incinerated in compliance with environmental rules, and empty agrochemical containers, which are recycled.

**2.4.2. Residual waters management program<sup>11</sup>**

This is based on minimizing the use of water, so that the water used in the triple wash of the empty agrochemical containers and spray equipment is reused in the preparation of the spray mix. The water used for washing the aircraft is treated in a portable plant with

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<sup>10</sup> Record No. 3 of the EMP.

<sup>11</sup> Record No. 4 of the EMP.

a 96% removal capacity for glyphosate, detergents and fuels. Once the process is completed, the water continues to be reused for washing the aircraft.

## **2.5. Others**

The Anti-Narcotics Direction of the National Police is also part of the Inter-institutional Technical Committee for the implementation of PECIG, created by Resolution 013 of 2003 of the National Narcotics Council, as its advisory body.<sup>12</sup>

DIRAN officials have been trained by the National Health Institute and the Agustin Codazzi National Geographic Institute in collecting, packing, transporting and preserving the chain of custody of water and soil samples associated with environmental monitoring activities,<sup>13</sup> when necessary as stated in the Record No. 5 of the Environmental Management Plan.

In witness whereof, this report is signed by Major **MIGUEL ANTONIO TUNJANO VILLARRAGA**; Coordinator, Environmental Management and Verification, Antinarcotics Direction - National Police, in his capacity as public servant and in charge of supervising the activities described above, entrusted to the Anti- Narcotics Direction of the National Police.

**Major MIGUEL ANTONIO TUNJANO VILLARRAGA**  
Coordinator, Environmental Management and Verification  
Antinarcotics Direction  
National Police  
Colombian ID N° 79.459.338 Issued in Bogota  
Bogotá, 8 February 2010

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<sup>12</sup> Resolution 013 of 2003 of the National Narcotics Council, Art. 3.

<sup>13</sup> Record No. 5 of the EMP.

## Annex 68

### **REPORT BY THE NATIONAL HEALTH INSTITUTE (INS), “SUMMARY OF ACTIVITIES CARRIED OUT BY THE MINISTRY OF SOCIAL PROTECTION AND THE NATIONAL HEALTH INSTITUTE WITH REGARD TO THE PROGRAM FOR THE ERADICATION OF ILLICIT CROPS WITH GLYPHOSATE HERBICIDE – PECIG”, FEBRUARY 2010**

*(Archives of the Ministry of Foreign Affairs of Colombia)*

#### **SUMMARY OF ACTIVITIES CARRIED OUT BY THE MINISTRY OF SOCIAL PROTECTION AND THE NATIONAL HEALTH INSTITUTE WITH REGARD TO THE PROGRAM FOR THE ERADICATION OF ILLICIT CROPS BY AERIAL SPRAYING WITH GLYPHOSATE HERBICIDE - PECIG**

The National Health Institute (INS), an agency of the Ministry of Social Protection (MPS) in accordance with Decree 272 of 2004, has, among others, the task of being the agency in charge of implementing the Public Health Surveillance System throughout the Colombian territory,<sup>1</sup> by monitoring diseases or situations that may affect the health of the human population.

The INS is, together with other local health agencies, responsible for follow-up of the effects on health that might incidentally occur in the areas of operation of the PECIG Program.<sup>2</sup>

To that effect, the INS is in charge of carrying out the following activities:

#### **1. SARAR Methodology for training on pesticides**

In 2002, the SARAR methodology (Safety, Association, Responsibility, *Actualización* (updating) and Reaction) was implemented in Colombia by a technical and scientific transfer process agreed to between El Salvador and Colombia through the Pan-American Health Organization (PAHO). It sought to create new educational materials and methods for the community and to correct common problems relating to the safe management, care in the use of, and attention of persons handling pesticides. By late 2008 the INS has trained 1368 persons in the SARAR methodology and has distributed 7980 booklets that have served to replicate the methodology in towns, rural districts and farms where various types of pesticides are used. These activities promote knowledge

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<sup>1</sup> The National Public Health Surveillance System (SIVIGILA) software was set up in 2002. The software is implemented in the local health offices and the data contained in it allows for the technical surveillance and the production of statistical reports thereon.

<sup>2</sup> Resolution 1054 of 2003, Environmental Management Plan, Record 7: Public Health Program.

concerning possible effects of pesticides in human beings and the environment, one of the commitments of INS and the MPS with regard to the PECIG Program.

## **2. Communal strategies**

The National Health Institute supports the communication strategy of the PECIG Program conducted by the National Narcotics Directorate and the Anti-Narcotics Direction of the National Police.<sup>3</sup> For example, as part of this responsibility, for the attention of ethnic minorities in Colombia the Institute provides information about health-related aspects of the Environmental Management Plan during PECIG Program presentations at consultations with indigenous communities, which according to Colombian legislation have the traditional right to consume coca leaves.

## **3. Strengthening of the institutional capabilities of health and environmental sanitation services at local levels**

As of 2002, surveillance and control of intoxications due to pesticides in the various provinces and municipalities are undertaken by INS:<sup>4</sup>

- Technical assistance and support for the territorial health divisions for the implementation of regional duties in matters of public health surveillance and sanitation control, among others, the timely detection and attention of possible cases of effects on health due to pesticides, including those that might eventually be generated by the spraying of illicit crops with glyphosate.
- Training to healthcare personnel and environmental sanitation technicians on “Clinical aspects, diagnosis, handling, prevention and surveillance of acute intoxications due to pesticides” (by December 2008, 721 healthcare professionals and 997 technicians had received training). During these training sessions, printed material, care guidelines, surveillance protocols and provisions on pesticide surveillance are distributed. These activities are conducted throughout the national territory. Furthermore the protocol of surveillance of acute poisoning by pesticides is sent to the 32 provinces and, in turn, it is distributed to hospitals, clinical centers and health service providers in the 1119 municipalities in Colombia.

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<sup>3</sup> Resolution 1054 of 2003, Environmental Management Plan, Record 6: Program for Communication and Social Management.

<sup>4</sup> Through Decree 1843 of 1991, surveillance and research concerning intoxications due to pesticides in universities was also set up.



#### 4. Complaints processing

The Environmental Management Plan includes a Public Health Program (Record 7) that provides the “attention of health effects related to the illicit crops and its eradication”. Health complaints arising with regard to alleged effects of the PECIG are to be reported to INS, either through local health offices or the agencies involved in the Program.

When a situation arises concerning one or several individuals who consider their health has been affected by aerial spraying, he or they must be examined and assessed by the local health institutions and authorities. If the provincial health office requests support for the investigation, INS goes to the zone as soon as practicable to timely collect biological and environmental samples to perform the relevant analyses.<sup>5</sup>

The complaints, demands and petitions concerning the PECIG program from the community and various agencies such as the Municipal Ombudsmen or the Office of the Ombudsman, that have been processed or replied to by INS, show the following results to date:

- 1) 50 reported complaints, 46 of which were dismissed for one or several of the following reasons:
  - a. Clinical reasons: As a result of laboratory analyses no cause-effect relation between the spraying and symptoms was found;
  - b. No spraying operations were conducted in the zone at the time period referred to in the complaint;
  - c. The complaint was related to exposure to a different pesticide.
  - d. Administrative close of complaint file: It entails closing the complaint, without conducting the corresponding analysis, for reasons unrelated to INS. This situation only arises when, although a complaint report exists, it is not possible to contact the complainant again with the purpose of conducting the corresponding analyses, nor is there a medical chart concerning the case given that the individual did not appear before health officials, rendering it impossible to fully investigate the alleged facts.
  
- 2) 4 active complaints, in most of which only the final case dismissal report is pending.

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<sup>5</sup> For field works, INS activates an Immediate Response Team (ERI). ERI activation has allowed INS to respond to any request within less than 18 hours (including travel time to the zones).

Every time an investigation on an alleged impact on human health due to the PECIG Program is carried out, the background report, findings, field work investigation conclusions, and recommendations are submitted to the National Narcotics Directorate, the Anti-Narcotics Police, the Ministry of Social Protection, the PECIG Program's External Environmental Audit and the Ministry for the Environment.

To date, in relation to the complaints on alleged adverse effects of the sprayings on human health, analyses conducted by Colombia's National Health Institute showed no relation between the sprayings and reported symptoms. Instead, complaints received were related to the endemic health conditions of the regions concerned.

## **5. Other activities**

Within the framework of the Program of Environmental Monitoring established in the Record 5 of the Environmental Management Plan of the PECIG Program, the National Health Institute carries out training activities involving personnel assigned to collect water samples.<sup>6</sup>

In 2006 through a technical and scientific cooperation agreement between Colombia and Ecuador, knowledge transfer concerning the Public Health Surveillance System for Intoxications due to Pesticides was received by Ecuador, on the basis of the Colombian experience. Within that framework, a workshop was held in the city of Sucumbíos, Ecuador on 27-30 November 2006.

The Institute has provided technical advice in research projects related to the PECIG Program.

A bimonthly report on INS activities within the framework of the PECIG Program is sent to the External Environmental Audit, the National Narcotics Directorate and the MPS, informing about the activities carried out.

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<sup>6</sup> Resolution 1054 of 2003, establishing the Environmental Management Plan, provides that water sampling in spraying processes will be carried out by INS or those trained by it (record 5, and section 2.2.2. of the resolution reasoning part).

In witness whereof, the present report is signed by the Coordinators for the Environmental and Work Health Group and the Environmental Risk Factors Group of the of the Research and Surveillance Subdivisions, respectively, acting in their capacity as advisors and responsible for overseeing the INS activities described herein.

**[Signed]**

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**Annex 69**

**REPORT ON COMPLAINTS SUBMITTED TO THE COLOMBIAN  
NATIONAL HEALTH INSTITUTE WITH REGARD TO THE  
PROGRAM FOR THE ERADICATION OF ILLICIT CROPS WITH  
GLYPHOSATE HERBICIDE – PECIG**

(Colombian National Health Institute, February 2010, *Archives of the  
Ministry of Foreign Affairs of Colombia*)

INSTITUTO NACIONAL DE SALUD		BICENTENARIO de la Independencia de Colombia 1810-2010		LIBERTAD Y ORDEN						
Date: February 2010										
REPORT ON COMPLAINTS SUBMITTED TO THE COLOMBIAN NATIONAL HEALTH INSTITUTE WITH REGARD TO THE PROGRAM FOR THE ERADICATION OF ILLICIT CROPS WITH GLYPHOSATE HERBICIDE - PEGIS										
COMPLAINT No.	LETTER No.	NAME	PROVINCE	DESCRIPTION OF COMPLAINT	MEDICAL CHART	AERIAL SPRAYING DATA	CONCLUSION	SENT TO	STATUS	CLOSING REASON
1	ARECI-GRUVE No. 4001 Date: 24-11-03	Yudis Restrepo González	Norte Santander, Cúcuta	Mr. <b>José Francisco Palacio</b> , as well as his sons <b>Andrés Eduardo, José David, and Breider Alexander</b> , show skin disease problems	There are medical charts. Each patient underwent medical evaluation at a health institution with the following diagnoses and medical-legal expert assessment	No spraying data is required (scabes is a syndrome not attributable to exposure to spraying with glyphosate parasites - mites)	Chronic dermatitis scabies, secondary/ pruritus, and eczema are not attributable to exposure to spraying with glyphosate There is no cause-effect link. ID scabies	Jorge Enrique Moreli, Secretary, Health Office, Norte de Santander province	Closed	Clinical. There is no cause-effect link. The complaint is closed because there is no medical link between the disease and the effects attributable to the use and/or exposure to glyphosate
2	ARECI-GRUVE No. 24-11-03	Yudis Restrepo González	Bolívar, San Pablo municipality	San Tobar Restrepo was exposed to some type of substance!	There is a medical chart. It does not show a clinical diagnose associated with exposure to glyphosate	No spraying operations were carried out in the zone at the time of the complaint	No cause-effect relation was established	Aide Saitaren Hernández, in November 2003, Health Office, Bolívar province. In March 2004, Health Office, Bolívar province. In March 2004, Health Office, Bolívar province. In March 2004, Health Office, Bolívar province	Closed	There were no spraying operations
3	ARECI-GRUVE No. 2709 Date: 07-12-04	Senanda Chacon Nomein	Caquetá, San José de Fragua	Mrs. <b>Senanda Chacón Nomein</b> reports that she drank water on which glyphosate fell causing her headache, rash on her head, fever, vomiting, and body ache	There is no medical chart	In September 2004, spraying operations were carried out in the San José de Fragua Municipality - Caquetá province	Article 12 and 13 of the contentions administrative code, compliant closed	Dr. María Dely Hincapié Parra, Health Secretary, Caquetá province, was informed and asked to do verification and follow-up on the case. Colonel Henry Gamba, Anti-narcotics Directorate of the National Police was also informed.	Closed	Executive. Complaint closed for being incomplete. No medical chart was sent from the municipality. The person could not be contacted for follow-up.
4	ARECI-GRUVE No. 11-12-04	Community Association, school, and village, La Paz, Chingona Municipality	Caquetá, Sardinela, Chingona Municipality	La Paz school teachers report vomiting, skin redness, and eye irritation	Some medical symptoms are available	On 1 November 2004, aerial operations took place on the rural areas of Chingona Municipality, Caquetá province	No cause-effect relation was established	On 1 November 2004, aerial operations took place on the rural areas of Chingona Municipality, Caquetá province	Closed	Executive. No concrete medical chart can be established for individuals who claimed to be affected by the case. There are no concrete reports or visits to the doctor for this particular case.
5	ARECI-GRUVE No. 029 Date: 12-01-05	Miraflores municipal Office, Ombudsman Office, Miraflores province	Guaviare province, Miraflores municipality	Spraying over <b>Paula Santander School</b> , causing itch and rash	There are no medical charts available	No spraying operations took place over the rural areas of Miraflores municipality - Guaviare province.	No cause-effect relation can be established, thus, the case is sent for verification and follow-up on the case. The case is sent for verification and follow-up on the case. The case is sent for verification and follow-up on the case. The case is sent for verification and follow-up on the case.	On January 24 2005 a letter was sent to Magrolo Palacios Mosquera, Health Secretary, Guaviare province. Likewise, in March 2008, a letter was sent to Dr. Jaime Alberto Cuesta Parbo, Health Secretary, Guaviare province, asking him to do verification and follow-up on the case. The case is sent for verification and follow-up on the case. The case is sent for verification and follow-up on the case. The case is sent for verification and follow-up on the case.	Closed	The regional entity was asked on several occasions to do verification and follow-up on the case. No spraying operations took place on the said dates in the mentioned areas.

Date: February 2016										
REPORT ON COMPLAINTS SUBMITTED TO THE COLOMBIAN NATIONAL HEALTH INSTITUTE WITH REGARD TO THE PROGRAM FOR THE ERADICATION OF ILLICIT CROPS WITH GLYPHOSATE HERBICIDE - PEGUIG										
COMPLAINT No.	LETTER No.	NAME	PROVINCE	DESCRIPTION OF COMPLAINT	MEDICAL CHART	AERIAL SPRAYING DATA	CONCLUSION	SENT TO	STATUS	CLOSING REASON
	ARECI-GRUVE No. 191 Date: 03-05-06	Nariño Province Institute	Nariño, Tumaco municipality	Poisoning of 18 persons from La Balsa rural area	No medical chart data is required	No aerial spraying data is available	Investigation of the case was carried out by the Nariño Province Institute, which reported to the National Health Institute that it was a food poisoning. Therefore, the poisoning by herbicide glyphosate diagnosis was dismissed. A letter confirming a food transmitted disease -FTD- for the 18 cases was requested from the Nariño Province Health Institute.		Closed	It was found that the cause for poisoning was inadequate food preservation, which resulted in a gastrointestinal profile
6	ARECI-GRUVE No. 2670 Date: 23-06-06	Nancy David, Ombudsman Office, Bolívar, Cauca	Cauca, Bolívar municipality	It states that the baby girl <b>Yinet Fernanda David</b> was put in hospital for poisoning as a consequence of spraying operations	There is medical chart data with nephritic syndrome diagnose	Spraying did take place on the complaint date	The Level I Bolívar Hospital, Cauca, shows that the nephritic syndrome diagnose in the medical chart. There is no cause effect relation		Closed	The child has a prior health condition not attributable to the spraying process
7	ARECI-GRUVE No. 2689 Date: 23-06-06	Maria Luisa Piamba Mayorga, Ombudsman Office, Bolívar, Cauca	Cauca, Bolívar municipality	It states that <b>Yudi Amparo Hoyos Piamba</b> put in in hospital "due to poisoning as a consequence of spraying operations"	There is medical chart data with 21-week pregnancy diagnose	No spraying look place on the claim date	21-week pregnancy diagnose. There is no cause-effect relation		Closed	There is no cause-effect relation
8	ARECI-GRUVE No. 3180 Date: 12-12-06	Jesús María Zapata Montoya, Ombudsman Office, Fortul	Arauca province, Fortul municipality	<b>Jesús María Zapata Montoya</b> claims skin disease as a consequence of spraying operations	There is medical chart data: allergic dermatitis diagnose in the healing phase	No spraying operation took place on the claim date	No spraying operation allergic dermatitis diagnose in the healing phase. There is no cause-effect relation	Alberto Fernando Castro Gracés, Manager, Health Special Administrative Unit in Arauca province. A letter informing that no cause-effect can be established was sent to the municipal Ombudsman Office.	Closed	The patient shows allergic dermatitis, profession: farmer. No spraying took place in the said area. The patient shows a chronic process.
9	National Narcotics Directorate Date: 22-08-06	Eneaso Sanabria Silva	Caquetá, Barro La Paz de Valparaiso neighborhood, Florencia	It states that the boy <b>Ernesto Sanabria Pulido</b> has health problems allegedly as a consequence of the spraying operations with glyphosate because the boy's mother was presumably exposed to it during pregnancy.	He was diagnosed with Crouzon Syndrome	No spraying data is required	No cause-effect relation can be established	Jesús María Lara Ardila, Director, Caqueta Province Health Institute	Closed	There is no cause-effect relation
10	ARECI-GRUVE No. 1891 Date: 07-11-06	Aurelio Jummy Jaupia	Córdoba, Libertador municipality	Possible health problems at the <b>Embera Katio People</b> as a consequence of spraying operations.	There is no medical chart data	Spraying took place over the rural areas of Puerto Libertador Municipality (Antioquia) at the date of August 17 and September 17, 2006. 17 Km away from the place where the Embera Katio Community is located.	There is no medical evaluation and spraying look place for the Embera Katio Community; thus, no cause-effect relation can be established.	On November 16 2006, a letter was sent to Dr. Manuel Troncoso Alvarez, Córdoba Province Health Secretary and to Colonel Heidy Cruz, Chief of the Córdoba Police. On 16 September 2008 a letter was sent to Dr. Agamenon Quintero from the Córdoba province Health Development Office, asking him to verify and do follow-up on the case.	Closed	Executive: The assessment team was not allowed to get into the Community. There are no medical chart or medical evaluation data and sprayings took place at a distant place from the allegedly affected people.
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Date: February 2010										
REPORT ON COMPLAINTS SUBMITTED TO THE COLOMBIAN NATIONAL HEALTH INSTITUTE WITH REGARD TO THE PROGRAM FOR THE ERADICATION OF ILLICIT CROPS WITH GLYPHOSATE HERBICIDE - PEGIC										
COMPLAINT No.	LETTER No.	NAME	PROVINCE	DESCRIPTION OF COMPLAINT	MEDICAL CHART	AERIAL SPRAYING DATA	CONCLUSION	SENT TO	STATUS	CLOSING REASON
12	ARECI-GRUVE No. 3196 Date 12-12-06	Edwin Fernando Cortés Angulo	Nariño, Boyacá, Tolima, and the rural area in the Payán municipality	The boy <b>Edwin Fernando Cortés Angulo</b> drank water from the Chimbuzo lagoon, which had been sprayed, causing asphyxia and his death	There is neither medical chart data nor autopsy results	Spraying took place 16,6 Km away from the lagoon where the child died	The Nariño province Health Institute reported that the case was not the kid taken to the Las Mercedes Medical Center in Roberto Payán municipality. Therefore, there is no medical chart data. The doctor on duty said that an autopsy should be produced but the relatives opposed. There is no cause-effect relation.	Sonia María Gómez-Erazo, Chief, Nariño Province Health Institute	Closed	There is no cause-effect relation
13	ARECI-GRUVE No. 0047 Date 14-01-06	Libardo Gutierrez	Bolívar, Cotaqueño Municipality	Mr. <b>Libardo Gutierrez</b> had health problems as a consequence of sprays	There is no medical chart data	No spraying operations took place over the cantagallo areas-Bolívar province	There is no medical evaluation and spraying operations were not conducted. Thus no cause-effect relation can be established	On January 25 2006, letters were sent to Dr. Nicolás Chedrau Albarín, Province Health Secretary, Bolívar Province Health Office, and to Colonel Henry Cordero, Bolívar Province Health Office. On March 14 2008 letters were sent to Dr. Oscar Miguel Gaméz Hernández, Bolívar Province Health Secretary asking him to do verification and follow-up on the case, and to Colonel Henry Gamba, Antioqueño Police.	Closed	No sprayings took place in the area
14	ARECI-GRUVE No. 301 Date 03-06	Alba Doris Rivera	Antioquia, Bolívar, Yondó Municipality	It states that the boy <b>Diego Alexander Jimenez Rivera</b> died as a consequence of aerial sprayings	There is no medical chart data	No spraying operations took place on the claim date	The Municipal Health Service Director in Yondó municipality informed that who confirmed the patient's mother to the distance from the town, he was reported that it has been possible to carry out the field study to investigate the case because the Bagre community has not given authorization to go there. There is no cause-effect relation.	On 24 March 2008, a letter was sent to Dr. Felipe Aguirre Aulis, Bolívar Province Health Office, and to Colonel Henry Gamba, Antioqueño Police	Closed	Eventive. There is no medical evaluation data and field investigation was not allowed





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COMPLAINT No.	LETTER No.	NAME	PROVINCE	DESCRIPTION OF COMPLAINT	MEDICAL CHART	AERIAL SPRAYING DATA	CONCLUSION	SENT TO	STATUS	CLOSING REASON
19	National Narcotics Directorate Date: 17-01-07	Peña Alia Indigenous Community, Coreguaje municipality village	Caquetá, Caquetá, Coreguaje municipality	"Because of indiscriminate spraying of illicit crops which has affected food crops ... health problems such as sweating fever, tuberculosis, and diarrhea ..."	There is no medical chart data	In November, 2005 spraying was carried out in Peña Alia Indigenous Community, Coreguaje village, Caquetá	There is no cause-effect relation	It was sent to the Capital Province Health Office to Dr. María Dely Hincapié Parra, Caquetá Province Health Office and to Colonel Henry Gamboa, Director of the Antinarcotics Direction of the National Police in March 2008	Closed	No spraying/Clinical. There is no cause-effect relation. The complaint is closed because there is no clinical association between the disease and the effects attributable to the use/exposure to glyphosate
	ARECJ-CAOA No. 3437 Date: 20-12-07	Marlen Alina Ortega	Cauca, San Alfonso Baboia municipality	She states that her son, José Manuel Gómez, has health problems caused probably by spraying with glyphosate in 1992	There is no medical chart data	No spraying operations were made in the area of Alfonso Baboia municipality		It was sent to Dr. Diego Gerardo Llanos Arboleda, Director Cauca Province Health Office on 15 January 2008. A letter was sent to Dr. Diego Gerardo Llanos Arboleda, Cauca Province Health Office on the case in March 2008. A letter was also sent to Colonel Henry Gamboa, National Narcotics Direction of the National Police	Closed	No spraying/Clinical. There is no cause-effect relation. The complaint is closed because there is no clinical association between the disease and the effects attributable to the use/exposure to glyphosate
20	Ayudo No. 206.0261 "CORMACA RENA", File No. 5.11.05.177 Date: 09-05-06	José Antonio Gutiérrez	Meta, Sajonia farm, rural area, Acacias municipality jurisdiction	It claims damage on food crops and pastures on a 100-hectare area	It does not apply to the health complaint program because it is a complaint for damage on lawful (agriculture complaints)	There is no data on aerial spraying	Because the technical concept from the legal issues office considers that there is no request from the CORMAGDALENA Legal Issues Office pursuant to what is clearly stated in article 10 of the Act to Regulate the Forest, Agricultural, Aeronautical Civil, ICA, and Aplaya Air Base		Closed	Executive; it does not apply to the program
21	ARECJ-GRAOA No. 2807 Date: 25-10-07	Diana Paola Balcazar Castillo, local ombudsman representative, Puerto Lleras-Meta municipality	Meta, Sajonia rural area	It states that the minor Elizabeth Morenas Beltrán has chemical conjunctivitis allegedly caused by aerial spraying with glyphosate	There is medical chart data with a chemical conjunctivitis diagnose	No aerial sprayings took place in the area of Puerto Lleras-Meta municipality	No cause-effect relation can be established between the medical chart that originated the visit to the doctor and the aerial spraying with glyphosate		Closed	No spraying took place
22	ARECJ-CAOA No. 3305 Date: 06-12-07	Mr. Pedro Morantes Gonzalez filed the claim before the Regional Corporation of Orinoquia, a	Arauca, Arauca municipality, La Esmeralda, Saraguro, Esquinas rural area	It states that Mrs. María Olicá González suffered some health problems such as headache, dizziness, and fatigue allegedly caused by spraying with glyphosate	There is no medical chart data	Since the exact location of the plaintiff is not included it is not possible to determine if there were activities exposed to the herbicide during sprayings carried out in Arauca municipality on 24 August 2007		It was sent in December 2007 to Doctor Alberto Fernando Castro Garcés, Manager, Special Health Administrative Unit of Arauca. On 14 October 2008, information was requested to Dr. Ingrid Nuñez, Special Health Administrative Unit of Arauca, asking her to do follow-up and verification on the case. Antinarcotics Police was also informed.	Closed	Executive; there is no medical chart data
23	PEITION RESOURCE No. 06-12-07	José Overman Paredes Moreno	Cundinamarca, Bogotá	He requests information on aerial spraying, effects on health and the environment	It is not a complaint	It is not a complaint, it is a petition resource which was replied to	Reply was sent to Mr. José Overman Paredes Moreno explaining only about the toxicology of glyphosate herbicide on humans.		Closed	Executive; it does not apply to the program
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Date: February 2010										
REPORT ON COMPLAINTS SUBMITTED TO THE COLOMBIAN NATIONAL HEALTH INSTITUTE WITH REGARD TO THE PROGRAM FOR THE ERADICATION OF ILLICIT CROPS WITH GLYPHOSATE HERBICIDE - PEGUI										
COMPLAINT No.	LETTER No.	NAME	PROVINCE	DESCRIPTION OF COMPLAINT	MEDICAL CHART	AERIAL SPRAYING DATA	CONCLUSION	SENT TO	STATUS	CLOSING REASON
25	ARECI-GRUVE No. 258 Date: 02/03-06	Santa Maria District Health Office	Magdalena, Santa Maria Guachaca village	A report on a field activity in Sierra Nevada de Santa Maria was received in which 5 persons were affected, two of which received medical help (children ages 5 and 8); the other 3 filed out a poll and urine samples were taken	Data of the medical chart is included in the report sent by the Health Office	No spraying took place on the date and place mentioned in the complaint	The Santa Maria District Health Office and the National Health Institute carried out a survey and took samples of the possible intoxication cases and it was found that there is no cause-effect relation. These samples are included in the study on glyphosate carried out by the INS	It was not sent	Closed	No spraying/Clinical. There is no cause-effect relation. The complaint is closed because there is no clinical association between the disease and the effects attributable to the use/or exposure to glyphosate
26	ARECI-GRUVE No. 41-31 Date: 27-11-03	Complaint filed by Juan Dioniso Martinez Bogota through the local health ombudsman's office in San Pablo Bolivar municipality	Bolivar	San It reports that Mr. Juan Dioniso Martinez Bogota has psychological problems allegedly caused by aerial sprayings	There is medical chart data sent by San Pablo (Bolivar) Local Hospital	No spraying data is required because glyphosate does not cause psychological harm	There is no cause-effect relation		Closed	No spraying/Clinical. There is no cause-effect relation. The complaint is closed because there is no clinical association between the disease and the effects attributable to the use/or exposure to glyphosate
27	National Narcotics Directorate - CASE-541 Date: 14-11-07	Attorney Hermes Palacios with power from Mr. Duarte Guzman Valencia	Nariño, Tumaco municipality	It reports that Mr. Duarte Guzman Valencia presumably has health problems due to the aerial sprayings with glyphosate	There is medical chart data registered in a technical legal medical report of non fatal harm issued by the Legal Medicine and Forensics Science National Institute of the local unit in Tumaco. According to this report, the claimant was practiced 3 legal medical tests resulting in a diagnose of injury by chemical agent to be determined.	No spraying operations took place on the complaint's date	Dermatitis by chemical agent to be determined. Doctor Gloria Amparo Arrieta, Scientific under-manager of the San Andres de Tumaco Hospital sent a copy of the medical chart where she clarifies that the etiological agent is unknown and therefore it is impossible to report it as an intoxication with pesticide case. No investigation was conducted at that moment either. There is no cause-effect relation	It was sent to Dr. Sonia Gómez Eraso, Director of the Nariño Province Health Institute	Closed	No spraying took place
28	ARECI-GRUVE No. 094-102-06	COCCOCAUC A Community Council (Community of councils and base organizations of black people from the Pacific region of Cauca)	Cauca	They report aerial spraying on 6 children (3 boys and 3 girls) and 15 adults, out of which 7 showed skin problems and 8 poisoning with severe diarrhea and headache. Mrs. Lucía Micaela, about 35 died on 17 January 2007	There is no medical chart data	On 25 May and 8 June 2006, as well as on 10 April, 2007, spraying took place in Guapi and Timbiqui municipalities	It does not include medical evaluation of the health problems and aerial spraying can be established	In March 2008, Dr. Diego Gerardo Llanos Arboleda, Cauca Province Health Secretary, was sent a letter requesting him to do follow-up and verification on the case. Major James Roa, Antimicrobics Director of the National Police was also named. On March 2008, he sent a letter to Dr. Diego Gerardo Llanos, Cauca Province Health Office, requesting him to do follow-up and verification on the case	Closed	

Date: February 2010										
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COMPLAINT No.	LETTER No.	NAME	PROVINCE	DESCRIPTION OF COMPLAINT	MEDICAL CHART	AERIAL SPRAYING DATA	CONCLUSION	SENT TO	STATUS	CLOSING REASON
	Attention on cases		Nariño province, Tumaco municipality, Guapi area rural area	Information about the death of a 14-month child and other affected in the area following the aerial spraying operations started on 22 March 2008	Necropsy was practice on the child and people who were reported as affected were examined. The children taken to the hospital were reported to have symptoms attributed to sprays in the area were examined and samples were taken	There is data on tubular kidney injury, portal and generalized fibrosis suggesting incipient acute renal failure. In addition, in different organs as observed in disseminated intravascular coagulation syndrome, changes attributable to shock. The medical chart and these histopathological findings link this case with Acute Respiratory Infection (ARI). A report was sent to the Embassy, the DNE, and the Ministry of Social Protection. There is no cause-effect relation	The histopathological report from the Pathology Group at the National Health Institute makes the following diagnose from the organs obtained in the autopsy: multilobar acute bronconeumony (in red hepatization phase), immunohistochemical study for positive adenovirus in lung, acute tubular kidney injury, portal and generalized fibrosis suggesting incipient acute renal failure. In addition, in different organs as observed in disseminated intravascular coagulation syndrome, changes attributable to shock. The medical chart and these histopathological findings link this case with Acute Respiratory Infection (ARI). A report was sent to the Embassy, the DNE, and the Ministry of Social Protection. There is no cause-effect relation		Closed	Clinical: There is no cause-effect relation. The claim is closed because there is no association between the clinical bronconeumony and the effects attributable to sprays with glyphosate.
29	AREC-GRACA No. 1362 Date 22-04-08	Pedro José Agudelo Orozco	Antioquia- Tarazá municipality, Barro Blanco rural area	Mr. <b>Pedro José Agudelo Orozco</b> reports that he had health problems as a consequence of aerial spraying in June 2007 (He does not specify a date)	There is medical chart data with diagnose of non-specific contact dermatitis	On May 31 2007, the date to that mentioned by complainant, spraying took place in a rural area of Barro Blanco. No spraying operations are registered in that zone in June.	No cause-effect relation can be established	Carlos Mario Rivera Escobar, Antioquia province Health Secretary	Closed	No spraying / Clinical
30	AREC-GRACA No. 170 Date 22-04-08	ASOINCA	Cauca province Bolívar municipality, La Dómina and Brava rural areas	They report health problems such as diarrhea, stomachache, continued headache, coughing, tiredness, skin rash. These effects are reported in children and adults	There is no medical chart data	On 04 January 2008 spraying operations took place in Bolívar municipality-cauca province. Spraying operations took place in Dominga and Brava rural areas on illicit coca leaf crops		In May 2008 letters were sent to Doctor Diego Gerardo Lianos Arboleda, Cauca Province Health Secretary and to Colonel Coronel Henry Gamboa Casañeda, Antioquia Director of the Antimarcotics. On 14 October 2008 a letter was sent to the Director of the Cauca Province Health Office, asking him to do verification and follow-up on the case.	Closed	Executive: There is no medical chart data
31										

Date: February 2010										
REPORT ON COMPLAINTS SUBMITTED TO THE COLOMBIAN NATIONAL HEALTH INSTITUTE WITH REGARD TO THE PROGRAM FOR THE ERADICATION OF ILLICIT CROPS WITH GLYPHOSATE HERBICIDE - PECIG										
COMPLAINT No.	LETTER No.	NAME	PROVINCE	DESCRIPTION OF COMPLAINT	MEDICAL CHART	AERIAL SPRAYING DATA	CONCLUSION	SENT TO	STATUS	CLOSING REASON
		Association of Local Communities Associations of the Meta, Guaviare and River Shore provinces, jurisdiction of Mapiripan and municipalities San José del Guaviare and Mapiripan, Meta province.	Meta and Guaviare provinces	They report "alleged effects the communities food crops and environment caused in the framework of the implementation of the PECIG"	There is no medical chart data for the Guaviare because there have not been complaints in San José del Guaviare municipality	On 13 January and 9 March 2008 spraying operations took place in Mapiripan municipality, Meta province.	Dr. Jaime Alberto Cuesta Pardo Health Secretary Guaviare Province Health Secretary, and Colonel Henry Gamba Casallieda from the Antinarcotics Direction of the National Police	On May 30 2008, letters were sent from San José del Guaviare Province Health Executive. There is no data of visits to the hospital		
32	ARECI-GRACA No. 1929 Date: 18-06-08	José Álvaro Fajardo	Carepa province, Florencia, Montaña municipality	He states that was informed at the Bogota Institute of Cancerology that his blood was poisoned because of aerial sprayings with glyphosate	There is medical chart data sent by the National Institute of Cancerology with diagnose of chronic myeloproiferative syndrome of chronic myeloid leukemia type in its chronic phase, Philadelphia negative	No aerial spraying data is required	There is no cause-effect relation	On June 24 2008 a letter was sent to Dr. Carlos Vicente Rodríguez Director of the National Institute of Cancerology asking him for verification and follow-up on the case (reply was received) and to Colonel Henry Gamba, Antinarcotics Direction of the National Police	Closed	Clinical. There is no cause-effect relation. The complaint is closed because there is no clinical association between the disease and the effects attributable to the user/exposure to glyphosate
33	ARECI-GRACA No. 1931 Date: 19-06-08	Carlos Enrique Acosta Yepes	Antioquia province, rural area	He states that on 25 May 2005, while he was working on a crop, an airplane passed by and sprayed him and since then he has had skin problems. Last year he was diagnosed with skin irritation due to exposure to glyphosate. He says that he wakes up with irritated eyes and he has rash all over his body.	There is a service order to request a skin biopsy	On 25 May 2005 there were no spraying operations in Nechí municipality, Antioquia province	There is a diagnose of red lichen - psoriasis from the dermatology laboratory of the University of Antioquia	On 24 June 2008 a letter was sent to "Doctor Julio Ernesto Reseño, Director San Vicente Ferrer Hospital" and to "Doctor José James Roa Casallieda Antinarcotics Direction of the National Police"	Closed	Clinical. There is no cause-effect relation. The complaint is closed because there is no clinical association between the disease and the effects attributable to the user/exposure to glyphosate
34	National Narcotics Directorate SARE No. 09 Date: 09-08	José Arnulfo Preciado Cabezas	Nariño province, Barbosa municipality	He informs that "to date there is a great deal of children with effects on their skin and head ... due to spraying with glyphosate on civil population"	The Nariño province Health Institute informed that there were no cases of poisoning with glyphosate in Nariño province in 2008	There were no aerial spraying operations		On 24 September 2008 a letter was sent to Doctor Ana Belén Arteaga Torres, Director of Nariño Province Health Institute requesting to do verification and follow-up on the case, and to Colonel Alvaro José Bahamón, Antinarcotics Direction of the National Police	Closed	Executive. No intoxication cases with glyphosate were reported during that period
35										

REPORT ON COMPLAINTS SUBMITTED TO THE COLOMBIAN NATIONAL HEALTH INSTITUTE WITH REGARD TO THE PROGRAM FOR THE ERADICATION OF ILLICIT CROPS WITH GLYPHOSATE HERBICIDE - PEGIC										
COMPLAINT No.	LETTER No.	NAME	PROVINCE	DESCRIPTION OF COMPLAINT	MEDICAL CHART	AERIAL SPRAYING DATA	CONCLUSION	SENT TO	STATUS	CLOSING REASON
36	Ministry for the Environment, Date: 03-10-08 //Nariño Regional Ombudsman's Office, No. 1398 - ATQ- TLIN, Date: 05-09-06	Nariño province, Barbacosa municipality, Chapirra rural area	Nariño province, Barbacosa municipality, Chapirra rural area	It reports that "while spraying operations on illicit crops were carried out, health of several people from the area was affected. The complaint was filed by two children of the complainant, Juan David, 10 years old, and Lisseth Fernanda, 7 years old, who currently suffer from serious skin problems".	There is medical chart data with diagnosis of allergic contact dermatitis due to other chemical products and pruritic dermatitis.	Spraying operations were carried out in the area of Barbacosa municipality - Nariño province	Information on the case was received from Dr. Ana Belén Arteaga Torres, Director of the Nariño Province Health Institute	On 15 October 2008 a letter was sent to Colonel Alvaro José Bahamón, Antiparasitics Direction of the National Police, requesting from him information on spraying operations, and to Dr. Ana Belén Arteaga, Director of the Nariño Province Health Institute	Closed	Chical: There is exposure to other chemical substances causing poor allergic reactions not caused by glyphosate
37	Ministry of the Interior and Justice, SARE - 000 November 2008, Ombudsman's Office, Letter No. 3010-005316 Date: 11 November 2008	Arauca province	Arauca province	They report a great deal of negative effects on soil and people from the region	There is no medical chart data	There are no medical charts or specific complaints reported. Nor specific location of the complaint	There is not the necessary information to analyze the complaint	On 2 December 2008, a letter was sent to Dr. María del Socorro Núñez, Manager of the Arauca Health Special Administrative Unit	Closed	Executive closure
38	Ministry for the Environment, Housing and Territorial Development, Date: 25 November 2008	Senator Ernesto Ramiro Estacio and Minister Juan Lozano Ramirez	Indigenous Community settled in Nariño Province	A child from the community affected with serious skin problems	There is no medical chart data	There were no spraying operations, there is no data on visits to hospital	There is no cause-effect relation	On 8 January 2009 a letter was sent to Dr. Ana Belén Arteaga, Director of the Nariño Province Health Institute	Closed	No spraying operations took place
39	Ombudsman's Office, Date: 26 November 2008	Eduardo González Parro, Meta Regional Ombudsman	Puerto Iris, Chaparito, Puerto Concordia municipality, Meta province	Contamination of the water source of Puerto Iris School with serious skin problems	No specific cases of health harm were reported. No contamination of the water source was found	On 13 March a letter was sent to the complainant confirming that there were spraying operations on the complaint date in that area	There are no cases reported and no contamination was found in the water source	On January 8 2009 a letter was sent to Dr. Sandra Lucía Cabedo Sánchez, Head of the Prevention and Promotion Office, Environmental Health Group, Meta Province Health Office	Closed	There is no complaint for effects on human health. There are no cases reported and no contamination was found in the water source

REPORT ON COMPLAINTS SUBMITTED TO THE COLOMBIAN NATIONAL HEALTH INSTITUTE WITH REGARD TO THE PROGRAM FOR THE ERADICATION OF ILLICIT CROPS WITH GLYPHOSATE HERBICIDE - PECIC										
COMPLAINT No.	LETTER No.	NAME	PROVINCE	DESCRIPTION OF COMPLAINT	MEDICAL CHART	AERIAL SPRAYING DATA	CONCLUSION	SENT TO	STATUS	CLOSING REASON
	Municipal Ombudsman's Office, El Paujil municipality, Cauca province. Date: 14 November 2008	Jose Rigoberto Bohorquez Urrego	Valledupar/Primavera rural area, El Paujil municipality, Cauca province	He reports health effects on his wife and two of his children	The children were examined at Maria Inmaculada Hospital in Florencia, Cauca province. The children had acute bronchitis	Spraying operations did take place in the Southwest of Cauca province. It is important to clarify that Valledupar rural area is within Cauca province and not within El Paujil municipality	There is no cause-effect relation		Closed	Clinical. There is no cause-effect relation. The complaint is closed because there is no clinical association between the disease and the effects attributable to the use/exposure to glyphosate
40	ARECI- GRAQA- 0429 dated 30 January 2009	Edgar Bermudez Castro	El Retiro rural area, Cañon de Combeima, Itagüé - Tolima	He reports effects on crops, the environment, and health of the community		On 15 April Major Rodriguez reported that there were no spraying operations in September 2008	There is no cause-effect relation	A letter was sent to Diego Giovany Escobar, Tolima Province Health Secretary and to Major Jose Roa Catafedia requesting information	Closed	No spraying operations took place
41	ARECI- GRAQA- 0467 dated 5 February 2009	Maria Olivia Lopez	La Bemeja village, Baboia municipality - Cauca province	She reports health effects on her son Cristian David Samboti	The child's mother reports that the boy has lost all his hair. There is no medical chart data.	Spraying operations did take place in that area on the date Mrs. Maria Olivia Lopez reports		A letter was sent to doctor Diego Gerardo Lirios, Cauca Province Health Director, requesting information	Active	
42	ARECI- GRAQA- 0458	Flerida Guierrez	Cocará community, Milán municipality - Cauca province	Mrs. Guierrez reports that the herbicide has fallen on children, homes, and the community school	Mrs. Flerida Guierrez informs that yuca and plantain crops have been affected by sprayings	Spraying operations did take place in San Antonio de Getulio area, Milán municipality - Cauca on the date and time reported by Mrs. Guierrez		A letter was sent to Doctor Maria Dely Hircio, Cauca Province Health Director, requesting information	Closed	Executive. There is no medical chart data. The only person who complained was Mrs. Flerida Guierrez. Afterwards, a search for medical charts data was carried out and no records were found, not even for the complainant and her children. Mrs. Guierrez did not go herself or take her children to the medical center for the investigation after filing the complaint
43	SARE-208 dated 20 March 2009	Hernando Galien, Zambreno y Bella De Pabos	El Diamante, La Reforma, Usme, Caneca, Pato Bono, and Cupate rural areas, Palmatio municipality, Vichada province	They report food scarcity leading to a high level of malnutrition and diseases such as vomit, diarrhea, fever, dengue	There is no medical chart data	On 4 August 2009 spraying data was received from DIRAN (Antinarcotics Direction of the National Police) informing that spraying operations did take place in the province. The records exact data for the complaints come from	On going	A letter was sent to the Vichada Province Health Secretary requesting information on the case, and to Major Rodriguez requesting spraying data in the area	Active	
44		Emrison Perfiga	Timbiqui municipality - Cauca	They report possible effects on the region of at least 4 people from the de jure rural areas, possibly because of aerial sprayings	The National Health Institute went to the area and made clinical evaluation to the affected people. The symptoms corresponded to a bacterial acute diarrhea disease. samples were negative for glyphosate	There is spraying data outside the Reservation	There is no cause-effect relation		Closed	Clinical: there is no cause-effect relation
45										

Date: February 20, 2010										
REPORT ON COMPLAINTS SUBMITTED TO THE COLOMBIAN NATIONAL HEALTH INSTITUTE WITH REGARD TO THE PROGRAM FOR THE ERADICATION OF ILLICIT CROPS WITH GLYPHOSATE HERBICIDE - PEGIS										
COMPLAINT No.	LETTER No.	NAME	PROVINCE	DESCRIPTION OF COMPLAINT	MEDICAL CHART	AERIAL SPRAYING DATA	CONCLUSION	SENT TO	STATUS	CLOSING REASON
46	ARECI-GRACA-1614 dated 11 June 2009	Luis Miguel Angulo	Tumaco municipality - Nariño province	He reports skin problems as a result of aerial sprayings carried out in Tumaco	There is medical chart data and a diagnose of contact dermatitis with skin injury, fever, and general discomfort	There is data of No aerial spraying in the area on 10, 11, 12, 13 and 14 February 2009	There is no cause-effect relation	Nariño province- Health institute requesting investigation on the case	Closed	No spraying took place
47	ARECI-GRACA-1536 dated 11 June 2009	Jose Calpa Pazos	Tumaco municipality - Nariño province	He reports health effects on Mrs. Nancy Josefa Ramirez	There is medical chart data with diagnose of severe atopic dermatitis	There is no spraying operations reported for the area	Pending	A letter was sent to the Nariño Province Health Institute for investigation on the case, and to Major Leal requesting spraying data for the area on the complaint date	Active	
48	SARE -436 dated 10 June 2009	Jaine Enrique Arias	Kankuamo Indigenous Reservation, Ucranian region, Chioake Hill	He reports effects on crops and human health	There is no medical chart data	In a letter dated 20 June 2009, the complainant informed spraying operations in the area the complaint came from:	There is no cause-effect relation	A letter was sent to Cesar Province Health Secretary and to Antioquia Police requesting investigation on the case and spraying data in the area and date reported in the complaint	Closed	No spraying operations took place
49	ARECI-GRACA-44-3190 dated 27 August 2009	Manuel Guillermo Lopez Marquez	Guajira province, Dibulla municipality	Effects on health	There is no medical chart data	There are no spraying operations reported for 2005 in that area	There is no cause-effect relation	A letter was sent to Guajira Province Health Office	Closed	There were no spraying operations. Although the events happened in 2005, the complaint was filed only last year (2010)
50	SARE 1470 dated 26 November 2009	Jose Crispulo Hidalgo Barquero	Cauca province, Timbiqui municipality, Calle de Santa Rosa Reservation	Effects on health and agriculture and livestock activities	There is no medical chart data	A letter was sent to DIBAM requesting spraying data	Pending	A letter was sent to Cauca Province Health Secretary and to the Antioquia Police requesting an investigation on the case and spraying data in the area and date reported in the complaint	Active	



## Annex 70

### **REPORT BY THE MINISTRY FOR THE ENVIRONMENT, HOUSING AND TERRITORIAL DEVELOPMENT ON THE PROGRAM FOR THE ERADICATION OF ILLICIT CROPS BY AERIAL SPRAYING WITH GLYPHOSATE HERBICIDE – PECIG, FEBRUARY 2010**

- **APPENDIX 1: SAMPLE REPORT OF A VERIFICATION MISSION (TECHNICAL REPORT – 19TH VERIFICATION MISSION CONCERNING THE SPRAYING OPERATIONS CONDUCTED BETWEEN SEPTEMBER 2008 AND FEBRUARY 2009)**
- **APPENDIX 2: SAMPLE OF RESULTS OF SOIL ANALYSES TAKEN PRIOR TO / IMMEDIATELY FOLLOWING THE SPRAYING (N° 1972/08).**
- **APPENDIX 3: SAMPLE OF RESULTS OF SOIL ANALYSES TAKEN 60 DAYS AFTER SPRAYING (N° 2125/08).**
- **APPENDIX 4: SAMPLE OF RESULTS OF WATER ANALYSES TAKEN PRIOR TO / IMMEDIATELY FOLLOWING THE SPRAYING (N° 1951/08).**
- **APPENDIX 5: SAMPLE OF RESULTS OF SUPERFICIAL WATER ANALYSES TAKEN 60 DAYS AFTER SPRAYING (N° 2194/09).**

*(Archives of the Ministry of Foreign Affairs of Colombia)*

### **REPORT BY THE MINISTRY FOR THE ENVIRONMENT, HOUSING AND TERRITORIAL DEVELOPMENT ON THE PROGRAM FOR THE ERADICATION OF ILLICIT CROPS BY AERIAL SPRAYING WITH GLYPHOSATE HERBICIDE – PECIG**

#### **1. GENERAL INFORMATION**

Through the issuance of Law 99, of 21 December of 1993, the current Ministry for the Environment, Housing and Territorial Development [formerly Ministry for the Environment] was created, including within its functions, those that were attributed to INDERENA,<sup>1</sup> and among others, the following: To regulate the general conditions for the health of the environment; to determine the use, management, exploitation, preservation, restoration and recovery of natural resources, with the purpose of preventing, eliminating or mitigating the impact of polluting, deteriorating or destructive activities with regard to the natural environment or heritage;<sup>2</sup> to define and regulate the administrative instruments and mechanisms required for the prevention and

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<sup>1</sup> Prior to the issuance of Law 99 of 1993, these environmental functions were carried out by INDERENA – National Institute for Renewable Natural Resources and the Environment - and its regional offices.

<sup>2</sup> Paragraph 2 of Article 5° of Law 99 of 1993.

control of environmental deterioration risk factors;<sup>3</sup> to assess environmental studies and to issue, deny or suspend the corresponding environmental license.<sup>4</sup>

Taking into account that INDERENA had issued a favourable opinion for the activities concerning the spraying of illicit coca and marijuana crops with glyphosate (through Communication of 12 October 1993) and the provisions of the Colombian legislation,<sup>5</sup> this Ministry began a series of administrative acts aimed at establishing the Environmental Management Plan (hereafter, PMA) of the Program for the Eradication of Illicit Crops through Aerial Spraying with Glyphosate Herbicide -PECIG,<sup>6</sup> e.g., issuing terms of reference for the preparation of the PMA. The PMA itself, akin to an Environmental Impact Assessment, was set out by Resolution 1065 of 2001, but due to its dynamic nature was subsequently amended by Resolution 1054 of 2003.<sup>7</sup>

The PMA is made up of (8) records and contains preventive measures such as: carrying out maintenance, revision and calibration of spraying equipment on aircraft; complying with technical and operational parameters for the application of the herbicide and complying with environmental zoning criteria. Also, within the PMA, the technical and environmental specifications for the various stages of PECIG were set forth.

## 2. FOLLOW-UP TO THE ENVIRONMENTAL MANAGEMENT PLAN

This Ministry performs the control and follow-up of the Environmental Management Plan of the Program for the Eradication of Illicit Crops through Aerial Spraying with Glyphosate Herbicide - PECIG,<sup>8</sup> through the analysis of the reports submitted by each of the agencies in charge of duties

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<sup>3</sup> Paragraph 14 of 5° of Law 99 of 1993.

<sup>4</sup> Paragraph 15 of 5° of Law 99 of 1993.

<sup>5</sup> First paragraph, Article 38, Decree 1753 of 1994.

<sup>6</sup> Law 99 of 1993, that provides the obligation to process environmental licences on the basis of an Environmental Impact Assessment, also set out a transition regime that covered the administrative processes that had begun prior to its entry into force -among them, those relating to the PECIG. Through Decree 1753 of 1994, (replaced by Decree 1728 of 2002, that was derogated by Decree 1180 of 2003, in turn derogated by Decree 1220 of 2005, amended by Decree 500 of 2006; the latter two are currently in force) environmental licenses were regulated, providing in its transition regime that the environmental authority would be enabled to require those administrative processes to submit environmental management, recovery or restoration plans, known as Environmental Management Plans (PMA), if necessary.

<sup>7</sup> The PMA includes an environmental study to prevent, mitigate, correct and compensate possible impacts and effects of the project, work or activity on the environment, equivalent to an Environmental Impact Assessment. In turn, the PMA is assimilated to an environmental license as an instrument of environmental management and control, since it foresees a series of measures aimed at preventing, mitigating, controlling, compensating and correcting eventual environmental impacts generated by the activity in question.

<sup>8</sup> This, in exercise of the functions attributed to it under Law 99 of 1993; and Article 33 of Decree 1220 of 2005, on environmental licenses and Environmental Management Plans.

contained in the PMA records and visits to spraying bases, with the object of verifying compliance with each of the records and thus, overseeing the protection of fauna, flora, human health and the environment in general.

The records that make up the Environmental Management Plan are hereinafter described:

## 2.1 RECORD No. 1: PROGRAM FOR THE MANAGEMENT OF SPRAYING OPERATIONS.

For the fulfilment of the activities of this record, DIRAN [Anti-Narcotics Police] as the responsible agency, submits quarterly reports to the Ministry, containing reports on the maintenance, revision and calibration of equipment; daily record of operation days and non-operation days due to weather conditions (rainfall, winds, humidity, temperature, clouds); the environmental characterization of the cluster to be sprayed; reports of the identification, location and quantification of illicit coca and poppy crops, and the location of watercourses or bodies of water, main roads, human and animal population nuclei, or any other area requiring special protection, with the purpose of complying with Article 87 of Decree 1843 of 1991 that refers to safety strips of 100 meters around these items.

The Ministry, along with the External Audit of the spraying program, accompanies the twice (2) yearly verification missions wherein the Colombian Farming Institute -ICA, the National Narcotics Directorate -DNE and the Anti-Narcotics Direction of the National Police -DIRAN, assess the nationwide efficacy of the PECIG Program. A sample of a verification mission report is enclosed.<sup>9</sup> In those verifications representatives of the United Nations [Office on Drugs and Crime] among others, also take part as observers.

In parallel to the verification activities directly related to the efficacy of the spraying on illicit crops,<sup>10</sup> an assessment of effects on the environment is conducted, with the purpose of validating in the field, the compliance with what the Environmental Management Plan provides.

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<sup>9</sup> Appendix 1: Sample Report of a Verification Mission.

<sup>10</sup> Among the aspects to be assessed are the following: Field Efficacy, understood as the percentage at which the herbicide reaches the entire area cultivated with coca crops in a given plot, producing a visible physiological effect on coca plants (over 90% on average); Swath Efficacy, i.e., the percentage of effective control or death of coca plants in the places actually reached by the herbicide in a given plot (over 93% on average); and Collateral Effect or Off-target percentage, understood as affectation of non-targeted vegetation cover immediately adjacent to illicit crops (1.6% on average). (Average figures correspond to verification missions relating to the period comprised between March 2008 and October 2009)

## 2.2 RECORD No. 2 PROGRAM FOR INDUSTRIAL SAFETY IN SPRAYING BASES

DIRAN [Anti-Narcotics Police], responsible for this record, submits within the twice-yearly reports, copies of the Records of instruction and training to personnel working in the spraying bases, on topics such as the safe and adequate handling of agrochemicals, fuels, equipment and aircraft used in the spraying program.

## 2.3 RECORD No. 3 PROGRAM FOR MANAGEMENT OF SOLID WASTE

DIRAN [Anti-Narcotics Police], responsible for this record, submits within the twice-yearly reports, copies of the Records of instruction and training to personnel working in the spraying bases, on topics such as the adequate handling of these waste products, storage, separation and final disposition.

## 2.4 RECORD No. 4 PROGRAM FOR MANAGEMENT OF RESIDUAL WATERS AT SPRAYING BASES

DIRAN [Anti-Narcotics Police] is responsible of submitting twice-yearly reports regarding processes of instruction and training to personnel working in the operation bases on permanent control of water used in such bases.

## 2.5 RECORD No. 5 ENVIRONMENTAL MONITORING PROGRAM

In order to do follow-up and control of this program, the Ministry conducts field visits with the agencies responsible for collecting soil and water samples, verifying compliance with the provisions of the Environmental Management Plan, such as the size of sampled plots, the number and frequency of monitoring, the location of the sampled sites and the adequate packing of collected samples for transport.

Responsibility for compliance with this record is as follows:

### **Analysis of Vegetation Succession**

- Aerial photography and video taken by the National Police – Anti-Narcotics Direction, as part of the environmental monitoring. Results are submitted to the Ministry for the Environment, Housing and Territorial Development.
- Multi-temporal analysis of vegetation cover, a product of the SIMCI project (Illicit Crops Integrated Monitoring System). The results are submitted in twice-yearly reports to the Ministry for the Environment, Housing and Territorial Development. This analysis is a spatial assessment by provinces showing the dynamics of coca cultivation and the

adverse impact or changes found in the various vegetation covers identified by the LANDSAT, ASTER and SPOT satellites, among others, due to the planting of coca crops.

### **Analysis of Glyphosate and AMPA residues**

- Monitoring Planning: It is to be carried out with the participation of the National Police – Anti-Narcotics Direction, National Health Institute -INS, and the Agustín Codazzi Geographic Institute -IGAC.
- Collection and packing of water and soil samples: By IGAC technicians or DIRAN for soil samples, and by INS or those trained by INS for that purpose (e.g., DIRAN), for water resources.<sup>11</sup>
- Submission of samples to laboratories: By the technicians who collected the samples.
- Laboratory analyses and results. Two sample reports of each (soil and water) for samples taken before/immediately following spraying and 60 days after spraying are enclosed.<sup>12</sup>
- Compilation of results for the clusters as frequently as set out in the record.<sup>13</sup> The National Narcotics Directorate –DNE submits them to the Ministry for the Environment, Housing and Territorial Development.

With regard to the fulfilment of this record, DIRAN [Anti-Narcotics Police], in the twice-yearly reports submitted to the Ministry for the Environment, Housing and Territorial Development, includes the Records of the monitoring activities, indicating the dates in which they were carried out, the locations where samples were collected, and participating agencies (e.g., IGAC [Agustín Codazzi Geographic Institute], INS [National Health Institute], MAVDT [Ministry for the Environment], DNE [National Narcotics Directorate]).

In turn, the National Narcotics Directorate, in twice-yearly reports, submits the Results of the monitoring activities to the Ministry for the Environment, Housing and Territorial Development.

## **2.6 RECORD No. 6 PROGRAM FOR COMMUNICATION AND SOCIAL MANAGEMENT**

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<sup>11</sup> For every spraying operation in a given cluster, samples are collected from 2 plots prior to, immediately following spraying, and 60 days after spraying. The plots are selected at random.

<sup>12</sup> Appendices 2-5: Samples of Results of Soil and Water Sample Analyses, taken prior to/immediately following spraying and 60 days after spraying.

<sup>13</sup> Record No. 5 provided that samples were to be taken prior to, immediately following and 60 days after spraying and, if necessary –i.e., if residues were found-, at 90 and 180 days after spraying. However, results from analyses on samples taken 30 and 60 days after spraying consistently showed no glyphosate residues. Therefore, since 2007 sample taking after 90 days and after 180 days proved to be unnecessary and was discontinued.

The National Narcotics Directorate – DNE, responsible for compliance with this record, includes the activities carried out to comply with the strategies set forth therein in its twice-yearly reports to the Ministry for the Environment, Housing and Territorial Development, such as: communication through awareness campaigns concerning the drug problem, mobile publicity, distribution of educational material and updates to the webpage, training activities with territorial agencies concerning policy against and impact of illicit crops.

## 2.7 RECORD No. 7 PUBLIC HEALTH PROGRAM

The Ministry of Social Protection, through the National Health Institute -INS, responsible for this record of the PMA, submits twice-yearly reports to the Ministry for the Environment, Housing and Territorial Development on the fulfilment of the various activities required therein. Among these activities, INS conducts the training of territorial entities on appropriate pesticide handling and processing of reports on alleged effects of the PECIG on human health.

## 2.8 RECORD No. 8 CONTINGENCY PLAN

In compliance with this Program, DIRAN [Anti-Narcotics Police], responsible for this record, in the twice-yearly reports submitted to the Ministry for the Environment, Housing and Territorial Development, includes the records of training and teams set up for the prevention and attention of contingencies.

The Ministry for the Environment, Housing and Territorial Development continuously makes verification, control and follow-up on compliance with the aforementioned records.

## 2.9 ACCOMPANIMENT TO THE PRIOR CONSULTATION PROCESS

Taking into account that, according to Colombian legislation, indigenous communities have the right to ancient traditional use of coca leaves and that on some occasions crops planted in their territories exceed those required for such use, a prior consultation process is carried out with indigenous communities in order to determine the eradication method to be applied. This Ministry takes part in this process with the presentation of the Environmental Management Plan of the PECIG Program to these communities so that they are informed about the environmental preservation measures implemented in the Program operation.

The Ministry for the Environment, Housing and Territorial Development, a Colombian Government agency in charge of, among others, guarding the preservation of the environment in its territory and as supervisor of the implementation of the Environmental Management Plan of the Program for the Eradication of Illicit Crops through Aerial Spraying with Glyphosate Herbicide

-PECIG, verifies and controls that the mixture used in the eradication of illicit crops, Gly-41, Cosmoflux 411F, and water, complies with the technical specifications stipulated under Resolution 099 of 2003, which rely upon the field studies carried out by the Colombian Agriculture and Livestock Institute –ICA, and that the PECIG Program has followed the guidelines of the environmental regulations in force on the matter and has been subjected to adequate and continuous environmental controls. The results of environmental monitoring activities conducted as part of the EMP –including the laboratory analyses of the water and soil samples collected in monitored areas-, have shown that the implementation of the PECIG to date does not pose a risk to the environment or to human health, including that of the persons involved in the environmental monitoring who, on account of their tasks, are occasionally directly exposed to the spray mixture. None of them has reported adverse effects on their health as a result of such exposure.

In witness whereof, this report is signed by the Director of Environmental Licenses, Permits and Procedures and the official in charge of the PECIG's Environmental Management Program follow-up, in our capacity as public servants and in charge of supervising the activities described above, entrusted to the Ministry for the Environment, Housing and Territorial Development.

**DIANA MARCELA ZAPATA PÉREZ**

Director of Environmental Licenses, Permits and Procedures  
ID. No. 42.109.722

**JOSE AGUSTIN ZEA PÉREZ**

Agricultural Engineer  
ID. No. 9.519.164  
Responsible for follow-up of the  
PECIG Program's EMP





**Appendix 1 to Annex 70**

**19<sup>TH</sup> VERIFICATION MISSION CONCERNING THE SPRAYING OPERATIONS CONDUCTED  
BETWEEN  
SEPTEMBER 2008 AND FEBRUARY 2009**

**PROGRAM FOR THE ERADICATION OF ILLICIT CROPS BY AERIAL  
SPRAYING WITH GLYPHOSATE HERBICIDE –PECIG-**



**TECHNICAL REPORT**

**19<sup>TH</sup> VERIFICATION MISSION CONCERNING THE SPRAYING  
OPERATIONS CONDUCTED BETWEEN  
SEPTEMBER 2008 AND FEBRUARY 2009**

**TECHNICAL VERIFICATION COMMISSION**

19th Verification Mission concerning the spraying operations conducted between Sept. 2008 and Feb. 2009  
Program for the Eradication of Illicit Crops by aerial Spraying with Glyphosate Herbicide –PECIG--

## **Bogotá, July - 2009**

### **EXECUTIVE SUMMARY**

The biyearly Verification Mission concerning the spraying operations for the eradication of illicit crops has two main objectives: the first, to determine the efficacy of the aerial spraying of glyphosate on coca control; and the second, to monitor the possible collateral effects derived from aerial spraying operations.

This 19th Verification Mission was conducted by a Technical Verification Commission made up by 4 evaluators, 1 on behalf of the United States Government and 3 from Colombia.

The assessed framework comprised spraying operations conducted between September 2008 and February 2009, a period during which 41.306 hectares of illicit crops were sprayed in the provinces of Antioquia, Córdoba, Bolívar, Nariño, Cauca, Guaviare, Meta, Caquetá and Putumayo. The sample, represented in spray lines that were verified, amounted to a ratio of 2 lines for every 1.000 sprayed hectares.

As a result, Field Efficacy was found to be at 92,2% and Swath Efficacy at 96,4%, which indicates that 38.084 hectares of coca crops were effectively controlled. The values were above the 7-year historical average of 89% and has been the highest efficacy achieved since the program for the eradication of illicit crops was implemented, with an accuracy index shown as an Off-Target of 2,2%, an acceptable range within the parameters set out in the Environmental Management Plan.

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2009  
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19th Verification Mission concerning the spraying operations conducted between Sept. 2008 and Feb. 2009  
Program for the Eradication of Illicit Crops by aerial Spraying with Glyphosate Herbicide –PECIG--

## **OBJECTIVE**

To determine and assess the efficacy, effectiveness and collateral effects of the spraying operations conducted in the period comprised between September 2008 and February 2009, under the parameters set out in the Verification Protocol, with the participation of an Inter-Institutional Technical Commission, with the purpose of complying with Record No. 1. "Management of Spraying Operations" of the Environmental Management Plan for the Program for the Eradication of Illicit Crops by aerial Spraying with Glyphosate Herbicide - PECIG- and to establish and implement recommendations to improve the processes of illicit crops eradication.

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## **TECHNICAL VERIFICATION COMMISSION**

The commission was made up by a technical-scientific team qualified on earth sciences, with ample knowledge of agronomical, physiological and environmental aspects relating to the growing of coca, as follows:

Alejandro Reyes (Agronomist), Subdivision of Agricultural Protection and Regulation of the Colombian Farming Institute (ICA).

Mayor Miguel Antonio Tunjano Villarraga (Agronomist), Coordinator of the Verification Group of the Anti-Narcotics Direction of the National Police of Colombia.

Juan Carlos Caldera (Environmental Technician), National Narcotics Directorate.

Charles Helling (Agronomist), United States' Department of State.

## **AUDIT, MONITORING AND FOLLOW-UP**

José Agustín Zea (Agricultural Engineer), Directorate of Environmental Licenses, Permits and Procedures of the Ministry for the Environment, Housing and Territorial Development.

Luís Delgado (Agronomist), External Technical Audit for the Program for the Eradication of Illicit Crops by aerial Spraying with Glyphosate Herbicide (PECIG) of the National Narcotics Directorate.

Andrea Camerún, NAS bureau. United States' Embassy.

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## **1. METHODOLOGY**

### **1.1. Selection of cores and number of spray lines to be verified:**

The cores in which aerial spraying operations were conducted during the semester between September 2008 and February 2009 were selected; once the sprayed area was determined, a minimum optimal number of spray lines was selected; subsequently, codes were assigned to identify each selected spray line in a range comprised between V001 and V175, as shown on Table 1.

No use of Gyrocam was made for this verification. 100% was carried out through direct field reconnaissance.

The ratio of sprayed hectares with regard to verified lines was of 2 lines per every 1.000 sprayed hectares, in compliance with the verification protocol. In total, 86 spray lines were verified.

Table 1. Assessed cores, sprayed hectares, number of verified lines, assigned codes.

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CORE	PROVINCE	SPRAYED AREA	TOTAL VERIFIED LINES	CODES
Antioquia-Cordoba-Bolivar	Antioquia	6.486,50	10	V001-V015
	Cordoba	1.266,38	6	V016-V022
	South Bolívar	1.644,41	6	V023-V030
	<b>Core Total</b>	<b>9.397,29</b>	<b>22</b>	
Cauca-Nariño	Cauca	3.896,01	9	V166-V175
	Nariño	6.970,47	11	V151-V165
	<b>Core Total</b>	<b>10.866,48</b>	<b>20</b>	
Meta-Guaviare	Meta	4.621,46	13	V066-V080
	Guaviare	6.874,70	12	V051-V065
	<b>Core Total</b>	<b>11.496,16</b>	<b>25</b>	
Caqueta-Putumayo	Caqueta	7.550,90	12	V101-V116
	Putumayo	1.994,88	7	V151-V165
	<b>Core Total</b>	<b>9.545,78</b>	<b>19</b>	
<b>TOTAL</b>		<b>41.305,71</b>	<b>86</b>	

### 1.2. Selection and coding of spray lines to be verified:

Once the number of lines to be verified was determined, the Technical Verification Commission jointly selected 86 spray lines at random for the verification; the methodology employed was that set out in the annex protocol *“Methodology for the random selection of spray lines”*, through the use of the ARC VIEW cartographic software.

### 1.3. Assessment parameters:

The parameters that each evaluator assessed correspond to those foreseen in the Environmental Management Plan and were recorded in the following chart:



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<b>XVI NATIONAL VERIFICATION MISSION</b>				
<b>Selected Field</b> [Aerial photograph of plot]				
	<b>Efficacy</b> Field___% Swath___% Off-Target___%			
	<b>Collateral Effects:</b> Mild___% Moderate___% Severe___%			
	<b>Vegetation Covers:</b> Associated_____			
	Interspersed_____			
	Re-vegetated_____			
	Other_____			
<b>V122</b>	<b>-72.84772, 2.70801</b>			
	<b><u>Puerto Concordia – Site V 122</u></b>			
	<b>Potential Expansion:</b> Re-planting_____			
	Cropping_____			
	Seedbeds_____			
	Clearing or Burning_____			
<b>ID</b>	<b>LATITUDE</b>	<b>LONGITUDE</b>	<b>DATE</b>	<b>LINE (m.)</b>
V122	2 42 28.83	72 50 51.80	04/06/2007	587.6
<b>LOCATION</b>		<b>AIRCRAFT</b>		<b>CODE</b>
Puerto Concordia (META)		OV-10		F047Y8AC.B99
<b>Water Bodies:</b> Lentico*_____ Lotico*_____				
<b>Facilities:</b> Housing_____ Camps_____ Laboratories_____				
<b>Evaluator</b> _____		<b>Field Geo-referencing</b>		
<b>Date</b> _____		<b>Comments:</b>		
<b>Time</b> _____		Latitude_____		
		Longitude_____		
		_____		
		_____		
		_____		

[\*T.N.: *SISTEMA LÉNTICO*: This denomination includes habitats as wetlands, marshes, lakes, lagoons, pools, i.e., water bodies, usually with emerging aquatic vegetation. *SISTEMA LÓTICO*: Includes habitats of running waters, such as rivers, brooks and streams without emerging aquatic vegetation.]

#### 1.4. In situ verification:

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It was done with the use of 3 helicopters. One of the helicopters located the centre of the spray line and identified it with a smoke grenade; subsequently, the helicopter carrying the Assessment Technical Commission would enter and register the data specified on the evaluation chart; the third helicopter fulfilled escort and security duties.

## **2. RESULTS AND ANALYSIS**

The field verification was carried out in two stages; one, from 24 March to 1 April 2009 covering the spray lines (assessed fields) selected for the provinces of Antioquia, Córdoba, Bolívar, Nariño, Cauca, Guaviare and Meta. Due to security conditions, the second stage was carried out between 13 and 15 May 2009, covering the spray lines selected for the provinces of Caquetá and Putumayo.

Time elapsed in days between spraying and assessment date, ranged between a minimum of 30 days and a maximum of 210 days.

As stated, the ratio of sprayed hectares with respect to verified lines was of 2 lines for every 1.000 sprayed hectares, in compliance with the verification protocol.

### **2.1. Spraying Efficacy.**

#### **Field Efficacy (FE):**

Understood as the percentage of the illicit coca crop subject to spraying showing plant symptoms typical of Glyphosate herbicide (Necrosis and/or yellowing), it was 92.2%. This indicates that out of 41.306 hectares reported as sprayed by the DELNORTE system, 38.084 hectares were controlled by aerial spraying; or, on average, 7.8% of the area cultivated with coca was not fully affected by aerial spraying due to irregularly shaped plots, presence of trees amongst the crops and/or to avoid collateral effects in neighbouring vegetation.

#### **Swath Efficacy (SE):**

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Understood as the percentage of the illicit coca crop covered by the spraying that showed total plant death on the date of verification, it was 96.4%. That means that out of 38.084 hectares covered by aerial spraying, 36.717 hectares were definitively eradicated and 1.367 hectares were affected (non-productive area with possible recovery).

Table 2 shows that the greatest field and swath efficacy was evidenced for the Caquetá-Putumayo core, since the topography is plain, the coca crops are not as irregular and do not possess natural barriers limiting the spraying. The core that showed the lowest values was that of Guaviare-Meta, that in the last verification mission had shown the highest value. This is due to the fact that the conditions for re-establishing crops are favouring smaller plots, including the possibility of different climate conditions.

*Table 2. Field and Swath Efficacy per province and core:*

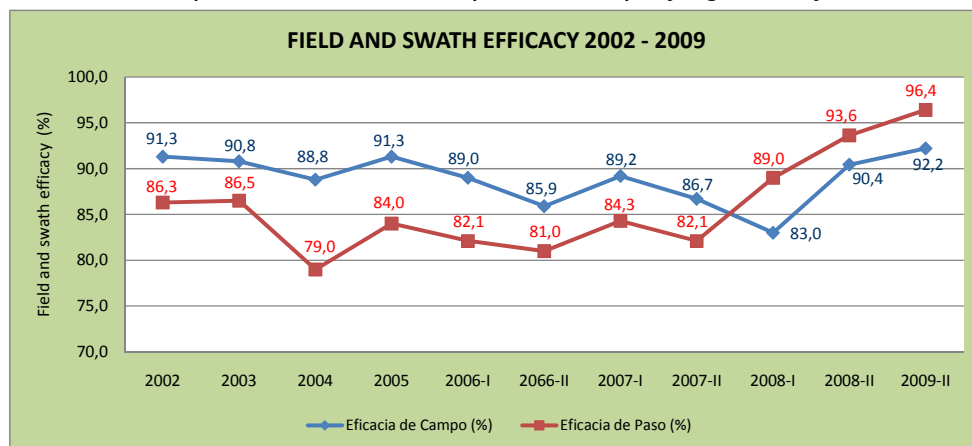
CORE	PROVINCE	FIELD EFFICACY (%)	SWATH EFFICACY (%)
Antioquia-Cordoba-Bolivar	Antioquia	91,57	95,93
	Cordoba	87,83	96,54
	Sur Bolívar	92,45	96,72
	<b>Promedio Nucleo</b>	<b>90,62</b>	<b>96,40</b>
Cauca-Nariño	Cauca	93,89	96,92
	Nariño	94,09	96,36
	<b>Promedio Nucleo</b>	<b>93,99</b>	<b>96,64</b>
Meta-Guaviare	Meta	88,13	94,15
	Guaviare	92,06	96,40
	<b>Promedio Nucleo</b>	<b>90,10</b>	<b>95,28</b>
Caqueta-Putumayo	Caqueta	93,27	96,94
	Putumayo	94,89	97,71
	<b>Promedio Nucleo</b>	<b>94,08</b>	<b>97,33</b>
<b>GENERAL AVERAGE</b>		<b>92,20</b>	<b>96,41</b>

Graphic 1 shows how Field and Swath Efficacy have shown a significant increase in the past two years. Moreover, swath efficacy is greater than field efficacy, which indicates an improvement in the spraying technique over the coca plots targeted for control. This result is due to the continued training and evaluation of the spray pilots, as well as the total availability of AT-802 aircraft in spray missions.

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*Graphic 1. Historical comparison of spraying efficacy 2002-2009.<sup>1</sup>*



## 2.2. Drift and Accuracy Index.

Drift was estimated with the Off-Target (OT) indicator, that calculates the percentage of vegetation cover other than coca that was affected with regard to the coca plot subject to control. The average obtained in the verification mission was of 2.23%. This indicator allows for concluding that for every sprayed coca hectare, 0,022 hectares of a different [vegetation] cover were affected. This range falls within what is considered as acceptable in Record [1] of the Environmental Management Plan that foresees a range of 5.

*Table 3. Off-target values per province and core.*

<sup>1</sup> [T.N. Blue is Field Efficacy, Red is Swath Efficacy]

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CORE	PROVINCE	FIELD EFFICACY (%)	SWATH EFFICACY (%)	OFF-TARGET (%)
Antioquia-Cordoba-Bolivar	Antioquia	91,57	95,93	4,60
	Cordoba	87,83	96,54	6,88
	Sur Bolívar	92,45	96,72	3,70
	<b>Core Average</b>	<b>90,62</b>	<b>96,40</b>	<b>5,06</b>
Cauca-Nariño	Cauca	93,89	96,92	2,11
	Nariño	94,09	96,36	1,09
	<b>Core Average</b>	<b>93,99</b>	<b>96,64</b>	<b>1,60</b>
Meta-Guaviare	Meta	88,13	94,15	1,46
	Guaviare	92,06	96,40	1,23
	<b>Core Average</b>	<b>90,10</b>	<b>95,28</b>	<b>1,35</b>
Caqueta-Putumayo	Caqueta	93,27	96,94	0,81
	Putumayo	94,89	97,71	1,04
	<b>Core Average</b>	<b>94,08</b>	<b>97,33</b>	<b>0,93</b>
<b>GENERAL AVERAGE</b>		<b>92,20</b>	<b>96,41</b>	<b>2,23</b>

Table 3 shows that the highest drift (off-target) value was registered in the Antioquia-Córdoba-Bolívar core, that also showed one of the lowest field and swath efficacy figures. One of the reasons is the abrupt [uneven] topography of the core, added to a decrease in plots size and their irregularity. The value falls within the limit allowed in the Environmental Management Plan parameters.

With regard to the Accuracy Index (AI)<sup>2</sup>, defined as the quotient of the total sprayed area over the area targeted for control, it is not possible to determine it since the official data for detection do not coincide in terms of time with the spraying dates of the corresponding cores or provinces. In general terms, spraying figures were higher than detection figures for a given time frame, which would suggest an AI close to 200%, that is, excess efficacy, or a disproportionate over-spraying.

Therefore, two accuracy indexes are provided, one for field efficacy, of 0,92, and another with regard to off-target, of 1,23.

## 2.4. Re-planting and renewal of sprayed plots.

<sup>2</sup> Record No. 1 of the Environmental Management Plan. Resolution 1054 of 2003. Ministry for the Environment, Housing and Territorial Development.

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This category uses factors predicting the probability of growers renewing or restoring their coca crops through cropping or re-planting, the existence of coca green-houses (seedbeds), or changes in the surrounding vegetation that allows for predicting a possible expansion of the crop, such as clearing, burning or both. The data are summarized on Table 4.

*Table 4. Percentages of renewal and/or expansion of sprayed coca crops in the September 2008-February 2009 period.*

Province	N ° of Fields	Renewal %			Greenhouses (seedbeds)%	New clearing, burn %
		Re-planting	Cropping	Sum*		
Antioquia	10	0	40	40	0	20
Bolívar	6	0	33	33	17	50
Caquetá	12	33	42	75	0	8
Cauca	9	11	67	67	0	11
Córdoba	6	0	50	50	17	33
Guaviare	12	25	83	83	8	25
Meta	13	23	62	62	15	23
Nariño	11	9	54	54	0	0
Putumayo	7	43	57	71	0	14
<b>AVERAGE</b>	<b>86</b>	<b>16</b>	<b>54</b>	<b>59</b>	<b>6</b>	<b>20</b>

\* The sum takes account of the fact that some of the sprayed lots show re-planting and cropping simultaneously.

Table 4 evidences that the renewal rate of crops was 59%, which indicates that once the coca plots were sprayed, 43% were successfully cropped, 11% showed successful cropping and re-planting of new plants simultaneously, and 5% showed only re-planting with new plants.

In most cases, it was observed that the plot was renewed in a smaller size than that of the original subject to spraying.

Cropping is most representative, since immediately following the spraying, the growers cut the stalk some 10 centimetres off the ground to prevent glyphosate from reaching the roots so the plant can grow new stems and leaves, although at

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least two to three harvests will be missed and the amount of leafs in coming harvests will decrease considerably.

Renewal values under the national average were registered in the provinces of Bolívar, Antioquia and Nariño; possibly, because aerial spraying and manual eradication operations have strongly continued there.

The percentage of seedbeds presence in or around sprayed coca plots was extremely low (6%), and even zero for the provinces of Antioquia, Caquetá, Cauca, Nariño and Putumayo. This result allows us to state that the seedbeds must be camouflaged or outside the crops area to avoid being destroyed by spraying or manual eradication operations.

The slashing, burning and clearing of forest areas close to coca crops are indicators of the intent to continue or enhance coca production. In general terms, 20% of the sites showed such a trend. The most serious threat was observed in southwest Bolívar, where large-scale deforestation was seen in a large part of the assessed zone (50%9), followed by Córdoba (33%).

In Nariño the slash and burn phenomenon was not observed, possibly due to the continuance of aerial spraying and manual eradication operations, which drives the growers to move to other regions rather than investing in the expansion or rotation of the coca crops, running the risk of their being eradicated before obtaining at least one harvest.

In Guaviare and Meta what can be seen is a clearing of areas for setting up pastures.

## **2.5. Vegetation covers.**

This indicator allows for determining other vegetation covers that are associated with coca crops and to verify which are established when coca plots have been completely controlled or eradicated.

Certain general conclusions from Table 5 follow, more closely related to field observations:

28 out of 86 fields (33%) had lawful crops or relatively close to the coca field. Only 3 showed lawful crops associated with illicit coca crops.

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Pasture is the most common vegetation associated with illicit coca crops, particularly Meta-Guaviare, although in Caquetá it was corn, planted in part of or the entire field following successful eradication of coca.

Plantain was the most common crop found within a coca field. Some may have been natural (following the cleaning of the original site), so the 10% estimate might be slightly high.

*Table 5. Vegetation in 86 coca fields sprayed between September 2008-February 2009 in Colombia.*

Province	N ° of Fields	Incidence of lawful crops,%		Re-vegetation state,% in each category				
		Associated (Close to the plantation)	Interspersed (Within the plantation)	0	1	2	3	4
				No regrowth or eliminated	Pastures	Small bushes%	Larger bushes and trees	Mixed categories, generally, 0 and 1)
Antioquia	10	0	10	30	60	10	0	0
Bolívar	6	0	0	50	33	0	0	17
Caquetá	12	58	33	33	58	8	0	0
Cauca	9	11	0	78	11	11	0	0
Córdoba	6	17	33	33	50	17	0	0
Guaviare	12	42	0	50	25	17	0	8
Meta	13	31	0	23	62	0	0	15
Nariño	11	9	18	18	45	9	9	18
Putumayo	7	0	43	43	0	43	0	14
<b>Average</b>	<b>86</b>	<b>22</b>	<b>10</b>	<b>38</b>	<b>41</b>	<b>12</b>	<b>1</b>	<b>8</b>

Other crops observed along coca crops are yucca and sugarcane.

The oldest coca production areas in Colombia, as are, Meta (31%), Guaviare (42%), Caquetá (75%) and Putumayo (43%), had the highest proportion of illicit crops in or near coca fields. As opposed to the newer areas such as Bolívar (0%), Antioquia (10%), western Cauca (11%) and Nariño (27%), that still had very low percentages of subsistence or commercial crops. Córdoba is a relatively new scenario, but there was a 33% incidence of lawful crops.



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## 2.6. Superficial waters.

Another measurable indicator in the verification process is the presence of water sources, whether within or close to the coca plots subject to spraying. Two types of sources are identified, a *lotica* for waters with currents (streams, drainages, or rivers) and another, *lentica*, for still waters (ponds or wells opened by the growers).

According to the results show non Table 6, it is possible to conclude that:

Superficial waters were registered in or near coca plots in approximately half of the verified sites (45%).

*Lentica* sources are more prevalent (41%), than *lotica* sources (9%).

Table 6. Presence of water sources within or near sprayed coca plots in the September 2008-February 2009 period in Colombia.

Province	N ° of Fields	Percentage		
		<i>Lénticos</i> (static)	<i>Lóticos</i> (fluid)	Total
Antioquia	10	0	80	80
Bolívar	6	0	50	50
Caquetá	12	33	50	50
Cauca	9	0	56	56
Córdoba	6	17	33	50
Guaviare	12	8	17	25
Meta	13	8	23	31
Nariño	11	0	18	18
Putumayo	7	14	57	71
<b>AVERAGE</b>	<b>86</b>	<b>9</b>	<b>41</b>	<b>45</b>

Although the provinces of Bolívar and Nariño show the presence of coca crops near lakes during this verification mission, these water sources were located at over 100 meters off the sprayed areas.

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Nariño had an incidence of 18% presence of water sources, much lower than expected, because a large part of western Nariño is located in low and flat lands, inundated for most of the year, which is unfavourable for coca. Generally, the growers establish coca crops in hilly areas where the crops grow more successfully.

Superficial water was evidenced even in very small areas that the growers open up in the middle of the field such as wells (dug out for irrigation or mixing of chemicals). 9% of the estimate were *lentic* water sources, that have the highest risk of contamination, since any herbicide will remain deposited until eliminated through degradation or adsorption processes. By contrast, residues reaching *lotica* waters are swiftly dissipated through dilution and fluvial transport.

## 2.6. Facilities

For the assessment, facilities within or near the sprayed coca plots were taken into account. According to the verification protocol, they are classified in three levels: housing type (with windows, doors and household implements), *cambuches* (without doors, windows or household implements) and laboratories or "kitchens" (with plastic or zinc roofs, with no walls and with or without implements for [coca] processing).

Laboratories (kitchens) are used to process the coca leaf into coca paste and/or even base. They are often hidden in the forest, can have black plastic or hay-thatched roofs, and there is some evidence with regard to chemicals, such as plastic drums or brown dried leaf residues from where the alkaloid was extracted.

Laboratories are often located closet o streams, becoming important non-incident contamination sources. Structures of this type, where the coca plot was controlled or abandoned were included in the classification.

*Table 7. Structures in/near 86 coca plots sprayed between September 2008-February 2009 in Colombia.*

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Province	No. of Fields	Percentage			
		Housing	<i>Cambuches</i>	Laboratories	Total Facilities
Antioquia	10	50	10	50	60
Bolívar	6	83	33	50	83
Caquetá	12	50	8	50	58
Cauca	9	78	22	11	78
Córdoba	6	50	0	17	50
Guaviare	12	42	33	25	42
Meta	13	38	31	23	38
Nariño	11	36	27	18	55
Putumayo	7	29	29	43	57
<b>AVERAGE</b>	<b>86</b>	<b>49</b>	<b>22</b>	<b>31</b>	<b>56</b>

Table 7 presents the results of the assessment of facilities and allowing for the following conclusions:

Over half (56%) of the coca fields had one or more associated facilities at or near the site.

Housing facilities were found at or very near 49% of the fields.

Laboratories were detected in 31% of the sites; on average, 1 service laboratory for every 3 coca fields. Laboratories, due to their nature, are often hidden, so the actual percentage of laboratories can be over 35%.

*Cambuches* or huts were observed in 22% of the sites.

The highest percentages of presence of housing-type facilities were found in the provinces of Bolívar (83%) and western Cauca (78%). In the case of Nariño (36%) it was found that most of the housing facilities are small and are located on river borders.

Putumayo shows a low percentage (29%), probably because they assemble in small settlements and/or a single owner operates multiple plots with lawful and illicit crops.

For Guaviare and Meta that show a value of 12[%], they are similar in weather

19th Verification Mission concerning the spraying operations conducted between Sept. 2008 and Feb. 2009  
Program for the Eradication of Illicit Crops by aerial Spraying with Glyphosate Herbicide –PECIG--

and trends in coca production. This includes housing and other facilities. Since these are often areas for livestock production, it is less likely for housing facilities to be found in or adjacent to coca fields and they are more likely found closer to pastures.

Cauca shows a very low value for laboratories (11%), probably due to coca leaf transformation possibly being concentrated in hidden and centralized locations.

### 3. RESULTS AND RECOMMENDATIONS.

- Achieved Field Efficacy was 92,2% and 96,4% for Swath [Efficacy], which indicates that 38.084 hectares of coca crops were effectively controlled. The figures were above the 7-year historical average of 89% and it has been the highest efficacy ever achieved in the course of the program for the eradication of illicit crops.
- The accuracy index represented as Off-Target was 2,2%, an acceptable range within the parameters set out in the Environmental Management Plan.
- Not a single spray line was found to be over a [vegetation] cover other than illicit coca crops. 100% were over plantations targeted for control (Coca).
- Crop renewal, understood as successful re-planting or cropping following spraying was 59%, which indicates that nearly 24.000 hectares were recovered with new coca crops. Therefore, it is necessary to continue follow-up on sprayed areas in order to plan new aerial and/or manual eradication operations and counteract this re-planting phenomenon. Renewal of sprayed crops is most often done through cropping (45%), only 9% through new plants and 11% combined (cropping and new plants).
- 41% showed third-level *lotico* water sources near the sprayed plot and 9% [showed] *lentico*-type (artificial wells for crops management).
- 49% of the assessed plots evidenced housing-type facilities near the plots subject to verification, 22% [evidenced] *cambuche*-type facilities and 31% kitchen-type [facilities] for processing coca leaves.

19th Verification Mission concerning the spraying operations conducted between Sept. 2008 and Feb.  
2009  
Program for the Eradication of Illicit Crops by aerial Spraying with Glyphosate Herbicide –PECIG--

- It is important to divulge the results of the verification with the spray pilots personnel to increase the accuracy index in spraying a greater percentage of the areas with coca crops.
- Record 1 of the Environmental Management Plan, referring to the verification process, set out by the Ministry for the Environment, Housing and Territorial Development, was complied with.



## Appendix 2 to Annex 70

### SAMPLE OF RESULTS OF SOIL SAMPLE ANALYSIS TAKEN PRIOR TO / IMMEDIATELY FOLLOWING THE SPRAYING (N° 1972/08)

[Logo] ENVIRONMENTAL MONITORING CHEMICAL LABORATORY

#### ANALYSIS RESULTS

DATE	BOGOTÁ, 7 APRIL 2008
COMPANY	UNITED STATES EMBASSY, NAS [Narcotics Affairs Section]
REQUESTED BY	Mr. GUSTAVO VARGAS
FAX/TELEPHONE	383 2258
ADDRESS	Cra. 45 No.22d-45 Bogotá
ANALYSIS REQUESTED SOIL SAMPLES	GLYPHOSATE AND AMPA ANALYSIS IN
SAMPLE	SEE CHART 1
RESPONSIBLE OF SAMPLING	ANTINARCOTICS DIRECTION
TYPE OF SAMPLING	SPECIFIC
DATE OF SAMPLING	8 FEBRUARY 2008
DATE RECEIVED	12 MARCH 2008
SAMPLING LOCATION	SEE CHART 1

[Page 1]

No. 1972/08

### 1. SAMPLES IDENTIFICATION

The analyzed samples correspond to two (2) soil samples collected for the Monitoring Program of the United States Embassy of herbicide glyphosate and its metabolite aminomethylphosphonic acid (AMPA) in soils. Chart 1 describes the analyzed samples.

**Chart 1. Samples identification**

LAQMA CODE	Field code	Coordinates	Date received
LQ7188	MON-DENAR-080208-ID01-BEFORE SOIL		12 March
LQ7189	MON-DENAR-080208-ID01-AFTER-0- SOIL		2008

## 2. MATERIALS AND EQUIPMENT

2.1 A) Reactives. Certified standard of analyzed compound: Glyphosate N-(Phosphonomethyl) glycine trade mark Dr. Ehrenstorfer Lot 40401,  $98 \pm 0.5\%$  purity; aminomethylphosphonic acid (AMPA) trade mark Dr. Ehrenstorfer Lot 21104; derivatization reactive p-toluenesulfonyl chloride trade mark SIGMA-ALDRICH, purity 99%, lot 13224 EC.

[Page 2]

b) Organic solvents for extraction, purification, and reading mobile phase by HPLC were all HPLC level.

2.2 Equipment. Shimadzu Liquid Chromatographer Model LC-6A, equipped with two high pressure pumps, Auto injector Sil 6B, ultraviolet detector UV-160A of variable wave longitude; Controlling System SCL-6B, and Chromatopac C-R6A as signal integrator.

## 3. METHODOLOGY OF SAMPLE ANALYSIS AND TREATMENT.

Chart two shows the methodology used for Glyphosate and AMPA analysis in soil samples.

### **Chart 2. Analysis methodology used, preservatives, and storage time.**



PARAMETER	ANALYSIS TECHNIQUE	REFERENCE METHOD	PRESERVATION AND MAXIMUM STORAGE TIME UNTIL ANALYSIS
Glyphosate herbicide / AMPA	Solid-liquid extraction	J.AOAC INT. 1989, 72, No 2 355	14 days until extraction / 40 days after extraction

Preliminary pre-treatment of samples. Before analysis, samples were homogenized, passed through a sieve No. 5 (4,0 mm) of the ASTM series and the humidity content was reduced below 10% at room temperature in order to avoid loss of compounds of interest.

Extraction of Glyphosate and AMPA in soil. The extraction treatment applied corresponds to soil samples with high contents of clay and organic material according to the texture classification of the samples sent by the Agustin Codazzi National Geographic Institute. 25 grams of the sample were weighed and put under extraction with KOH 0.2M for 15 minutes. The sample was centrifuged at 1500 rpm and filtered with fiberglass filter paper. Residue was put under extraction, centrifuging, and filtering again. The extract obtained was concentrated up to 5 ml and was passed through a OH<sup>-</sup> form anion exchange column. The analyte of interest was eluted with HCl 0.5M; the extract obtained was dried and was re-dissolved in 2 ml of the mobile phase used in reading by HPLC.

Then, the obtained extract was derivatized in order to determine Glyphosate and AMPA compounds of interest.

[Page 3]

Derivatization. Standards of Glyphosate and AMPA as well as the sample extracts were put under the derivatization process p-toluenesulfonyl chloride under alkaline conditions. 1 ml of the extract taken to alkaline conditions with phosphate Buffer pH 11.2. 0.2 ml of the p-toluenesulfonyl chloride reactive was added and was taken to reaction at 50 °C for 5 minutes in thermostat bath.

Quantification of Glyphosate and AMPA. Quantification was made by the external standard method using calibration curve in the 10 – 30 ng/μl range of the derivatives of Glyphosate- paratoluenesulfonyl chloride and AMPA- paratoluenesulfonyl chloride prepared based on the certified standard Dr. Dr. Ehrenstorfer GMBH.

Reading conditions by HPLC. A Nucleosil Column C<sub>18</sub> 250 x 4.6 mm i.d., phosphate buffer pH 2.3 – Acetonitrile 85:15 v/v. 1.0 ml/min flow. Injection volume: 10 µL. Reading wave longitude 235 nm were used.

#### 4. RESULTS

Table 1. shows the results obtained from the Glyphosate and AMPA analysis in the analyzed soil samples.

Table 1. Results of Glyphosate and AMPA analysis in two (2) soil samples. United States Embassy, Narcotics Affairs Section – March 2008.

SAMPLE IDENTIFICATION		UNITS	RESULT		DETECTION LIMIT	
LAQMA CODE	Client Identification		Glyphosate	AMPA	Glyphosate mg/kg	AMPA mg/kg
LQ7188	MON-DENAR-080208-ID01-BEFORE SOIL	mg/kg	N.D	N.D	0.8	0.4
LQ7189	MON-DENAR-080208-ID01-AFTER-0- SOIL	mg/kg	6.97	N.D		

#### UNITS

mg/kg = Milligrams of compound of interest per kilogram of sample analyzed or ppm (parts per million).

N.D Not detectable up to the detection limit of the method used.

<MDL Lower than the Minimum Detection Level

#### Notice:

Report valid for described analyses; no reprinting without the laboratory's authorization

#### 5. OBSERVATIONS REGARDING THE RESULTS

The samples were submitted to the laboratory by the client and were analyzed just as they were received

[Page 4]

Sincerely,

[Signed]  
MARTA CARPINTERO  
ENVIRONMENTAL CHEMIST M.Sc.  
PQ-0569

[Signed]  
OMAR TRUJILLO C.  
ANALYST CHEMIST  
T.Q. 053



**Appendix 3 to Annex 70****SAMPLE OF RESULTS OF SOIL SAMPLE ANALYSIS TAKEN SIXTY DAYS AFTER SPRAYING  
(N° 2125/08)**

[Page 1]

[Logo ] ENVIRONMENTAL MONITORING CHEMICAL LABORATORY

**ANALYSIS RESULTS**

DATE	BOGOTÁ, 17 DECEMBER 2008
COMPANY	AGUSTIN CODAZZI NATIONAL GEOGRAPHIC INSTITUTE
REQUESTED BY	Mr. JORGE ALBERTO SANCHEZ E – Chairman, Soils National Division
ADDRESS	Cra. 30 No.48-51
FAX/TELEPHONE	396 4016
E-MAIL	jasanchez@igac.gov.co
ANALYSIS REQUESTED SOIL SAMPLE	GLYPHOSATE AND AMPA ANALYSIS IN
SAMPLE	SEE CHART 1
RESPONSIBLE OF SAMPLING GEOGRAPHIC INSTITUTE	AGUSTIN CODAZZI NATIONAL
TYPE OF SAMPLING	SPECIFIC
DATE OF SAMPLING	30 OCTOBER 2008
DATE RECEIVED	26 NOVEMBER 2008 (15:20 H)

No. 2125/08

**1. SAMPLES IDENTIFICATION**

The analyzed samples correspond to two (2) soil samples collected for the Monitoring Program of the United States Embassy of herbicide glyphosate and its metabolite aminomethylphosphonic acid (AMPA) in soils. Chart 1 describes the analyzed samples.

**Chart 1. Samples identification**

<b>LAQMA CODE</b>	<b>Field code</b>	<b>Coordinates</b>
LQ7534	MON-DECAQ-301008-ID01-DESP[AFTER]-60-SUELO[SOIL]	01°21'60"N 75°51'40" W
LQ7535	MON-DECAQ-301008-ID01-DESP[AFTER]-60-SUELO[SOIL]	01°21'38"N 75°51'36" W

## 2. MATERIALS AND EQUIPMENT

2.1 A) Reactives. Certified standard of analyzed compound: Glyphosate N-(Phosphonomethyl) glycine trade mark Dr. Ehrenstorfer Lot 40401, 98 ± 0.5% purity; aminomethylphosphonic acid (AMPA) trade mark Dr. Ehrenstorfer Lot 21104, 98 ± 0.5% purity; derivatization reactive p-toluenesulfonyl chloride trade mark SIGMA-ALDRICH, purity 99%, lot 13224 EC.

b) Organic solvents for extraction, purification, and reading mobile phase by HPLC were all HPLC level.

[Page 2]

2.2 Equipment. Shimadzu Liquid Chromatographer Model LC-6A, equipped with two high pressure pumps, Auto injector Sil 6B, ultraviolet detector UV-160A of variable wave longitude; Controlling System SCL-6B, and Chromatopac C-R6A as signal integrator.

## 3. METHODOLOGY OF SAMPLE ANALYSIS AND TREATMENT.

Chart two shows the methodology used for Glyphosate and AMPA analysis in soil samples.

**Chart 2. Analysis methodology used, preservatives, and storage time.**

<b>PARAMETER</b>	<b>ANALYSIS TECHNIQUE</b>	<b>REFERENCE METHOD</b>	<b>PRESERVATION AND MAXIMUM STORAGE TIME UNTIL ANALYSIS</b>

Glyphosate herbicide / AMPA	Solid-liquid extraction	J.AOAC INT. 1989, 72, No 2 355	14 days until extraction / 40 days after extraction
-----------------------------	-------------------------	--------------------------------	---

**Preliminary pre-treatment of samples.** Before analysis, samples were homogenized, passed through a sieve No. 5 (4,0 mm) of the ASTM series and the humidity content was reduced below 10% at room temperature in order to avoid loss of compounds of interest.

**Extraction of Glyphosate and AMPA in soil.** The extraction treatment applied corresponds to soil samples with high contents of clay and organic material according to the texture classification of the samples sent by the Agustin Codazzi National Geographic Institute. 25 grams of the sample were weighed and put under extraction with KOH 0.2M for 15 minutes. The sample was centrifuged at 1500 rpm and filtered with fiberglass filter paper. Residue was put under extraction, centrifuging, and filtering again. The extract obtained was concentrated up to 5 ml and was passed through a OH<sup>-</sup> form anion exchange column. The analyte of interest was eluted with HCl 0.5M; the extract obtained was dried and was re-dissolved in 2 ml of the mobile phase used in reading by HPLC.

Then, the obtained extract was derivatized in order to determine Glyphosate and AMPA compounds of interest.

**Derivatization.** Standards of Glyphosate and AMPA as well as the sample extracts were put under the derivatization process p-toluenesulfonyl chloride under alkaline conditions. 1 ml of the extract was put in alkaline conditions with phosphate Buffer pH 11.2. 0.2 ml of the p-toluenesulfonyl chloride reactive was added and was taken to reaction at 50 °C for 5 minutes in thermostat bath.

**Cuantification of Glyphosate and AMPA.** Quantification was made by the external standard method using calibration curve in the 10 – 30 ng/μl range of the derivates of Glyphosate- paratoluenesulfonyl chloride and AMPA- paratoluenesulfonyl chloride prepared based on the certified standad Dr. Dr. Ehrenstorfer GMBH.

[Page 3]

**Reading conditions by HPLC.** A Nucleosil Column C<sub>18</sub> 250 x 4.6 mm i.d. were used, phosphate buffer pH 2.3 – Acetonitrile 85:15 v/v. 1.0 ml/min flow.

Injection volume: 10 μL.

Reading wave longitude 235 nm.

#### 4. RESULTS

Table 1. shows the results obtained from the Glyphosate and AMPA analysis in the analyzed soil samples.

Table 1. Results of Glyphosate and AMPA analysis in two (2) soil samples. United States Embassy, Narcotics Affairs Section – March 2008.

SAMPLE IDENTIFICATION		UNITS	RESULT		DETECTION LIMIT	
LAQMA CODE	Client Identification		Glyphosate	AMPA	Glyphosate mg/kg	AMPA mg/kg
LQ7534	MON-DECAQ-301008-ID01-DESP[AFTER]-60-SUELO[SOIL]	mg/kg	N.D	N.D	0.8	0.4
LQ7535	MON-DECAQ-301008-ID01-DESP[AFTER]-60-SUELO[SOIL]	mg/kg	N.D	N.D		

#### UNITS

mg/kg = Milligrams of compound of interest per kilogram of sample analyzed or ppm (parts per million).

N.D Not detectable up to the detection limit of the method used.

<MDL Lower than the Minimum Detection Level

#### Notice:

Report valid for described analyses; no reprinting without the laboratory's authorization

#### 5. OBSERVATIONS REGARDING THE RESULTS

The samples were submitted to the laboratory by the client and were analyzed just as they were received

[Page 4]

Sincerely,

[Signed]  
MARTA CARPINTERO  
ENVIRONMENTAL CHEMIST M.Sc.

[Signed]  
OMAR TRUJILLO C.  
ANALYST CHEMIST



PQ-0569

T.Q. 053



## Appendix 4 to Annex 70

### SAMPLE OF RESULTS OF WATER ANALYSIS TAKEN PRIOR TO / IMMEDIATELY FOLLOWING THE SPRAYINGS (N°1951/08)

[Page 1]

[Logo ] [ENVIRONMENTAL MONITORING CHEMICAL  
LABORATORY]

#### ANALYSIS RESULTS

DATE	BOGOTÁ, FEBRUARY 22 2008
COMPANY	UNITED STATES EMBASSY, NAS [Narcotics Affairs Section]
REQUESTED BY	Mr. GUSTAVO VARGAS
FAX	-
TELEPHONE	383 2258
ADDRESS	Cra. 45 No.22d-45 Bogotá
ANALYSIS REQUESTED	GLYPHOSATE AND AMPA ANALYSIS IN SOIL SAMPLES
SAMPLE	SEE CHART 1
RESPONSIBLE OF SAMPLING	ANTINARCOTICS DIRECTION
TYPE OF SAMPLING	SPECIFIC
DATE OF SAMPLING	8 FEBRUARY 2008
DATE RECEIVED	13 FEBRUARY 2008
SAMPLING LOCATION	SEE CHART 1

No. 1951/08

#### 1. SAMPLES IDENTIFICATION

The analyzed samples correspond to two (2) water samples collected for the Monitoring Program of the United States Embassy on glyphosate herbicide and its metabolite aminomethylphosphonic acid (AMPA) in water. The

samples were sent by the Antinarcotics Direction of the Colombian National Police to LAQMA Ltda. [ENVIRONMENTAL MONITORING CHEMICAL LABORATORY].

**Chart 1. Samples identification**

LAQMA CODE	Field code	Coordinates	Date Received
LQ7124	MON-DENAR-080208-ID01- ANTES[BEFORE]- AGUA[WATER]LOT	01°50'22.2"N 78°29'59.9" W	13 February 2008
LQ7125	MON-DENAR-080208-ID01- DESP[AFTER]-0- AGUA[WATER]LOT	01°50'22.2"N 78°29'59.9" W	

## 2. MATERIALS AND EQUIPMENT

2.1 A) Reactives. Certified standard of analyzed compound: Glyphosate N-(Phosphonomethyl) glycine trade mark Dr. Ehrenstorfer Lot 40401, 98 ± 0.5% purity;

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aminomethylphosphonic acid (AMPA) trade mark Dr. Ehrenstorfer Lot 21104, 98 ± 0.5% purity; derivatization reactive p-toluenesulfonyl chloride trade mark SIGMA-ALDRICH, purity 99%, lot 13224 EC.

b) Organic solvents for extraction, purification, and reading mobile phase by HPLC were all HPLC level.

2.2 Equipment. Shimadzu Liquid Chromatographer Model LC-6A, equipped with two high pressure pumps, Auto injector Sil 6B, ultraviolet detector UV-160A of variable wave longitude; Controlling System SCL-6B, and Chromatopac C-R6A as signal integrator.

## 3. METHODOLOGY OF SAMPLE ANALYSIS AND TREATMENT.

Chart two shows the methodology used for Glyphosate and AMPA analysis in water samples.

**Chart 2. Analysis methodology used, preservatives, and storage time.**

PARAMETER	ANALYSIS TECHNIQUE	REFERENCE METHOD	PRESERVATION AND MAXIMUM STORAGE TIME UNTIL ANALYSIS
Glyphosate herbicide / AMPA	HPLC Derivatization with p-toluenesulfonyl chloride	J. Chrom. 540 (1991) 411-415	14 days until extraction / 40 days after extraction

**Glyphosate and AMPA determination.** For Glyphosate and AMPA determination, derivatization with p-toluenesulfonyl chloride was made under alkaline conditions. 1 ml of the sample was put in alkaline conditions with phosphate Buffer pH 11.2. 0.2 ml of the p-toluenesulfonyl chloride reactive was added and was taken to reaction at 50 °C for 5 minutes in thermostat bath.

**Quantification of Glyphosate and AMPA.** Quantification was made by the external standard method using calibration curve in the 10 – 30 ng/μl range of the derivates of Glyphosate- paratoluenesulfonyl chloride and AMPA-paratoluenesulfonyl chloride prepared based on the certified standad Dr. Dr. Ehrenstorfer GMBH.

**Reading conditions by HPLC.** The following conditions were used:

A Nucleosil Column C<sub>18</sub> 250 x 4.6 mm i.d., phosphate buffer pH 2.3 – Acetonitrile 85:15 v/v. 1.0 ml/min flow. Injection volume: 10-20 μL. Reading wave longitude 235 nm.

[Page 3]

#### 4. RESULTS

Table 1. shows the results obtained from the Glyphosate and AMPA analysis in the samples analyzed.

**Table 1. Results of Glyphosate and AMPA analysis in two (2) water samples. United States Embassy, NAS [Narcotics Affairs Section]– February 2008.**

SAMPLE IDENTIFICATION		UNITS	RESULT		DETECTION LIMIT	
LAQMA CODE	Client Identification		Glyphosate	AMPA	Glyphosate mg/kg	AMPA mg/kg
LQ7124	MON-DENAR-080208- ID01- ANTES[BEFORE]- AGUA[WATER]LOT	mg/L	N.D	N.D	0.010	0.008
LQ7125	MON-DENAR-080208- ID01-DESP[AFTER]-0- AGUA[WATER]LOT					

**UNITS**

mg/L = Miligrams of compound of interest per liter of  
sample

analyzed or ppm (parts per million).

N.D Not detectable up to the detection limit of the method  
used.

**Notice:**

Report valid for described analyses; no reprinting without the  
laboratory's  
authorization

**5. OBSERVATIONS REGARDING THE RESULTS**

The samples were submitted to the laboratory by the client and were  
analyzed just as they were received

Sincerely,

[Signed]  
MARTA CARPINTERO  
ENVIRONMENTAL CHEMIST M.Sc.  
PQ-0569

[Signed]  
OMAR TRUJILLO C.  
ANALYST CHEMIST  
T.Q. 053

**Appendix 5 to Annex 70****SAMPLE OF RESULTS OF SUPERFICIAL WATER ANALYSIS TAKEN SIXTY DAYS AFTER  
SPRAYINGS (N°2194/09)**

[Page 1]

LABORATORIO QUÍMICO DE MONITOREO AMBIENTAL

[Logo ] [ENVIRONMENTAL MONITORING CHEMICAL LABORATORY]

**ANALYSIS RESULTS**

DATE	BOGOTÁ, 12 MAY 2008
COMPANY	COLOMBIAN NATIONAL HERALTH INSTITUTE
REQUESTED BY GENERAL DIRECTOR (A)	Mr. ALVARO ERNESTO CALVACHE –
ADDRESS	Av. Calle 26 No.51-20
FAX/TELEPHONE	220 77 00
E-MAIL	ins@ins.gov.co
ANALYSIS REQUESTED	GLYPHOSATE AND AMPA ANALYSIS IN WATER SAMPLE
SAMPLE	LQ7634
RESPONSIBLE OF SAMPLING	ANTINARCOTICS DIRECTION
TYPE OF SAMPLING	SPECIFIC
DATE OF SAMPLING	23 APRIL 2009
DATE RECEIVED	4 MAY 2009

No. 2194/09

**1. SAMPLES IDENTIFICATION**

The analyzed samples correspond to one (1) superficial water sample collected for the Monitoring Program of the United States Embassy. The samples were sent by the Colombian National Health Institute to LAQMA Ltda. [ENVIRONMENTAL MONITORING CHEMICAL LABORATORY] for glyphosate and its metabolite aminomethylphosphonic acid (AMPA) analysis.

**Chart 1. Samples identification**

LAQMA CODE	Field code	Coordinates
LQ7634	MON-DENAR-230409-ID01-DESP[AFTER]-60-AGUA[WATER]LOT	01°42'12.5"N 78°43'37.3" W

## 2. MATERIALS AND EQUIPMENT

2.1 A) Reactives. Certified standard of analyzed compound: Glyphosate N-(Phosphonomethyl) glycine trade mark Dr. Ehrenstorfer Lot 40401, 98 ± 0.5% purity; aminomethylphosphonic acid (AMPA) trade mark Dr. Ehrenstorfer Lot 21104, 98 ± 0.5% purity; derivatization reactive p-toluenesulfonyl chloride trade mark SIGMA-ALDRICH, purity 99%, lot 13224 EC.

[Page 2]

b) Organic solvents for extraction, purification, and reading mobile phase by HPLC were all HPLC level.

2.2 Equipment. Shimadzu Liquid Chromatographer Model LC-6A, equipped with two high pressure pumps, Auto injector Sil 6B, ultraviolet detector UV-160A of variable wave longitude; Controlling System SCL-6B, and Chromatopac C-R6A as signal integrator.

## 3. METHODOLOGY OF SAMPLE ANALYSIS AND TREATMENT.



Chart two shows the methodology used for Glyphosate and AMPA analysis in water samples.

**Chart 2. Analysis methodology used, preservatives, and storage time.**

PARAMETER	ANALYSIS TECHNIQUE	REFERENCE METHOD	PRESERVATION AND MAXIMUM STORAGE TIME UNTIL ANALYSIS
Glyphosate herbicide / AMPA	HPLC Derivatization with p-toluenesulfonyl chloride	J. Chrom. 540 (1991) 411-415	14 days until extraction / 40 days after extraction

**Glyphosate and AMPA determination.** For Glyphosate and AMPA determination, derivatization with p-toluenesulfonyl chloride was made under alkaline conditions. 1 ml of the sample was put in alkaline conditions with phosphate Buffer pH 11.2. 0.2 ml of the p-toluenesulfonyl chloride reactive was added and was taken to reaction at 50 °C for 5 minutes in thermostat bath.

Cuantification of Glyphosate and AMPA. Quatification was made by the external standard method with the derivates of Glyphosate- paratoluenesulfonyl chloride and AMPA- paratoluenesulfonyl chloride prepared based on the certified standad Dr. Dr. Ehrenstorfer GMBH.

Reading conditions by HPLC. The following conditions were used

A Nucleosil Column C<sub>18</sub> 250 x 4.6 mm i.d., phosphate buffer pH 2.3 –

Acetonitrile 85:15 v/v. 1.0 ml/min flow.

Injection volume: 10-20 µL.

Reading wave longitude 235 nm.

#### 4. RESULTS

Table 1. shows the results obtained from the Glyphosate and AMPA analysis in the sample analyzed.

[Page 3]

**Table 1. Results of Glyphosate and AMPA analysis in one (1) water sample. Colombian National Health Institute – May 2009.**

SAMPLE IDENTIFICATION		UNITS	RESULT		DETECTTION LIMIT	
LAQMA CODE	Client Identification		Glyphosate	AMPA	Glyphosate mg/kg	AMPA mg/kg
7634	MON-DENAR-230409-ID01-DESP[AFTER]-60-AGUA[WATER]LOT	mg/L	N.D	N.D	0.010	0.008

#### UNITS

mg/L = Miligrams of compound of interest per liter of sample analyzed or ppm (parts per million).

N.D Not detectable up to the detection limit of the method used.

#### Notice:

Report valid for described analyses; no reprinting without the laboratory's authorization

### 5. OBSERVATIONS REGARDING THE RESULTS

The samples were submitted to the laboratory by the client and were analyzed just as they were received

Sincerely,

[Signed]  
MARTA CARPINTERO  
ENVIRONMENTAL CHEMIST M.Sc.  
PQ-0569

[Signed]  
OMAR TRUJILLO C.  
ANALYST CHEMIST  
T.Q. 053

## Annex 71

### **SPRAY MIX QUALITY CONTROL, NATIONAL LABORATORY FOR AGRICULTURAL USE PRODUCTS (LANIA), COLOMBIAN AGRICULTURE AND LIVESTOCK INSTITUTE (ICA), 18 FEBRUARY 2009**

*(Archives of the Ministry of Foreign Affairs of Colombia, p. 6 - 7)*

[...]

[Pages 6 and 7]

### 3. RESULTS OF ENVIRONMENTAL MONITORING ACTIVITIES

The Colombian Agriculture and Livestock Institute, ICA, has participated through its officials in the environmental monitoring activities. However, the result of the soil and water samples analysis collected during the environmental monitoring missions are kept in the archives of the Anti-Narcotics Direction of the National Police. Results of soil and water samples analyses may as well be found in the file of the Environmental Management Plan of the PECIG, which is kept in the archives of the Ministry for the Environment, Housing, and Territorial Development.

#### SPRAY MIXTURE QUALITY CONTROL

ICA, through the Agricultural Supplies National Laboratory [LANIA for its acronym in Spanish] took samples of the spray mixture used to spray illicit crops in both the mixing tanks and the aircraft tanks. As a conclusion of the results obtained, it was found that the concentration of glyphosate active ingredient was consistent with what had been reported: 480 grams/litre.

#### REPORT ON ANALYZED SAMPLES ANTI-NARCOTICS POLICE L.A.N.I.A

ANALYSIS CODE	PLACE	TYPE OF SAMPLE	RESULT	DATE RECEIVED	DATE OF REPORT ON RESULTS
IP-030	Spraying Base Saravena	Sample taken from aircraft PNC	LANIA DETERMINATION OF GLYPHOSATE ACTIVE INGREDIENT 206.1 g/L	18/06/2008	17/09/2008

	(Arauca)	4012 Glyphosate/Cosm oflux/Water 44:1:55			
IP-031	Spraying Base Saravena (Arauca)	Sample taken from the mixing tank Glyphosate/Cosm oflux/Water 44:1:55	211,9 g/L	18/06/2008	17/09/2008
IP-036	Spraying Base Tumaco	Sample taken Mixing tank Glyphosate/Cosm oflux/Water 44:1:55	213,54 g/L	08/08/2008	17/09/2008
IP-037	Spraying Base Tumaco	Sample taken from aircraft AT- 802 PNC 4008 Glyphosate/Cosm oflux/Water 44:1:55	225,4 g/L	08/08/2008	17/09/2008
IP-039	Spraying Base Caucasia	Sample taken from mixing tank Glyphosate/Cosm oflux/Water 44:1:55	193.0 g/L	08/08/2008	17/09/2008
IP-044	Spraying Base Caucasia	Sample 1 of spray mixture taken from Caucasia Spraying base	217,5 g/L	21/11/2007	13/12/2007
IP-045	Spraying Base Caucasia	Sample 2 of spray mixture taken from aircraft AT- 802 Registration number 4002 3:15 P.M.	221.1 g/L	21/11/2007	13/12/2007
IP-046	Spraying Base Caucasia	Gly-41 Sample taken from 4 product containers	484,8 g/L	21/11/2007	13/12/2005

Source: Agricultural Supplies National Laboratory

Notice: To interpret results of the concentration of Glyphosate in the samples taken from the spraying mix, it must be taken into account that the concentration decreases because it is mixed with water (55% of the mixture volume) and Cosmoflux 411F (1% of volume)

**Annex 72**

**NOTE N° 0958 ARECI-JEFAT FROM THE ANTI-NARCOTICS DIRECTION OF THE  
COLOMBIAN NATIONAL POLICE (DIRAN) TO THE COLOMBIAN FOREIGN MINISTRY,  
18 FEBRUARY 2010**

*(Archives of the Ministry of Foreign Affairs of Colombia)*

National Defence Ministry  
National Police  
National Police  
Anti-Narcotics Direction

No. 0958/ ARECI-JEFAT

Bogotá D.C. 18 February 2010

Ms.  
Maria Juliana Tenorio Quintero  
Second Secretary  
Colombian Mission to the OAS

...

Reference: Answer to email dated 17 February 2010

In accordance to the request made in the email of 17 February of this year, I am sending in an annexed table the human costs in the Aerial and Manual Eradication from 2001 until this date, pointing out that these records only correspond to personnel from the National Police that makes part of the eradication team and they do not include the teams of the Armed Forces; the statistics for eradicators (mobile eradication groups) are registered by the Program Against Illicit Crops from Acción Social [Presidential Agency for Social Action and International Cooperation].

Sincerely,

[Signed]  
Colonel HENRY GAMBOA CASTAÑEDA  
Chief of Eradication of Illicit Crops Area

Annex: Table in 01 page

## HUMAN COSTS

### Human Costs in Aerial Spraying Activities

Personnel	2001	2002	2003	2004	2005	2006	2007	2008	2009	TOTAL
Dead	-	6	1	-	1	-	-	-	-	8
Injured	1	8	5	2	-	-	1	-	1	18
<b>Total</b>	<b>1</b>	<b>14</b>	<b>6</b>	<b>2</b>	<b>1</b>	<b>-</b>	<b>1</b>	<b>-</b>	<b>1</b>	<b>26</b>

### Human Costs in Manual Eradication Activities

Events	2005	2006	2007	2008	2009	2010	TOTAL
Policemen dead	2	28	15	11	13	-	69
Policemen injured	8	37	25	49	78	4	201
<b>TOTAL</b>	<b>10</b>	<b>65</b>	<b>40</b>	<b>60</b>	<b>91</b>	<b>4</b>	<b>270</b>

Note: Statistics show only the cases of personnel from the National Police, cases of eradicators are provided by Social Action from the Presidency of the Republic. (Does not include cases of the Armed Forces)

Source: Database of the Statistics Group of the Eradication of Illicit Crops Area of the Anti-Narcotics Direction

## Annex 73

### NOTE N°. 20103291383181 FROM THE PRESIDENTIAL AGENCY FOR SOCIAL ACTION AND INTERNATIONAL COOPERATION (*ACCIÓN SOCIAL*) TO THE COLOMBIAN FOREIGN MINISTRY, 23 FEBRUARY 2010

*(Archives of the Ministry of Foreign Affairs of Colombia)*

Presidency  
Republic of Colombia

Social Action  
Presidential Agency for Social Action and International Cooperation

Bogota, 23 February 2010

Mssrs.  
MINISTRY OF FOREIGN AFFAIRS  
Chancellery – Insular Territory Office  
Street 10 No. 5-51  
Bogota

Reference: Mobile Eradication Groups Information

Distinguished sirs:

I address you by means of this letter in order to furnish you with consolidated information about eradication personnel who have been victims of violent acts during the implementation of the Forced Manual Eradication Strategy carried out by the Presidential Action Program against Illicit Crops at the national level.

#### ERADICATION MOBILE GROUP [EMG] 2006-2009

#### PERSONNEL AFFECTED BY ATTACKS OR DEAD IN THE ZONE

CONCEPT	2006	2007	2008	2009
TOTAL DEAD IN ATTACKS	9	4	13	13
TOTAL DEAD IN ACCIDENTS	4	0	4	1
TOTAL DEAD NATURAL CAUSES	1	4	3	2
TOTAL DEAD	14	8	20	16

TOTAL EMG DEAD	58			
INJURED IN ATTACKS OR BY LANDMINES	12	4	73	60

Any additional information will gladly be provided,

[Signed]

ANDRES GALLEGO SEGOVIA

Eradication Mobile Group Coordinator



## Annex 74

### MAIN FERTILIZERS IMPORT AND MANUFACTURING COMPANIES, MINISTRY OF AGRICULTURE, LIVESTOCK, AQUACULTURE AND FISHING OF ECUADOR

(Ministerio de Agricultura, Ganadería, Acuacultura y Pesca, Principales Empresas Importadoras y Productoras de Fertilizantes, date unknown, pp. 2, 3. Available at: [www.sica.gov.ec/agro/insumos/FertReg3.htm](http://www.sica.gov.ec/agro/insumos/FertReg3.htm) (last visited 2 September 2009))

#### Ministry of Agriculture, Livestock, Aquaculture and Fishing of Ecuador

##### Main Fertilizers Import and Manufacturing Companies

Companies	National Production Supplies	Imported Supplies	Class
[...]	[...]	[...]	[...]
Farmagro		Cosmocel 20-30-10 + EQM	Foliar
		Fosfacel 800	Foliar
		Agro potasio	Foliar
		Cosmo R 14-8-19 + EQM	Foliar
		Cosmo R Menores	Foliar
		Kelatex Hierro	Soil
		Kelatex Zinc	Foliar
		Kelatex Cobre	Foliar
		Kelatex Boro	Foliar
		Kelatex Manganeseo	Foliar
		Kelatex Magnesio	Foliar
		Kelatex Calcio	Foliar
		Inex A	Foliar
		Cosmo In D	Foliar
		Cosmo Flux	Foliar
		Cosmo Aguas	Foliar
		Poliverdol 16-16-12	Foliar

		Newfol F	Foliar
		Newfol Ca	Foliar
[...]	[...]	[...]	[...]

Source: National Direction of Agriculture, Fertilizers Unit

SICA Project

Central Information

Washington Fuentes

Phone: 2566-757, 2548-665

[wfuentes@sica.gov.ec](mailto:wfuentes@sica.gov.ec)

<http://www.sica.gov.ec>

⇐ Other companies

## Annex 75

### SIONA INDIGENOUS NATION, WEB PAGE OF THE COUNCIL FOR THE DEVELOPMENT OF THE NATIONALITIES AND PEOPLES OF ECUADOR

(*Nacionalidad Siona*, página web del Consejo de Desarrollo de las Nacionalidades y Pueblos del Ecuador, date unknown, pp. 1, 3. Available at: [http://www.codenpe.gov.ec/index.php?option=com\\_content&view=article&id=78:nacionalidad-siona&catid=37:listadonacionalidades&Itemid=138](http://www.codenpe.gov.ec/index.php?option=com_content&view=article&id=78:nacionalidad-siona&catid=37:listadonacionalidades&Itemid=138) (last visited 23 February 2010))

[Page 1]

#### Siona Indigenous Nation

[...]

[Page 3]

#### Economy

[...]

One of the main problems faced as an indigenous nation, is the reduction of ancestral land caused by the *mestizo* [mixed race] colonization process as well as from other indigenous cultures (Kichwa and Shuar), the oil exploitation, the politics of land legalization by the State which does not acknowledge the people's right to their territory, and the loss of their territory caused by the opening of highways for the use of the oil companies; another important problem is that of the contamination produced by oil exploitation.

[...]



## Annex 76

### AI' COFAN INDIGENOUS NATION NATIONAL INSTITUTE FOR STATISTICS AND CENSUSES OF ECUADOR

(*Nacionalidad Ai' Cofan, Instituto Nacional de Estadísticas y Censos de Ecuador*, date unknown, pp. 1, 3. Available at: [http://www.inec.gov.ec/c/document\\_library/get\\_file?folderId=2023546&name=DLFE-21536.pdf](http://www.inec.gov.ec/c/document_library/get_file?folderId=2023546&name=DLFE-21536.pdf) (last visited 23 February 2010))

[Page 1]

[...]

#### Traditional Territory

They lived in the basins of the Aguarico, Guanés and San Miguel rivers, including the area currently occupied by Lake Agrio, provincial capital and its surroundings. Its territory has been disintegrated and divided, especially from 1967 when the oil exploitation began in the region.

[...]

[Page 3]

[...]

#### Natural resources extraction in the territories (by the State or other companies)

Singeco and Gaps oil blocks are in the territory of the Dueno, Duvuno, Sinangue and Chandia Na'en communities. The Ai'Cofan territory is contaminated due to the frequent oil spills which are a result of the extraction activities.

[...]



## Annex 77

### SUCUMBIOS PROVINCIAL GOVERNMENT HOMEPAGE, HISTORY, POLITICAL ORGANIZATION

*(Historia, organización política, página web de la Provincia de Sucumbios, 13 February 1989. Available at:*

*[http://www.sucumbios.gov.ec/index.php?option=com\\_content&view=category&layout=blog&id=88&Itemid=212](http://www.sucumbios.gov.ec/index.php?option=com_content&view=category&layout=blog&id=88&Itemid=212) (last visited 25 February 2010))*

[...]

#### HISTORY

[...]

#### **Political organization**

[...]

Around 65% of the resources that make up the [Ecuadorian] State's General Budget come from oil exploitation and more than half of the oil's national production corresponds to the Province of Sucumbios. However, up to the present time, these figures have not been reflected in the Province's development level.

[...]





## Annex 78

**“SOCIAL DEVELOPMENT AND POVERTY IN ECUADOR, 1990-2001”, CHAPTER 8,  
POVERTY PROFILE ACCORDING TO UNMET BASIC NEEDS  
SOCIAL FRONT’S TECHNICAL SECRETARIAT INFORMATION AND ANALYSIS UNIT-  
SIISE  
GOVERNMENT OF ECUADOR, SOCIAL REPORT 2003  
QUITO, DECEMBER 2003**

*(Gobierno de Ecuador, Informe Social 2003, Desarrollo Social y Pobreza en el Ecuador 1990-2001, Capítulo 8., Pobreza según NBI, Secretaría Técnica del Frente Social Unidad de Información y Análisis SIISE, Quito, Diciembre 2003, p. 10. Available at: <http://www.siise.gov.ec/Publicaciones/2inf8.pdf> (last visited 23 February 2010))*

[...]

[Page 10]

[...]

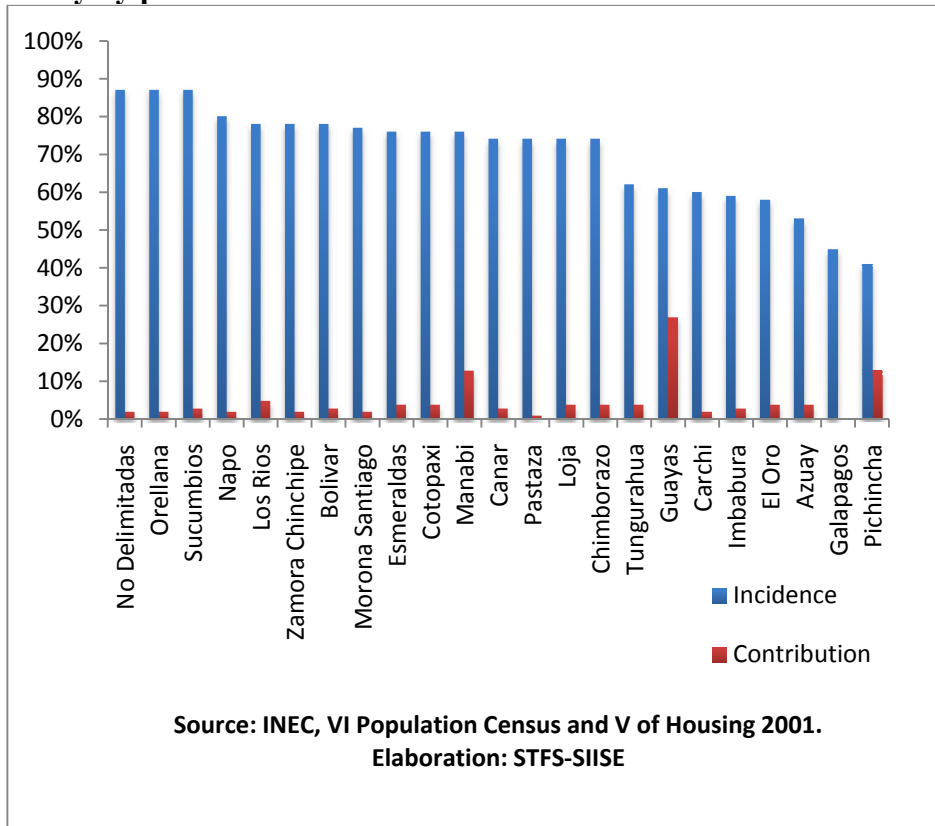
### **2.12 Unmet basic needs (UBN) poverty by provinces and cantons**

The majority of the country’s provinces have poverty percentages that are higher than the national figure of 61.6%. Those with higher levels of poverty are, in order, Orellana (86.6%), Sucumbíos (86.2%), Napo (78.8%), Los Rios (77.6%) and Zamora Chinchipe (77.2%).

[...]

[Graph on following page]

**Graph 8.5**  
**UBN poverty by province**



## Annex 79

### **“MODEL PROJECT FOR THE PLANTING, PRODUCTION AND SUSTAINABLE AGRO-INDUSTRY OF THE *GUANÁBANA* (SOURSOP)”, FEDERATION FOR THE INTEGRAL DEVELOPMENT OF PEASANTS AND AFRO-DESCENDANTS OF ESMERALDAS, ESMERALDAS, JANUARY 2004**

*(Federación de Desarrollo Integral para Campesinos y Afrodescendientes de Esmeraldas (FEDICAE), Proyecto modelo de forestación, producción y agroindustria sustentable de la Guanábana, p. 4.*  
Available at: [http://www.sica.gov.ec/agronegocios/invertir\\_en\\_ecuador/proyectos/guanabana\\_fedicae.pdf](http://www.sica.gov.ec/agronegocios/invertir_en_ecuador/proyectos/guanabana_fedicae.pdf)  
(last visited 21 February 2010))

[...]

[Page 4]

[...]

## 2. IDENTIFICATION OF THE PROBLEM / JUSTIFICATION

Currently one of the most serious problems affecting the country in general and the Province of Esmeraldas in particular is the intense deforestation, which threatens to convert it into a desert and, moreover, experts indicate that around 2010 there will be no primary forests, with the exception of the natural reserves, which are also threatened. This project intends to start reversing this problem.

FAO indicated that in 1960 Esmeraldas had 70% of the timber-yielding reserves of Ecuador, that meant some 15 million hectares that currently are below 200.000, plus the Cotacachi Reserve –Cayapas, Mache– Chandul and the Awás zone, which demonstrates the intense deforestation suffered and the low socioeconomic benefit for the involved population, who have, to the contrary, suffered an accentuated deterioration of their standard of living. This is reflected in the high levels of poverty (80%), unemployment and underemployment (90%) and emigration.

[...]



## **Annex 80**

### **PRESS BULLETIN N° 388 OF THE ECUADORIAN FOREIGN MINISTRY, “NO GLYPHOSATE RESIDUES EXIST IN THE WATERS OF THE RIVERS OF THE SUCUMBÍOS PROVINCE”, 25 JUNE 2004**

(Available at:

<http://www.mmrree.gov.ec/mre/documentos/novedades/boletines/ano2004/junio/bol388.htm> (last visited 19 February 2010))

#### **PRESS BULLETIN No. 388 Quito, 25 June 2004**

#### ***NO GLYPHOSATE RESIDUES EXIST IN THE WATERS OF THE RIVERS OF SUCUMBÍOS PROVINCE***

The Foreign Ministry reported that the Ecuadorian Commission on Atomic Energy (CEEAA) that takes part in the Ecuadorian Scientific and Technical Commission (CCTE), created to analyze the possible effects of sprayings with glyphosate in the northern Ecuador-Colombia border between Ecuador and Colombia, travelled to the border area during the months of April and May, in order to analyze the possible presence of that component in the waters of the rivers of Sucumbíos.

Samples were taken from the rivers Conejo, San Francisco, San Miguel, La Punta, Zancudo, Mataje, wherein no glyphosate residues were found. The report presents favourable results which have assuaged the population that inhabits that sector.



## **Annex 81**

### **PRESS BULLETIN N° 480 OF THE ECUADORIAN FOREIGN MINISTRY, “NO GLYPHOSATE RESIDUES WERE FOUND IN ESMERALDAS, BORDER WITH COLOMBIA”, 26 AUGUST 2004**

(Available at:

<http://www.mmrree.gov.ec/mre/documentos/novedades/boletines/ano2004/agosto/bol480.htm> (last visited 19 February 2010))

#### **PRESS BULLETIN No. 480 Quito, 26 August 2004**

#### **No glyphosate residues were found in Esmeraldas, border with Colombia**

The Foreign Ministry presented the report of the Analysis of Glyphosate Residues performed on water samples collected in the Province of Esmeraldas (San Lorenzo – Zona Mataje), by technical personnel of the Ecuadorian Commission on Atomic Energy, on 14 July 2004.

These studies were carried out as follow-up to the works that the Ecuadorian Scientific and Technical Commission is currently undertaking, as implementation of the Minutes signed at the IV Meeting of the Scientific and Technical Commissions of Ecuador and Colombia. And they were carried out by the scientists of the CEEA using, for that purpose, the EPA 547 procedure, high-tech equipment and the analytical standards provided by the company Riedel de Haën, obtaining as a result, the non-existence of glyphosate residues in any of the analyzed samples.

It is important to note that the Ecuadorian Scientific and Technical Commission will continue with the corresponding works, throughout the entire northern border, with the purpose of scientifically ascertaining the existence or not of health effects on the health of the inhabitants of the populations settled in the sector, as well as on their environment, as a consequence of the fumigations (sprayings) with glyphosate, that were conducted in the past over illicit crops in Colombian territory.





## **Annex 82**

### **PRESS BULLETIN N° 721 OF THE ECUADORIAN FOREIGN MINISTRY, 24 DECEMBER 2004**

(Available at:

<http://www.mmrree.gov.ec/mre/documentos/novedades/boletines/ano2004/diciembre/bol721.htm> (last visited 21 February 2010))

#### **PRESS BULLETIN No. 721 Quito, 24 December 2004**

The Special Commission appointed by the Minister of Foreign Affairs, Patricio Zuquilanda-Duque, to verify the existence of alleged sprayings in the border zone of the Province of Sucumbíos, informed today, in a press conference, that from the visit conducted to the localities of Puerto Nuevo, Puerto Mestanza, Tapi and Balastrera, it was able to physically ascertain, on the basis of testimony from the population and local authorities that no spraying whatsoever took place affecting the Ecuadorian territory in that sector.

The Commission proceeded to collect water and soil samples in the San Miguel River, in Tapi, in the Balastrera, that are being analysed in the laboratories of the Ecuadorian Commission on Atomic Energy, foreseeing that the results will be ready in the following days.

The Commission determined, on the other hand, that in none of the visited zones had there been any population displacement, as a result of the alleged resumption of sprayings, situation that was confirmed by the UNCHR Representative in Sucumbíos, Oscar Butragueño.

Messrs. Daniel Alarcón, Chairman of the Federation of Peasant Organizations of the Ecuadorian Border Strip of Sucumbíos (FORCCOFES), and Iván Piedra, representative of [NGO] *Acción Ecológica*, took part in the work meeting where the sites to be surveyed were defined and accompanied the Commission on its visit to Puerto Nuevo, Tapi and Balastrera.

This same Special Verification Commission will travel next week to the localities of 18 November and Santa Marianita, where according to certain testimony, sprayings in the national territory would have occurred, in order to definitively clarify this situation.

The Special Commission was headed by the Director for Amazonian and Regional Affairs, minister Franklin Chávez; from the office of the Vice-minister of Foreign Affairs, Gustavo Endara; the Director of the Refugee Bureau, Christian Espinosa; the head of the Liaison Office of the Government Ministry at the Foreign Ministry, Police colonel Marco Rivadeneira, as well as by the scientists, engineer Santiago Salazar and Dr. Ramiro Castro, from the Scientific and Technical Commission.

## **Annex 83**

### **MEMORANDUM OF THE ECUADORIAN FOREIGN MINISTRY, 24 DECEMBER 2004**

(Annex 1 to the document entitled *Observaciones de la Misión Internacional a la frontera ecuatoriana con Colombia sobre fumigaciones* [Observations of the International Mission to the Ecuadorian Border with Colombia concerning sprayings]; corporate author: NGO Foodfirst Information and Action Network (FIAN); available at: <http://www.gloobal.net/iepala/gloobal/fichas/ficha.php?id=1105&entidad=Informes&html=1> (last visited 22 February 2010))

#### **Annex 1: Notes from the Foreign Ministry following the sprayings in December 2004**

Officer Oviedo, Major of the “24 Rayo” Special Forces exhibited the two memoranda registering the verification conducted by certain public officials in the month of December 2004, which were provided to the Mission and annexed hereinafter.

#### **Memorandum, unnumbered, dated 24 December 2004**

##### **Memorandum, unnumbered**

To: Ambassador Patricio Zuquilanda Duque, Minister of Foreign Affairs

From: Franklin Chávez Pareja, Director for Amazonian and Regional Affairs; Gustavo Endara M. cabinet of the Vice-minister; Christian Espinosa A., Director of the Refugee Bureau.

Date: 24 December 2004

Subject: Verification of complaints of alleged sprayings.

Pursuant to your instructions, yesterday, Thursday 23 December, we travelled to the Province of Sucumbios, along with Police Colonel Marco Rivadeneira, Head of the Liaison Office of the Government Ministry at this Foreign Ministry, as well as engineer Santiago Salazar and Dr. Ramiro Castro, members of the Ecuadorian Scientific and Technical Commission, with the purpose of gathering testimony and collecting soil and water samples in order to corroborate the complaints advanced by members of the

Federation of Peasant Organizations of the Ecuadorian Border Strip of Sucumbíos (FORCCOFES) and *Acción Ecológica*.

In that regard, we report the following:

**Thursday, 23 December.**

In the city of Lago Agrio, we were received by Colonel José Pastor, Commander of the “Rayo” Special Forces of the IV Army Division, the acting Governor of the Province of Sucumbíos, Mr. Félix Calderón, Police Quartermaster Ab. Arturo Lara and the delegate from INDA [National Agricultural Development Institute], Mr. Carlos Salazar, with whom we held a work meeting during which we informed them of the reason for our visit, having [then] been informed that in the constant patrols of this Special Forces Group and Jungle Battalion ‘56 Tungurahua’, there have been no reports of violations to the Ecuadorian airspace nor have they had any knowledge of sprayings on the Ecuador-Colombia border in the past weeks.

Likewise, we were informed that the flux of Colombian and Ecuadorian nationals has been normal; the acting Governor and the Police Quartermaster stated that due to the requirement of the “Judicial Record” [certificate] violence statistics have dropped, without their having received any complaints of sprayings or displacement of Ecuadorians. However, they stated their concern due to the lack of basic services in the Province and requested the Foreign Ministry to convey their needs [in terms] of roads, health, education, agriculture and support to the National Police, to the Presidency of the Republic.

Mr. Daniel Alarcón, Chairman of the Federation of Peasant Organizations of the Ecuadorian Border Strip of Sucumbíos (FORCOFES), and Mr. Iván Piedra, representative of [NGO] *Acción Ecológica*, joined this meeting. They stated that FORCCOFES is formed by 98 border organizations that amount to 1800 families, and they reiterated that there are complaints to the effect that Colombian light aircraft have crossed the border line, even spraying in Ecuadorian territory, which has caused a mass displacement of the Ecuadorian communities in the sector, and they requested that the no-spray 10 kilometre strip in Colombian territory be respected.

Thereafter, it was jointly agreed with the civilian and military authorities of the Province and the delegates from *Acción Ecológica* and FORCCOFES, to visit the communities of Puerto Nuevo, Puerto Mestanza and their surroundings, in light of logistical and security considerations, thus covering two specific sites of alleged constant affectations according to the reports in the press and from these organizations of civil society.

**Puerto Nuevo:**

In the afternoon we went to Puerto Nuevo, located two hours away from Lago Agrio by land, where we interviewed the only civilian authority present, Mr. Lenin López, Secretary of the Committee for Improvements, who stated that there was a population of 800, most of which were Colombian, that there was a calm environment, that the incoming and outgoing flux of people was normal, that they are aware of the existence of sprayings in Colombia, without having ever seen any aircraft in the zone or any displacement of Ecuadorians further into the Province. The main activity of the inhabitants of Pueblo Nuevo is trade and agriculture, needing a Health Centre, electricity, schoolbooks and agricultural loans with technical consulting.

Subsequently, we proceeded to collect soil and water samples in the San Miguel River, in Tapi and in the Balastrera, which would be duly analysed in the laboratories of the Ecuadorian Commission on Atomic Energy.

**Meeting with UNHCR Delegates:**

In the evening, the Delegation met with Mr. Oscar Butragueño, representative of the United Nations High Commissioner for Refugees (UNHCR) in Sucumbíos, who mentioned he had received a visit by delegates of FORCCOFES last Tuesday, the 21<sup>st</sup>, during which they had reportedly informed him of the existence of 900 displaced Ecuadorians, purportedly as a result of the fear caused by the violence present on the Colombian side of the border. The UNHCR official stated that this was the first complaint he had received on the matter and clarified that he had not received any news – including UNHCR in Colombia – concerning sprayings in the sector and that, moreover, out of all the Colombians applying for refugee status, only 0.5% have claimed that as the reason for coming to this country.

On the other hand, Mr. Butragueño informed that the reception of refugee applications is normal, registering a monthly average of 60 applications. There was an increase to 100 applications during the month of November, due to combats between subversive groups and the Colombian Army in the localities of San Miguel, Azul and La Unión. Also, he stated that there is regularity in the decision-making period of the Ecuadorian Government for refugee applications and in the implementation of Communal Support and Integration Programs (PACI's) in the Province, from which 75% of the direct beneficiaries are Ecuadorian and the rest, Colombian refugees.

The need to improve control over entry and exit of Colombian nationals was also addressed with the UNHCR Representative. In that regard, the said official offered to

cooperate with military and police authorities in creating and updating a database to facilitate such control and he made a commitment to furnish a sample of the temporal legal permanence permits that are issued to refugee applicants.

**Friday, 24 December: Puerto Mestanza.**

In the early morning the Delegation went to Puerto Mestanza, a locality of no more than 7 houses, 6 of which are owned by Colombian nationals, located an hour away from Lago Agrio. We received the testimonies of 2 inhabitants, who stated that activities were being carried out as usual, despite the fact that they have heard rumours of imminent sprayings in the zone. One of the people interviewed even stated that on Tuesday the 21<sup>st</sup> at noon, he had seen 2 small aircraft and 5 helicopters in the distance, on the Colombian side.

While these activities were underway, a couple arrived, claiming to live in front of the Colombian location of Las Brisas, where sprayings would have indeed taken place in the past few days. Likewise, we proceeded to collect water and soil samples for further scientific analyses.

Confirming the information provided by Colonel José Pastor, Commander of the Special Forces Group '24 Rayo', Colonel Robert Arauz, Commander of the Jungle Battalion '56 Tungurahua', stated over the telephone to the Head of the Delegation that the Armed Forces conduct permanent patrols all over the areas where there have been claims of alleged sprayings, without having recorded any incidents. Colonel Arauz as well as Colonel Pastor expressed their concern due to the continuous increase of Colombian population settling on the Ecuadorian side of the border and the gradual abandonment of these lands by the Ecuadorian population. In some sectors it is estimated that there is a Colombian population of 60% on average.

**Conclusions:**

- As a result of the talks held with civilian and military authorities of the Province, as well as from the visits to the selected localities, we have verified that there is an environment of calm and normal development of daily activities.
- Certain testimonies subsist of alleged sprayings in places – 18 November, Santa Marianita – which can only be reached by means of a duly planned a helicopter operative.
- A system of permanent monitoring through the installation of sample collectors at specific sites is required.

- The samples collected on this mission will be analysed by the Ecuadorian Commission on Atomic Energy, with regard to the study of pesticide residues. For the analyses concerning the levels of toxicity the implementation of a duly financed project to obtain accurate results is required.

This mission wishes to state for the record its special gratitude to Colonel José Pastor for his attentiveness and the excellent professional collaboration provided for the success of the assigned task.

Sincerely.





## Annex 84

### MEMORANDUM OF THE ECUADORIAN FOREIGN MINISTRY, 29 DECEMBER 2004

(Annex 1 to the document entitled *Observaciones de la Misión Internacional a la frontera ecuatoriana con Colombia sobre fumigaciones* [Observations of the International Mission to the Ecuadorian Border with Colombia concerning sprayings]; corporate author: NGO Foodfirst Information and Action Network (FIAN); available at:

<http://www.gloobal.net/iepala/gloobal/fichas/ficha.php?entidad=Textos&id=1105&opcion=documento#s>

34

(last visited 27 February 2010))

#### **Annex 1: Notes from the Foreign Ministry following the sprayings in December 2004**

Officer Oviedo, Major of the “24 Rayo” Special Forces exhibited the two memoranda registering the verification conducted by certain public officials in the month of December 2004, which were provided to the Mission and annexed hereinafter.

[...]

#### **Memorandum, unnumbered, dated 29 December 2004**

##### **Memorandum, unnumbered**

To: Ambassador Patricio Zuquilanda Duque, Minister of Foreign Affairs  
Ambassador Edwin Jhonson, Vice-minister of Foreign Affairs  
Ambassador Diego Stacey, Undersecretary for National Sovereignty and Border Development

From: Franklin Chávez Pareja, Director for Amazonian and Regional Affairs;  
Gustavo Endara M. cabinet of the Vice-minister.

Date: 29 December 2004

Subject: Verification of complaints of alleged sprayings.

Pursuant to your instructions and the announcement by the Foreign Ministry upon the conclusion of the verification mission that took place on 23 and 24 December, on this date the technical commission visited the villages facing the Colombian sites of El Azul and El Afiladero, as well as Monterrey, in the sector of Santa Marianita, with the

purpose of fulfilling the mandate of gathering testimony and collecting soil and water samples relating to the alleged resumption of sprayings in Colombia and their repercussions in Ecuadorian territory.

Transport was carried out on a Superpuma helicopter of the Army's Aviation, that picked up the technical commission at the Lago Agrio airport and transported it immediately to the places to be inspected.

The commander of the operation was Lt.Col. José Pástor, Commander of the "Rayo 24" Special Forces Group. The technical commission was formed, besides the two Foreign Ministry officials responsible for this report, by the following persons:

- Police Colonel Marco Rivadeneira, Liaison Officer between the Government Ministry and the Ministry of Foreign Affairs;
- Engineer Santiago Salazar, official of the Ministry for the Environment and coordinator for the Ecuadorian Scientific and Technical Commission;
- Dr. Ramiro Castro, Head of the Laboratory of the Ecuadorian Commission on Atomic Energy and member of the Ecuadorian Scientific and Technical Commission;
- Mr. Rafael Gómez, Foreign Ministry photographer;
- Two special envoys from *Gamavisión* [television network], Messrs. Julio César Torres and Mauricio Herrera; and, - [sic] Sucumbíos correspondent for the daily newspaper *El Comercio*.

On the first verification site, facing El Azul in Colombia, Dr. Ramiro Castro, of the CEEA, took a water sample from the San Miguel River, a few meters off the place where the helicopter landed; for its part, the technical commission interviewed two locals – of Colombian nationality – who inhabited the farm at the visited site. The interviewees stated that the previous week – without specifying what day – they had sighted between six and eight helicopters and two small aircraft leaving a trail in Colombian territory. They also indicated that they had no incidents to report, were carrying out their activities as usual and that both their animals and their crops were in good condition.

Immediately thereafter, the technical commission went to the site facing El Afilador. The helicopter landed some 50 metres from the San Miguel River, to which we arrived

through a gauge in order to collect the corresponding water sample. Due to the inhospitableness of the place, there are no houses there.

During the walk to reach the San Miguel River, the Special Forces Group found a resting site, presumably of the Colombian irregular forces.

On the third site of verification, Monterrey, Santa Marianita Sector, on the banks of the San Miguel River, a local, the owner of the visited farm – also of Colombian nationality – stated to the technical commission that he had not seen or heard anything out of the ordinary with respect to the purported sprayings in Colombia. He indicated that he is in good health and that there were no incidents with regard to his animals –cattle, farm birds – or his cocoa plants.

### **Conclusions:**

The technical commission has verified in two stages, as announced to the public, the main sites named in the complaints gathered by the press concerning the resumption of sprayings in Colombia and their purported repercussions in Ecuadorian territory.

The second stage, completed today, has allowed us to confirm the conclusion that was arrived at during last week's visit: There is an environment of calm; daily activities are conducted normally; the locals who were interviewed are in good health; animals and crops are in order. There has been no violation of the Ecuadorian airspace, nor has there been any displacement of persons.

Although the two testimonies gathered [at the site] facing El Azul from Colombian citizens coincide in stating that they sighted helicopters and light aircraft leaving a trail on the Colombian side last week, it is curious that in the locality of Puerto Nuevo, located only 6 kilometres away, the people interviewed at by the commission at the time said they had not seen or heard anything similar.

In any case, even if it was to be accepted that Colombia had resumed aerial sprayings, the truth is that the observations conducted and the gathered testimony do not afford evidence of any repercussions in Ecuadorian territory.

It was particularly useful that two important media outlets took part in the mission. They were able to ascertain the truth of the facts on the terrain and reach, we hope, the same conclusions set out in this report.

On behalf of the technical commission, we are particularly grateful to Lt. Col. José Pastor, Commander of the “24 Rayo” Special Forces Group and all of his personnel, as well as for the attentiveness afforded to the delegation.

## **Annex 85**

### **PRESS BULLETIN N° 732 OF THE ECUADORIAN FOREIGN MINISTRY, “COMMISSION OF THE FOREIGN MINISTRY FINDS NO EVIDENCE OF SPRAYINGS FOLLOWING VERIFICATIONS IN THE ENTIRE AREA WHERE SPRAYINGS WERE CLAIMED TO HAVE BEEN CONDUCTED”, 30 DECEMBER 2004**

(Available at:  
<http://www.mmrree.gov.ec/mre/documentos/novedades/boletines/ano2004/diciembre/bol732.htm> (last visited 21 February 2010))

**PRESS BULLETIN No. 732  
Quito, 30 December 2004**

#### **COMMISSION OF FOREIGN MINISTRY FINDS NO EVIDENCE OF SPRAYINGS AFTER CARRYING OUT VERIFICATIONS IN THE ENTIRE AREA WHERE SPRAYINGS WERE REPORTED TO HAVE BEEN CONDUCTED**

The Special Commission appointed by the Minister of Foreign Affairs to verify the existence of sprayings, concluded the second stage of a thorough tour of the area where, according to recent complaints, Colombian sprayings would have taken place.

The visit conducted on Wednesday, 29 December, this time included the sites of El Afilador, Santa Marianita and a site facing the Colombian locality of Azul, sites located on the banks of the San Miguel River, where ecologist organizations had claimed that there had purportedly been ‘intense sprayings that even caused the displacement of local residents.’

Out of the physical corroboration carried out last week as well as on this opportunity, the Commission ascertained that in the entire area there is an environment of calm and no displacement of population has been evidenced.

In its report, the Commission observes that the citizens interviewed in the zone are in good health, no alterations were observed in plants or animals, as well as that, according to locals’ accounts, there has been no violation to the national airspace, nor have any vestiges of glyphosate reached Ecuadorian territory.

Engineer Santiago Salazar of the Ministry for the Environment and Dr. Ramiro Castro, Head of the Laboratory of the Ecuadorian Commission on Atomic Energy, collected plant, soil and water samples with the purpose of subjecting them, along with the evidence collected last week, to chemical and biological analyses, which will be divulged in the following days.

The Special Commission was formed by Mr. Franklin Chávez, Director-General for Amazonian and Affairs of the Foreign Ministry; Mr. Gustavo Endara from the cabinet of the Vice-minister of Foreign Affairs; Marco Rivadeneira, colonel of the National Police; the aforesaid scientists of the Ministry for the Environment and the Ecuadorian Commission on Atomic Energy, who were joined by members of the written press, radio and television during the visit.



Franklin Chávez, from the Special Commission appointed by the Minister of Foreign Affairs to verify the existence of alleged fumigations, talks to residents in the locality of Azul Chiquito, adjacent to the San Miguel River, Province of Sucumbios.

## **Annex 86**

### **PRESS BULLETIN N° 027 OF THE ECUADORIAN FOREIGN MINISTRY, 24 JANUARY 2005**

(Available at:

<http://www.mmrree.gov.ec/mre/documentos/novedades/boletines/ano2005/enero/bol027.htm>  
(last visited 21 February 2010))

#### **PRESS BULLETIN No. 027 Quito, 24 January 2005**

#### **PRESS BULLETIN**

The Ministry of Foreign Affairs, just as it had announced days ago, presented the reports of the glyphosate Residual Analysis made on soil and water samples collected in the Sucumbíos Province during the two special missions sent following the claims submitted by farmers living in the border area and members of *Acción Ecológica*, regarding the possible resuming of aerial sprayings on illicit crops in Colombia and its alleged repercussions on Ecuadorian territory.

These reports were carried out based on nine samples collected from the sectors of Tapi, Puerto Mestanza, La Balastrea, Azul Chiquito, and the Ecuadorian area facing the Colombian sector of Afilador.

The result obtained by scientists of the Ecuadorian Atomic Energy Commission, who are also members of the Ecuadorian Scientific and Technical Commission, from the analyses made is that no glyphosate residues were found, the same as on the two previous occasions when similar claims arose.

It is important to state that the Ecuadorian Scientific and Technical Commission will continue with the verification tasks, all along the northern border, with the purpose of safeguarding the rights of the Ecuadorian population settled in that sector.





## **Annex 87**

### **PRESS BULLETIN N° 419 OF THE ECUADORIAN FOREIGN MINISTRY, 2 SEPTEMBER 2005**

(Available at:

<http://www.mmree.gov.ec/mre/documentos/novedades/boletines/ano2005/septiembre/bol419.htm>  
(last visited 21 February 2010))

#### **PRESS BULLETIN No. 419 Quito, 02 September 2005**

#### **PRESS BULLETIN**

The Ministry of Foreign Affairs informed that, during the meeting held by the Ministers of Foreign Affairs of Ecuador and Colombia, on 31 August 2005, in Bogotá, they addressed issues of security, aerial sprayings, migration and development of the border integration zone.

With regard to security issues, while reiterating the main objective of preserving peace and security in their respective countries, both Foreign Ministers agreed on the pertinence of setting up a high-level mechanism for permanent follow-up, formed by the Vice-Ministers of Foreign Affairs and of National Defence, as well as to promote a meeting of Defence Ministers. They also agreed to examine setting up the National Centres for Attention at Border areas – CENAF – in those places where they might be necessary and they suggested the Bilateral Border Commission – COMBIFRON – to coordinate measures to prevent the illegal use of crossings throughout the common border.

The Foreign Ministers agreed to resort to a specialized international specialized international organization in order to conduct studies with the purpose of determining the effects of the use of glyphosate in aerial sprayings, and submit its conclusions to both Governments. The Ecuadorian Foreign Minister requested that the Government of Colombia adopt alternative methods for the eradication of illicit crops in a strip of at least ten kilometres inside its border, until the delivery of the results of the aforesaid study by the selected international organization. The Colombian Foreign Minister stated that it was not possible to accede to that request.

The Foreign Ministers agreed to convene a meeting of the migration authorities of both countries with the purpose of assessing the results of the regularization process recently

carried out in Ecuador. Likewise, aware of the usefulness of having information and statistics on the Colombian population in Ecuador, the Foreign Ministers agreed to continue to explore, with support from IMO, sources of non-reimbursable aid to conduct a census of Colombian nationals in Ecuadorian territory. The Foreign Ministers recalled the importance of divulging the works of the Colombian Social Solidarity Network in benefit of the voluntary return of Colombian nationals to their country. Lastly, they noted the Ecuadorian Government's humanitarian policy in the matter of refugees.

The Foreign Ministers of both countries were pleased with the progress in the design and setting in motion of the Binational Plan for Development of the Border Integration Zone. They stated their agreement on carrying out the works to consolidate a Binational Border Service Centre – CEBAF [Spanish acronym] – at Rumichaca, that would, on each side of the border and with personnel from each country, fulfil duties within their respective areas of jurisdiction. For its part, Colombia stated its interest in analyzing the possibility of setting up a National Border Service Centre – CENAF – in the vicinity of the International Bridge over the San Miguel River.

## **Annex 88**

### **PRESS BULLETIN N° 593 OF THE ECUADORIAN FOREIGN MINISTRY, 18 NOVEMBER 2005**

(Available at:

<http://www.mmree.gov.ec/mre/documentos/novedades/boletines/ano2005/noviembre/bol593.htm>  
(last visited 21 February 2010))

#### **PRESS BULLETIN No. 593 Quito, 18 November 2005**

#### **MEETING OF VICE-MINISTERS OF FOREIGN AFFAIRS OF ECUADOR AND COLOMBIA**

The Vice-minister of Foreign Affairs of Ecuador, Diego Ribadeneira and his Colombian counterpart, Camilo Reyes, accompanied by their respective delegations held a first meeting yesterday, 17 November, in preparation for that of the Foreign Ministers to be held in Quito on 7 December. The bilateral issues addressed in that meeting were security, sprayings, fight against drugs, border development, bilateral plan, migration and refugees.

Attending to the request of the Ecuadorian Government to suspend the sprayings in a strip of 10 kilometres from the common border, Foreign Vice-minister Camilo Reyes announced that the Colombian Government will temporarily suspend, as of January 2006, the aerial spraying of illicit crops in the border. Likewise, both Governments agreed to promote the levels of exchange of timely information in matters of border security.

Colombia further informed that it will enhance a scheme of manual eradication of illicit crops. To that end, Colombia will seek to increase financial and human resources through an increased police presence. With the purpose of making the fight against drugs more efficient, the creation of a Joint Commission was recommended.

The Colombian delegation informed on the actions carried out by the Solidarity Network program, to facilitate the return of Colombian displaced persons to their country.

Moreover, it was agreed that a high-level meeting of the Bilateral Technical group will be held early next year in order to determine the development projects in the border region as well as a Meeting of the Ecuador-Colombia Neighbourliness Commission wherein issues of bilateral interest will be addressed.

Lastly, they agreed to meet again in the days prior to the meeting of Ministers of Foreign Affairs, in order to continue preparing the bilateral issues and those of the agenda, to which those of trade and cultural exchange will be added.

## Annex 89

### “MANUAL FOR THE IDENTIFICATION AND MANAGEMENT OF WEEDS ON THE GALAPAGOS ISLANDS”, CHARLES DARWIN FOUNDATION AND GALAPAGOS NATIONAL PARK SERVICES, 2006

(Fundación Charles Darwin y Servicio Parque Nacional Galápagos, *Manual de identificación y manejo de malezas en las Islas Galápagos*, 2006, pp. 16-18, 21-29, 32. Available at: [http://www.darwinfoundation.org/english/\\_upload/guia\\_id\\_manejo\\_malezas.pdf](http://www.darwinfoundation.org/english/_upload/guia_id_manejo_malezas.pdf) (last visited 23 February 2010))

[...]

[Page 16]

CASTOR OIL PLANT  
Scientific name: *Ricinus communis*

[...]

Growing Stage	Method	Detail
Seedling	Manual pull up	
Juvenile	Foliar application	For plants that are less than 2 meters high, apply Roundup at 2% (2 parts of herbicide dissolved in 98 parts of water)
Adult	Stem or stump application	Combo or Roundup at 2% (2 parts of herbicide dissolved in 98 parts of water)

[Page 17]

AIR PLANT  
Scientific name: *Bryophyllum pinnatum*

[...]

<b>Growing Stage</b>	<b>Method</b>	<b>Detail</b>
Seedling	Manual pull up	
Juvenile	Manual extraction or foliar application	Roundup at 2% (2 parts of herbicide dissolved in 98 parts of water)
Adult	Manual extraction or foliar application	Roundup at 2% (2 parts of herbicide dissolved in 98 parts of water)

[Page 18]

SPANISH ELM  
 Scientific name: *Cordia alliodora*

[...]

<b>Growing Stage</b>	<b>Method</b>	<b>Detail</b>
Seedling	Manual pull up	
Juvenile	Cuts to the trunk and application	Combo at 5% (5 parts of the herbicide in 95 parts of water). Roundup at 50% (50 parts of herbicide dissolved in 50 parts of water)
Adult	Cuts to the trunk and application	Combo at 5% (5 parts of herbicide dissolved in 95 parts of water). Roundup at 50% (50 parts of herbicide dissolved in 50 parts of water)

[...]

[Page 21]

PASSION FRUIT  
 Scientific name: *Passiflora edulis*

<b>Growing Stage</b>	<b>Method</b>	<b>Detail</b>
Seedling	Manual pull up	
Juvenile	Stem or stump application	Combo or Roundup at 3% (3 parts of herbicide dissolved in 97 parts of water)
Adult	Stem or stump application	Combo or Roundup at 3% (3 parts of herbicide dissolved in 97 parts of water)

[Page 22]

**BLACKBERRIES**  
Scientific name: *Rubus niveus*

[...]

<b>Growing Stage</b>	<b>Method</b>	<b>Detail</b>
Seedling	Foliar application	Roundup at 2% (2 parts of herbicide dissolved in 98 parts of water)
Juvenile	Foliar application, cut and application to re-sprouts	Roundup at 2% (2 parts of herbicide dissolved in 98 parts of water)
Adult	Foliar application, cut and application to re-sprouts	Roundup at 2% (2 parts of herbicide dissolved in 98 parts of water)

[Page 23]

**ANDEAN BLACKBERRY**  
Scientific name: *Rubus glaucus*

[...]

<b>Growing Stage</b>	<b>Method</b>	<b>Detail</b>
----------------------	---------------	---------------

Seedling	Foliar application	Roundup at 6% (6 parts of herbicide dissolved in 94 parts of water)
Juvenile	Foliar application	Roundup at 6% (6 parts of herbicide dissolved in 94 parts of water)
Adult	Foliar application	Roundup at 6% (6 parts of herbicide dissolved in 94 parts of water)

[Page 24]

WILD BLACKBERRY  
Scientific name: *Rubus Adenotrichos*

[...]

<b>Growing Stage</b>	<b>Method</b>	<b>Detail</b>
Seedling	Foliar application	Roundup at 10% (10 parts of herbicide dissolved in 90 parts of water)
Juvenile	Foliar application	Roundup at 10% (10 parts of herbicide dissolved in 90 parts of water)
Adult	Foliar application	Roundup at 10% (10 parts of herbicide dissolved in 90 parts of water)

[Page 25]

GENTRYI FIDDLEWOOD  
Scientific name: *Citharexylum gentryi*

[...]

<b>Growing Stage</b>	<b>Method</b>	<b>Detail</b>
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Seedling	Manual pull up	
Juvenile	Foliar application	For plants up to 2 meters high, apply Roundup and Combo at 1% (1 part of herbicide dissolved in 99 parts of water)
Adult	Stump application	Combo at 5% (5 parts of herbicide dissolved in 95 parts of water)

[Page 26]

**BRAQUIARIA GRASS**  
Scientific name: *Urochloa spp*

[...]

<b>Growing Stage</b>	<b>Method</b>	<b>Detail</b>
Seedling	Manual pull up	
Juvenile	Foliar or stem application	Roundup at 3% (3 parts of herbicide dissolved in 97 parts of water)
Adult	Foliar or stem application	Roundup at 3% (3 parts of herbicide dissolved in 97 parts of water)

[Page 27]

**ELEPHANT GRASS**  
Scientific name: *Pennisetum purpureum*

[...]

<b>Growing Stage</b>	<b>Method</b>	<b>Detail</b>
Seedling	Foliar application	Roundup at 2% (2 parts of herbicide dissolved in 98 parts of water)
Juvenile	Foliar application	Roundup at 2% (2 parts of herbicide dissolved in 98 parts of water)

Adult	Foliar application	Roundup at 2% (2 parts of herbicide dissolved in 98 parts of water)
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[Page 28]

PENNYROYAL  
Scientific name: *Hyptis pectinata*

[...]

Growing Stage	Method	Detail
Seedling	Manual pull up	
Juvenile	Foliar application or stem painting	Roundup at 3% (3 parts of herbicide dissolved in 97 parts of water)
Adult	Foliar application or stem painting	Roundup at 3% (3 parts of herbicide dissolved in 97 parts of water)

[Page 29]

ROSE APPLE  
Scientific name: *Syzygium jambos*

[...]

Growing Stage	Method	Detail
Seedling	Manual pull up	
Juvenile	Cuts to the trunk and application	For trees that are less than 10 cm in diameter, apply Combo at 5% (5 parts of herbicide dissolved in 95 parts of water)
Adult	Cuts to the trunk and application	Combo at 10% (10 parts of herbicide dissolved in 90 parts of water), Tordon

		22K at 20% (20 parts of herbicide dissolved in 80 parts of water) or Roundup at 100%
--	--	--

[...]

[Page 32]

**FRAGRANT DUTCHMAN'S PIPE**  
 Scientific name: *Aristolochia odoratissima*

[...]

<b>Growing Stage</b>	<b>Method</b>	<b>Detail</b>
Seedling	Manual pull up	
Juvenile	Cut and apply to the re-sprouts	Roundup at 3% (3 parts of herbicide dissolved in 97 parts of water) and then Combo at 3% (3 parts of herbicide dissolved in 97 parts of water) to the new re-sprout.
Adult	Cut and apply to the re-sprouts	Roundup at 3% (3 parts of herbicide dissolved in 97 parts of water) and then Combo at 3% (3 parts of herbicide dissolved in 97 parts of water) to the new re-sprout.



## Annex 90

### “HEALTH BASELINE OF THE ECUADORIAN NORTHERN BORDER PROVINCES”, PUBLIC HEALTH MINISTRY OF ECUADOR, PAN-AMERICAN HEALTH ORGANIZATION (PAHO), QUITO, ECUADOR, 2006

*(Línea de base en Salud de las Provincias de la Frontera Norte del Ecuador, p. 27. Available at: <http://www.bibliotecaonu.org.ec/ResultsPreli.aspx?Code=544> (last visited 19 February 2010))*

[PAGE 27]

Coverage and offer of health services

Chart 21 COVERAGE AND OFFER OF HEALTH SERVICES COUNTRY AND PROVINCES OF THE NORTHERN BORDER 2004

<b>NORTHERN BORDER PROVINCES</b>						
<b>INDICATORS</b>	<b>COUNT RY TOTAL</b>	<b>CARC HI</b>	<b>IMBAB URA</b>	<b>ESMERAL DAS</b>	<b>SUCUMB IOS</b>	<b>REGI ON SUB- TOTA L</b>
<b>PUBLIC HEALTH ESTABLISHM ENTS WITH HOSPITALIZ ATION</b>	<b>188</b>	3	6	7	2	<b>18</b>
<b>PRIVATE HEALTH ESTABLISHM ENTS WITH HOSPITALIZ ATION</b>	<b>512</b>	6	8	7	6	<b>27</b>
<b>MEDICAL DOCTORS PER 10.000 INHABITANT S</b>	<b>17,0</b>	10,9	10,8	10,2	7,1	<b>10,1</b>

<b>BEDS PER 1.000 INHABITANTS</b>	<b>1,6</b>	1,1	1,0	1,0	0,6	<b>0,96</b>
<b>PRENATAL ATTENTION (%) *</b>	<b>106,0</b>	121,9	122,1	150,6	125,0	<b>133,3</b>
<b>PROFESSIONAL ATTENTION TO BIRTH (%) * (**)</b>	<b>53,0</b>	64,3	51,1	93,9	37,0	<b>67,0</b>
<b>POSTNATAL CONTROL</b>	<b>25,4</b>	51,2	15,7	45,5	22,1	<b>32,7</b>
<b>USE OF METHODS OF CONTRACEPTION</b>	<b>6,4</b>	8,1	8,4	8,0	9,0	<b>8,3</b>

\* Includes nurse and nurse assistant attention; Peasant Social Security establishments excluded

(\*\*) For country total it includes normal and obstructed birth; for the provinces there is no breakdown and includes normal and obstructed peasant birth (Yearbook of hospital beds and departures) plus ambulatory births taken from the Yearbook of health resources and activities 2004)

[...]

## Annex 91

### **“ESMERALDAS HEALTH AND ENVIRONMENT PROGRAM (SYMAE)”, MUNICIPALITY OF ESMERALDAS, 1 AUGUST 2006**

*(Programa Salud y Medio Ambiente Esmeraldas (SYMAE), p. 3. Available at: <http://www.municipio-esmeraldas.org/paginas/cgiVistInfo.php?txtCodiInfo=57> (last visited 28 September 2009))*

[Logo] **Illustrious Municipality of Esmeraldas**

[...]

### **Esmeraldas Health and Environmental Program**

[...]

[PAGE 2]

### **Context**

In the Esmeraldas canton tropical diseases such as malaria, dengue and leishmaniasis are frequent, as are sexually transmitted diseases (STD), HIV/AIDS and diseases related to deficient sanitation conditions. This is explained by several factors, among them, the situation of poverty, the low coverage of public utilities, the lack of attention to the canton from the central level, deficiencies in the coordination between actors in the local sphere, bad self-care habits of the population, among others.

[...]





## Annex 92

### “TEN MAIN MORBIDITY CAUSES PER PROVINCE”, PUBLIC HEALTH MINISTRY OF ECUADOR, EPIDEMIOLOGY SUB-PROCESS, QUITO, 2007

*(Ministerio de Salud Pública de Ecuador, Sub-proceso Epidemiología, Diez Principales Causas de Morbilidad según Provincias- Ecuador 2007, Ecuador, 2007. Available at: <http://www.msp.gov.ec/images/mortalidad%202007.pdf> (last visited 24 February 2010))*

[Page 1]

Public Health Ministry of Ecuador  
Epidemiology sub-process

#### TEN MAIN MORBIDITY CAUSES PER PROVINCE

##### SIERRA REGION

CARCHI			
Nr.	DISEASES	CASES	RATE
1	Acute Respiratory Infections	25,165	15,149.05
2	Acute Diarrheal Diseases	6,339	236.24
3	[...]	[...]	[...]
4			
5			
6			
7			
8			
9			
10			
POPULATION			166116

IMBABURA			
Nr.	DISEASES	CASES	RATE
1	Acute Respiratory Infections	45,509	11,442.93
2	Acute Diarrheal Diseases	16,101	600.05
3	[...]	[...]	[...]

4			
5			
6			
7			
8			
9			
10			
	POPULATION		39,7704

PICHINCHA			
Nr.	DISEASES	CASES	RATE
1	Acute Respiratory Infections	250,400	9,331.89
2	Acute Diarrheal Diseases	68,561	2,555.13
3	[...]	[...]	[...]
4			
5			
6			
7			
8			
9			
10			
	POPULATION		2,683,272

TUNGURAHUA			
Nr.	DISEASES	CASES	RATE
1	Acute Respiratory Infections	64,698	12,902.52
2	Acute Diarrheal Diseases	15,496	3,090.32
3	[...]	[...]	[...]
4			
5			
6			
7			
8			
9			

10			
	POPULATION		501,437

COTOPAXI			
Nr.	DISEASES	CASES	RATE
1	Acute Respiratory Infections	44,977	11,232.71
2	Acute Diarrheal Diseases	13,062	3,262.15
3	[...]	[...]	[...]
4			
5			
6			
7			
8			
9			
10			
	POPULATION		400,411

BOLIVAR			
Nr.	DISEASES	CASES	RATE
1	Acute Respiratory Infections	23,182	12,857.96
2	Acute Diarrheal Diseases	5,263	2,919.14
3	[...]	[...]	[...]
4			
5			
6			
7			
8			
9			
10			
	POPULATION		180,293

CHIMBORAZO			
Nr.	DISEASES	CASES	RATE
1	Acute Respiratory	44,244	9,975.60

	Infections		
2	Acute Diarrheal Diseases	16,181	3,648.30
3	[...]	[...]	[...]
4			
5			
6			
7			
8			
9			
10			
	POPULATION		443,522

CANAR			
Nr.	DISEASES	CASES	RATE
1	Acute Respiratory Infections	26,471	11,711.74
2	Acute Diarrheal Diseases	11,685	5,169.87
3	[...]	[...]	[...]
4			
5			
6			
7			
8			
9			
10			
	POPULATION		226,021

AZUAY			
Nr.	DISEASES	CASES	RATE
1	Acute Respiratory Infections	79,595	11,726.77
2	Acute Diarrheal Diseases	28,699	4,228.24
3	[...]	[...]	[...]
4			
5			
6			

7			
8			
9			
10			
	POPULATION		678,746

LOJA			
Nr.	DISEASES	CASES	RATE
1	Acute Respiratory Infections	55,424	12,769.92
2	Acute Diarrheal Diseases	19,492	4,491.04
3	[...]	[...]	[...]
4			
5			
6			
7			
8			
9			
10			
	POPULATION		434,020

ESMERALDAS			
Nr.	DISEASES	CASES	RATE
1	Acute Respiratory Infections	69,135	15,763.52
2	Acute Diarrheal Diseases	20,711	4,722.33
3	[...]	[...]	[...]
4			
5			
6			
7			
8			
9			
10			
	POPULATION		438,576

MANABI			
Nr.	DISEASES	CASES	RATE
1	Acute Respiratory Infections	282,305	21,477.13
2	Acute Diarrheal Diseases	70,349	5,351.99
3	[...]	[...]	[...]
4			
5			
6			
7			
8			
9			
10			
POPULATION			1,314,445

GUAYAS			
Nr.	DISEASES	CASES	RATE
1	Acute Respiratory Infections	348,734	9640.18
2	Acute Diarrheal Diseases	109,352	3022.86
3	[...]	[...]	[...]
4			
5			
6			
7			
8			
9			
10			
POPULATION			3,617,504

LOS RIOS			
Nr.	DISEASES	CASES	RATE
1	Acute Respiratory Infections	112,979	15,221.34
2	Acute Diarrheal Diseases	34,338	4,626.26
3	[...]	[...]	[...]

4			
5			
6			
7			
8			
9			
10			
	POPULATION		742,241

EL ORO			
Nr.	DISEASES	CASES	RATE
1	Acute Respiratory Infections	95,470	15,701.48
2	Acute Diarrheal Diseases	28,825	4,740.70
3	[...]	[...]	[...]
4			
5			
6			
7			
8			
9			
10			
	POPULATION		608,032

## AMAZON REGION

SUCUMBIOS			
Nr.	DISEASES	CASES	RATE
1	Acute Respiratory Infections	20,781	12,714.21
2	Acute Diarrheal Diseases	9,306	5,693.59
3	[...]	[...]	[...]
4			
5			
6			
7			

8			
9			
10			
	POPULATION		163,447

NAPO			
Nr.	DISEASES	CASES	RATE
1	Acute Respiratory Infections	33,723	35,117.52
2	Acute Diarrheal Diseases	8,726	9,086.84
3	[...]	[...]	[...]
4			
5			
6			
7			
8			
9			
10			
	POPULATION		960.29

MORONA			
Nr.	DISEASES	CASES	RATE
1	Acute Respiratory Infections	33,399	25,430.00
2	Acute Diarrheal Diseases	11,617	8,845.18
3	[...]	[...]	[...]
4			
5			
6			
7			
8			
9			
10			
	POPULATION		131,337

PASTAZA			
---------	--	--	--



Nr.	DISEASES	CASES	RATE
1	Acute Respiratory Infections	18,085	23,864.51
2	Acute Diarrheal Diseases	9,438	1,244.14
3	[...]	[...]	[...]
4			
5			
6			
7			
8			
9			
10			
POPULATION		75,782	

ZAMORA			
Nr.	DISEASES	CASES	RATE
1	Acute Respiratory Infections	15,584	18,211.76
2	Acute Diarrheal Diseases	7,994	9,341.95
3	[...]	[...]	[...]
4			
5			
6			
7			
8			
9			
10			
POPULATION		85,571	

ORELLANA			
Nr.	DISEASES	CASES	RATE
1	Acute Respiratory Infections	11,273	10,175.84
2	Acute Diarrheal Diseases	4,495	4,057.52
3	[...]	[...]	[...]
4			

5			
6			
7			
8			
9			
10			
	POPULATION		110,782

## INSULAR REGION

GALAPAGOS			
Nr.	DISEASES	CASES	RATE
1	Acute Respiratory Infections	1,950	8,598.64
2	Acute Diarrheal Diseases	537	2,367.93
3	[...]	[...]	[...]
4			
5			
6			
7			
8			
9			
10			
	POPULATION		22,678

## COUNTRY TOTAL

COUNTRY TOTAL			
Nr.	DISEASES	CASES	RATE
1	Acute Respiratory Infections	1,703,083	12,517.62
2	Acute Diarrheal Diseases	516,567	3,796.76
3	[...]	[...]	[...]
4			
5			
6			

7			
8			
9			
10			
	POPULATION		13,605,485

SOURCE: COMPULSORY NOTIFICATION OF DISEASES FORM EPI 1 AND EPI 2 AND PROGRAMS

PREPARED: EDUARDO AGUILAR – EPIDEMIOLOGY – MS



## Annex 93

### COFAN INDIGENOUS NATION, WEBPAGE OF THE COUNCIL FOR DEVELOPMENT OF THE NATIONALITIES AND PEOPLES OF ECUADOR, 6 NOVEMBER 2008

(*Nacionalidad Cofan*, página web del Consejo de Desarrollo de las Nacionalidades y Pueblos del Ecuador, 6 November 2008. Available at:  
[http://www.codenpe.gov.ec/index.php?option=com\\_content&view=article&id=49&Itemid=277](http://www.codenpe.gov.ec/index.php?option=com_content&view=article&id=49&Itemid=277) (last visited 23 February 2010), pp. 2, 3)

[...]

#### **Cofan Indigenous Nation**

[...]

#### Territory/ Land Legalization

##### Traditional Territory

They lived in the basins of the Aguarico, Guanés and San Miguel rivers, including the area currently occupied by Lake Agrio, provincial capital and its surroundings. [The Cofan] territory has been disintegrated and divided, especially from 1967 when the oil exploitation began in the region.

[...]

#### Economy

[...]

There are also logging activities and some men work as day labourers in the settlers' farms.

[...]

#### Oil blocks in their territory

Singeco and Gaps oil blocks are in the territory of the Dueno, Duvuno, Sinangue and Chandia Na'en communities. The Ai'Cofan territory is contaminated due to the frequent oil spills which are a result of the extraction activities. [...]

## Annex 94

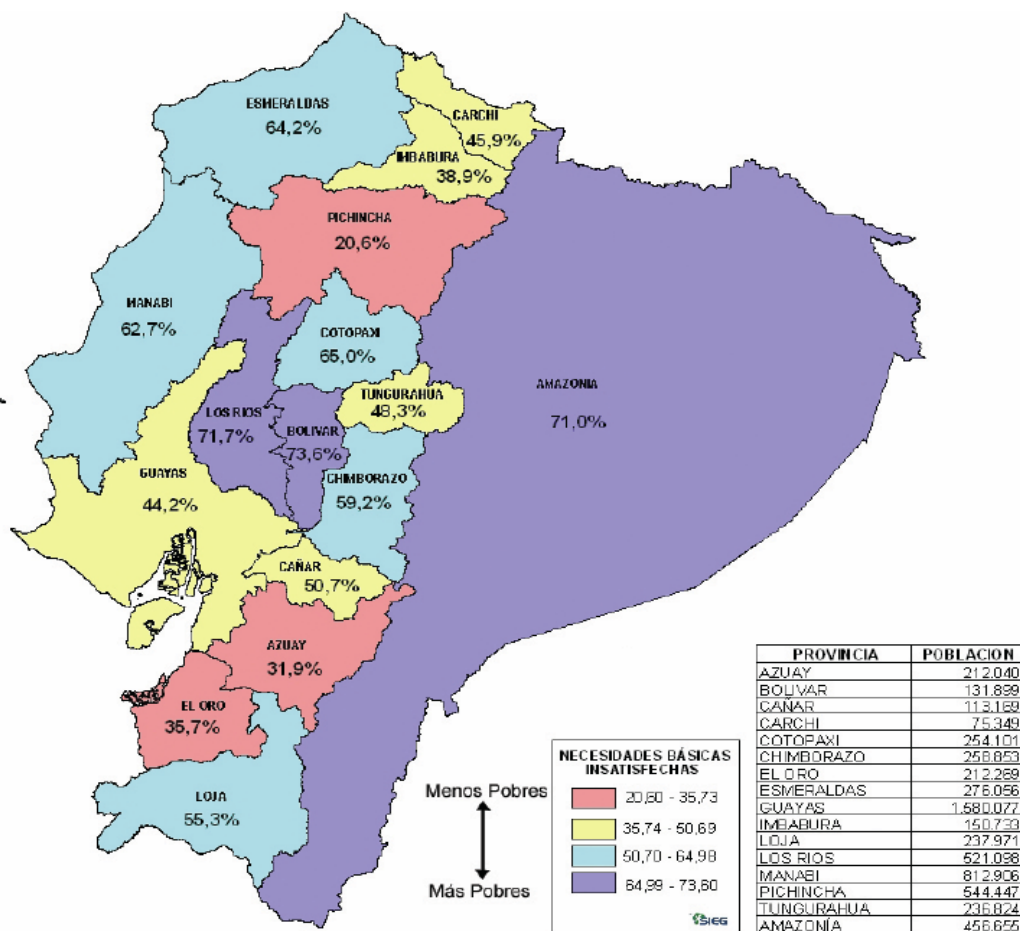
### “LIVING CONDITIONS OF ECUADORIANS, RESULTS OF THE SURVEY ON THE LIVING CONDITIONS-FIFTH ROUND, POVERTY AND INEQUALITY”, NATIONAL INSTITUTE FOR STATISTICS AND CENSUSES OF ECUADOR, QUITO, 2009

(Instituto Nacional de Estadísticas y Censos de Ecuador, *La Condición de Vida de los Ecuatorianos, Resultado de la Encuesta de Condiciones de Vida – Quinta Ronda, Pobreza y Desigualdad*, Quito, 2009, p. 10. Available at: <http://www.eumed.net/libros/2009a/470/index.htm> (last visited 23 September 2009))

[Page 10]

Map of provincial poverty, according to unmet basic needs (2005 -2006)

[...]







## **Annex 95**

### **DESCRIPTION OF THE ILLICIT CROPS INTEGRATED MONITORING SYSTEM (SIMCI)**

(Available at: <http://www.unodc.org/colombia/es/simci/simci.html> (last visited 21 February 2010))

#### **Illicit Crops Integrated Monitoring System - SIMCI**

The Project SIMCI II main objective is to keep the Illicit Crops Integrated Monitoring System operating, which has allowed Colombia to have its figures on the extension of illicit crops with over 90% reliability since 1999. The project has made it possible improve and increase the capacity to monitor and analyze the extension, dynamics, and impacts of illicit crops, productivity, yield, and prices of coca leaf and its by-products, and the socio-economic situation of growers, in order to support with reliable and transparent information the decision-making processes and the institutional capacity to prevent and fight trafficking of illicit drugs.

In this context, coca cultivation surveys become the basis to carry out studies on production and yields and the information for the Price Monitoring System, which are important to obtain objective and reliable results.

The main purpose of the project is to process and publish the Colombia Illicit Crops Survey with annually updated statistics on the extension of areas with coca crops, the cocaine production, and the analysis of year-on-year. It has additionally achieved:

- 1) Institutionalizing the project in the Governmental agencies allowing them to produce reliable information on illicit crops with the United Nations support.
- 2) Carrying out permanent studies and research on illicit crops related issues, which meet the Government need on this matter.
- 3) Strengthening the survey accuracy assessment processes with the collaboration of the University of Natural Resources and Applied Life Sciences, Vienna, Austria.
- 4) Developing permanent Communication and information strategies on the results and progress of studies, research, analysis, and statistics produced by the project.



## **Annex 96**

### **INTERNATIONAL PROGRAMME ON CHEMICAL SAFETY (IPCS), INTERNATIONAL PROGRAMME ON CHEMICAL SAFETY, ENVIRONMENTAL HEALTH CRITERIA (EHC) 159, GLYPHOSATE”, GENEVA, 1994**

(Available at: <http://www.inchem.org/documents/ehc/ehc/ehc159.htm> (last visited 6 March 2010),  
pp. 1,5,6,12,29,36)

## Glyphosate (EHC 159, 1994)



INTERNATIONAL PROGRAMME ON CHEMICAL SAFETY

**ENVIRONMENTAL HEALTH CRITERIA 159**

**GLYPHOSATE**

This report contains the collective views of an international group of experts and does not necessarily represent the decisions or the stated policy of the United Nations Environment Programme, the International Labour Organisation, or the World Health Organization.

First draft prepared by Dr H. Mensink and Dr. P. Janssen, National Institute of Public Health and Environmental Hygiene, Bilthoven, The Netherlands

Published under the joint sponsorship of the United Nations Environment Programme, the International Labour Organisation, and the World Health Organization

World Health Organization  
Geneva, 1994

The International Programme on Chemical Safety (IPCS) is a joint venture of the United Nations Environment Programme, the International Labour Organisation, and the World Health Organization. The main objective of the IPCS is to carry out and disseminate evaluations of the effects of chemicals on human health and the quality of the environment. Supporting activities include the development of epidemiological, experimental laboratory, and risk-assessment methods that could produce internationally comparable results, and the development of manpower in the field of toxicology. Other activities carried out by the IPCS include the development of know-how for coping with chemical accidents, coordination of laboratory testing and epidemiological studies, and promotion of research on the mechanisms of the biological action of chemicals.

WHO Library Cataloguing in Publication Data

Glyphosate.

(Environmental health criteria ; 159)

1.Glycine - analogs and derivatives 2.Herbicides  
3.Environmental exposure I.Series

ISBN 92 4 157159 4 (NLM Classification: WA 240)  
ISSN 0250-863X

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## Glyphosate (EHC 159, 1994)

laboratory experiments vary between 8 and 377 dm<sup>3</sup>/kg for various soils and clay minerals. No data on the sorption of aminomethylphosphonic acid (AMPA), the major metabolite, under laboratory conditions are available.

$R_f$  values of glyphosate do not exceed 0.2 in soil thin-layer chromatography experiments. Between less than 0.1% and 11% of the applied activity is recovered in the eluate of soil columns under leaching conditions simulating an extremely high rainfall. From field experiments it appears that AMPA is not likely to leach.

Glyphosate dissipates in field experiments from the soil with DT<sub>50</sub> values between 3 and 174 days, mainly depending on edaphic and climatic conditions. Up to 1.8% of the applied dose dissipated from the soil due to run-off in some field experiments.

Under laboratory conditions, up to 45% of the applied activity may be absorbed by treated leaves, and this is followed by a substantial translocation.

Hydrolysis of glyphosate in sterile buffers is very slow with DT<sub>50</sub> values >> 35 days. Photodegradation in water under natural conditions occurs with DT<sub>50</sub> values < 28 days. No substantial photodegradation in soil was recorded in a study lasting 31 days.

The time needed for 50% biodegradation of glyphosate in the whole system of a test with water and sediment is > 14 days under aerobic conditions and 14-22 days under anaerobic conditions in the laboratory. The time needed for 50% biodegradation of glyphosate in the soil is 2-3 days under aerobic conditions.

The major metabolite in soil and water is AMPA. Maximum amounts of AMPA in soils are approximately 20% of the applied activity under aerobic conditions and 0.5% under anaerobic conditions. Maximum amounts of AMPA in sediments are 25% under both aerobic and anaerobic conditions.

Bioconcentration factors are low in laboratory tests with invertebrates and fish. Bluegill sunfish in a flow-through test showed a depuration half-life of 35 days, after being exposed for 35 days. AMPA is recovered in bluegill sunfish up to 21 days after continuous exposure to glyphosate. Glyphosate has not been detected in fish living in directly sprayed water in field experiments. In one experiment, AMPA was detectable in carp up to 90 days after application. No biomagnification of glyphosate in litter by herbivorous and omnivorous small mammals in a forest brush ecosystem was indicated in a field experiment. Concentrations of up to 5 mg a.i./kg were measured in deer mice immediately after spraying in this experiment.

A range of bacterial strains can degrade glyphosate. Bacteria capable of using the compound as sole phosphorus, sole carbon or sole nitrogen source have been identified. Growth is slow compared to growth on inorganic sources of P, C and N. There is evidence from the field that bacterial populations adapted to metabolise glyphosate. The presence of inorganic phosphate inhibits degradation of glyphosate with some, but not all, bacteria. Biodegradation of glyphosate may involve co-metabolism with other energy sources.

### 1.4 Environmental levels and human exposure

Data on the occurrence of glyphosate in environmental biota and abiota as part of regular monitoring programmes are very scarce. Data from field experiments in which common agricultural practice is simulated are used to indicate maximum environmental concentrations: < 1-1700 µg/litre surface water, 0.07-40 mg/kg dry weight soil, < 0.05-19 mg/kg dry weight sediment, 261-1300 mg/kg foliage, 5 mg/kg the viscera of deer mice, 1.6-19 mg/kg wild berries, and 45 mg/kg lichens. The corresponding maximum concentrations of AMPA are: < 1-35 µg/litre (surface water), 0.1-9 mg/kg dry weight (soil), < 0.05-1.8 mg/kg dry weight (sediment), 1.7-9 mg/kg (foliage), 0.02-0.1 mg/kg (wild berries), and 2.1 mg/kg (lichens). The above-mentioned concentrations of glyphosate are generally found immediately after application. The concentration in lichens was found 270 days after application.

Measurements of daily human intake of glyphosate via food and drinking-water (total diet studies) are not available. The few data on occupational exposure indicate that exposure levels for workers applying glyphosate as the herbicide formulation Roundup are low.

### 1.5 Kinetics and metabolism in laboratory animals and humans

Technical glyphosate is only partially absorbed from the gastrointestinal tract. In studies with <sup>14</sup>C-labelled glyphosate, absorption percentages of 30-36% were found in several species. Dermal absorption is low. From the herbicide formulation Roundup, < 5.5% of the glyphosate present is absorbed through the skin (contact time about 24 h). In body tissues, the highest concentrations, approximately 1% of the oral dose, are found in bone. Following a single oral dose, 62-69% is eliminated in the faeces without absorption. Of the absorbed glyphosate, 14-29% is excreted in urine and 0.2% or less in expired air. Biliary excretion following intravenous application was only 5-8%. In lactating goats, excretion in milk was shown to occur to a minor extent only (concentration < 0.1 mg/kg whole milk at a dose level of 120 mg/kg diet). Biotransformation of glyphosate occurs to a very low degree only. The only metabolite, AMPA, accounts for 0.3% of the dose or less; the rest is unchanged glyphosate. Whole body clearance (99% of an oral dose) occurs in approximately 168 h.

### 1.6 Effects on laboratory mammals, and *in vitro* test systems

In experimental animals, technical glyphosate has very low

## Glyphosate (EHC 159, 1994)

acute toxicity by the oral and dermal administration routes; it is markedly more toxic by the intraperitoneal route than by other routes. Short-term feeding studies have been conducted in several species, but few effects were seen in most of these tests. In one 13-week study in mice with technical glyphosate, increased weights of several organs and growth retardation were observed at 50 000 mg/kg diet. In a 13-week study in rats no effect occurred (technical glyphosate dose levels up to 20 000 mg/kg diet). In another 13-week study, lesions of the salivary glands were found in rats and mice. In mice, the NOAEL was 3125 mg/kg diet; in rats, it was < 3125 mg/kg diet. These findings were not present in any other short-term or long-term studies conducted in different strains and species. The salivary lesions suggest that glyphosate may be acting as a weak adrenergic agonist.

Long-term toxicity was studied in mice and rats. Few effects were observed and, in almost all cases, at relatively high dose levels only. In mice, technical glyphosate produced growth retardation, hepatocyte hypertrophy or necrosis and urinary bladder epithelial hyperplasia at 30 000 mg/kg. In rats, the same test compound produced decreased growth, increased liver weights, degenerative lens changes and gastric inflammation at 20 000 mg/kg diet.

The available studies do not indicate that technical glyphosate is mutagenic, carcinogenic or teratogenic. Two multigeneration studies were carried out in rats. The main effects of technical glyphosate were decreased body weights of parent animals and pups and decreased litter size at 30 000 mg/kg diet. In one reproduction study, an increase in the incidence of unilateral renal tubular dilation in  $F_{3b}$  male pups at 30 mg/kg body weight was reported. The absence of a renal effect in pups at a higher dose level in the other reproduction study indicates that the reproducibility of this lesion is uncertain.

#### 1.7 Effects on humans

The available controlled studies are limited to three irritation/sensitization studies in human volunteers, the results of which indicated no effect. Several cases of (mostly intentional) intoxications with technical glyphosate herbicide formulation Roundup have been reported. In a study on health effects in workers applying Roundup herbicide formulation, no adverse effects were found. Available data on occupational exposure for workers applying Roundup indicate exposure levels far below the NOAELs from the relevant animal experiments.

#### 1.8 Effects on other organisms in the laboratory and field

Technical grade glyphosate is moderately to slightly toxic to aquatic microorganisms, with  $EC_{50}$  (3-4 days) values of 1.2-7.8 mg/litre, and 7-day NOEC values of 0.3-34 mg/litre. Formulations of glyphosate are slightly to highly toxic to aquatic microorganisms with 3-day  $EC_{50}$  values of 1.0 to > 55 mg product per litre. Cyanophyta (blue-green algae) are more sensitive to Roundup than true algae. Physiological processes that are affected include the greening process, respiration, photosynthesis, and the synthesis of aromatic amino acids.

Soil bacteria in culture have shown effects of glyphosate on nitrogen fixation, denitrification and nitrification. However, field studies after application of formulations have not shown significant effects. Closely related species of bacteria have been shown capable of degrading glyphosate.

Mycelial growth of ectomycorrhizal fungi in pure cultures is inhibited at concentrations of  $\geq 29 \mu\text{g}$  Roundup/litre. Sensitive genera are *Cenococcum*, *Hebeloma* and *Laccaria*.

Glyphosate is slightly toxic to aquatic macrophytes with a 14-day NOEC value of 9 mg/litre, when dissolved in water. Roundup is also slightly toxic with 14-day NOEC values of 2.4-56 mg Roundup/litre, when dissolved in water. No data on acute toxicity are available. Phytotoxicity is much higher when sprayed deposits are not washed off.

Technical grade glyphosate is slightly to very slightly toxic to aquatic invertebrates with 2- to 4-day  $LC_{50}$  or  $EC_{50}$  values of  $\geq 55$  mg/litre, and a 21-day NOEC value of 100 mg/litre. Formulations of glyphosate are moderately to very slightly toxic to aquatic invertebrates with 2-day  $EC_{50}$  values of 5.3-5600 mg product/litre and 21-day MATC values of 1.4-4.9 mg product per litre. The higher toxicity of Roundup is mainly due to the presence of surfactants.

Technical grade glyphosate is moderately to very slightly toxic to fish, with 4-day  $LC_{50}$  values of 10 to > 1000 mg/litre, a 21-day NOEC value of 52 mg/litre, and an MATC value of > 26 mg/litre. Formulations of glyphosate are also moderately to very slightly toxic to fish with 4-day  $LC_{50}$  values of 2.4 to > 1000 mg product per litre, and 21-day NOEC values of 0.8-2.4 mg product/litre. The most sensitive species is the carp, when exposed to the formulation Sting. No treatment-related effects of Roundup on fish have been found under field conditions, with the exception of stress immediately after application of a recommended rate and avoidance of concentrations of  $\geq 40$  mg Roundup/litre.

Modulation of sub-clover inoculated with *Rhizobium* is inhibited in a dose-related way in soil-free systems with nutrient solutions at concentrations of  $\geq 2$  mg a.i./litre. Seed germination of various forest species is not affected by glyphosate at the recommended application rates. The root length of red pine seedlings is decreased under laboratory conditions in a dose-related way at application rates of  $\geq 0.54$  kg a.i./ha. This decrease was not

## Glyphosate (EHC 159, 1994)

TLC techniques are generally based on silica gel or cellulose plates; cellulose plates give a better separation (Dubelman, 1988). Ninhydrin and phosphate sensitive reagents may be used for detection, although interference from co-extractives may occur. According to Dubelman (1988), fluorogenic reagents may be preferable in case of interference.

Fluorogenic derivatives can be determined in HPLC analysis with fluorescence detectors (Wigfield & Lanouette, 1990) and also with a spectrophotometer (Powell et al., 1990). In a GC analysis a nitrogen-phosphorus, electron capture or a flame photometric detector can be used.

### 3. SOURCES OF HUMAN AND ENVIRONMENTAL EXPOSURE

#### 3.1 Anthropogenic sources

##### 3.1.1 Production levels and processes

No data on the world production of glyphosate and its formulations are available. In addition, no data on losses to the environment during normal production and formulation or accidental losses have been reported.

The first phase of the production of glyphosate consists of refluxing a mixture of glycine (50 parts), chloromethylphosphonic acid (92 parts), an aqueous solution with 50% sodium hydroxide (150 parts), and water (100 parts) in a suitable reaction vessel. Another 50 parts of an aqueous solution with 50% sodium hydroxide are added to maintain the pH between 10 and 12, whereafter the reaction mixture is refluxed for another 20 h. The mixture is then cooled to room temperature and filtered. After adding 160 parts of concentrated hydrochloric acid, this mixture is again filtered. Glyphosate will slowly precipitate in the filtrate (IRPTC, 1991).

##### 3.1.2 Uses

Glyphosate is a post-emergent, systemic and non-selective herbicide intended for use against deep-rooted perennial species, and also biennial and annual broad-leaved, grass and sedge species (WSSA, 1983; Monsanto, personal communication to the IPCS, 1991). Glyphosate is used in both agriculture and forestry. Fields of agricultural use include grassland renovation, horticulture, fructiculture, arable cultivation, and rice cultivation. Use in forestry includes the killing of fast growing competitors in conifer plantations or conservation areas, and the treatment of tree stumps. Glyphosate may also be used for weed killing in non-agricultural areas such as water systems, including irrigation and temporarily drained waters, parks, road verges and gardens.

The uses of glyphosate indicate that it can be applied in various crops for specific purposes. The major formulation Roundup may, for instance, be used in pre-plant treatments for seed bed preparations, and also against bracken infestations in forestry, against couchgrass (*Elytrigia repens*) infestations on pastures, in direct treatments between rows of crops, or by direct wiping of the leaves of the weed, assuming the weeds are taller than the existing crop.

Glyphosate is used worldwide. In 1987, 35 160 ha of the area in British Columbia where vegetation management activities took place had been treated with Roundup. This was 94% of the total area where there were such activities (Ackurst, 1989).

The application rates of glyphosate are dependent on the formulation and type of use. In the Netherlands, recommended rates for the application of Roundup are 0.3-2.9 kg a.i./ha. In Canada the recommended application rates of Roundup are 1.1-1.7 kg a.i./ha for annual weeds and 1.2-5.8 kg a.i./ha for perennial weeds. The recommended application rates for Vision in Canadian forestry are 1.1-2.1 kg a.i./ha (Task Force on Water Quality Guidelines, 1991). Glyphosate is generally applied as a 0.5-5% solution in water by spraying, and as a 10-50% solution in water by wiping with, for instance, a rope-wick (Monsanto, personal communication to the IPCS, 1991).

The timing of application is dependent on the use. Application in late summer or autumn is recommended for use in forestry in Canada (Hildebrand et al., 1982). Application in agriculture may be pre- or post-harvest. In the Netherlands, for instance, glyphosate may be applied to cereals, potatoes and asparagus immediately (up to 7 days) before harvest, but only when the ripening is complete. Treatment of immature crops would result in higher residue levels, early crop desiccation and reduced yields.

Glyphosate may be applied in different ways. For large-scale treatments aerial application can be appropriate, small-scale treatments can be done with spraying equipment on the back or behind vehicles, or by wiping equipment.

Aerial applications will lead to losses due to wind-drift. Exposure of flora and fauna due to off-target deposits may take place. These downwind deposits depend on the meteorological conditions, the plant canopy structure and the application method, including the release height (Payne et al., 1989; Feng et al., 1990; Payne, 1992; Payne & Thompson, 1992). The non-volatile tank-mix fraction and the speed of the aircraft may influence the drop-size spectrum, and it can be expected that dispersal systems causing relatively small droplets and having a relatively low non-volatile fraction will cause the highest off-target deposits. Payne (1992) assumed that the large differences in deposits in two comparable experiments were due more to different aircraft airspeeds than to different wind speeds. In these experiments the maximum

## Glyphosate (EHC 159, 1994)

considered to be 5000 mg/kg diet (814 mg/kg body weight).

Long-term feeding studies in rats resulted in decreased growth, increased liver weight and degenerative liver changes at 20 000 mg/kg diet only. At 8000 and 20 000 mg/kg diet, there was an apparent increase in the incidence of inflammation of the gastric mucosa in both sexes. The only statistically significant increase was observed in the medium-dose females (15%). This value was also outside the historical control range of 0-13%. This finding was not considered to be a treatment-related effect. There was no dose-related trend across all groups of treated females and there was no statistically significant difference in any treated male groups. The NOAEL was therefore 8000 mg/kg diet (410 mg/kg body weight).

Studies in rats and rabbits indicated that technical glyphosate is not teratogenic. Two multigeneration studies were conducted with technical glyphosate. In the first study, the only effect noted was an increased incidence of unilateral renal tubular dilation in  $F_{3b}$  male pups at 30 mg/kg body weight. In the second study, decreased body weights were reported for parents and pups and decreased litter size was associated with dose levels of 30 000 mg/kg diet. Decreased body weights reported for parents and pups at 10 000 mg/kg diet were not toxicologically significant. In parents, the decrease was only 2 to 4% below controls and for pups the decrease was 5.6 to 6.6% lower than controls. The findings in pups were also transient and did not occur consistently in all litters. The NOAEL was 10 000 mg/kg diet. The absence of a renal effect in pups at a higher dose level (1500 mg/kg body weight), though not invalidating earlier findings of unilateral renal tubular dilation in male  $F_{3b}$  pups, indicates that the reproducibility of this lesion and its toxicological significance are uncertain. It should be noted that in no other toxicological study was an effect on kidneys found.

Bioassays in mice and rats did not indicate that technical glyphosate was carcinogenic.

Glyphosate has been shown to have no genotoxic potential in a range of *in vitro* and *in vivo* studies.

#### 7.1 Single exposure

Numerous acute toxicity studies have been performed to determine  $LD_{50}$  values of glyphosate and of herbicide formulations containing glyphosate as active ingredient. The results of these studies are summarized in Tables 10 (results for glyphosate) and 11

(results for formulations). These data show that glyphosate and its formulations have very low toxicity by the oral and dermal administration routes. By the intraperitoneal route glyphosate is markedly more toxic than by the other routes. General intoxication symptoms include breathing difficulties, ataxia and convulsions.

The mechanism of the toxic action of glyphosate has been studied in rats. Olorunsaga et al. (1979) observed dose-related reduced respiratory control ratios and increased phosphatase activity in mitochondria isolated from rat livers 5 h after single intraperitoneal doses ranging from 15 to 120 mg/kg body weight. This effect was also seen in rat liver mitochondria *in vitro* (Bababunmi et al., 1979; Olorunsaga, 1982a,b). The authors suggest that acute toxicity at lethal doses may occur as a result of the uncoupling of oxidative phosphorylation.

The acute toxicity in rats of the surfactant polyoxyethyleneamine, with which glyphosate is commonly formulated in Roundup, was compared to that of glyphosate in a study by Martinez et al. (1990). Both compounds exhibited pulmonary toxicity following either oral or intratracheal administration. The toxicity of the herbicide formulation was greater than can be accounted for on the basis of the dose response data from either compound alone (Martinez et al., 1990; Martinez & Brown, 1991).

A study was undertaken by Tai et al. (1990) to investigate the effects of glyphosate, surfactant, and their combination in Roundup on cardiovascular function in female beagles. They found that glyphosate alone at plasma levels ranging from 923 to 3450 mg/litre, which simulates the human ingestion situation, were shown to increase the myocardial contractility. The surfactant alone considerably reduced the cardiac output, the left ventricular stroke work index and the mean arterial pressure. The joint effect of both glyphosate and the surfactant in Roundup formulation resulted in cardiac depression, which was mostly due to the surfactant since glyphosate itself increased myocardial contractility. The authors indicated that the probable cause of the observed increases in pulmonary vascular resistance index and pulmonary artery pressure was a direct vasoactive effect of glyphosate on the pulmonary artery.

Table 10. Acute toxicity of glyphosate to experimental animals

Species (sex)	Product tested	$LD_{50}/LC_{50}^a$	Reference
Oral studies			
Rat (m,f)	glyphosate techn, purity 97.8%	> 5000 mg/kg bw	FDRL (1988d)
Rat (m,f)	glyphosate techn, purity 96-99%	> 5000 mg/kg bw	Inveresk Research Int. (1989a)



## Glyphosate (EHC 159, 1994)

	specified		
Dominant lethal test, mouse <i>in vivo</i>	technical glyphosate (98.7%); 200-2000 mg/kg body weight, oral	-	TRDC (1980a)
Recessive sex-linked lethal test, <i>Drosophila melanogaster</i> , <i>in vivo</i>	glyphosate (not specified); dose not given	-	Gopalan & Njagi (1981)
Unscheduled DNA repair assay rat hepatocytes, <i>in vitro</i>	technical glyphosate (98.7%); 0.0125-125 µg/ml	-	Monsanto (1983c)

<sup>a</sup> No higher concentrations tested because these would result in osmolalities much higher than physiological levels; these high osmolalities can produce non-specific chromosomal aberrations or sister chromatid exchange.

<sup>b</sup> In additional studies it was demonstrated that: (1) glyphosate produced no effect on viability and mitotic index of bone marrow cells of rats after i.p. doses of 200-1000 mg/kg body weight (Monsanto, 1983g); and (2) after giving <sup>14</sup>C-labelled glyphosate i.p. significant concentrations of <sup>14</sup>C reached the bone marrow (peak levels reached after 0.5 h remaining virtually constant up to 10 h after dosing) (Monsanto, 1983h).

<sup>c</sup> - = negative result

## 8. EFFECTS ON HUMANS

### Appraisal

*The formulation Roundup containing glyphosate is acutely toxic to humans when ingested intentionally or accidentally.*

*No controlled studies have been conducted, and therefore the human NOAEL level cannot not be derived.*

*No data are available to show the impact on workers exposed during the manufacture or formulation of glyphosate. No compound-related effects were observed in a test group of five applicators prior to and after exposure for one week.*

*The reported higher susceptibility of individuals older than 40 years to ingested Roundup intoxication is important and requires further investigation.*

### 8.1 Cases of intentional and accidental exposure

Many cases of acute intoxication with herbicides containing glyphosate and surfactant (Roundup) have been reported; most of these were suicide attempts. Talbot et al. (1991) reviewed 93 cases of exposure to Roundup (Chinese names: lan-da, hao-ni-chun, nian-nian-chun) in Taiwan. The classification of the severity of acute poisoning with Roundup as given by these authors is presented in Table 16. Severe effects occurred only in the cases of intentional ingestion (80 of the 93 reported). Accidental exposures led to only mild effects. The typical symptoms were erosion of the gastrointestinal tract (66% of the self-poisonings), seen as sore throat, dysphagia and gastrointestinal haemorrhage. Other organs were affected less often (nonspecific leucocytosis 65%, lungs 23%, liver 19%, cardiovascular system 18%, kidney 14% and CNS 12%). Death (in 7/80 cases) occurred within hours after ingestion. The amount of undiluted Roundup ingested (rough estimates) in the lethal cases varied from 85 to 200 ml (corresponding to roughly 30 to 70 g glyphosate acid); but much larger amounts (500 ml Roundup, corresponding to 180 g glyphosate acid) were reported to have been ingested by some patients with mild to moderate symptoms. Overall, moderate symptoms were associated with estimated intakes of 20 to 500 ml, mild symptoms with 5 to 150 ml, no symptoms with 5 to 50 ml. The authors pointed out that the patient's estimates of the amount ingested, and the conversion ratio used in their paper may be inaccurate (Talbot et al., 1991). Other reviews of cases of intoxication with Roundup have reported similar findings (Sawada & Nagai, 1987; Tominack et al., 1991). The data of Tominack et al. (1991) suggested that people over 40 years of age who ingest amounts greater than 150 ml Roundup are at greatest risk of a fatal outcome.

These authors also pointed out that the surfactant contained in Roundup may be responsible for the clinical syndrome (as suggested by Sawada & Nagai, 1987), but that the available evidence on this point is, as yet, inconclusive.

Table 16. Classification of severity of acute poisoning with Roundup<sup>a</sup>

Classification	Description
Asymptomatic	no complaints and no abnormalities on physical or laboratory examination.
Mild	mainly gastrointestinal tract (GIT) symptoms (nausea, vomiting, diarrhoea, abdominal pain, mouth and throat pain) that resolved within 24 h. Vital signs were stable, and there was no renal, pulmonary or cardiovascular involvement.
Moderate	GIT symptoms lasting longer than 24 h, GIT haemorrhages, endoscopically verified oesophagitis or gastritis, oral ulceration, hypotension responsive to intravenous fluids, pulmonary dysfunction not



**Annex 97**

**UNITED NATIONS INTERNATIONAL DRUG CONTROL PROGRAMME (UNDCP),  
“ECONOMIC AND SOCIAL CONSEQUENCES OF DRUG ABUSE AND ILLICIT  
TRAFFICKING”, TECHNICAL SERIES 0101, 1998**

(Available at: [http://www.unodc.org/pdf/technical\\_series\\_1998-01-01\\_1.pdf](http://www.unodc.org/pdf/technical_series_1998-01-01_1.pdf) (last visited 6 March 2010)  
pp. 27-29, 39)

**Number 6**

**ECONOMIC AND  
SOCIAL CONSEQUENCES  
OF DRUG ABUSE AND  
ILLICIT TRAFFICKING**

United Nations estimates, based on cash flows from international banking and capital account statistics, suggested that up to \$300 billion per year may have been available for laundering in the late 1980s.<sup>100</sup> This estimate appears to have been rather on the high side for that time. By now, however, the estimate is likely to have become reality. If it is accepted that the annual total global turnover of the illicit drug industry may be around \$400 billion (see [Annex I](#)), with several estimates reaching \$500 billion, i.e. 8 to 10 times the value of the illicit drug market of the United States (approximately \$50 billion), it is likely that some \$300 billion per year would be available for laundering in the 1990s. Indeed, several estimates fall in the \$300 billion to \$500 billion range.<sup>101</sup>

While global illicit drug funds, though far from negligible, are still modest compared with the size of the aggregated economies of the developed countries, they are extremely large if compared with the economies of many developing countries. Even the lowest estimate of \$85 billion would make the drug money available for laundering larger than the individual GDPs of three-quarters of the 207 economies of the world.<sup>102</sup> Taking the higher estimate of \$500 billion, the amount of drug money available for laundering would be equivalent to far less than one tenth of the GDP of the United States or less than 3 per cent of the combined GDP of the member countries of the Organisation for Economic Co-operation and Development (OECD). Whatever the actual size of drug-related criminal finance, there is little doubt that it has already reached significant proportions, particularly for some of the producer/trafficking countries.

## **2. Savings**

Despite the large sums mentioned above, the impact of the illicit drug industry on domestic savings appears to be minimal in most countries. This is rather surprising in view of the traditional pattern whereby the redistribution of income from low- to high-income groups actually increases the overall savings rate. In the case of illicit drugs, the savings of the poorest sections of society tend to be spent on drug consumption. Income generated by high-income groups from the drug business is not simply deposited in domestic savings, but laundered, often outside the country concerned. It may also be spent on arms purchases and conspicuous consumption often accompanied by a notable increase in alcohol consumption and expenditure on prostitution.<sup>103</sup>

## **3. Investment**

Investment which, in a wider context, includes the building of human resources ("human capital formation"), is jeopardized by an illicit drug industry because resources that could be spent on education and health-care are wasted on drugs instead.<sup>104</sup> Even productive investment, in the traditional sense, does not appear to be particularly attractive to drug traffickers. In Colombia, for instance, the Medellín cartel concentrated its investment in real estate and the construction sector.<sup>105</sup> Once the construction boom drew to a close, the city of Medellín suffered an economic decline and high unemployment because little alternative productive investment had been made. In Bolivia, drug money was invested in entertainment, television and radio stations, and at least one soccer club,<sup>106</sup> which may have been acquired to influence people in favour of traffickers. Import businesses were also opened for money-laundering purposes. Reports from countries such as Canada and the United States, where significant parts of the receipts of illicit drug trafficking are also laundered, indicate that drug money is often found to have been invested in small, cash-

rich businesses which have no need to issue large numbers of official invoices. Companies controlled by drug capital may thus continue to operate for a prolonged period as loss-makers, undercutting market prices and distorting competition.

If the level of drug-related violence increases, as has happened in a number of developing countries where drug mafias have concentrated their activities,<sup>107</sup> legitimate enterprises will start to liquidate their investments and send their capital abroad. Dirty capital may replace clean capital but, as noted above, dirty money operates far less productively. The social ethic of many of the new drug capitalists who have "legitimized" their money has not always been conducive to sustainable economic growth. Efforts to suppress drug trafficking and related violence increase police and military budgets, crowding out government investment in infrastructure, education and health-care. The illicit drug industry has often been a catalyst for the "delegitimization" of the state. As the security situation deteriorates, the environment for investment becomes increasingly unattractive,<sup>108</sup> and as the judicial system weakens, the resolution of civil disputes becomes increasingly difficult. Uncertainty promotes an investment climate focussed on short-term profits, which compromises long-term growth. Even though the drug problem does not, itself, rank high as a risk factor for foreign investment, it has a significant impact on other risk factors rated high by investors, such as insurgency, terrorism, land disputes, social violence and corruption.

A special danger emerging in countries aiming at rapid privatization of state-owned assets, such as in eastern Europe, is that the assets of privatization become a target for criminal investment. This tends to undermine the foundations both of the state and of the new market economy. The paradox is that privatization takes place in order to increase efficiency but, if criminally financed, can turn out to be extremely inefficient from the wider, long-term economic perspective. Criminal financing often leads to a parasitic, anti-competitive approach to business.<sup>109</sup> The criminal enterprise operates in response to stimuli that may be quite different from those recognized by legitimate enterprises. In particular, such an enterprise has the ability to use intimidation as a kind of non-tariff trade barrier,<sup>110</sup> or it may use violence to eliminate competition which may lead to monopolistic behaviour in price-setting policies. The aggressor may even eliminate rivals to increase market share and profitability.<sup>111</sup> Once the ability to coerce is recognized by local competitors, even expenditure on open violence is no longer necessary. Another competitive advantage of the criminal enterprise is its ability to repress wage rises by discouraging wage-related protest. Finally, access to financial resources for enterprises with dirty equity is facilitated. Thus, once established in the business community, firms with criminal ownership have structural advantages at their disposal for expanding their market share.<sup>112</sup>

To make matters worse, such developments can ultimately improve public perceptions of criminal enterprises. In Colombia, for example, reports written in the late 1980s and early 1990s, i.e. before the dissolution of the Medellín and the Cali cartels, suggested that as much as 30 per cent of the wealth of the country was in the hands of drug traffickers. At the time, the Cali drug cartel was estimated to have stakes in over 500 legal businesses, including some pharmaceutical companies. Criminal involvement in such companies led to a crucial, yet rarely acknowledged development: namely that, among some sections of the public, opinion changed in favour of criminal investors, who were seen to bring prosperity to the communities they had infiltrated.<sup>113</sup> More recently, the Colombian Government has begun to use the assets seized from drug traffickers to fund various social welfare programmes, including an agrarian reform programme which assists communities previously involved in the cultivation of illicit crops.<sup>114</sup>

#### **4. Macroeconomic management**

If large amounts of illicit drug money are invested in an economy, macroeconomic management becomes extremely complicated. Macroeconomic management is difficult, at the best of times, but with large-scale drug funds circulating in an economy, it becomes an almost impossible task. It is particularly difficult when there is a need for economic policy changes, such as austerity measures to curb inflation and diversify the export base, that drug funds tend to counteract government actions. They do this either by preventing a predicted course of action to materialize, by prolonging the time-frame for macroeconomic stabilization or by prompting governments to take over-drastic measures, thus creating unemployment and social unrest.<sup>115</sup> The UNRISD studies have shown that money derived from drug trafficking has distorted many national fiscal and monetary policies. With so much additional capital from the drug trade competing with funds from the normal economy, drug money has introduced many more macroeconomic distortions than central banks have been able to handle. Macroeconomic impacts have been felt on foreign exchange flows, aggregate demand and inflation, and, indeed, on economic growth in general.<sup>116</sup>

Kingdom, for instance, spent US\$ 0.8 billion in 1993/1994, equivalent to 0.1 per cent of GDP.<sup>154</sup>

A much-discussed question concerns the links between illicit drug-trafficking organizations and terrorism or insurgent groups in terms of financing operations, gaining political support or undermining an existing government. There is evidence that a number of insurgent and terrorist organizations deal in illicit drugs for mainly pragmatic reasons. Several, particularly in the coca-growing regions of South America, use their earnings from the cocaine trade to bolster their political power and to acquire operating funds, even though they may be ideologically opposed to the drug trade itself. The Colombian Government, for instance, estimates that between one third and one half of the operations of the Fuerzas Armadas Revolucionarias de Colombia (FARC) (Colombian Revolutionary Armed Forces), the country's largest guerilla group, are financed through narcotics trafficking.<sup>155</sup> Various groups with similar agendas and considerable income from trafficking are reported elsewhere: Central America, Afghanistan, Myanmar, Sri Lanka and Thailand.<sup>156,157</sup>

Illicit drug funds, laundered or otherwise, may infiltrate the formal economy and subsequently the political system, endangering the foundation and the proper functioning of civil society and leading to social disintegration and anarchy.<sup>158</sup> In some producer/trafficking countries, drug money is reported to have infiltrated the "last crevices of society, politics, the economy, and even cultural and sports activities ... to gain public support and respect, as well as to have an ideal vehicle for money-laundering".<sup>159</sup>

The magnitude of funds under criminal control poses special threats to governments, particularly in developing countries, where the domestic security markets and capital markets are far too small to absorb such funds without quickly becoming dependent on them.<sup>160</sup> It is difficult to have a functioning democratic system when drug cartels have the means to buy protection, political support or votes at every level of government and society.<sup>161</sup> In systems where a member of the legislature or judiciary, earning only a modest income, can easily gain the equivalent of some 20 months' salary from a trafficker by making one "favourable" decision, the dangers of corruption are obvious.<sup>162</sup>

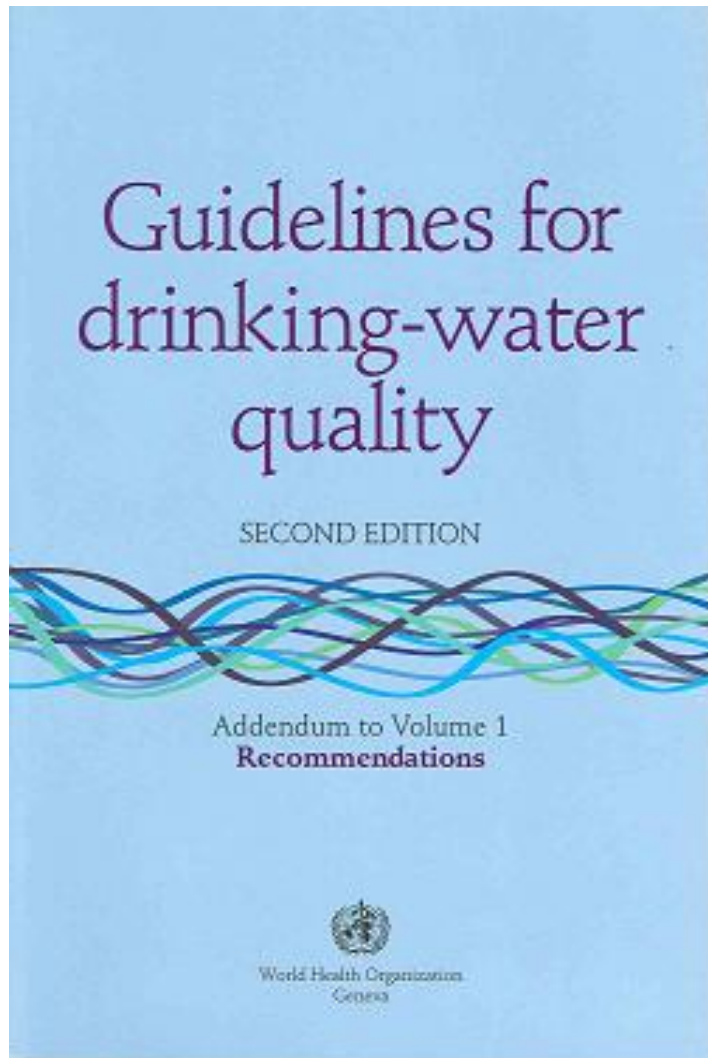
Given the already considerable influence of major drug traffickers and their ability to win popular and political support,<sup>163</sup> governments in a number of countries are forced either to submit to pressure from the traffickers or risk major political unrest. In Colombia, for instance, the decision of the Government in 1996 to go ahead with large-scale coca bush and opium poppy eradication resulted in massive demonstrations, apparently initiated by a number of drug-trafficking groups which succeeded in mobilizing more than 100,000 people. Many of the demonstrations escalated into open anti-government riots.<sup>164</sup> Similar events have also been reported from Bolivia and other countries. In other words, the drug production, trade, financing and laundering nexus has created a difficult situation in which governments may opt to remain passive in the fight against drug trafficking in order to preserve a minimum level of social peace.<sup>165</sup>



## Annex 98

### **WORLD HEALTH ORGANIZATION (WHO), “GUIDELINES FOR DRINKING-WATER QUALITY”, SECOND EDITION, ADDENDUM TO VOLUME 1, RECOMMENDATIONS, GENEVA, 1998**

(Available at: [http://www.who.int/water\\_sanitation\\_health/dwq/2edaddvol1.pdf](http://www.who.int/water_sanitation_health/dwq/2edaddvol1.pdf) (last visited 6 March 2010) p. 21)



A 13-week study in which male rats were given 1,2-DCP by gavage in corn oil for 5 days per week was considered to be the most appropriate study for the derivation of a guideline value. A LOAEL of 100 mg/kg of body weight (71.4 mg/kg of body weight per day when corrected for 5 days per week dosing) was observed for changes in haematological parameters. Using an uncertainty factor of 5000 (100 for interspecies and intraspecies variation, 10 for the use of a LOAEL instead of a NOAEL, and 5 for limitations of the database, including the limited data on *in-vivo* genotoxicity and use of a subchronic study), a TDI of 14  $\mu\text{g}/\text{kg}$  of body weight is derived. With an allocation of 10% of the TDI to drinking-water and assuming a 60-kg person consuming 2 litres of drinking-water per day, the provisional guideline value is 40  $\mu\text{g}/\text{litre}$  (rounded figure). The guideline value is considered to be provisional owing to the magnitude of the uncertainty factor and the fact that the database has not changed since the previous guideline value was derived.

### **Diquat**

Diquat is a non-selective contact herbicide and crop desiccant. Because of its rapid degradation in water and strong adsorption onto sediments, diquat has rarely been found in drinking-water.

In 1993, JMPR established an ADI of 0-0.002 mg of diquat ion per kg of body weight based on a NOAEL of 0.19 mg of diquat ion per kg of body weight per day (based on cataract formation at the next higher dose) identified in a 2-year study in rats and using an uncertainty factor of 100. JMP examined issues relevant to the establishment of a guideline value for diquat in drinking-water and concluded that the ADI established by JMPR was relevant for the establishment of a drinking-water guideline value.

Assuming a 60-kg person consuming 2 litres of drinking-water per day and allocating 10% of the ADI established by JMPR (1.9  $\mu\text{g}/\text{kg}$  of body weight, if not rounded) to drinking-water, a health-based value of 6  $\mu\text{g}/\text{litre}$  (rounded figure) can be calculated for diquat ion.

However, the limit of detection of diquat in water is 1  $\mu\text{g}/\text{litre}$ , and its practical quantification limit is about 10  $\mu\text{g}/\text{litre}$ . A provisional guideline value of 10  $\mu\text{g}/\text{litre}$  is therefore established for diquat ion.

### **Glyphosate**

Glyphosate is a broad-spectrum herbicide used in both agriculture and forestry and for aquatic weed control. Microbial biodegradation of glyphosate occurs in soil, aquatic sediment, and water, the major metabolite being aminomethylphosphonic acid (AMPA). Glyphosate is chemically stable in water and is not subject to photochemical degradation. The low mobility of glyphosate in soil indicates minimal potential for the contamination of groundwater. Glyphosate can, however, enter surface and subsurface waters after direct use near aquatic environments or by runoff or leaching from terrestrial applications.

In the Environmental Health Criteria monograph for glyphosate (WHO, 1994), a NOAEL of 175 mg/kg of body weight per day was identified in a teratogenicity study in rabbits and an uncertainty factor of 100 was considered appropriate for the derivation of an ADI for glyphosate. Using this ADI of 1.75 mg/kg of body weight and assuming a 60-kg person consuming 2 litres of drinking-water per day, a health-based value of 5 mg/litre (rounded figure) is obtained for an allocation of 10% of the ADI to drinking-water.

Because of the low toxicity of glyphosate, the health-based value derived for this herbicide is orders of magnitude higher than the concentrations normally found in drinking-water. Under usual conditions, therefore, the presence of glyphosate in drinking-water does not represent a hazard to human health, and the establishment of a numerical guideline value for glyphosate is not deemed necessary.

**Annex 99**

**GENERAL ASSEMBLY RESOLUTION S-20/2, “POLITICAL DECLARATION”, 10 JUNE  
1998**

(UN doc. A/S-20/4)

## Political Declaration

### **UNGASS Resolutions on the world drug problem**

#### **Resolutions adopted at the UN General Assembly Special Session on the World Drug Problem**

**New York, 8-10 June 1998**

(Resolution I adopted as recommended by the Ad Hoc Committee of the Whole - Text of the draft resolution presented in A/S-20/4, chapter V, section A)

#### **The General Assembly**

**Adopts** the Political Declaration annexed to the present resolution.

Annex

#### **Political Declaration**

Drugs destroy lives and communities, undermine sustainable human development and generate crime. Drugs affect all sectors of society in all countries; in particular, drug abuse affects the freedom and development of young people, the world's most valuable asset. Drugs are a grave threat to the health and well-being of all mankind, the independence of States, democracy, the stability of nations, the structure of all societies, and the dignity and hope of millions of people and their families; therefore:

**We, the States Members of the United Nations,**

**Concerned** about the serious world drug problem, having assembled at the twentieth special session of the General Assembly to consider enhanced action to tackle it in a spirit of trust and cooperation,

1. **Reaffirm** our unwavering determination and commitment to overcoming the world drug problem through domestic and international strategies to reduce both the illicit supply of and demand for drugs;

2. **Recognize** that action against the world drug problem is a common and shared responsibility requiring an integrated and balanced approach in full conformity with the purposes and principles of the Charter of the United Nations and international law, and particularly with full respect for the sovereignty and territorial integrity of States, the principle of non-intervention in internal affairs of States, and all human rights and fundamental freedoms. Convinced that the world drug problem must be addressed in a multilateral setting, we call upon States which have not already done so to become a party to and fully implement the three international drug control conventions. Also, we renew our commitment to adopting and reinforcing comprehensive national legislation and strategies to give effect to the provisions of those conventions, ensuring through periodic reviews that the strategies are effective;

3. **Reaffirm** our support for the United Nations and its drug-control organs, especially the Commission on Narcotic Drugs, as the global forum for international cooperation against the world drug problem and resolve to strengthen the functioning and governance of these organs;

4. **Undertake to ensure** that women and men benefit equally, and without any discrimination, from strategies directed against the world drug problem, through their involvement in all stages of programmes and policy-making;

5. **Recognize with satisfaction** the progress achieved by States, both individually and working in concert, and express deep concern about the new social contexts in which the consumption of illicit drugs, particularly of amphetamine-type stimulants, is taking place;

6. **Welcome** the efforts of the wide range of people working in various fields against drug abuse and are encouraged by the behaviour of the vast majority of youth who do not consume illegal drugs, and decide to give particular attention to demand reduction, notably by investing in and working with youth through formal and informal education, information activities and other preventive measures;

7. **Affirm** our determination to provide the necessary resources for treatment and rehabilitation and to enable social reintegration to restore dignity and hope to children, youth, women and men who have become drug abusers, and to fight against all aspects of the world drug problem;
8. **Call upon** the United Nations system and invite the international financial institutions, such as the World Bank and the regional development banks, to include action against the world drug problem in their programmes, taking into account the priorities of States;
9. **Call for** the establishment or strengthening of regional or subregional mechanisms, when needed, with the assistance of the United Nations International Drug Control Programme and the International Narcotics Control Board, and invite those mechanisms to share experiences and conclusions resulting from the implementation of national strategies and to report on their activities to the Commission on Narcotic Drugs;
10. **Express deep concern** about links between illicit drug production, trafficking and involvement of terrorist groups, criminals and transnational organized crime, and are resolved to strengthen our cooperation in response to those threats;
11. **Are alarmed** by the growing violence resulting from links between illicit production of and illicit trafficking in arms and drugs, and resolve to increase our cooperation in stemming illegal arms trafficking and to achieve concrete results in this field through appropriate measures;
12. **Call upon** our communities, especially families, and their political, religious, educational, cultural, sports, business and union leadership, non-governmental organizations and the media worldwide to actively promote a society free of drug abuse, especially by emphasizing and facilitating healthy, productive and fulfilling alternatives to the consumption of illicit drugs, which must not become accepted as a way of life;
13. **Decide** to devote particular attention to the emerging trends in the illicit manufacture, trafficking and consumption of synthetic drugs, and call for the establishment or strengthening by the year 2003 of national legislation and programmes giving effect to the Action Plan against Illicit Manufacture, Trafficking and Abuse of Amphetamine-type Stimulants and their Precursors, adopted at the present session;
14. **Decide** to devote particular attention to the measures for the control of precursors, adopted at the present session, and further decide to establish the year 2008 as a target date for States, with a view to eliminating or significantly reducing the illicit manufacture, marketing and trafficking of psychotropic substances, including synthetic drugs, and the diversion of precursors;
15. **Undertake** to make special efforts against the laundering of money linked to drug trafficking and, in that context, emphasize the importance of strengthening international, regional and subregional cooperation, and recommend that States that have not yet done so adopt by the year 2003 national money-laundering legislation and programmes in accordance with relevant provisions of the United Nations Convention against the Illicit Traffic in Narcotic Drugs and Psychotropic Substances of 1988, as well as the measures for countering money-laundering, adopted at the present session;
16. **Undertake** to promote multilateral, regional, subregional and bilateral cooperation among judicial and law enforcement authorities to deal with criminal organizations involved in drug offences and related criminal activities, in accordance with the measures to promote judicial cooperation, adopted at the present session, and encourage States to review and, where appropriate, to strengthen by the year 2003 the implementation of those measures;
17. **Recognize** that demand reduction is an indispensable pillar in the global approach to countering the world drug problem, commit ourselves to introducing into our national programmes and strategies the provisions set out in the Declaration on the Guiding Principles of Drug Demand Reduction, to working closely with the United Nations International Drug Control Programme to develop action-oriented strategies to assist in the implementation of the Declaration, and to establishing the year 2003 as a target date for new or enhanced drug demand reduction strategies and programmes set up in close collaboration with public health, social welfare and law enforcement authorities, and also commit ourselves to achieving significant and measurable results in the field of demand reduction by the year 2008;

18. **Reaffirm** the need for a comprehensive approach towards the elimination of illicit narcotic crops in line with the Action Plan on International Cooperation on the Eradication of Illicit Drug Crops and Alternative Development adopted at the present session; stress the special importance of cooperation in alternative development, including the better integration of the most vulnerable sectors involved in the illicit drug market into legal and viable economic activities; emphasize the need for eradication programmes and law enforcement measures to counter illicit cultivation, production, manufacture and trafficking, paying special attention to the protection of the environment; and, in this regard, strongly support the work of the United Nations International Drug Control Programme in the field of alternative development;

19. **Welcome** the United Nations International Drug Control Programme's global approach to the elimination of illicit crops and commit ourselves to working closely with the United Nations International Drug Control Programme to develop strategies with a view to eliminating or significantly reducing the illicit cultivation of the coca bush, the cannabis plant and the opium poppy by the year 2008. We affirm our determination to mobilize international support for our efforts to achieve these goals;

20. **Call upon** all States to take into account the outcome of the present session when formulating national strategies and programmes and to report biennially to the Commission on Narcotic Drugs on their efforts to meet the above-mentioned goals and targets for the years 2003 and 2008, and request the Commission to analyse these reports in order to enhance the cooperative effort to combat the world drug problem.

**These are new and serious promises which will be difficult to achieve, but we are resolved that such commitments will be met by practical action and the resources needed to ensure real and measurable results;**

**Together we can meet this challenge.**

## Annex 100

### UNITED NATIONS CHILDREN'S FUND (UNICEF), "BASELINE OF THE PROVINCE OF ESMERALDAS, FINAL CONSULTING REPORT", APRIL 1998

*(Línea base de la Provincia de Esmeraldas. Informe final de Consultoría, pp. 16, 21, 22. Available at: <http://www.bibliotecaonu.org.ec/files/INFORME%20FINAL%20DE%20CONSULTORIA...ESMERALDAS.pdf> (last visited 19 February 2010)*

[...]

[Page 16]

#### **Main Conclusions**

By way of conclusions we can point out:

[...]

- The levels of child mortality are at alarming levels, even for the country's rural average figures.

[...]

[Page 17]

[...]

However, even allowing for flexibility in the criteria for access to water service, the great majority of parishes of all the cantons are below the level of 23% of the population with access to the service.

[...]

[Page 21]

[...]

#### **Main Conclusions**

The Main conclusions we can highlight are:

- The level of general coverage of the province is in a critical situation at the rural level, with coverage below 10% in water, sewage and/or availability of sanitation services.

[...]

[Page 22]

- Sewage and waste collection and disposal in the city of Esmeraldas is a serious public health problem because of the evident deterioration in the increasingly inadequate and inefficient provision of these services, [along] with the population increase and its disorganized distribution in the marginal urban space.



## **Annex 101**

### **FOOD AND AGRICULTURE ORGANIZATION OF THE UNITED NATIONS (FAO), “SPECIFICATIONS AND EVALUATIONS FOR PLANT PROTECTION PRODUCTS, GLYPHOSATE N-(PHOSPHONOMETHYL)GYCINE”, 2000/2001**

(Available at: <http://www.fao.org/ag/AGP/AGPP/Pesticid/Specs/docs/Pdf/new/glypho01.pdf> (last visited 6 March 2010) pp. 17, 24, 26)

## FAO SPECIFICATIONS AND EVALUATIONS FOR PLANT PROTECTION PRODUCTS

### GLYPHOSATE

#### EVALUATION REPORT 284/2000

#### EXPLANATION

Glyphosate was scheduled as an existing FAO specification to be reviewed in 1999 under the procedure introduced by FAO in 1998 (FAO Panel, 1998).

The current FAO specifications for glyphosate acid technical concentrates (FAO Specification 284/TK/S, 1991) and glyphosate soluble concentrates (FAO Specification 284/SL/S, 1991) were published in 1992 (AGP:CP/301) with a correction in 1994 (AGP:CP/311).

Glyphosate was evaluated for the first time by JMPR for toxicology and residues in 1986, for residues again in 1988 and 1994, and for toxicology and residues in 1997.

The new draft specifications were submitted 1999 by Monsanto and Cheminova jointly. Data were provided by both companies.

#### USES

Glyphosate is a non-selective contact herbicide with a broad spectrum of applications in agriculture, horticulture viticulture, forestry orchards, plantation crops, amenities, home gardening and greenhouses for the control of annual and perennial grasses and broad-leaved weeds. Furthermore it is used for weed control on aquatic areas, industrial areas, railroad tracks and on other non-cultivated areas. Besides the weed control it is used for root sucker control, for reseeding of grassland and to facilitate harvest. In addition there are uses in transgenic crops which are tolerant to glyphosate (rape, maize, soybeans, in sugar and fodder beets, cotton).

### **Acute toxicity**

Glyphosate acid and its salts exhibited a low acute toxicity in laboratory animals by the oral and dermal route with LD<sub>50</sub> values greater than 5000 mg/kg bw

Regarding primary irritation, glyphosate acid and the salts were found to be non-irritant, at least to intact skin. In contrast, undiluted glyphosate acid was found to be strongly irritant to rabbit eyes. There was markedly less eye irritation observed with the salts.

Sensitization was not observed with either glyphosate acid or the salts.

### **Short-term toxicity**

Subacute and subchronic oral toxicity studies also show a low toxicity of glyphosate. Repeated dermal exposure of rabbits and rats to glyphosate did not result in any systemic effects. Dermal irritation was not observed.

### **Mutagenicity / carcinogenicity**

Glyphosate was examined for mutagenicity in a wide range of test systems covering all relevant endpoints in vitro as well as in vivo.

From this large database, it can be concluded that the active ingredient does not exhibit a mutagenic risk to humans. It should be also taken into consideration that there is no evidence of carcinogenic effects in humans, although glyphosate products have been in world-wide use for many years.

### **Reproduction toxicity**

Multigeneration studies in rats did not indicate a specific hazard of glyphosate for reproduction.

Glyphosate is not teratogenic. The NOEL for developmental effects was 1000 mg/kg bw/day in rats and 175 mg/kg bw/day in rabbits.

### **Metabolites**

The metabolite AMPA was investigated for acute and subchronic effects, mutagenicity and teratogenicity. These studies have shown that AMPA has a lower toxicity than the parent compound and is devoid of a mutagenic or teratogenic potential.

On the basis of toxicity data and application rates for the active substance glyphosate, the risks for birds, mammals, aquatic organisms, bees, earthworms and micro-organisms in soil in observance of corresponding risk management measures are regarded as slight.

## **Annex 102**

### **UNITED NATIONS OFFICE FOR DRUG CONTROL AND CRIME PREVENTION (ODCCP), “GLOBAL ILLICIT DRUG TRENDS 2001”, NEW YORK, 2001**

(Available at: [http://www.unodc.org/pdf/report\\_2001-06-26\\_1/report\\_2001-06-26\\_1.pdf](http://www.unodc.org/pdf/report_2001-06-26_1/report_2001-06-26_1.pdf) (last visited 6 March 2010) p. 67)

## COCA

## GLOBAL ILLICIT CULTIVATION OF COCA BUSH AND PRODUCTION OF COCA LEAF AND COCAINE, 1988-2000

	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
<b>CULTIVATION<sup>(1)</sup> OF COCA BUSH IN HECTARES</b> (at end of reporting year)													
Bolivia <sup>(2)</sup>	48,900	52,900	50,300	47,900	45,300	47,200	48,100	48,600	48,100	45,800	38,000	21,800	14,600
Colombia (I) <sup>(2)</sup>	-	-	-	-	-	-	-	-	-	-	-	160,119	163,289
Colombia (II)	34,000	42,400	40,100	37,500	37,100	39,700	44,700	50,900	67,200	79,436	101,800	122,500	136,200
Peru	110,400	120,400	121,300	120,800	129,100	108,800	108,600	115,300	94,400	68,800	51,000	38,700	34,200
<b>Total</b>	-	-	-	-	-	-	-	-	-	-	-	220,619	212,089
	193,300	215,700	211,700	206,200	211,500	195,700	201,400	214,800	209,700	194,036	190,800	183,000	185,000
<b>PRODUCTION OF DRY COCA LEAF IN METRIC TONS</b>													
Bolivia	79,500	78,300	77,000	78,000	80,300	84,400	89,800	85,000	75,100	70,100	52,900	22,800	13,400
Colombia (I) <sup>(2)</sup>	-	-	-	-	-	-	-	-	-	-	-	260,995	266,161
Colombia (II)	25,840	33,072	45,313	45,000	44,891	45,258	67,497	80,931	108,864	129,481	165,934	195,000	220,000
Peru	187,700	186,300	196,900	222,700	223,900	155,500	165,300	183,600	174,700	130,600	95,600	69,200	54,400
<b>Total</b>	-	-	-	-	-	-	-	-	-	-	-	352,995	333,961
	293,040	297,672	319,213	345,700	349,091	285,158	322,597	349,531	358,664	330,181	314,434	287,000	287,800
<b>POTENTIAL MANUFACTURE OF COCAINE IN METRIC TONS</b>													
Bolivia	148	168	189	220	225	240	255	240	215	200	150	70	43
Colombia (I) <sup>(3)(4)</sup>	-	-	-	-	-	-	-	-	-	-	-	680	695
Colombia (II)	51	64	92	88	91	119	201	230	300	350	435	520	580
Peru	327	373	492	525	550	410	435	460	435	325	240	175	145
<b>Total</b>	-	-	-	-	-	-	-	-	-	-	-	925	883
	527	604	774	833	866	769	891	930	950	875	825	765	768

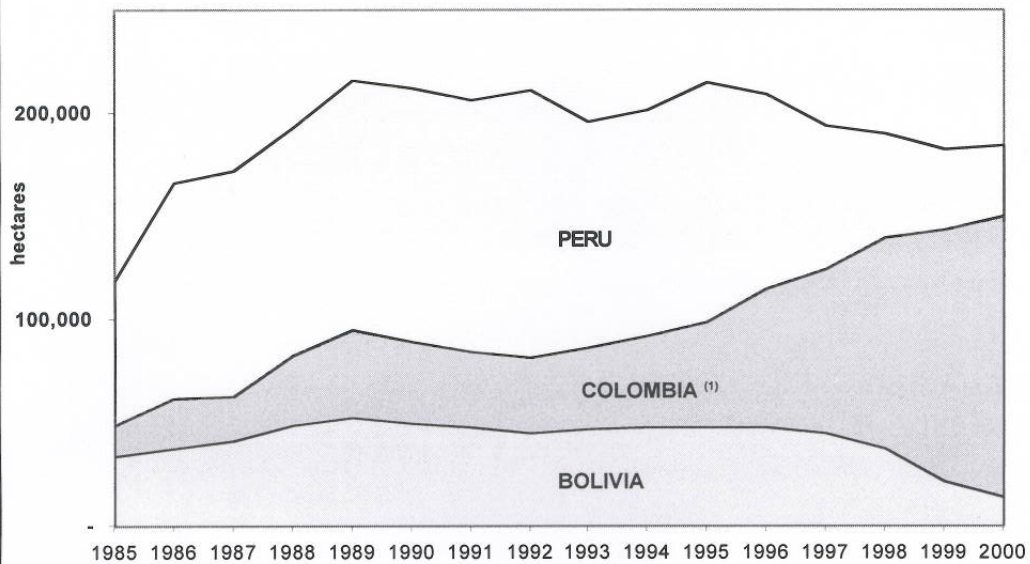
<sup>(1)</sup> Potentially harvestable, after eradication

<sup>(2)</sup> Annual estimates include 12,000 hectares authorized by Bolivian law 1008

<sup>(3)</sup> Thanks to the new monitoring system of the Government of Colombia, new cultivation estimates are available starting in 1999 (Colombia (I)). It is important to note that, due to the use of different methodologies, the resulting data cannot be compared with data for previous years derived on US surveys (Colombia (II)). For more information provided by the Colombian authorities on their new monitoring system and resulting estimates, please see page 281. The month of reference was March for 1999 data and August for 2000 data.

<sup>(4)</sup> The Colombian authorities recently estimated that cocaine manufacture in Colombia could potentially have been as high as 947 tonnes in 2000.

## TRENDS IN GLOBAL COCA BUSH CULTIVATION



(1) Based on Colombia (II) data

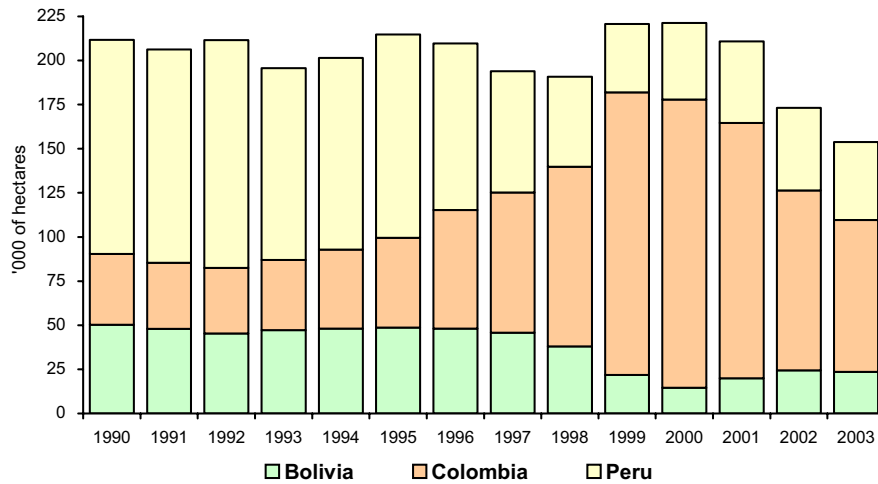
## **Annex 103**

### **UNITED NATIONS OFFICE ON DRUGS AND CRIME (UNODC), “COLOMBIA COCA CULTIVATION SURVEY 2003”, JUNE 2004**

(Available at: [http://www.unodc.org/pdf/colombia/colombia\\_coca\\_survey\\_2003.pdf](http://www.unodc.org/pdf/colombia/colombia_coca_survey_2003.pdf) (last visited 2 October 2009), pp. 12, 15)

## Colombia Coca Survey for 2003

Figure 2: Coca cultivation in the Andean region 1994 – 2003



Estimates for Colombia since 1999, for Peru since 2000 and for Bolivia since 2003 come from the national monitoring systems established by the respective governments with the support of UNODC. Because of methodological differences, these figures are not directly comparable with previous estimates based on US Department of State data.

Table 2: Coca cultivation in the Andean region, 1994-2003

	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	% change 2002-2003
<b>Bolivia</b>	48,100	48,600	48,100	45,800	38,000	21,800	14,600	19,900	24,400	23,600	n.a. <sup>2</sup>
<b>Peru</b>	108,600	115,300	94,400	68,800	51,000	38,700	43,400	46,200	46,700	44,200	-5%
<b>Colombia</b>	44,700	50,900	67,200	79,400	101,800	160,100	163,300	144,800	102,000	86,000	-16%
<b>Total</b>	<b>201,400</b>	<b>214,800</b>	<b>209,700</b>	<b>194,000</b>	<b>190,800</b>	<b>220,600</b>	<b>221,300</b>	<b>210,900</b>	<b>173,200</b>	<b>154,100</b>	<b>-11%</b>

Sources:

US department of State

National monitoring systems supported by UNODC

The decrease in coca cultivation recorded in Colombia for 2003 corresponded to an intensification of the aerial spraying campaign that peaked at about 133,000 ha<sup>3</sup> in 2003, or an increase of 2% compared to 2002 (130,000 ha).

Between 2001 and 2002 coca cultivation decreased the most in the departments where sprayings were concentrated, mainly in Meta, Caquetá and Putumayo. Reductions were also registered in Vichada, Bolivar and Cauca. At the same time, cultivation increased significantly in south-western Nariño and in east-central Guaviare.

Between 2002 and 2003, the most significant reductions in coca cultivation were found in the departments of Guaviare (-11,218 ha or - 41%), Putumayo (-6,166 ha or - 45%) and Norte de Santander (-4,471 ha or - 44%). Since the start of SIMCI in 1999 and until 2001, Putumayo was the department with the largest area under coca cultivation. In 2000, coca cultivation reached 66,000 ha, or 40% of the national estimate in this department alone. In 2003, only 7,600 ha of coca cultivation were recorded in Putumayo (or 9% of the national estimate), which ranked this department behind the departments of Nariño, Guaviare and Meta.

<sup>2</sup> not applicable: 2002 results from US department of State and 2003 results from the Bolivian monitoring system supported by UNODC relied on different methodologies and thus are not directly comparable.

<sup>3</sup> Accumulated sprayed area provided by DIRAN



### Colombia Coca Survey for 2003

Coca cultivation increased significantly in two departments: In Nariño, coca cultivation increased of about 102 % (7,700 ha) between 2001 and 2002 and again of 17 % (about 2,500 ha) between 2002 and 2003. In Meta the increase was of about 39% (or 3,600 ha) compared to 2002.

Although in 1999 Nariño, located in the South of the country along the Pacific coast, has accounted for less than 6% of the national total, in 2003, this department alone represented 20% of the national total. The increase in coca cultivation in this department took place despite intensifying spraying efforts in this department that was reported to have increased from 8,200 ha in 2001 and 18,000 ha in 2002 to 36,900 ha or 28% of the national total in 2003. The spraying activities were counterbalanced by continuous replanting of the coca fields and extension of coca cultivation in new areas of the department.

Guaviare remained an important department in terms of coca cultivation and represented 19% of the national total in 2003.

In 2003, the major coca growing departments were therefore, in decreasing order of importance, Nariño, Guaviare and Meta. Together they accounted for 54% of the total coca cultivation. The same three departments accounted for 61% of the aerial eradication efforts.

Table 3: Coca cultivation estimates 1999-2003, by department (in ha)

Department	March 1999	August 2000	November - 2001	December 2002	December 2003	% change 2002-2003
Nariño	3,959	9,343	7,494	15,131	17,628	17%
Guaviare	28,435	17,619	25,553	27,381	16,163	-41%
Meta	11,384	11,123	11,425	9,222	12,814	39%
Putumayo	58,297	66,022	47,120	13,725	7,559	-45%
Caquetá	23,718	26,603	14,516	8,412	7,230	-14%
Norte de Santander	15,039	6,280	9,145	8,041	4,471	-44%
Bolívar	5,897	5,960	4,824	2,735	4,470	63%
Antioquia	3,644	2,547	3,171	3,030	4,273	41%
Vichada	-	4,935	9,166	4,910	3,818	-22%
Cauca	6,291	4,576	3,139	2,120	1,443	-32%
Vaupés	1,014	1,493	1,918	1,485	1,157	-22%
Córdoba	1,920	117	652	385	838	118%
Guainía	-	853	1,318	749	726	-3%
Santander	-	2,826	415	463	632	37%
Amazonas	-	-	532	784	625	-20%
Boyacá	-	322	245	118	594	403%
Arauca	-	978	2,749	2,214	539	-76%
Magdalena	521	200	480	644	484	-25%
Chocó	-	250	354	-	453	-
Guajira	-	321	385	354	275	-22%
Cundinamarca	-	66	22	57	57	0
Caldas	-	-	-	-	54	-
Valle del Cauca	-	76	184	111	37	-67%
TOTAL	160,119	163,289	144,807	102,071	86,340	-15 %
Rounded Total	160,000	163,000	145,000	102,000	86,000	-16 %
Accuracy	80%	90%	90%	92%	89%	



## **Annex 104**

### **UNODC, “COLOMBIA COCA CULTIVATION SURVEY 2004”, JUNE 2005**

(Available at: [http://www.unodc.org/pdf/andean/Part3\\_Colombia.pdf](http://www.unodc.org/pdf/andean/Part3_Colombia.pdf) (last visited 6 March 2010), pp. 15, 19)

While decreasing significantly between 2003 and 2004 in Guaviare (-6,400 ha), Nariño (-3,500 ha), Putumayo (- 3,200 ha), coca cultivation increased in other departments, in particular in Meta (+5,900 ha) and Arauca (+ 1,000 ha). In 2004 the department with the highest level of coca cultivation was Meta (18,700 ha), followed by Nariño (14,200 ha), Guaviare (9,800 ha), Caqueta (6,500 ha).

The department of Nariño which ranked first in 2003 in terms of coca cultivation, moved to the second place in 2004, owing to a decrease of 3,500 ha between 2003 and 2004. Spraying of about 31,000 ha took place in the first semester of 2004. Field reconnaissance at the end of the year mentioned significant replanting of coca bush. This replanting would have generated young fields not yet productive as of December 2004 and therefore not accounted for in the present census. Heavy spraying resumed in Nariño department early 2005, totaling 37,000 ha between January and March 2005.

With 9,800 ha, coca cultivation in Guaviare represented 12% of the national total in 2004. The decrease of 6,400 ha between 2003 and 2004 reflected the heavy spraying in the second semester of 2004. However that decrease matched a cultivation increase of 5,900 ha in neighbouring Meta.

Putumayo department, which ranked first and accounted for 41% of the total coca cultivation in 2000, only accounted for 5% of the national total and ranked sixth in 2004.

Table 4: Coca cultivation by department in Colombia, 1999 – 2004 (ha)

Department	Mar-1999	Aug-2000	Nov-2001	Dec-2002	Dec-2003	Dec-2004	% Change 2003-2004	% of 2004 total
Meta	11,384	11,123	11,425	9,222	12,814	18,740	46%	23%
Nariño	3,959	9,343	7,494	15,131	17,628	14,154	-20%	18%
Guaviare	28,435	17,619	25,553	27,381	16,163	9,769	-40%	12%
Caquetá	23,718	26,603	14,516	8,412	7,230	6,500	-10%	8%
Antioquia	3,644	2,547	3,171	3,030	4,273	5,168	21%	6%
Vichada		4,935	9,166	4,910	3,818	4,692	23%	6%
Putumayo	58,297	66,022	47,120	13,725	7,559	4,386	-42%	5%
Bolívar	5,897	5,960	4,824	2,735	4,470	3,402	-24%	4%
N. de Santander	15,039	6,280	9,145	8,041	4,471	3,055	-32%	4%
Arauca		978	2,749	2,214	539	1,552	188%	2%
Córdoba	1,920	117	652	385	838	1,536	83%	2%
Cauca	6,291	4,576	3,139	2,120	1,443	1,266	-12%	2%
Santander		2,826	415	463	632	1,124	78%	1%
Vaupés	1,014	1,493	1,918	1,485	1,157	1,084	-6%	1%
Amazonas			532	784	625	783	25%	1%
Guainía		853	1,318	749	726	721	-1%	1%
Magdalena	521	200	480	644	484	706	46%	1%
Guajira		321	385	354	275	556	102%	1%
Boyacá		322	245	118	594	359	-40%	0.4%
Caldas					54	358	563%	0.4%
Chocó		250	354		453	323	-29%	0.4%
Cundinamarca		66	22	57	57	71	25%	0.1%
Valle del Cauca		76	184	111	37	45	22%	0.1%
<b>TOTAL</b>	<b>160,119</b>	<b>162,510</b>	<b>144,807</b>	<b>102,071</b>	<b>86,340</b>	<b>80,350</b>	<b>-7%</b>	
<b>Rounded Total</b>	<b>160,000</b>	<b>163,000</b>	<b>145,000</b>	<b>102,000</b>	<b>86,000</b>	<b>80,000</b>	<b>-7%</b>	
Number of department affected	12	21	22	21	23	23		
Country coverage	12%	41%	100%	100%	100%	100%		

The decrease in coca cultivation in Colombia was offset by increases in Peru and Bolivia. The global level of coca cultivation in 2004 therefore remained relatively stable at around 158,000 ha, or +3% compared to 2003. In 2004, Colombia remained the country with the highest level of coca cultivation, ahead of Peru and Bolivia. However, Colombia's share in the total level of coca cultivation has fallen from 74% in 2000 to 51% in 2004.

Figure 2. Coca cultivation in the Andean region 1994 - 2004 (in ha)

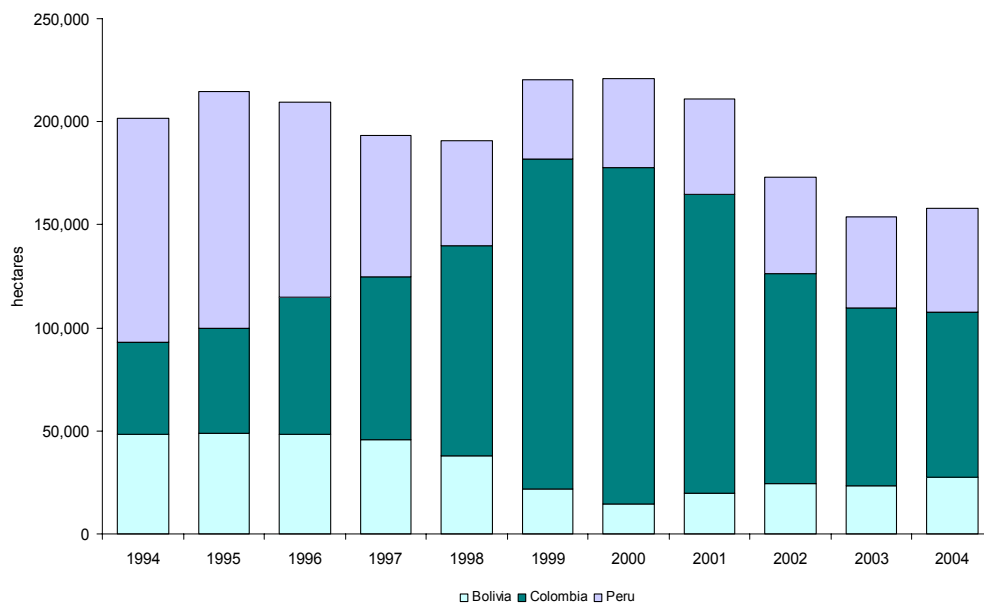


Table 5: Coca cultivation in the Andean region 1994 - 2004 (in ha)

	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	% change 2003-2004
Bolivia	48,100	48,600	48,100	45,800	38,000	21,800	14,600	19,900	24,400	23,600	27,700	17%
Peru	108,600	115,300	94,400	68,800	51,000	38,700	43,400	46,200	46,700	44,200	50,300	14%
Colombia	45,000	51,000	67,000	79,000	102,000	160,000	163,000	145,000	102,000	86,000	80,000	-7%
Total	201,700	214,900	209,500	193,600	191,000	220,500	221,000	211,100	173,100	153,800	158,000	3%

Sources      United States Department of State

     National Monitoring System Supported by UNODC



Coca fields in Colombia in mountain areas.



Coca fields of high plant density in Peru.



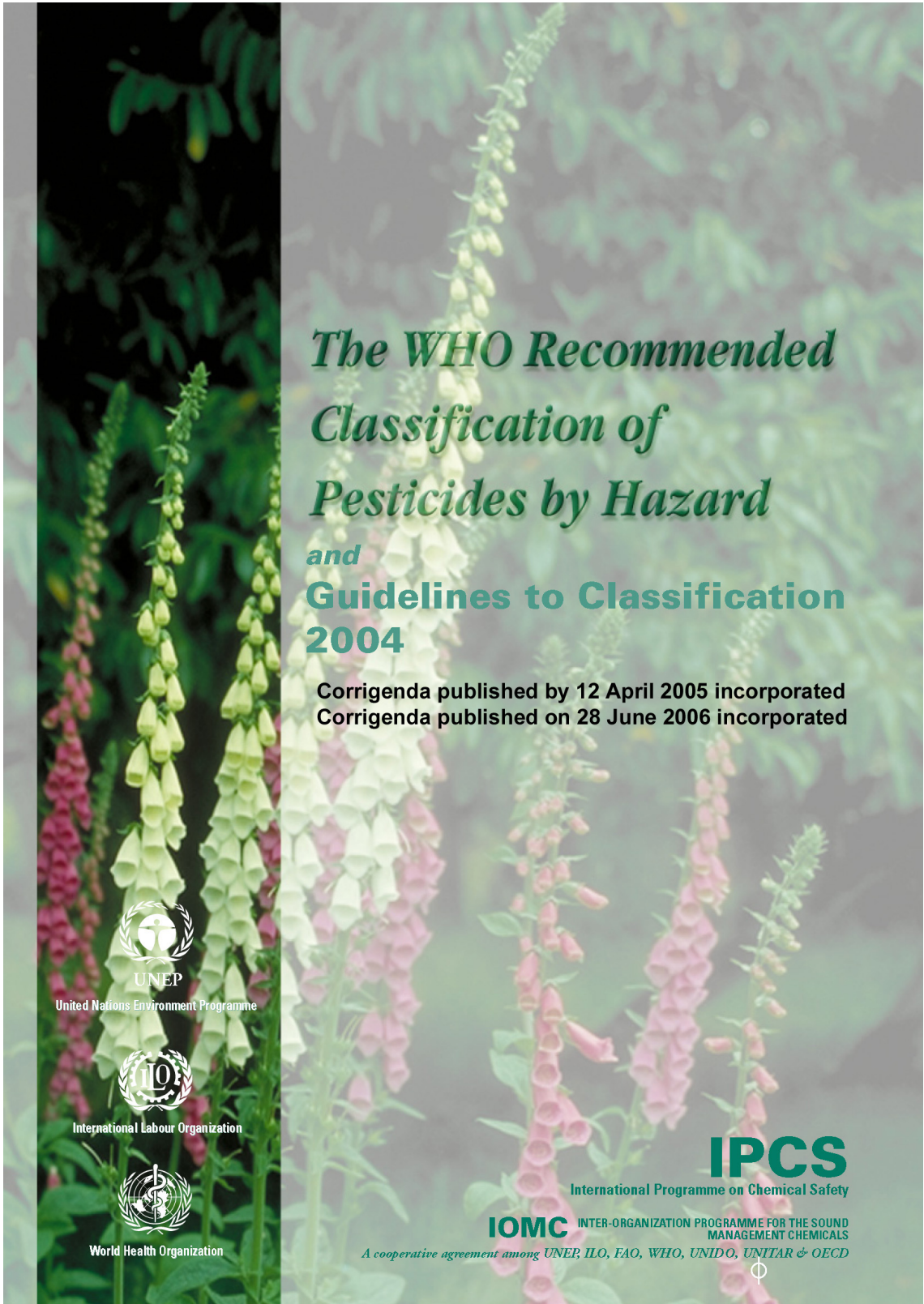
Coca fields with mechanised irrigation in Bolivia.



## **Annex 105**

### **WORLD HEALTH ORGANIZATION (WHO), “THE WHO RECOMMENDED CLASSIFICATION OF PESTICIDES BY HAZARD”, 2005**

(Available at: [http://www.who.int/ipcs/publications/pesticides\\_hazard\\_rev\\_3.pdf](http://www.who.int/ipcs/publications/pesticides_hazard_rev_3.pdf) (last visited 7 March 2010), p. 54)



*The WHO Recommended  
Classification of  
Pesticides by Hazard  
and  
Guidelines to Classification  
2004*

Corrigenda published by 12 April 2005 incorporated  
Corrigenda published on 28 June 2006 incorporated





## INDEX. CLASSIFICATION OF ACTIVE PESTICIDE INGREDIENTS, CONTINUED

la = Extremely hazardous; IB = Highly hazardous; II = Moderately hazardous; III = slightly hazardous; U = Unlikely to present acute hazard in normal use; FM = Fumigant, not classified; O = Obsolete as pesticide, not classified.

Common name	Class	Page	Common name	Class	Page	Common name	Class	Page
Fosmethilan	O	38	<i>Isazofos</i>	O	38	Mephospholan	O	38
Fosthietan	O	38	Isobenzan	O	38	Mepiquat	III	28
Fuberidazole	II	22	Isobornyl thiocanoacetate	O	38	Mepronil	U	34
Furalaxyl	III	27	Isocarbamid	O	38	Mercapthphos (Demeton-O and Demeton-S )	O	37
Furathiocarb	Ib	18	Isocil	O	38	Mercaptodimethur, see Methiocarb	II	23
Furconazole-cis	O	38	Isodrin	O	38	Mercuric chloride	la	16, 39
Furmecyclox	O	38	<i>Isofenphos</i>	O	38	Mercuric oxide	Ib	19, 39
Gamma-BHC, see gamma-HCH	II	23, 39	Isomethiozin	O	38	Mercurous chloride	II	23, 39
Gamma-HCH	II	23, 39	Isonoruron	O	38	Metalaxyl	III	28
Gibberellic acid	U	33	Isoprocab	II	23	Metaldehyde	II	23
Glufosinate	III	27	Isopropalin	O	38	Metamitron	III	28
Glyodin	O	38	Isoprothiolane	III	28	Metam-sodium	II	23
Glyphosate	U	33	Isoproturon	III	28	Metaphos, see Parathion-methyl	la	16
Glyphosine	O	38	Isothioate	O	38	Metazachlor	U	34
Griseofulvin	O	38	Isouron	III	28	Metconazole	III	28
Guazatine	II	23	Isoxaben	U	34	Methabenzthiazuron	U	34
Halacrine	O	38	Isoxapyrifop	O	38	Methacrifos	II	23
Halacrinat	O	38	Isoxathion	Ib	18	Methamidophos	Ib	19, 39
<i>Halofenozide</i>	U	33	Jodfenphos	O	38	Methasulfocarb	II	23
Haloxydine	O	38	Karbation, see Metam-sodium	II	23	Methazole	O	38
Haloxypop	II	23	Karbutilate	O	38	Methidathion	Ib	19
HCH	II	23, 39	Kasugamycin	U	34	Methiocarb	Ib	19
<i>Heptachlor</i>	O	38, 39	Kelevan	O	38	Methiuron	O	38
Heptenophos	Ib	18	Keltane, see Dicofol	III	27	Methomyl	Ib	19
Heptopargil	O	38	Kinoprene	O	38	Methoprene	U	34
Hexachloroacetone	O	38	Lambda-cyhalothrin	II	23	Methoprotryne	O	38
Hexachlorobenzene	la	16, 39	Lead arsenate	Ib	19	Methoxychlor	U	34
Hexaconazole	U	33	Lenacil	U	34	Methoxyethylmercury silicate	O	38, 39
Hexaflumuron	O	33	Leptophos	O	38	Methoxymethyl mercury chloride	O	38, 39
Hexaflurate	O	38	Lindane, see Gamma-HCH	II	23, 39	Methoxyphenone	O	38
Hexazinone	III	27	Linuron	U	34	<i>Methozyfenozide</i>	U	34
Hexythiazox	U	33	Lythidathion	O	38	Methyl bromide	FM	40
Hydramethylnon	III	28	M74, see Disulfoton	la	16	Methyl isothiocyanate	II	23
Hydrogen cyanide	FM	40	Magnesium phosphide	FM	40	Methylarsonic acid	III	28
Hydroprene	U	33	Malathion	III	28	Methyldymron	U	34
2-Hydroxyethyl- octyl sulphide	U	33	Maldison, see Malathion	III	28	Methylmercapthphos teolovy, see Demeton-S-methyl	Ib	18
Hydroxyisoxazole, see Hymexazol	U	33	Maleic hydrazide	U	34	Methylmercury dicyandiamide	O	38, 39
Hydroxyquinolinesulfate	O	38	Malonoben	O	38	Methyl-parathion	la	16, 39
Hymexazol	U	33	Mancozeb	U	34	Metilmerkaptosoksids, see Oxydemeton-methyl	Ib	19
Imazalil	II	23	Mancopz	O	38	Metiram	U	34
Imazamethabenzmethyl	U	33	MCC (SWEP)	O	38	Metobromuron	U	34
Imazapyr	U	33	MCPA	III	28	Metolachlor	III	28
Imazaquin	U	33	MCPA-thioethyl	III	28	Metolcarb	II	23
Imazethapyr	U	34	MCPB	III	28	Metosulam	U	34
Imibenconazole	U	34	Mecarbinid	O	38	Metoxuron	U	34
Imidacloprid	II	23	Mecarbam	Ib	19	Metribuzin	II	23
Iminoctadine	II	23	Mecarbinid	O	38	Metriltriazotion, see Azinphos-methyl	Ib	18
Inabenfide	U	34	Mecarphon	O	38	Metsulfovax	O	38
Iodofenphos (Jodfenphos)	O	38	Mecoprop	III	28	Metsulfuron methyl	U	34
loxynil	II	23	Mecoprop-P	III	28			
loxynil octanoate	II	23	Medinoterb acetate	O	38			
Ipazine	O	38	Mefenacet	U	34			
IBP, see Iprobenfos	III	28	Mefluidide	III	28			
Iprobenfos	III	28	Menazon	O	38			
Iprodione	U	34	MEP, see Fenitrothion	II	22			
Iprovalicarb	U	34	Mepanipyrim	U	34			
IPSP	O	38						



## Annex 106

### **“REPORT OF THE UNITED NATIONS TECHNICAL PRELIMINARY MISSION TO PROPOSE STUDIES ON THE IMPACT OF THE AERIAL SPRAYINGS AND COMPLEMENTARY ACTIONS IN THE NORTHERN BORDER OF ECUADOR”, QUITO, ECUADOR, APRIL 2006**

*(Archives of the Ministry of Foreign Affairs of Colombia)*

[...]

[Page 4]

[...]

It was possible to ascertain that this border region has great potential and riches that are in contrast with high levels of poverty and lack of sufficient opportunities, lack of basic social services, and institutional, technical assistance and financial weaknesses. Due to the fact that the economy of these two provinces is mainly based on extractive activities –oil and forestry– they generate consequences of environmental contamination and deterioration of the ecosystems.

[...]

[Page 12]

[...]

Between 13 and 24 February last, the Mission carried out an intense program that included more than 20 meetings with approximately 200 persons from public and private organizations from the national, provincial and cantonal spheres, among which are the following: Ministries of Public Health, Environment, Agriculture-SESA-INIAP, Foreign Affairs, Ecuadorian Scientific and Technical Commission on Sprayings (CCTE), which includes technical units from the government, universities, and professionals; with the Ecuadorian ombudsman, the Red Cross and several agencies from the United Nations System.

[...]

[Page 15]

[...]

Other aspects that complete the examined scenario with regards to aerial sprayings are:

- Closeness to Colombia's armed confrontation. In some of the zones close to the border great extensions of coca are cultivated, which motivated the sprayings with herbicides since the year 2000 when Plan Colombia was initiated.
- Production and illicit trade of cocaine and heroin in Colombia. The border province of Putumayo has been a traditional producer of coca although in recent years the cultivated areas has diminished as a result of the destruction of illicit crops by means of spraying.
- Due to poverty and the lack of employment alternatives for its remediation, many Ecuadorian peasants from the zone work in legal and illegal plantations in Colombia. Likewise, an important illicit trafficking of precursor substances for the processing of cocaine, especially white gasoline (oil ether), kerosene, cement and solvents, that originates on the Ecuadorian side is reported.
- It is claimed that part of the cocaine is smuggled into Ecuador through the border and from there to the coastal ports and airports. Illegal trafficking of weapons, ammunition and supplies for irregular forces are also reported.
- Trafficking of drugs, chemical precursors, military supplies and other items favour criminal activities which create a scenario where crimes such as white slavery, homicides, kidnappings, extortion (*vacuna*), assault, robbery and threats are abundant, crimes as a result of the local weakness of the police...

[Page 16]

...and criminal justice systems remain unpunished in most cases. In 2003, homicides in Esmeraldas and Sucumbíos amounted to 15.2% of the total number of homicides in the country.

- The aforementioned situation constitutes a scenario of social insecurity that motivates the displacement of persons that cross the border seeking to escape from the internal conflict and the actions against drugs in Colombia. According to UNHCR there are currently nearly 11.500 refugees, 36.000 refugee applications and many more Colombians living irregularly in Ecuador. According to the recent study of the Red Cross already mentioned, 17% of the population of Sucumbíos is Colombian.

- High levels of illiteracy and general low schooling of the population. According to the 2001 census, there is an 8.5% illiteracy in Sucumbíos among persons older than 15 years of age, 59% of the people have completed elementary school, and 12.4% high school. In Esmeraldas illiteracy among persons older than 15 years of age is 11.6%, 56% of the population have completed elementary school, and 17.9% high school.
- Deficient conditions of basic services such as water, sanitation, health, education, housing and sanitary education, that determine the epidemiological profile of the sector. Deficient basic residential services according to the 2001 census were found in 78.6% of the homes in Esmeraldas, while in Sucumbíos it went up to 90.9% of the homes. According to the same 2001 census the coverage of water [service] in homes was: 35% in Esmeraldas and 26.7% in Sucumbíos. Overcrowding in homes: 31.5% in Esmeraldas and 37% in Sucumbíos.
- There are cases of environmental contamination and ecosystem degradation due to oil extractive activities, tropical rainforest felling, subsistence of traditional farming patterns and razing of pasturelands for non-technical extensive cattle farming.
- There is scant social investment and low employment creation as pointed out in the referred-to UN report on the northern border (2004).

[...]

[Page 24]

[...]

#### 4.5-2. Food security

Agricultural productivity is very low in the region, as attested to by peasants and agricultural technicians. There is a lack of loans and technical assistance for border-area farmers; in Sucumbíos there are only 6 agricultural technicians from the government.

Many crops do not yield the expected benefits and as a consequence there is hunger among some families, especially in the indigenous population. Malnutrition rates are

high, especially among vulnerable groups. Chronic malnutrition at the rural level in Esmeraldas is 23% and in Sucumbíos 30.8%. Malnutrition and food insecurity are worsened because of the limited capacity to access productive assets or an income that allows them to have a more nutritious basic food basket.

[...]

[Page 33]

### 6.3-Supplemental information of the proposed studies

Impact	Studies	Technical personnel	Institutions and organizations involved	Place of study	Approximate time	Estimated cost (US\$)
Evaluation of the impact on health	Retrospective epidemiological study of morbid-mortality trends in communities exposed and non exposed to aerial sprayings	-Main researcher - Epidemiologist -Statistician -Toxicologist -Social Psychologist - Anthropologist -Field personnel	-Health Ministry -IESS -NGOs -Church -Communities -Universities -Contributing centres -Scientific groups	Sucumbíos province/Lago Agrio and Cascales cantons and Esmeraldas province/San Lorenzo canton	9 months	140.000
	Experimental toxicological studies of acute and sub-acute effects of the mix used in aerial sprayings	Researchers from the Experimental Toxicology Centre	-Universities -National Hygiene Institute from Ecuador (INH) e –National Health Institute Colombia	At the laboratory level	6 months	90.000
Evaluation of the environmental impact	Study to assess the possible impact of aerial sprayings on water biota and soil in exposed and non exposed areas in the northern border	- Environmental ecologist (main researcher) - Microbiologist -Agronomist -Field personnel	-Ministry of Environment -Ministry of Agriculture -INIAP -Universities - Local NGOs -Communities	Sucumbíos province/Lago Agrio and Cascales cantons and Esmeraldas province/San Lorenzo canton	6 months	90.000
Evaluation of the impact on farming	Study to assess the pathogen population dynamics in soils exposed and non exposed to aerial sprayings on the northern border	-Phytopathologist (main researcher) -Agronomist (edatologist) -Myco-taxonomist -Field	-Ministry of Agriculture -SESA -Universities	Sucumbíos province/Lago Agrio and Cascales cantons and Esmeraldas province/San Lorenzo canton	12 months	140.000

		personnel				
	Study on retrospective assessment of the behaviour of agricultural production in sprayed and non sprayed areas	-Agricultural economist -Agronomist -Rural sociologist (local development) -Statistician -Field personnel	-Ministry of Agriculture -SESA -Local NGOs -Universities -INEC -Communities	Sucumbios province/Lago Agrio and Cascales cantons and Esmeraldas province/San Lorenzo canton	6 months	70.000





## **Annex 107**

### **UNODC, “COLOMBIA COCA CULTIVATION SURVEY 2006”, JUNE 2007**

(Available at: [http://www.unodc.org/pdf/research/icmp/colombia\\_2006\\_en\\_web.pdf](http://www.unodc.org/pdf/research/icmp/colombia_2006_en_web.pdf) (last visited 7 March 2010), p. 27)

*Putumayo-Caqueta region***Table 9. Coca cultivation in the Putumayo-Caqueta Region, 2000-2006 (hectares)**

Department	2000	2001	2002	2003	2004	2005	2006	% Change 2005-2006
Putumayo	66,022	47,120	13,725	7,559	4,386	8,963	12,254	37%
Caquetá	26,603	14,516	8,412	7,230	6,500	4,988	4,967	0%
Total	92,625	61,636	22,137	14,789	10,886	13,951	17,221	+23%
Annual trend	-	-33%	-64%	-33%	-26%	+28%	+23%	

In 2000, coca cultivation peaked in Putumayo department at 66,000 hectares, representing 40% of the national total. Following four years of consecutive decreases, coca cultivation in Putumayo was estimated at only 4,400 hectares or 5% of the national total in 2004, but this trend was later reversed. Between 2004 and 2006, coca cultivation soared by 105% in 2005 and by 37% in 2006, putting this department on the second place of coca cultivation in the country. At the same time, 5,118 hectares were manually eradicated and the aerial spraying increased from 11,800 hectares in 2005 to 26,500 hectares in 2006.

The Government's Plan Colombia to fight against illicit drugs was implemented in 2002 in this department, combining actions of interdiction, aerial spraying, manual eradication and important alternative development projects with good results in the period 2002 to 2004. However, only 0.4% of the 2006 budget of ongoing alternative development projects went to Putumayo, whereas this used to be 35% in the past four years.

Most of the new coca fields were established on the foothills close to the border with Nariño department and along the riverside of the Putumayo and Caqueta rivers. Spraying is particularly difficult in these mountainous areas, which could be a reason for the shift of coca cultivation to higher regions.

In a belt of about 10 km width along the Ecuadorian border that covers about 550,000 hectares, in the departments of Nariño and Putumayo, 7,000 hectares of coca cultivation were found in 2006. This represented an increase of almost 3,000 hectares (or 72%) compared 2005.

In Caqueta department, coca cultivation peaked at 26,000 hectares in 2000 or 16% of the country total. Following intense aerial spraying that started in 1996 with 537 hectares and peaked in 2002 at 18,600 hectares, coca cultivation decreased. In 2006, coca cultivation was at its lowest level at 4,967 hectares, or 6% of the country total.

*Coca fields in Putumayo department.*

## **Annex 108**

### **UNODC, “COLOMBIA COCA CULTIVATION SURVEY 2008”, JUNE 2009**

(Available at: [http://www.unodc.org/documents/crop-monitoring/Colombia\\_coca\\_survey\\_2008.pdf](http://www.unodc.org/documents/crop-monitoring/Colombia_coca_survey_2008.pdf) (last visited 7 March 2010), pp. 13, 17, 18, 19, 48, 70)

In absolute numbers, the most important decreases of coca cultivation between 2007 and 2008 were in the departments of Putumayo (-5,155 hectares) in the Southwest of the country, Meta (-4,861 hectares) and Antioquia (-3,830 hectares) in the Central region. The decrease in Putumayo which accounted for 35% of the area under coca cultivation in 2007 went from 14,800 hectares to 9,700 hectares. Coca cultivation in Putumayo was significant since 1999 varying between 58,300 and 47,000 hectares until 2001. In 2002 a significant reduction to 15,100 hectares was registered and the coca cultivation took a constant downtrend reaching a record of 4,400 hectares in 2004. Since then, the coca area was increasing constantly until 2007 to decrease again in 2008.

Only small but locally significant increases of coca crops took place in the departments of Choco (+1,714 hectares), Valle del Cauca (+1,636 hectares) and Cauca (+1,254 hectares). The department of Choco, at the Pacific Ocean coast, which had a small coca cultivation area in 2003 with less than 500 hectares, increased its coca area almost six times (2,794 hectares) in 2008.

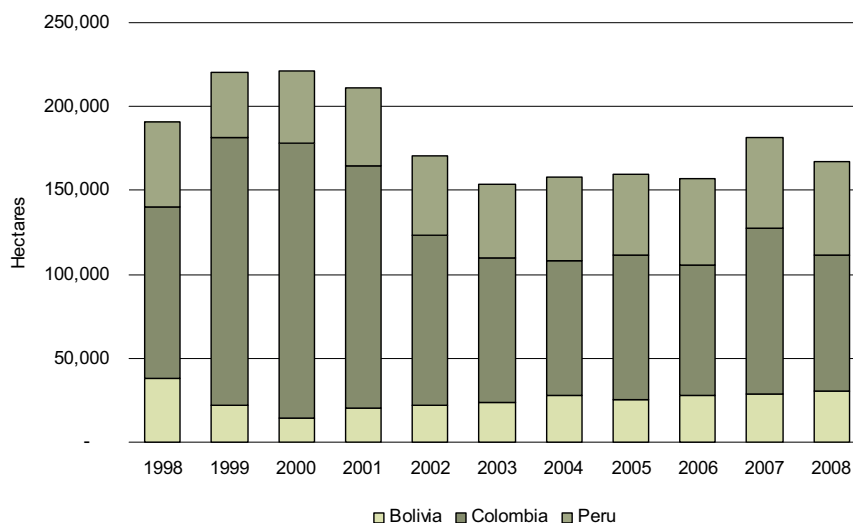
Nariño and Putumayo, despite a combined decrease of 5,800 hectares – remain as the first two top departments in terms of coca cultivation, together accounting for 36% of the total area under coca cultivation in the country. In fact 44% of the 2008 cultivation took place in just three departments Nariño, Putumayo and Guaviare, the same three departments that accounted for 45% of total cultivation in 2007.

**Table 3. Coca cultivation by department, 2003 – 2008 (hectares)**

Department	Dec-2003	Dec-2004	Dec-2005	Dec-2006	Dec-2007	Dec-2008	% change 2007-2008	% of total 2008
Nariño	17,628	14,154	13,875	15,606	20,259	19,612	-3%	24%
Putumayo	7,559	4,386	8,963	12,254	14,813	9,658	-35%	12%
Guaviare	16,163	9,769	8,658	9,477	9,299	6,629	-29%	8%
Antioquia	4,273	5,168	6,414	6,157	9,926	6,096	-38%	8%
Bolivar	4,470	3,402	3,670	2,382	5,632	5,847	4%	7%
Meta	12,814	18,740	17,305	11,063	10,386	5,525	-47%	7%
Cauca	1,443	1,266	2,705	2,104	4,168	5,422	+30%	7%
Caqueta	7,230	6,500	4,988	4,967	6,318	4,303	-32%	5%
Vichada	3,818	4,692	7,826	5,523	7,218	3,174	-56%	4%
N, de Santander	4,471	3,055	844	488	1,946	2,886	48%	4%
Choco	453	323	1,025	816	1,080	2,794	+159%	3%
Valle del Cauca	37	45	28	281	453	2,089	+361%	3%
Santander	632	1,124	981	866	1,325	1,791	+35%	2%
Cordoba	838	1,536	3,136	1,216	1,858	1,710	-8%	2%
Amazonas	625	783	897	692	541	836	+55%	1%
Guainia	726	721	752	753	623	625	0%	0.8%
Vaupes	1,157	1,084	671	460	307	557	+81%	0.7%
Arauca	539	1,552	1,883	1,306	2,116	447	-79%	0.6%
Magdalena	484	706	213	271	278	391	+41%	0.5%
Boyaca	594	359	342	441	79	197	+149%	0.2%
Caldas	54	358	189	461	56	187	+234%	0.2%
La Guajira	275	556	329	166	87	160	+84%	0.2%
Cundinamarca	57	71	56	120	131	12	-91%	0%
Cesar	0	0	0	0	0	5	n.a	0%
<b>TOTAL</b>	<b>86,340</b>	<b>80,350</b>	<b>85,750</b>	<b>77,870</b>	<b>98,899</b>	<b>80,953</b>	<b>-18%</b>	<b>100%</b>
<b>Rounded Total</b>	<b>86,000</b>	<b>80,000</b>	<b>86,000</b>	<b>78,000</b>	<b>99,000</b>	<b>81,000</b>	<b>-18%</b>	
Departments affected	23	23	23	23	23	24		

In 2008, coca cultivation in Colombia represented 48% of the world coca cultivation, while Peru and Bolivia represented respectively 33% and 18%.

**Figure 2: Coca cultivation in the Andean Region 1998-2008 (in hectares)**



**Table 4. Coca cultivation in the Andean region 1998 - 2008 (in hectares)**

	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	% Change 2007-2008
Bolivia	38,000	21,800	14,600	19,900	21,600	23,600	27,700	25,400	27,500	28,900	30,500	+6%
Peru	51,000	38,700	43,400	46,200	46,700	44,200	50,300	48,200	51,400	53,700	56,100	+4%
Colombia	102,000	160,000	163,000	145,000	102,000	86,000	80,000	86,000	78,000	99,000	81,000	-18%
Total	191,000	220,500	221,000	211,100	170,300	153,800	158,000	159,600	156,900	181,600	167,600	-8%

Sources: ■ United States Department of State ■ National Monitoring System Supported by UNODC

### National Parks and coca cultivation in Colombia, 2008



Sources: Government of Colombia; for coca cultivation National monitoring system supported by UNODC; for national parks UAESPNN  
 The boundaries and names shown and the designations used in this map do not imply official endorsement or acceptance by the United Nations

*Coca cultivation in national parks*

The presence of illicit crops in both Natural Parks and Indigenous Territories has been monitored by SIMCI since the 2001 coca cultivation survey, and the data have been delivered to the competent authorities to enable them to identify actions and projects to be applied for the preservation of its social and environmental characteristics with minimum of harm.

The boundaries of National Parks and Indigenous territories have been provided by the official institutions in charge of their management. In 2005 the limits of National Parks were edited by the monitoring project in cooperation with technicians from the National Parks Administrative Unit. The editing improved the match between SIMCI cartographic material and the official boundaries of the Parks. National Parks boundaries are not always precise and therefore coca cultivation estimated in each of them depends on the accuracy of their delimitation.

Coca cultivation in 2008 was found in 14 of the 54 National Parks in Colombia. With 3,445 hectares in 2008, coca cultivation represented 0.02% of the total area covered by National Parks, and coca cultivation in National Parks represented 4% of the total level of coca cultivation in 2008.

Coca cultivation in National Parks showed a slight decrease of 9% in the period 2007 and 2008. The significant reduction of the area under coca cultivation in the National Parks of Sierra La Macarena (-677 hectares) and Nukak (-337 hectares) contrasts with the increase in the National Park of Catatumbo-Bari (+432 hectares).

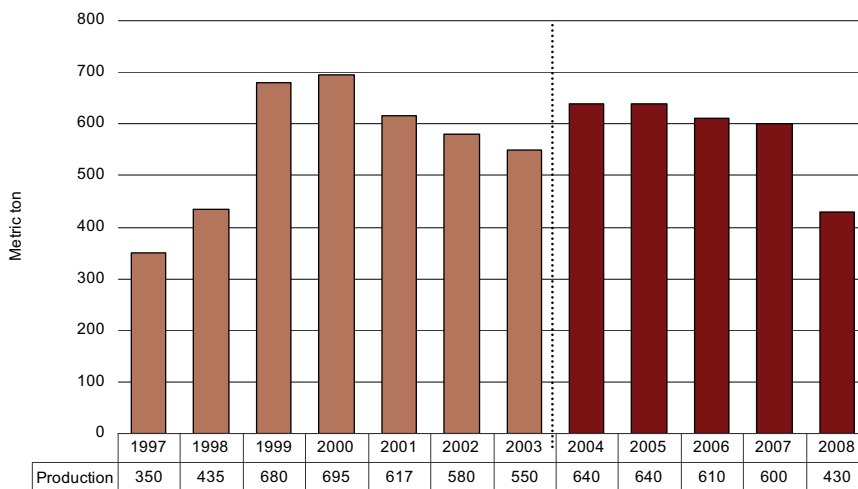
The detailed results by indigenous territories are presented in Annex 3.

**Table 5. Coca cultivation in National Parks, 2005 – 2008**

National Parks	2005	2006	2007	2008	% Change 2007-2008
Nukak	930	779	1,370	1,033	-24%
Sierra La Macarena	3,354	1,689	1,258	581	-54%
Catatumbo-Bari	55	22	38	477	+1,155%
Paramillo	686	236	420	464	+10%
La Paya	728	527	358	377	+5 %
Sierra Nevada	95	119	94	170	+81%
Munchique	13	6	55	96	+75%
Puinawai	60	41	26	67	+58%
Utria	-	-	12	44	+267%
Tinigua	155	122	63	37	-41%
Sanquianga	-	-	41	33	-20%
El Tuparro	-	-	14	18	+29%
Yariguies	2	4	12	-	-
Alto Fragua	25	1	5	4	-20%
Los Picachos	7	6	3	-	-
El Cocuy	-	2	1	3	+200%
Selva de Florencia	-	2	-	-	-
Farallones	-	-	-	44	-
<b>TOTAL</b>	6,110	3,556	3,770	3,445	-9%
<b>Rounded Total</b>	6,100	3,600	3,800	3,400	

**Table 23. Regional cocaine base, cocaine hydrochloride and pure cocaine production in Colombia, 2008.**

Region	Cocaine base (mt)	Cocaine hydrochloride (mt)	Pure Cocaine (mt)*
Meta-Guaviare	111	101	86
Putumayo-Caqueta	121	110	94
Sur de Bolivar	115	105	89
Orinoco	80	73	62
Pacific	104	95	81
Amazonas	12	11	9
Catatumbo	11	10	8
Sierra Nevada	1	1	1
<b>Total</b>	<b>554</b>	<b>506</b>	<b>430</b>

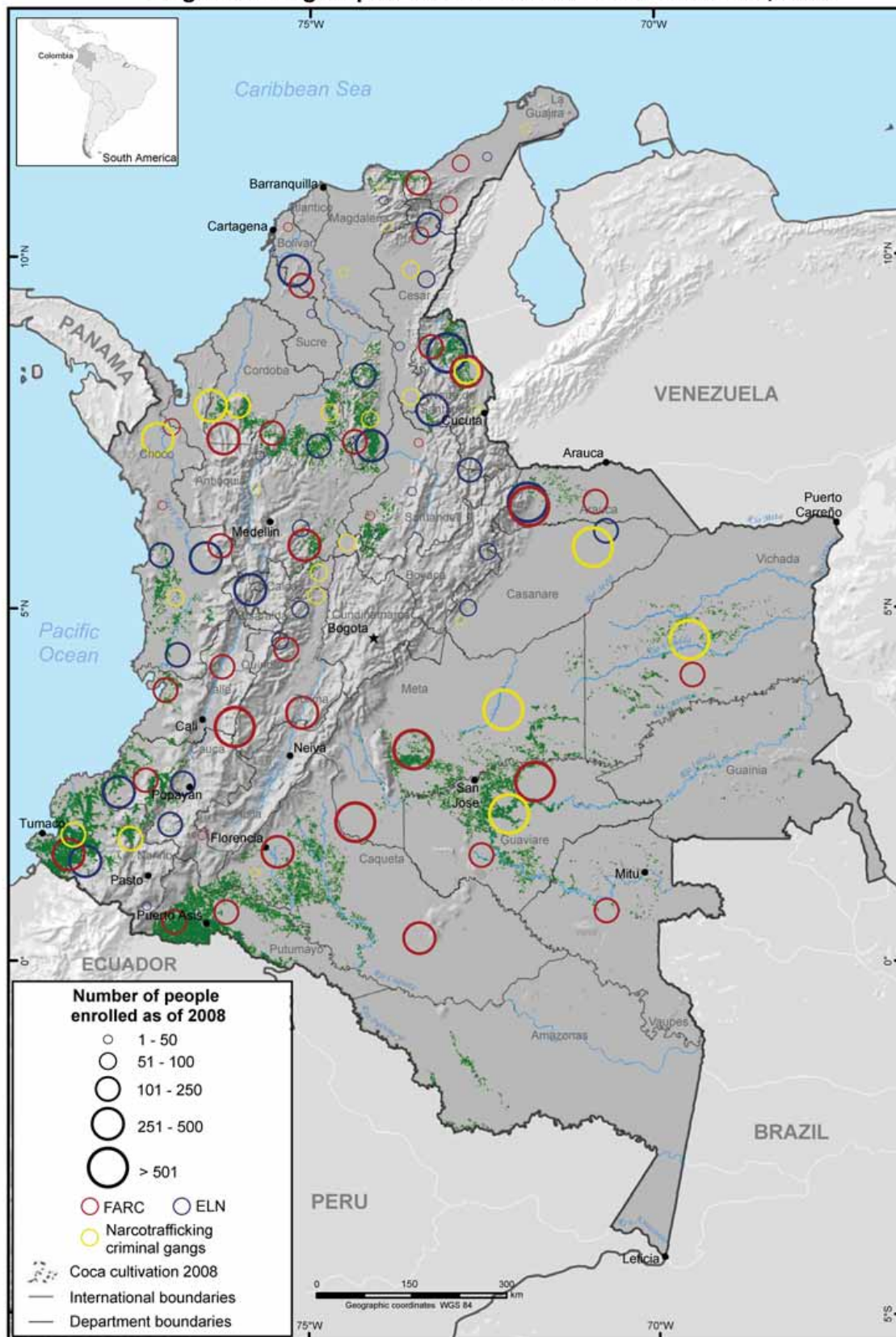
**Figure 9: Cocaine production in Colombia, 1998 - 2008 (metric tons)**

*Note: Cocaine production estimates for 2004 and later is not directly comparable with previous years.*

In 2008, at the global level, the cocaine production in Colombia represented 51% of the potential cocaine production estimated in 845 metric tons.



### Illegal armed groups and coca cultivation in Colombia, 2008



Sources: for coca cultivation Government of Colombia - National monitoring system supported by UNODC, Ministry of Defence and National Police for number of persons enrolled in armed groups. The boundaries and names shown and the designations used in this map do not imply official endorsement or acceptance by the United Nations

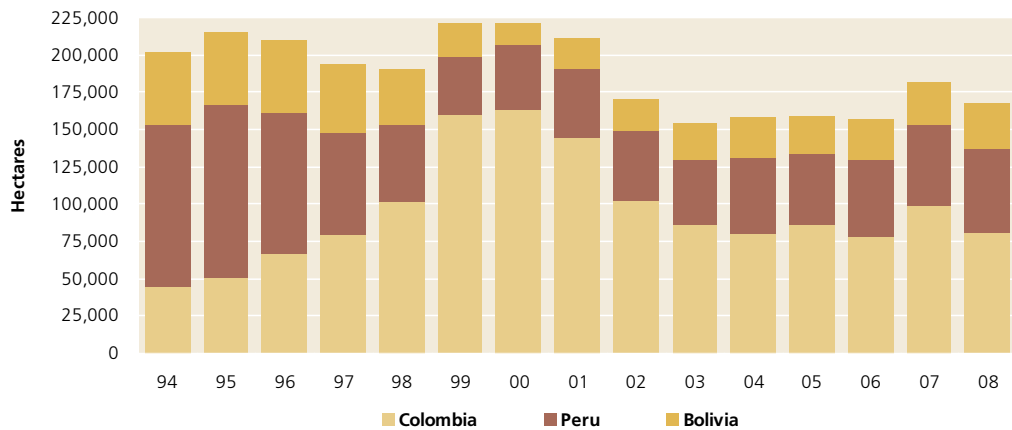


## **Annex 109**

### **UNODC, “WORLD DRUG REPORT 2009”, VIENNA, 2009**

(Available at: [http://www.unodc.org/documents/wdr/WDR\\_2009/WDR2009\\_eng\\_web.pdf](http://www.unodc.org/documents/wdr/WDR_2009/WDR2009_eng_web.pdf) (last visited 7 March 2010), pp. 11, 64, 68)

Global coca bush cultivation (ha), 1994-2008



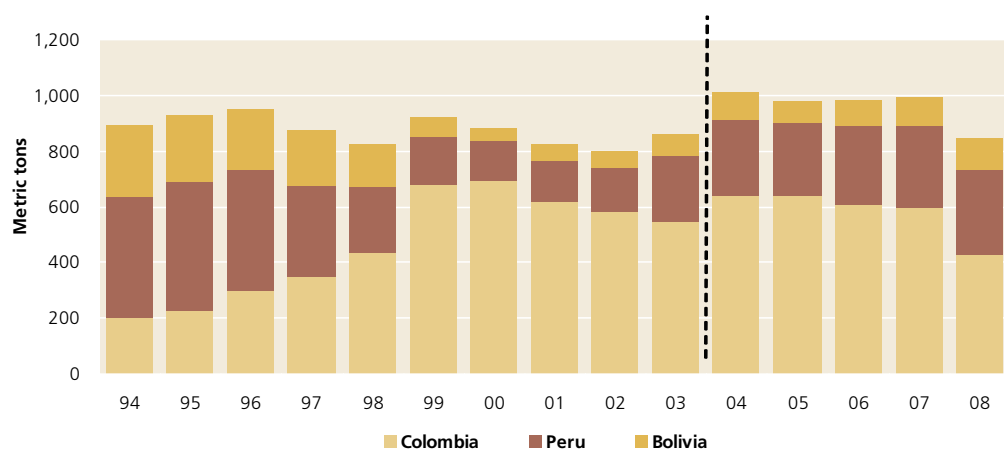
The potential opium production was estimated at 7,700 mt (range 6,330 to 9,308 mt). Some 60% of this is believed to be converted into morphine and heroin within the country. The amount of morphine and heroin produced in Afghanistan available for export was estimated at 630 mt (range 519 to 774 mt). Almost 40% of the total production was exported as opium.

#### Cocaine

Despite small increases in the Plurinational State of Bolivia (6%) and Peru (4%), the total area under coca cultivation decreased by 8% in 2008, due to a significant decrease in Colombia (18%). The total area under

coca cultivation fell to 167,600 ha, close to the average level of coca cultivation between 2002 and 2008, and well below the levels reached in the 1990s. In spite of this year's decrease, Colombia remained the world's largest cultivator of coca bush, with 81,000 ha, followed by Peru (56,100 ha) and Bolivia (30,500 ha). Estimated global cocaine production decreased by 15% from 994 metric tons (mt) in 2007 to 845 mt in 2008. This decrease is due to a strong reduction in cocaine production in Colombia (28%), which was not offset by increases in Bolivia and Peru.

Global cocaine production (mt), 1994-2008

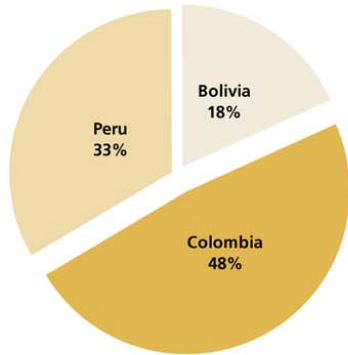


**Table 6: Global illicit cultivation of coca bush and production of coca leaf and cocaine, 1994-2008**

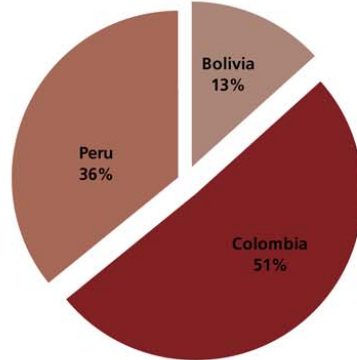
	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008
<b>CULTIVATION OF COCA BUSH IN HECTARES<sup>(a)</sup></b>															
<b>Bolivia<sup>(b)</sup></b>	48,100	48,600	48,100	45,800	38,000	21,800	14,600	19,900	21,600	23,600	27,700	25,400	27,500	28,900	30,500
<b>Colombia<sup>(c)</sup></b>	44,700	50,900	67,200	79,400	101,800	160,100	163,300	144,800	102,000	86,000	80,000	86,000	78,000	99,000	81,000
<b>Peru<sup>(d)</sup></b>	108,600	115,300	94,400	68,800	51,000	38,700	43,400	46,200	46,700	44,200	50,300	48,200	51,400	53,700	56,100
<b>Total</b>	<b>201,400</b>	<b>214,800</b>	<b>209,700</b>	<b>194,000</b>	<b>190,800</b>	<b>220,600</b>	<b>221,300</b>	<b>210,900</b>	<b>170,300</b>	<b>153,800</b>	<b>158,000</b>	<b>159,600</b>	<b>156,900</b>	<b>181,600</b>	<b>167,600</b>
<b>POTENTIAL PRODUCTION OF DRY COCA LEAF IN METRIC TONS<sup>(e)</sup></b>															
<b>Bolivia<sup>(f)</sup></b>	89,800	85,000	75,100	70,100	52,900	22,800	13,400	20,200	19,800	27,800	38,000	28,200	33,200	36,400	39,400
<b>Colombia<sup>(g)</sup></b>	67,500	80,900	108,900	129,500	165,900	261,000	266,200	236,000	222,100	186,050	164,280	164,280	154,130	154,000	116,900
<b>Colombia (fresh coca leaf)<sup>(h)</sup></b>											552,800	555,400	528,300	525,300	389,600
<b>Peru<sup>(i)</sup></b>	165,300	183,600	174,700	130,600	95,600	69,200	46,200	49,300	52,500	72,800	101,000	97,000	105,100	107,800	113,300
<b>POTENTIAL MANUFACTURE OF COCAINE IN METRIC TONS<sup>(j)</sup></b>															
<b>Bolivia<sup>(k)</sup></b>	255	240	215	200	150	70	43	60	60	79	98	80	94	104	113
<b>Colombia<sup>(l)</sup></b>	201	230	300	350	435	680	695	617	580	550	640	640	610	600	430
<b>Peru<sup>(m)</sup></b>	435	460	435	325	240	175	141	150	160	230	270	260	280	290	302
<b>Total</b>	<b>891</b>	<b>930</b>	<b>950</b>	<b>875</b>	<b>825</b>	<b>925</b>	<b>879</b>	<b>827</b>	<b>800</b>	<b>859</b>	<b>1,008</b>	<b>980</b>	<b>984</b>	<b>994</b>	<b>845</b>

- (a) Potentially harvestable, after eradication.
- (b) Sources: 1994-2002: CICAD and US Department of State, International Narcotics Control Strategy Report. For the region Yungas of La Paz since 2002, for all regions since 2003: National Illicit Crop Monitoring System supported by UNODC. Cocaine production: before 2003, see cultivation. Since 2003, own calculations, partly based on UNODC yield coca leaf yield surveys. Figures for 2004 and 2005 were revised in 2007 based on new information on coca leaf yield in the Yungas of La Paz.
- (c) Sources: 1994-1998: CICAD and US Department of State, International Narcotics Control Strategy Report; since 1999: National Illicit Crop Monitoring System supported by UNODC.
- (d) Sources: 1994-1999: CICAD and US Department of State, International Narcotics Control Strategy Report; since 2000: National Illicit Crop Monitoring System supported by UNODC.
- (e) Refers to the potential dry coca leaf production available for cocaine production, i. e. after deducting the amount, which Governments report as being used for traditional or other purposes allowed under national law. In the absence of a standard definition of "dry coca leaf" and given considerable differences in the processing of the fresh coca leaf harvested, the figures may not always be comparable across countries.
- (f) Since 2005, potential sun-dried coca leaf production available for cocaine production, estimated by the National Illicit Crop Monitoring System supported by UNODC. This figure does not include the estimated amount of coca leaf produced on 12,000 ha in the Yungas of La Paz where coca cultivation is authorized under national law.
- (g) Sources: 1994-2002: CICAD and US Department of State, International Narcotics Control Strategy Report. Since 2003, potential coca leaf production available for cocaine production estimated by the National Illicit Crop Monitoring System supported by UNODC. Figures refer to oven-dried coca leaf equivalents.
- (h) Since 2004, fresh coca leaf production figures are available based on coca leaf yield studies done by UNODC and the Government of Colombia. Similar to potential cocaine production, fresh coca leaf production in Colombia is calculated based on two-year area averages.
- (i) Since 2003, potential sun-dried coca leaf production available for cocaine production, estimated by the National Illicit Crop Monitoring System supported by UNODC. For the calculation of coca leaf available for cocaine production, 9,000 mt of sun-dried coca leaf were deducted, which, according to Government sources, is the amount used for traditional purposes.
- (j) Amounts of cocaine that could be manufactured from locally produced coca leaf (due to imports and exports of coca derivatives, actual amounts of cocaine manufactured in a country can differ).
- (k) Since 2002, cocaine production is calculated based on the average area under coca cultivation of the reporting year and the previous year. This is thought to be closer to the actual amount produced than a figure solely based on the year-end cultivation. Colombian cocaine production estimates for 2004 and later are based on new research and cannot be directly compared with previous years. For the calculation of the 2008 cocaine production, new information on coca leaf yield available for some regions was used.
- (l) Figures from 2003 to 2005 were revised in 2007 based on updated information available on the amount of coca leaf necessary to produce one kilogram of cocaine HCl.

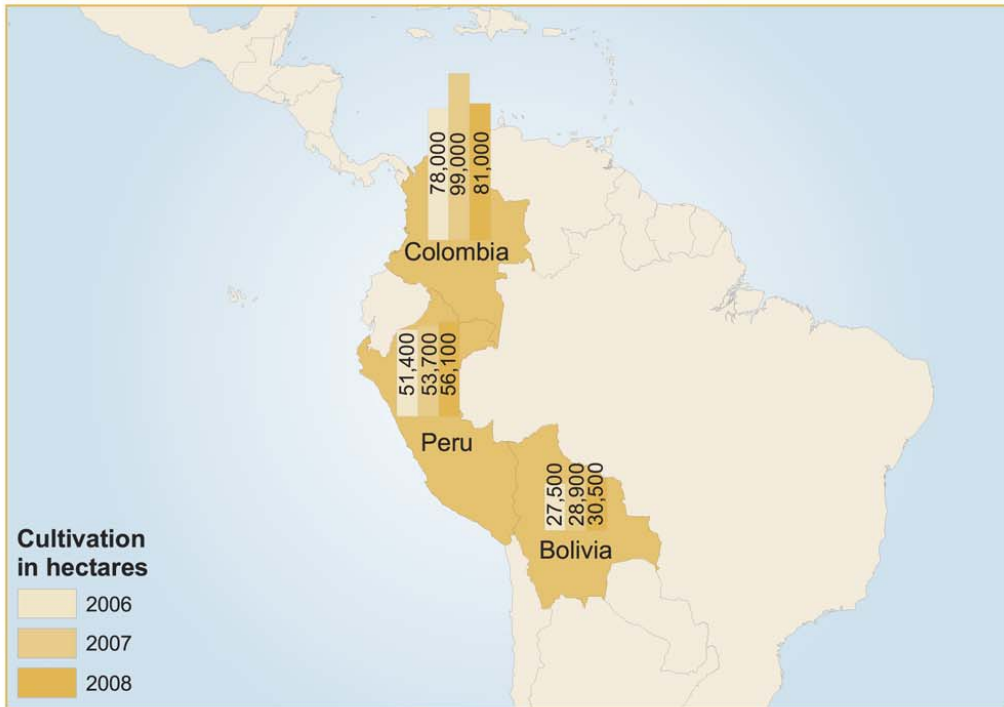
**Fig. 26: Coca bush cultivation 2008**  
(in % of global total)



**Fig. 27: Potential cocaine production 2008**  
(in % of global total)



**Map 8: Coca bush cultivation, 2006-2008**



**Annex 110**

**DIPLOMATIC NOTE N° 57491 FROM THE COLOMBIAN VICE-MINISTER FOR FOREIGN  
MULTILATERAL AFFAIRS TO THE UNITED NATIONS OFFICE ON DRUGS AND CRIME  
(UNODC) REPRESENTATIVE TO COLOMBIA, 19 OCTOBER 2009**

*(Archives of the Ministry of Foreign Affairs of Colombia)*

VAM/DPM/CDR No. 57491

Bogota, 19 October 2009

Sir Representative

I have the honor to write to you to send a request from the Director of America of this Ministry to the United Nations Office on Drugs and Crime Illicit Crops Integrated Monitoring System (SIMCI/UNODC), according to what was agreed in the meeting held between representatives from the Inter-institutional Technical Committee and the Coordinator of the SIMCI/UNODC Program last 14 October.

I thank you, sir Representative, for all attention given to this request

I avail myself of this opportunity to renew to the Representative the assurances of my high and distinguished consideration.

[Signed]

ADRIANA MEJIA HERNANDEZ  
Vice Minister for Foreign Multilateral Affairs

Honorable  
Aldo LALE-DEMOZ  
Representative of the United Nations  
Office on Drugs and Crime (UNODC) to Colombia  
City

REPUBLIC OF COLOMBIA  
MINISTRY OF FOREIGN AFFAIRS

VRE/ECU No. 57466

Bogota, 19 October 2009

TO: SIMCI Inter-Institutional Committee

Reference: Cartography “Coca Crops Survey”

Dear gentlemen,

I am kindly requesting information on the technical characteristics of the cartography used in the annual reports of the “Coca Crops Survey” in Colombia, and particularly, a detailed description of the proper uses of said cartography and its limitations, for example in terms of precision to measure distances or calculate areas.

We especially ask you to give illustration on the method used to make the maps of the areas sprayed by The Government of Colombia in the framework of the PECIG [program]. It is particularly important to have a detailed explanation of the limitations of cartography resulting from the use of this method. It, as we understand, consists of the “enclosure” of aerial spraying swaths to get the sprayed areas, but they do not show exactly the land portions actually sprayed.

Sincerely,

[Signed]  
MIGUEL CAMILO RUIZ  
Director of America



## Annex 111

### DIPLOMATIC NOTE FROM THE UNITED NATIONS OFFICE ON DRUGS AND CRIME (UNODC) REPRESENTATIVE TO COLOMBIA TO THE COLOMBIAN VICE-MINISTER FOR FOREIGN MULTILATERAL AFFAIRS, 20 JANUARY 2010

*(Archives of the Ministry of Foreign Affairs of Colombia)*

Dear Vice-Minister

In response to your VAM/DPM No. 5741 request dated October 19 2009, by means of which you send the VRE/CU No 57466 request by the Director of America at the Ministry of Foreign Affairs, regarding the technical characteristics of the cartography used in the annual reports of the “Coca Crops Survey” in Colombia, I inform you that the technical Coordinator of the SIMCI Project has kept continuous communication with the Ministry of Foreign Affairs work team with the purpose of clarifying any regarding the proper use of the cartography shown in the SIMCI reports the main points of that communication are summarized below:

1. Technical characteristics of cartography used in the annual reports:  
The technical characteristics of the cartography used in the publication of Coca crops survey are the following:

The maps **scales** vary depending on the type of information that you want to present:

- 1:1.000.0000 scale is used (where 1 centimetre corresponds to 10.000 square metres) in the zooming to show details at regional level,
- 1:7.6000.0000 scale is used (where 1 centimetre corresponds to 76.000 square metres in field) to present at national level the different topics related to coca crops,
- 1:15.000.0000 scale is used (where 1 centimetre corresponds to 150.000 square metres in field) to compare phenomenon in different periods at the national level

The **sources of information** for topics are the following:

- SIMCI monitoring system supported by UNODC: Crop density, changes in crop density, changes in coca crops areas, coca crop yield, coca leaf annual production
- National monitoring systems supported by UNODC – Governments of Bolivia, Colombia, and Peru: Coca crops density in the Andean Region

- Special Administrative Unit of the National Natural Parks System UAESPNN [for its acronym in Spanish]: national parks borders
- PCI Alternative Development Program: Budget for alternative development, forced manual eradication areas
- Forest Warden Families Program: Forest warden families in illicit crops areas
- Government of Colombia
- Colonization lands and agricultural frontier
- Colombian National Coffee Growers Federation: Coffee land ecotopes
- Ministry of Defense: Illegal armed groups
- Antinarcotics Direction of the National Police –DIRAN: Aerial spraying swaths
- National Narcotics Directorate -DNE: Clandestine laboratories destroyed, narcotic drugs seized per province

For the toponymy used in the maps, i.e., the names of international borders, name of provinces of the country, and names of main water courses, the source is IGAC [Agustin Codazzi National Geographic Institute, for its acronym in Spanish] and DANE [Colombian National Statistics Department].

As for the borders between provinces, the source is the one used by the DANE, digitalized by the IGAC at a 1:25.000 scale

It is important to highlight that the function of the report is not to show precision but a representation and as it reads in the maps foot notes, “the borders, names, and titles used in the maps do not constitute acknowledgement or acceptance by the UNITED NATIONS”

## 2. Limitations of the cartography used in the annual reports:

The maps of the annual reports are made in a way that they allow users to have an idea of the distribution of the different phenomena involved in coca cultivation in the country. It allows them to locate in space and visualize more easily the data presented in numbers.

It means that polygons and points are usually magnified so that they can be seen without any problem on the maps of the publication because they are presented in a 1:7.600.000 scale, where 1 millimetre corresponds to 7600 square metres on field. As an example, rivers are drawn with a 1-mm fountain pen, which cannot be interpreted as the river being 7600 metres wide.

The maps printed in the reports should not be used for calculating areas or distances because that is not what they were created for and do not possess the adequate cartographic precision; they work as illustrations. Likewise, attempts to intersect areas of different kinds should be made on the basis of detailed information and not on the basis of the illustrations in the report

### 3. Methodology used in the sprayed areas map

Sprayed areas maps show in general terms the areas where the aerial spraying program has been carried out. The official source for this information is the Antinarcotics Direction of the National Police –DIRAN. It reports the flight line during spraying.

With the purpose of representing the areas where spraying activities take place, SIMCI draws polygons that enclose such areas.

Therefore, this information must be used only as a reference to the areas linked to the process, but not to make measurements or locate a particular area in a detailed way.

The SIMCI project produces information corresponding to Colombian coca crops with a cartographic precision for 1:200.000 scale; that is, 1 centimetre corresponds to 2000 metres on field. This scale cannot be used in the reports because a map of Colombia at this scale covers a page of about 10 by 7,20 metres.

To make measurements, comparisons or analyses on the illicit crops and spraying issues, it is necessary to use the primary sources; that is, the SIMCI project for coca crops and DIRAN for spraying.

I thank you for your continuous interest in improving the SIMCI products and avail myself of this opportunity to reiterate the assurances of my highest consideration.

[Signed]  
Aldo Lale-Demoz  
Representative

Her Excellency Adriana Mejia Hernandez  
Vice Minister of Multilateral Affairs  
Ministry of Foreign Affairs  
Republic of Colombia

