

***NATIONAL CONTINGENCY PLAN AGAINST OIL SPILLS IN
COLOMBIA, A SUCCESSFUL PREVENTIVE ENVIRONMENTAL
INSTRUMENT IN LATIN AMERICA***

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ABSTRACT : Colombia, one of the planet's most bio-diverse countries, has suffered environmental and social problems generated by hydrocarbon spills, which affect all natural resources in the country. The Colombian oil industry has endured permanent terrorist attacks for the last sixteen (16) years against oil pipelines and other facilities. These attacks have caused spills of more than two million nine hundred thousand (3'000.000 bls) barrels of oil into rivers, marshlands, and soil greatly affecting economic, social and environmental structures. The amount of crude oil spilled is equivalent to ten (10) times the oil spilled in the Exxon Valdez emergency.

As a response to this grave situation, Colombia created the National Contingency Plan against Hydrocarbon, Derivate and Harmful Substance Spills, known for its Spanish acronym PNC. The plan prepares for the possibility of contamination from hydrocarbon spills in the country by creating methods to deal with such emergencies according to unified criteria, with the oil companies acting in coordination with the government.

The Colombian PNC has become a successful instrument on the issue of oil spills prevention and management in Latin America for the implementation of the OPRC 90 Convention that combines the work of governments and industry.

INTRODUCTION

Initially this report includes background information concerning the situation generated by oil or another substance spills causing damage to both the environment and the public health in Colombia. Later on, the document introduces the institutional and legal framework on which the National Contingency Plan, NCP, was formulated and developed. Afterwards the document explains in detail the three (3) master chapters of the NCP and incorporates a further description of the NCP implementation process in all the nation. Since we found it fundamental at the end of the report we present the critical situation of our country due to oil spills in environmentally sensible areas such as the oil dispersions caused by terrorist attacks to the Caño Limon Coveñas Oil Pipeline.

1. BACKGROUND INFORMATION

During the last decades, Colombia, one of the countries with one of the greatest biodiversities of the planet, has undergone the environmental and social problem generated by spills of substances harmful to both human health and natural resources seriously affected by the attacks. The expansion of the industrial activity in our country as a consequence of the search for economic development and growth has occurred simultaneously as the events of substance spills. Sometimes even the people in charge do not know the proper handling of these substances in such an emergency. The industrial sectors undergoing most of these emergencies are the oil, fuel distribution and chemical industries. Nevertheless, we should not forget the urban impact generated in the small and medium-sized

industry, in the merchandising and manipulation of raw materials and liquid products that cause daily emergencies.

The oil industry in Colombia has been troubled by the permanent terrorist attacks to oil pipelines and oil company facilities for eighteen years. These occurrences have caused the dispersion of more than three million barrels of oil over rivers, streams, swamps and soils mostly with farming, cattle raising and fishing destinations. This quantity of spilled oil is equivalent to as much as thirteen times the oil spilled by the greatest environmental tragedy in the history of the planet by hydrocarbon pollution, as considered by environmental experts, the oil spill of the Exxon Valdes Ship in Alaska in March, 1989. The situation regarding the Oil Pipeline of Caño Limon Coveñas is more critical and punctual. This pipeline is operated by ECOPETROL, the Colombian National Oil Company, for export purposes in the area of the Department (State) of Arauca in the eastern Colombian plains. This situation will be further explained with more detail in the section containing the case of this framework at the end of this report.

Likewise, the transportation of refined fuels has also been lessened by robbery of fuels in the pipeline framework of the nation which frequently causes spills associated to these illegal actions. The situation of the Colombian chemical industry differs from the oil industry since the risks considered in the first one for spills are concentrated in activities such as land transportation, manipulation and commercialization. However, the statistics of the Information Center of Chemical Products Safety, CISPROQUIM, as its acronym reads in Spanish, show a tendency to the increase in the frequency of these occurrences even though this data does not reflect the reality of the situation.

2. STRATEGIC PLAN

The National Contingency Plan is the document in which the philosophy, the objectives, the scope of the plan, the geographical coverage, as well as the organization and responsibility assignation and impact levels, are embedded.

The general objective of the National Contingency Plan, NCP, is to provide the National System of Catastrophe Prevention and Assistance with an strategic, computerized and operative tool that will allow the efficient prevention, control and facing of possible spills of hydrocarbons, refined fuels and harmful substances. The NCP has national coverage and thus it includes contingencies affecting all bodies of water, maritime, fluvial, and lacustrian waters, interior bodies of water, territorial ocean, exclusive economic zone and all maritime and fluvial areas covered by international settlements and agreements in which Colombia participates.

The NCP is attached to the General Board of Directors for Catastrophe Prevention and Assistance as an specific module integrated to the National System of Catastrophe Prevention and Assistance, (SNPAD, its acronym in Spanish) consisting of two committees, two information systems and a national calling center as shown in the following chart.

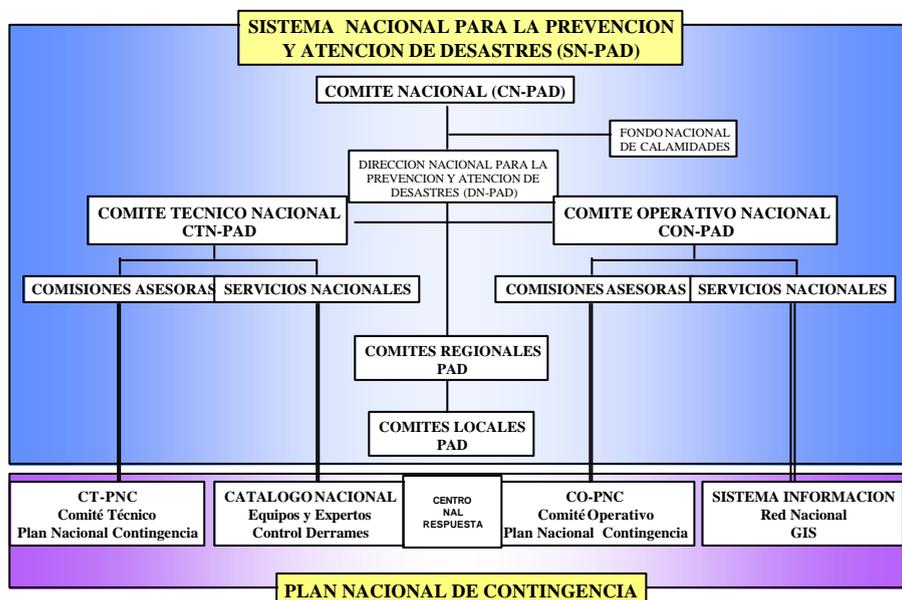


Fig. 1. National System of Catastrophe Prevention and Assistance

The NCP activation levels will be handled under the interval response criteria. The interval response criteria recognizes three basic activation levels according to the volume of the spill and to its proximity to the closest control center.

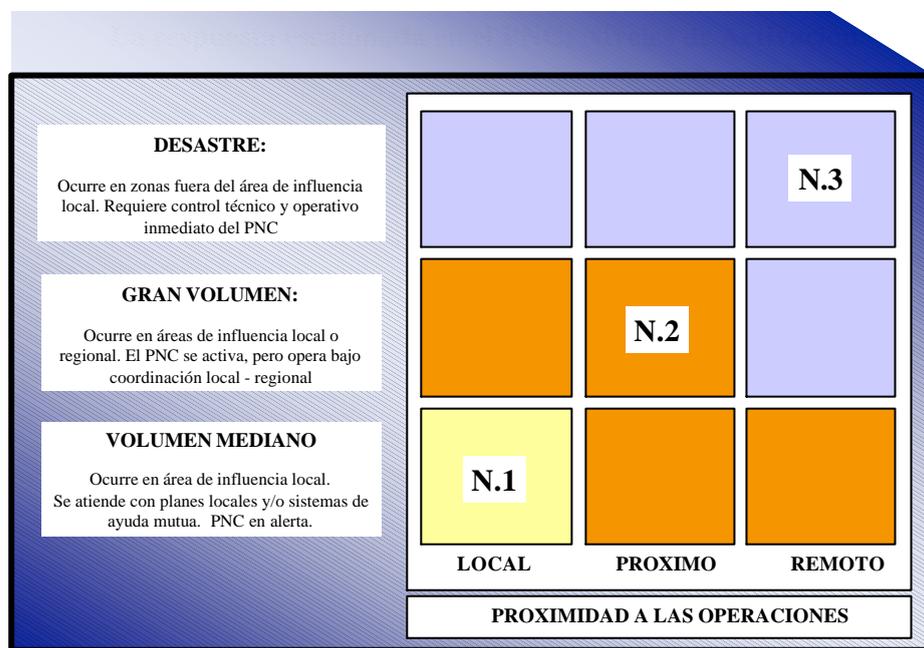


Fig. 2. Levels of Activation PNC

The nation will be split into six zones or areas of geographical responsibility to facilitate the coordination of logistic support and sector assignment of assistance procedures. Each area counts with its corresponding coordination headquarters in charge of the integration of resources of the Regional Committees for Catastrophe Prevention and Assistance assigned to the zone. The six geographic zones are:

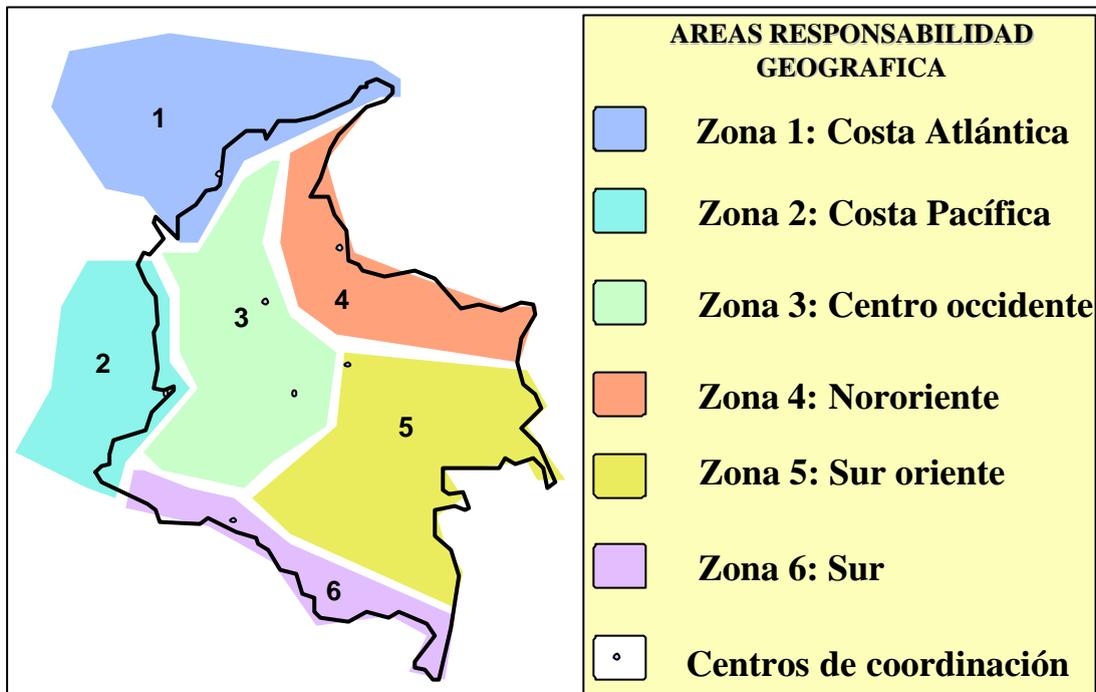


Fig. 3. Geographical responsibility areas PNC

3. OPERATIVE PLAN

The Operative Plan has the purpose of establishing the basic procedures of the operation or the action plan of the NCP. It defines the basis and mechanisms for notification, organization, functioning and support of the NCP. This chapter states the general guidelines for the different assistance phases of this kind of emergencies.

The following aspects are embedded in the NCP operational sequence: report mechanisms, spill evaluation, decision on NCP activation, equipment and experts mobilization, action plans for spill control, operation control and evaluation, emergency closing and assessment of the NCP.

4. DATA PROCESSING PLAN

The NCP establishes the fundamentals of its requirements in terms of systems of data processing in order to reach efficient strategic and operative plans. To facilitate the management of the Data Processing Plan, the NCP National Technical Committee will state the guidelines of this plan and carry out the requirements of information to all the different bodies of the NCP. Likewise, the Hydrology, Meteorology and Environmental Studies Institute, IDEAM, as its acronym reads in Spanish, will be in charge of administering the information submitted to the Data Processing Plan as established by the regulations of the NCP National Technical Committee.

5. IMPLEMENTATION PROGRAM

The NCP Implementation Program against Hydrocarbons, Oil-Derived fuels and Hazardous Substances Spills in Maritime, Fluvial and Lacustrean Waters is under the coordination of the NCP National Technical Committee and contemplates the diagnosis, establishment and operational maintenance phases.

In this implementation phase the Colombian government, ECOPETROL and all the private oil companies operating in Colombia have the goal of working in coordination with instances of catastrophe prevention and assistance in each of the provinces and departments (states) influenced by the oil industry, as well as with environmental officials and with the communities.

In order to comply with this goal, a strategy of awareness and preparation has been designed to assist this kind of emergencies. Such a strategy is addressed to the Local and Regional Committees of Catastrophe Prevention and Assistance of the nation, to the environmental authorities and to the communities through practical workshops in which the teams supporting the oil companies in logistic

considerations are established. These support teams will be composed by the City Hall of the province affected, the Red Cross, the Civil Defense Body, the Fire Department, the Army, the health services, among others. As evidence of this process, more than 2,800 members of the Committees, of the communities and of the environmental authorities have been trained during the last two years. By the end 2004, 3,200 people are expected to be trained in order to offer an efficient support in the assistance of this kind of emergencies.

6. FINAL REFLECTIONS AND CONCLUSIONS

As part of the process of NCP development and implementation, it is important to share the reflections and conclusions about essential aspects that guarantee a permanent success of this national plan.

- The proper implementation of the NCP requires an institutional empowerment in all the instances concerning catastrophe prevention and assistance in all the nation bodies, called either Local Committees or Regional Committees for Catastrophe Prevention and Assistance, CLOPAD or CREPAD, as their acronyms read in Spanish. In the last statistics reported by DGPAD, the General Board for Catastrophe Prevention and Assistance, 40% of the provinces do not have a formally structured committee. This is a critical obstacle for the NCP implementation.
- The nation industries must be aware of the social, economic and environmental responsibilities they hold when handling hazardous substances that imply the risk of spills. To acknowledge such responsibility, they should count on contingency plans that are efficient, equipped, trained and updated in the proper management of these occurrences. Such contingency plans must be based on a thorough analysis of risks which guarantees a minimal infrastructure for emergency control as well as a trained team to take care of the highest possible risk.

- The institutional coordination is a basic premise in the essence of the NCP. All instances involved must acknowledge and assume roles and responsibilities in the process. Such instances are the industries, the CLOPAD'S and the CREPAD'S, the bodies of logistic support such as the Civil Defense, the Red Cross, the Fire Department, and the Environmental Authorities, as the Regional Autonomous Corporations and the Ministry of Environment.
- The international assistance in programs of environmental recuperation of zones affected by terrorist attacks is an essential need in the process of development of countries like Colombia with a great biodiversity, water and natural resources.

CRITICAL CASE: THE PROBLEM OF OIL SPILLS CAUSED BY TERRORIST ATTACKS AGAINST THE CAÑO LIMON COVEÑAS OIL PIPELINE

The Caño Limón Coveñas Oil Pipeline is an infrastructure for oil transportation with exportation purposes that measures around 770 kilometers beginning in the production facilities in Caño Limon located in the Department (State) of Arauca and ending in the oil port of Coveñas, province of Tolu in the Department of Sucre. Its area of influence also includes the departments of Boyaca, Norte de Santander, Cesar, Magdalena, and Bolivar. This pipeline started operating in 1986. Since then the guerrilla groups operating in Colombia have inflicted a number of attacks against this infrastructure. These groups have these zones of oil influence as their headquarters. As a coincidence, these areas also present conditions of social poverty. More than 3,000,000 barrels of oil have been dispersed in different bodies of water and soils as a result of 995 attempts against the pipeline as registered until October 31 of the current year.

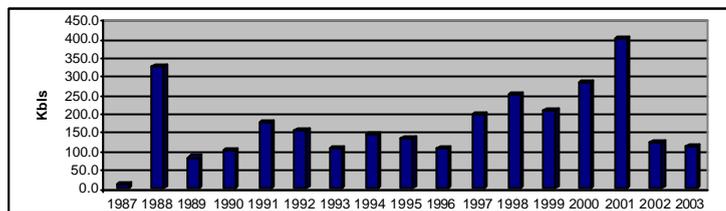
It is necessary to emphasize that these terrorist attacks against the Caño Limon Coveñas Oil Pipeline have generated all sorts of losses beginning with casualties from the civil population and the Army, and ending with a generalized pollution causing damage to enormous natural areas along the pipeline. Likewise, they have caused a number of expenses and economic losses in terms of costs of pipeline repairs, costs of decontamination, costs of oil spilled and non-produced regalia as shown in the charts and graphs further below.

Below you will find a summary of the most important estimations of the environmental effects on each of the drainage areas of some rivers (Ministry of Environment, Ministry of Mines and Energy, and Planning National Department, 1998).

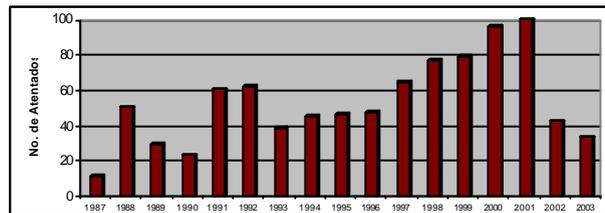


ATTACKS CAÑO LIMON - COVEÑAS PIPELINE 1986 - October 2003

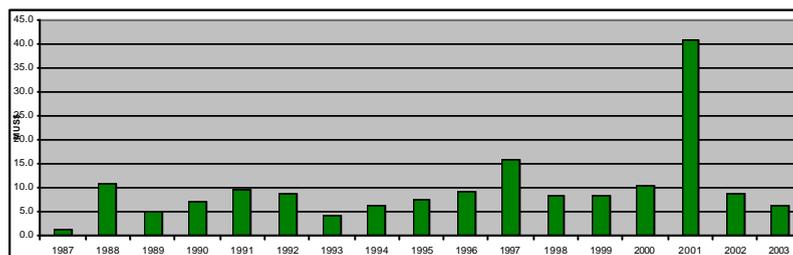
Oil Spill (Kblis)



Number of Attacks



Costs of Attacks (MUS)



ENVIRONMENTAL AFFECTATION OF THE DRAINAGE AREA OF THE ARAUCA RIVER.

The area where most attacks have occurred is located between kilometers 0 and 140 of the drainage area of the Arauca River. This region is characterized by vast plains covered by exhaustive vegetation and destined to cattle raising. The greatest source of nutrients for the ecosystem is found in the Arauca River. Due to the topography of the area, oil does not flow when dispersed. On the contrary, it tends to dam up causing the pollution of both surface and subsurface sources of water by oil deposits. In the dry season, when the phreatic level decreases oil tends to filter easier, making the recuperation process harder. When the rainy season returns, water levels push up oil causing recontamination.

ENVIRONMENTAL AFFECTATION OF THE DRAINAGE AREA OF THE CATATUMBO RIVER.

The second most affected drainage area is the valley of the Catatumbo River between kilometers 430 to 520. This valley includes the sub-areas of the following rivers: Sardinata, Zulia, Pamplonita, Tachira, Tibu, Nuevo Presidente and Tarra, in which the fishing industry is notable. The Catatumbo River has its source in the Andes Eastern Range at 4,100 meters above sea level. It has a length of around 455 kilometers and provides Lake Maracaibo in Venezuela with a 60 to 70% of its fresh water. This situation has become international since this valley has a bi-national interest. From its source to the boundary with Venezuela, this river has a mountain topography with rapid and turbulent waters, characterized by great abundance of woods as well as a variety of bodies of water. In Venezuela, this river runs through an alluvial plain in the valleys of the State of Zulia where it is

shaped into vast and complex swamps of great ichthyologic value. In these landforms, the impact of an oil spill is severe since oil flows without any obstacle down the hills polluting soils, vegetation, crops (especially rice crops), streams and rivers from where the local sewage systems and irrigation districts get their waters.

ENVIRONMENTAL AFFECTATION OF THE DRAINAGE AREA OF THE MAGDALENA RIVER.

This watershed feeds a complex of 800 swamps that increase in frequency and size in the Medium and Low Magdalena River Valley where they reach altogether an area of 20,000 square kilometers in seasons with major overflow. This swampy complex is rich in fish and fauna resources and constitutes a vital source of food for superior vertebrates. Great number of towns located in its surroundings depend highly on the production of this body of water. The oil spills in the Magdalena River valley contaminate great extensions of land. The greatest affectation on humid soils happened in 1990 when the pipeline was attacked producing a dispersion of 14,000 barrels of oils on the Chimichagua Swamp, within the Zapatos Complex. As a consequence of the action of winds and currents, the spot affected the shores over two kilometers east of Chimichagua inflicting damage to a total of six inlets and four islands in about 400 hectares; in other words, to the 4% of the total swamp complex of the country.

CONTINGENCY PLAN FOR THE CAÑO LIMON COVEÑAS OIL PIPELINE.

The Contingency Plan for the Caño Limon Coveñas Oil Pipeline is incorporated within the framework of the Environmental Administration which includes multiple activities for oil spill control, environmental control of the operation and evaluative and follow-up monitoring. (D. Miranda, 1998)

The oil spill control in the global complex of the pipeline is planned in two modules. One land contingency plan, in other words, the pipeline itself, beginning in the Caño Limon facilities and ending in the Coveñas station. The second contingency plan is exclusive for the Oil Terminal at Coveñas which covers the maritime tracts, including the TLU and the piping system and other elements needed for maritime transportation. The module described here is the contingency plan for the pipeline.

The contingency plan counts on equipment for damming, recollection, transfer, electric generation and temporary storage. To optimize the response, the basic equipment and personnel are strategically distributed along the pipeline. There are storage rooms currently in the Arauca area, Banadia Station; in the Cucuta area, Pipeline main headquarters; and in the areas of Tibu, La Gabarra, Ayacucho and Coveñas.

International Support: The Caño Limon Coveñas Superintendence has implemented a bilateral Contingency Plan called, “Bilateral Contingency Plan against Hydrocarbon Spills between ECOPETROL and PDSA, Venezuela Petroleum Company for the protection of Trans-boundary Drainage Areas.” (D. Miranda, 1998)

General Reflections of the current situation at the Pipeline:

- Results from a number of surveys (Evaluation of Environmental Effects by criminal attacks to the Caño Limon Coveñas Oil Pipeline, G. Viña, 1998. Monitoring of impacts by hydrocarbons spills in the Caño Limon Coveñas, G. Viña et al, 1991;1993) acknowledge the effort of the operator of the pipeline assuming responsibility even though it is not its jurisdiction since these happenings can be attributed to a third party within legal terms against who the national state must act through the proper bodies. This is a recognition of a solitary

endeavor over a period of 13 years in order to keep the operation of the pipeline. (Viña, 1998)

- It is remarkable how the environmental ability of nature allows it to assimilate the effects derived from attacks, especially in aquatic ecosystems. On the other hand, the situation turns adverse for soils, particularly in the Arauca Plains and the Magdalena Plains in the boundaries between the departments of Norte de Santander and Cesar. (Viña, 1998)
- It is worthy mentioning and making an special recognition to the technical, logistic and managerial personnel in the ECOPETROL Caño Limon Coveñas Superintendence in charge of the operation and activation of the Pipeline Contingency Plan since their operational experience handling hydrocarbon spills in continental grounds has allowed them to offer a quick and efficient response in the assistance of emergencies and thus reducing negative environmental damage.
- The establishment of a continuous action plan is mandatory in order to evaluate the environmental affectations as a consequence of spills in the Caño Limon Coveñas Oil Pipeline, to build indicators and to implement a monitoring system and a continuous evaluation of these occurrences. This task should be led by environmental authorities through research institutes and with international assistance and support .

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