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The Impact of Illicit Crops on the Increase in Deforestation Rates: Views and perspectives from the Putumayo region of Colombia

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Executive Summary

Deforestation due to illicit coca leaf crops is explained by various factors, some of them similar to deforestation for legal crops or legal activities like agriculture, live-stock farming or logging. However, in the case of coca there are also other causes that have a particular impact. In this Policy Paper we aim to identify the various economic, social, cultural, political and security factors that affect deforestation caused by the planting of illicit coca crops. Thus, this Policy Paper proposes an explanatory theoretical model, which has been quantitatively validated, corroborated, and complemented by interviews conducted with 13 coca farmers from the Putumayo department of Colombia. By comparing the literature available on the subject with the proposed theoretical model and the narratives of Colombian peasants, the intention is to give greater prominence to the voices of those who live in the countryside and depend on coca for their day-to-day livelihoods. Knowledge of the complexity of factors that interact in the behaviour of the various peasant populations or of other agents/actors allows us to understand the dynamics that occur in the affected territories and, in this way, to manage comprehensive interventions by the state to avoid or mitigate the continued environmental impacts of this activity, which are often irreversible. At the end of this Policy Paper, we offer elements that can contribute to the definition by decision-makers of strategies to mitigate the impact of illicit crops on the deforestation of the territory.

The Impact of Illicit Crops on the Increase in Deforestation Rates: Views and perspectives from the Putumayo region of Colombia

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Deforestation and Illicit Crops in Putumayo

Forests cover around one third of the Earth and are the habitat of a huge percentage of the world's flora and fauna. They play a fundamental role in the ecosystem because, in addition to being carbon reducers –natural or artificial deposits that contribute to reducing the amount of carbon dioxide in the air–, they protect hydrographic basins, avoid the risk of natural disasters –such as floods

or landslides–, and provide resources and means of subsistence to humans (Batka, August 3, 2021). However, their importance has not been enough to stop the threats they face on a daily basis, especially due to the excessive increase in deforestation around the world.

The concept of *deforestation* refers to the intentional felling of trees and the burning of forest surfaces in order to make way for activities like animal grazing, the obtaining of wood for fuel and manufacturing, infrastructure construction, plantations like those for palm or rubber trees, and the expansion of the agricultural frontier, among others. These interventions result in the infertility of the affected soil, causing the process to repeat and multiply in different jungle areas (National Geographic Society, July 15, 2022).

Colombia is one of world's most biodiverse countries. The development of human, or anthropogenic, activities has caused severe and, in some cases, irreversible environmental impacts, mainly in the tropical forests of its part of the Amazon. According to the Ministry of Environment and Sustainable Development, in 2021, 174,103 hectares of forest were deforested, an increase of 1.5% compared to 2020 and 8%

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compared to 2019. Almost 70% of this deforestation was concentrated in only five departments –Meta, Caquetá, Guaviare, Putumayo, and Antioquia– according to the Institute of Hydrology, Meteorology and Environmental Studies of Colombia (IDEAM, 2021). Four of these departments are in the Colombian Amazon region, with Antioquia the exception (Jones, July 14, 2021).

Population growth and the search for economic opportunities to generate income for the well-being of families have led to the migration of populations towards territories of great biological diversity, particularly in the Colombian Amazon basin, in order to establish agricultural, livestock, forestry and extractive activities. This has implied aggressive changes in land use and resulted in deforestation, with impacts such as the loss of biodiversity and biomass,

and the deterioration of soils and water dynamics. Infrastructure development, mainly roads, also impacts deforestation. All of these factors lead to a greater emission of carbon dioxide and a reduction in its capture, thus impacting climate change.

Additionally, the Colombian case is aggravated by the presence of illegal activities undertaken in these environmentally fragile areas. The illegal extraction of wood, illegal mining, and illicit crops (coca, marijuana, opium poppy) add to deforestation and the degradation of Colombian tropical forests.

Over time, the trends in the gradual increase of this problem has shown that there is no single actor responsible, and that the drivers are heterogeneous depending on the time period and area analysed.

The replacement of forests by the planting of illicit crops is a predominant factor in the increase in deforested areas. According to IDEAM and the Ministry of Environment, 12,939 hectares were deforested directly because of coca crops in 2020 (close to 7.54% of the national total). This phenomenon is mainly caused by the indiscriminate felling and

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burning of forest cover (usually primary forests: extensions of forest mass that have remained intact or have never been exploited), practices that affect the physicochemical characteristics of the soil and contaminate water sources due to the inputs required in areas of unproductive soils. Additionally, there are the impacts of the construction of roads or clandestine routes, and the acceleration in the transformation

of the forest to prioritise the planting of coca crops.

Thus, four stages of impact are identified: direct deforestation, degradation, forest affectation and associated (or indirect) deforestation. The first refers to the transformation of the natural forest into coca crops in a given period. The second, to the continuous and progressive affectation of soil capacities. The third relates to the loss and reduction of the jungle area, and

finally, associated deforestation includes the damage to areas surrounding the forest area impacted by the planting of illicit crops within a distance of one kilometre (Erasso & Vélez, 2020).

In this context, Putumayo is located in southwestern Colombia, with a green and diverse geography. It is divided into three zones: the Andean region, the foothills, and the Amazonian plain –also known as *Bajo Putumayo*, or Lower Putumayo–, which extends to the north and south of the equator and is a jungle territory bordered by the Putumayo and Caquetá rivers, irrigated by multiple tributaries and home to a huge wealth of flora and fauna. The department's capital city, Mocoa, is considered *the gateway to the Colombian Amazon* because of its strategic location (Ministerio de Comercio, Industria y Turismo, n.d.). Putumayo, along with Caquetá, produced a significant part of the country's total coca crops between 2005 and 2020, and has historically been among the areas most affected by illicit crops; as such, it has been among the regions with the highest quantities of planted areas, triggering a constant increase in crime, reorganisation, and the presence of new illegal groups due to disputes over drug trafficking routes (UNODC & Gobierno de Colombia, 2021).

Fresh coca leaf production in Putumayo has varied over the years, going from

69,313 tonnes in 2005 to 276,703 tonnes in 2017; this means that the region's contribution to total national production was 11% in 2005 and 30% in 2017. Likewise, it is worth noting that between 2013 and 2017 the region became a key node in national coca production, although there has been a decrease since 2018. However, in 2020, coca was widely present in municipalities across Putumayo, including some that were among the ten most affected at the national level (Puerto Asís, San Miguel and Valle del Guamuez). Puerto Asís in particular ranks fifth at the national level, with 5,701 hectares and 28.5% of the regional total, confirming the existence of high concentrations in little space. In this context, the majority of growers (close to 52% in 2016) undertake the activities of extracting and refining the alkaloid, thus transforming the coca leaves into basic cocaine paste. The remaining percentage of growers is dedicated to selling fresh coca leaves (UNODC & Gobierno de Colombia, 2021).

Taking into account that Putumayo is part of the nuclei of deforestation in Colombia, it is one of the territories in which there are a larger number of initiatives to contribute to national targets on reducing this environmental problem, it concentrates a huge variety of factors that have aggravated deforestation, and it is considered one of the departments with the highest productive capacity for coca leaf in terms of planted hectares:

thus it is possible to affirm that these dimensions are linked, although there are other reasons that promote the deforestation of forested areas in this territory.

Various articles and studies report a correlation between illicit coca crops and deforestation, as well as with the impacts of changes in forest cover with coca crops (UNODC, 2018) and the contamination of soils and bodies of water due to the use of agrochemicals to improve crop yields, as well as the chemical inputs used for the drug processing activities in the same areas and which are discarded in the environment (UNODC, 2022). The United Nations Office on Drugs and Crime (UNODC, 2018) carried out a recent study entitled *Community, forest and coca: a pathway for action*, on deforestation and coca crops in the Catatumbo and Amazon (including Putumayo) regions, identifying factors that intervene in decisions to deforest and to establish illicit crops. Likewise, it proposed a series of recommendations to improve state interventions, especially through alternative development programs.

Identifying the factors that explain the behaviour of peasants and other actors in

Putumayo, along with Caquetá, produced a significant part of the country's total coca crops between 2005 and 2020, and has historically been among the areas most affected by illicit crops; as such, it has been among the regions with the highest quantities of planted areas.

deforesting and planting coca crops represents an important academic challenge, but even more so for decision-makers working in public policy. The rate of deforestation due to coca cultivation remains the same or has increased in recent years in certain territories. This reality shows that the policies designed and implemented by the Colombian state have not been effective or sufficient. Hence, deforestation due to coca cultivation must be analysed from two complementary perspectives: first, considering the factors that affect deforestation related to the development of legal activities such as agriculture, livestock, and forestry, and second, considering the factors that lead a person or community to undertake an illegal activity like coca cultivation for the production of drugs.

The analysis of the behaviour of peasants and other actors who deforest to plant coca must consider these two dimensions; it is necessary to identify the set of factors that explain both. Only then will it be possible to have a more comprehensive understanding of this problem, to design and execute policies that impact the main factors identified, and thus, to achieve changes in behaviour and reduce deforestation due to coca crops.

In this Policy Paper, we seek an approximation to a model that identifies these factors, to analyse the situation in Putumayo according to the two dimensions mentioned and to explain the decision

of peasants and other actors to deforest to plant coca for drug trafficking. This complex dynamic involves, as indicated by UNODC (2018, p. 29), “deforestation agents” (peasants and other actors). The factors that affect the behaviour of the different “deforestation agents” can also be different, therefore, it is important that public policy recognises said differences.

Theoretical Framework and Explanatory Factors

We start from the UNODC document (2018) that characterises two types of agents: the direct (subsistence grower and extensive grower) and the indirect (absentee investor). The factors that influence the behaviour of these agents and lead them to deforest and plant coca crops may be distinct or, rather, influence in different ways.

We consider what UNODC (2018, p. 34) calls the “underlying causes” that group the factors into the categories of socio-political, economic, and environmental. The “determining factors” identified, to the extent that they are biophysical conditions that predispose the territory to the establishment of coca crops, must be considered when focusing on the implementation of strategies to avoid or mitigate deforestation due to this type of plantation. It has been indicated that the behaviour of agents in deforesting can be

explained by different factors and that at least three explanatory models may be necessary, one for each type of agent: subsistence farmer, extensive farmer, and absentee investor. However, all three interact in the same territory, as well as the adjacent factors. In order to simplify the model, we seek to explain the behaviour of the agents that deforest to cultivate coca leaf based on the theoretical model proposed by UNODC.

Behaviour model of deforestation agents for coca leaf planting

The behaviour of deforestation agents for coca planting could be explained by the following factors that interact at the same time. We define those applicable to the qualitative analysis developed after the field work phase.

$$HDC = f (PHC, PCA, PDA, OIL, TIT, ACV, ERR, INT, CSB, CEB, AOC, LEG, ICB, INM, ISE, \mu)$$

$$HDC = \beta_0 + \beta_1 * PHC + \beta_2 * PCA + \beta_3 * PDA + \beta_4 * OIL + \beta_5 * TIT + \beta_6 * ACV + \beta_7 * ERR + \beta_8 * INT$$

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$$+ \beta_9 * CSB + \beta_{10} * CEB + \beta_{11} * AOC + \beta_{12} * LEG + \beta_{13} * ICB + \beta_{14} * INM + \beta_{15} * ISE + \mu$$

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Donde:

- HDC: hectares deforested for coca leaf crops
- PHC: price of coca leaf
- PCA: price of alternative crops
- PDA: presence of alternative development programs
- OIL: other legal income
- TIT: property titles
- ACV: road access
- ERR: eradication of coca crops
- INT: interdiction of chemical supplies and drugs

- CSB: social control of the forest
- CEB: state control of the forest
- AOC: activity of criminal organisations
- LEG: culture of legality
- ICB: income from forest conservation incentives
- INM: income from the use of non-timber products
- ISE: income from ecological services - ecotourism
- μ : stochastic variable
- Positive (+) or negative (-) signs indicate a direct or inverse relationship, respectively, between the independent and dependent variable.

Definition of variables

Hectares deforested for coca leaf crops (HDC): dependent quantitative variable, which expresses the number of hectares that have been deforested in a given area or territory or at the national level to cultivate coca leaf.

Price of coca leaf (PHC): independent quantitative variable expressed in Colombian pesos, which indicates the price that

drug traffickers pay per kilogram of coca leaf. It is considered that, the higher the price, the greater the willingness to plant coca and deforest, and there is also a minimum price that discourages coca planting. The price of coca leaf varies in different valleys, and one reaction of drug trafficking is to raise the price to encourage planting. However, the price can also fall when drug traffickers redirect their demand to other coca-growing areas. In theory, for example, adequate police control (interdiction) of an area, preventing the entry of chemical inputs and increasing drugs seizures, would reduce the price of coca paid by drug traffickers due to the drop in demand.

Price of alternative crops (PCA): independent quantitative variable expressed in Colombian pesos, which indicates the average price of alternative crops (cocoa, coffee, palm, others). There is an inverse relationship. That is, it is considered that, the higher the price of alternative crops, the lower the willingness to plant or replant coca. This can also act against deforestation in the short term, to the extent that higher prices could promote the expansion of legal crop areas (Kaimowitz & Angelsen, 1998).

Presence of alternative development programs (PDA): independent quantitative variable which determines the effective support that a coca producer (or family) receives to substitute coca cultivation. In Colombia, this includes the National Comprehensive Program for

the Substitution of Illicit Crops, PNIS for its initials in Spanish, or other support programs for coca growers. This support depends, in turn, on the availability and effectiveness of the Colombian state to meet all or part of the demand generated, but also on the willingness of the coca grower (or family) to accept the support (signing agreements). From this, it follows that, the greater the effective access to alternative development programs, the lower the willingness to plant coca and deforest. In the same way, when the support package is broader, more comprehensive, and timelier, there is less inclination in the coca producer who has eradicated their crops to return to planting coca. However, the state's failure to comply with its commitments becomes a factor of mistrust that promotes coca

cultivation. This independent variable has an inverse relationship with the HDC variable.

Other legal income (OIL): independent quantitative variable, which quantifies the other licit income that agents may have, in addition to that obtained from coca crops. It is expected that, the higher the income from legal sources, without considering the income from alternative products (PDA), the lower the propensity to deforest for the planting of coca crops. That is, this variable has an inverse relationship with the number of hectares deforested for coca leaf crops. These incomes can be determined by public or private sector activities, for example, the payment of salaries for infrastructure maintenance works or rural employment programs.



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Property titles (TIT): independent quantitative variable, which determines whether the property where coca is cultivated has a property title or certificate of ownership. It is presumed that peasants and coca growers who have title deeds or ownership certificates would have a rooting factor that prevents them from migrating to other geographical areas. This variable has an inverse relationship with the HDC variable (Garzón & Riveros, 2018; Feeny & Feder, 1991).

Road access (ACV): independent quantitative variable, with a double effect. On the one hand, it determines the cost of connectivity to consumer markets for legal products and affects the competitiveness of legal crops, since villages with better connectivity have better options to integrate into legal markets. However, research has also shown that the development of transport routes favours coca planting and deforestation (Alix, 2001; Chomitz & Gray, 1996).

Eradication of coca crops (ERR): independent quantitative variable, which refers to the number of hectares eradicated in areas of deforestation. It is estimated that, the higher the perception of risk of a new eradication, the lower the propensity to deforest for coca planting in the area. However, there is also the option of migrating to other areas where it is perceived

that there will be no eradication. There is an inverse relationship between this variable and the number of hectares deforested for coca leaf crops.

Social control of the forest (CSB): independent qualitative variable, which reflects the behaviour of some communities of agricultural producers regarding deforestation. In some cases, norms are established to limit the use of the forest or the areas to be deforested. The greater the social control, the lower the area deforested for coca crops.

State control of the forest (CEB): independent qualitative variable, which refers to state control to avoid deforestation. There are areas or reserves that are monitored and supervised by the state to prevent deforestation. The greater the state control, the lower the area deforested for coca crops.

Activity of criminal organisations (AOC): independent qualitative variable, which influences certain agents that promote coca crops and deforestation. The greater the presence of criminal organisations and residual organised armed groups (GAOR), the greater the presence of coca crops. This presence also favours and promotes the growing production of coca crops, even at the cost of the deforestation of primary forests and the degradation of their soils (Rocha, 2011).

Culture of legality (LEG): independent qualitative variable, which is linked inversely to deforestation for coca crops.

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In other words, the lower the importance that coca-producing agents give to the legal framework and the care of forests, the more predisposed they are to deforestation.

Income from forest conservation incentives (ICB): independent qualitative variable. There may be economic activities that generate income for communities that preserve and protect forests, for example, with subsidised income from the state or mechanisms of carbon credits or the reduction of emissions caused by deforestation and degradation (REDD).

Income from the use of non-timber products (INM): independent quantitative variable, which refers to the income generated by the use of products such as chestnuts, nuts, berries, mushrooms, seeds, oils, and medicinal plants, among others.

Income from ecological services - ecotourism (ISE): independent quantitative variable, which refers to the presence of economic activities that generate legal income for communities, such as ecotourism. The relationship of this variable is inverse with respect to the dependent variable.

Stochastic variable (μ): there are, undoubtedly, other factors that can influence the behaviour of the coca producer in terms of deforestation and coca planting, such as number of family members, level

of poverty, presence of the state (health-care, education, social programs, and security, among others) etc.

Other approaches

Currently available techniques like Exploratory Spatial Data Analysis (ESDA), interactive maps, geographical information systems (GIS) and satellite images allow the development of predictive spatial models that can link illicit coca crops with deforestation. In this way, they can be complements for a more effective approach to understanding the problem of deforestation due to illicit coca crops.

From the Territory

To evaluate the variables of the UNODC study *Community, forest and coca: a pathway for action*, explained in the previous section, we conducted semi-structured interviews with peasants dedicated to the cultivation of coca leaf, in order to compare the proposal of UNODC with the narratives and experiences of those in the territory. We chose the department of Putumayo for the field work, as it is one of the regions of Colombia with the highest rates of deforestation and, at the same time, the largest number of hectares of illicit crops.

Identifying the factors that explain the behaviour of peasants and other actors in deforesting and planting coca crops represents an important academic challenge.

After determining the type of population of interest to be interviewed and the geographical area to be reached, we (research group two of the Latin American Network for Environmental Security), contacted the Dejusticia think tank which specialises in the strengthening of the rule of law and the promotion of human rights in Colombia, in order to undertake joint work. This greatly enriched the present Policy Paper, as the researchers of Dejusticia have great experience in field work across Colombia on environmental and drug policy topics, and have established contacts with co-

ca-growing peasants in Putumayo.

After more than seven months of planning, the research exercise was undertaken in person over three days at the headquarters of the Putumayo Human Rights Network in the city of Puerto Asís. Each day, there was a dialogue with com-

munities from different municipalities of the department to enrich the understanding of the experiences of the coca growers of Putumayo. On the first day, a face-to-face meeting was held with eight representatives from the municipality of Puerto Asís. A group interview was conducted with six of them, and individual interviews were held with the others. The second day focused on the communities from the municipalities of Puerto Guzmán, for which an in-depth interview was conducted with

three leaders of coca-growing communities from said area. Finally, on the third day, two interviews were conducted with residents from the municipality of Puerto Leguízamo; the first was a group interview with two peasants, and the second was an individual interview with another leader from the area. In total, 13 coca-growing peasants from three municipalities of Putumayo were interviewed. Their narratives allowed us to learn more about their day-to-day life and the way in which they live these situations.

The interviews were divided into five segments of questions in order to evaluate the variables proposed by UNODC and to identify factors not included in the study. This was to enrich and deepen the understanding of the situation of the peasants in Putumayo, in order to offer them truly viable alternatives. Additionally, it should be noted that we chose the methodology of semi-structured interviews as this consists of guided conversations that maintain the basic structure of the interview, but also allow flexibility for both the researchers and the interviewees to vary the order of the questions so that the dialogue is more fluid.

The first part of the interview sought to understand the conditions of the spatial and temporal location of the participants, meaning that it began with questions about the interviewees, for example, their name, age, and occupation, in order to subsequently talk about

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the characteristics of the place where they live, such as location, the size of the village, the legal status of the land, and the type of crop(s) they have. The second section of the interview sought to discuss the perspectives of the peasants on deforestation, whether they have seen changes in the flora and fauna in the time they have lived in that area, the impacts of this phenomenon on their daily activities, and the way in which their communities perceive the reduction of the forest terrain.

The third part of the interview focused on the relationship between deforestation and illicit crops, to learn from the testimonies about the impacts of coca leaf on the dynamics of Putumayan peasant communities. Thus, the questions were oriented towards understanding what it means to the interviewees to cultivate coca leaf, the process and care needed to maintain the plant, and the social, economic, environmental, and security situations that arise from the relationship with this type of crop. The fourth section of the interview discussed the relationship of the peasants with other actors, such as the state and armed groups, in their daily lives. This was in order to identify, on the one hand, the impacts on deforestation and the production of illicit crops in the department of substitution programs, manual eradication, and glyphosate spraying. And, on the other hand, to analyse the consequences of the presence of armed actors in the daily lives of the interviewees. Finally, they

were asked to talk about their expectations for the future, their goals at the personal, family and community levels, and what they hope will change to achieve better living conditions as Colombian peasants.

The purpose of this research activity is to provide a platform so that the situations experienced far from the big cities become relevant in the agendas of both the local and national governments. The stories of María, Yaneth, Jaime, Roberto, Jorge, Olga, Camilo, Andrés, Fabián, Sergio, Alejandra, Milena, and Diego reveal the complexities of what it means to be a coca farmer in Putumayo (in this text, the names of interviewees have been changed for reasons of security and confidentiality).

The stories of the 13 people interviewed reveal the complexities of what it means to be a coca farmer in Putumayo.

Voices of Putumayo: The relationship between illicit crops and deforestation based on the theoretical model

Illicit crops and deforestation have become latent and growing problems for Putumayo. Each one, with its various causes, demonstrates the realities faced by the inhabitants of the territory and the negative consequences these problems have generated. This will be evaluated below

through an analytical exercise that aims to ground the theoretical variables described previously with the information extracted from the interviews we conducted. It should be noted that the names of the people quoted below have been changed for reasons of confidentiality and security.

Price of coca leaf: “We have always lived from coca, we have tried other means, but it is not possible”

The cultivation of coca leaf has represented a key source of income for families in Putumayo since it arrived in the department in the mid-1980s. Despite all the risks that its planting entails, these families find no alternative but to plant this crop, and to process it to sell it as either paste or as fresh coca. Thus, its price is one of the most important factors for peasants in the region to cultivate it: one kilogram of coca paste normally ranges between \$2,500,000 and \$3,500,000 Colombian pesos (around 550-750 US dollars). These prices have been affected by variables like the COVID-19 pandemic, which reduced the value of the paste by up to 50% (UNODC & Gobierno de Colombia, 2021). But even with coca prices so low, the crop continued to represent the best option for farmers, many of whom have found no alternative but to stay in the coca business until now. According to María:

If I have one hectare, in that hectare I can plant half a hectare of coca that would help support

me and my family; on the other hand, one hectare of cattle is not enough for sustenance. But with coca, it's not that you have a great life, the economy hasn't improved, what we do with that plan is survive (personal communication, 2022).

Thus, the price at which the paste is sold, along with other factors explained below, have made coca the main product of the department's economy because, according to the peasants, the economic activity of a large part of the municipalities in Putumayo revolves around this crop. If it is being sold in large quantities, trade is energised and people from other departments come to deforest virgin forest in order to cultivate. However, when sales decrease, not only the growers are affected, but all economic sectors see a decrease in profits in moments when coca money begins to become scarce.

Price of alternative crops and other legal income: “It is easier to carry a pound of coca that gives me the same as carrying 100 bunches of bananas, there are no guarantees”

Alternative crops like bananas, cassava or corn have not been profitable enough for Putumayan peasants to dedicate themselves to producing them instead of coca. Firstly, transporting the products from the villages to municipal capitals in this region, where the temperature does not drop below 25 °C, means difficult journeys in

terms of conserving the products, as it is necessary to use various means of transport, such as horses or donkeys, boats, and trucks. This complicates the sale of alternative crops compared to coca paste which, being a powder, does not require additional care, compared to the fruits that can be grown in the region, like bananas, which are delicate and affected by environmental changes.

Additionally, the costs to transport these alternative goods are very high, leaving the peasant with limited profits compared to the business of illicit crops, in which the growers make the paste and people come

directly to the village to collect it. On the other hand, regarding activities like livestock farming, the peasants stated that, as well as the problem of transportation, too much space is needed for each cattle they wish to keep. When the meat is taken to the cities, the peasants encounter obstacles such as vaccination and certificate requirements, making it difficult to sell these products. Based on her experience, Yaneth described the frustrations she has felt facing this type of parallel activity:

I have wanted to stop growing coca with my family, but it's sad that when we have tried other crops, we've had such a bad



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time, we've had so many hardships. Because when I have a banana to sell, there is no one who buys it, and if there is someone to buy it, the bananas don't return all the investment I have made. If I have chickens, they are worthless. So, we've always been forced to return. My family's vocation is livestock farming, but this requires a lot of land and is a long-term activity (personal communication, 2022).

Illicit crops and deforestation have become latent and growing problems for Putumayo. Each one, with its various causes, demonstrates the realities faced by the inhabitants of the territory and the negative consequences these problems have generated.

Presence of alternative development programs: "I wouldn't bet on substitution again, because it would be betting on hunger"

In Putumayo, there have been various alternative development programs by both the Colombian state and international organisations. However, the one that has had the greatest impact in recent years has been the Comprehensive National Program for the Substitution of Illicit Crops (PNIS, with its Spanish initials), which arose from point 4 (*Solution to the problem of illicit drugs*) of the Peace Agreement. Through the PNIS, the government sought to grant technical and monetary assistance to the productive projects of the families that signed

up for the scheme, in exchange for the complete eradication of the illicit crops in their villages. Five years after its creation, the program is halfway through its expected duration, the conditions and assumptions under which the PNIS began have changed, and the majority of registered coca growers have not received the income they had been promised (Rueda & Garzón, July 29, 2022).

Hence, when the interviewees in Puerto Asís were asked about the PNIS, the same phrase was repeated over and over: "The government did not fulfil what it promised." Frustration was a common denominator in the stories of the peasants who described how the communities had believed in the program, eradicated all their coca plants, and were then left empty-handed. The PNIS in Putumayo had several problems in its implementation, such as in being able to grant economic assistance to all the families that had eradicated their coca crops and in providing useful and quality inputs to the productive projects of the peasants. This led the peasants to experience difficult months and even years, since the coca leaf was no longer a means of subsistence and the PNIS did not provide the support required to undertake alternative projects. Jaime summed it up as follows: "I am aware that the day I signed the agreement, I condemned myself. Because I didn't think I was going to starve my family, and what hurt me the most was [seeing] my children go hungry" (personal communication, 2022).

In this context, some families continue with alternative projects despite the adversities, as they are aware that if the government discovers coca plants on their land, they will be removed from the PNIS. However, the vast majority of the farmers interviewed acknowledge that they have taken the risk and returned to planting coca as the only means they have to survive. In the words of Roberto:

Many families voluntarily gave up the coca leaf in exchange for comprehensive government support that was never fulfilled, it never arrived. Unfortunately, in the department of Putumayo, there is nothing else to transform

but coca, so I am forced to plant coca. What is left for us? To keep working on what we know, what we can get and what works for us. Health, education, recreation, we get everything from coca, it's a way of life for us (personal communication, 2022).

Eradication of coca crops: "I am going to help my neighbour so that the Army doesn't take away his crops. Even if the Army kills us, even if it's the government, we won't let them in"

The eradication of illicit crops has been a constant in the department of Putumayo



Foto: ©Greta Hoffman - Pexels

since the 1990s. It has mainly been carried out through fumigation with glyphosate and manual eradication, but it has not succeeded in ending coca crops. On the contrary, it has generated serious consequences for people's health and for the region's jungle, since glyphosate has triggered the displacement of coca-growing populations that settle in forest reserve areas in an attempt to avoid being a target of the spraying.

The territory of Putumayo experiences daily realities of violence from several fronts. This phenomenon has intensified over time due to non-compliance with the Peace Agreement and the lack of security guarantees for civil society and social leaders.

Thus, these operations have increasingly displaced coca growers into the interior of the jungle and, consequently, deforestation has increased. This is aggravated by the discontent generated by the voluntary replacement of the PNIS, since the peasants are unwilling to let their crops be taken away, even if they put their freedom or even their lives at risk. As Olga explained: "The need was so great that I said, well, if they prosecute

me, I don't care because I'm sick, I need to provide for these children" (personal communication, 2022).

Property ownership: "For not having papers, many have lost the opportunity to access subsidies"

The problem of land distribution has been constant throughout the history of

Colombia. Peasants without property titles have colonised jungle land to become small producers and to support their families, while opposing groups claim to have papers registered in the offices of the capital cities, which they say proves their ownership of said land (García, September 25, 2022). In Putumayo, it frequently happens that peasants do not have land ownership papers, causing them to lose the opportunity to access programs and subsidies like those of the PNIS.

This problem is exacerbated, according to the testimonies of those interviewed, by the presence of multiple, overlapping figures in this department, like peasant reserve zones, indigenous reservations, Afro-Colombian community councils and forest reserves, making it difficult to know the limits of each community and meaning that deforestation can be considered a measure to expand and secure their territory. In this way, disputes over land ownership are a cause of deforestation and also contribute to the presence of more and more families that occupy vacant lands in order to plant coca.

Activity of criminal organisations: "Those least involved in the problem always end up paying, but nothing happens to the big guys. The peasant, who only needs to earn a wage to survive, is the one who goes to jail"

The territory of Putumayo experiences daily realities of violence from several

fronts. This phenomenon has intensified over time due to non-compliance with the Peace Agreement and the lack of security guarantees for civil society and social leaders. On the one hand, the increase in organised groups and dissidents has not only generated insecurity for peasants, due to the struggle to monopolise coca crops for illicit purposes, but it has also led to an increase in state repression towards them because the peasants are designated as being insurgents. On the other hand, the presence of armed actors has contributed to the clearing of forests to consolidate roads and infrastructure that favour drug trafficking. According to the community, there is no motivation for any of the actors involved (state institutions, the private sector, or organised armed groups) to live in harmony, in fact, due to large economic interests, there is persecution of those who inhabit the region.

Culture of legality: “I have wanted to stop growing coca, but it’s very sad that when we have tried to plant other crops we have to go through hardships”

It has already been mentioned that the impact of peasant communities is not the predominant factor in the growing increase of deforested areas in Putumayo, but it should be noted that the lack of opportunities to carry out economic activities unrelated to illicit crops has pushed many peasants to continue this practice, and this, in turn, leads them to deforest. Although most of them know their plots of

land and the steps necessary to prepare the land for coca-planting, sometimes they must speed up their production by expanding to other forested areas.

Incentives for forest conservation and ecological services: “The government should take away the autonomy of Corpoamazonia, so that they do not continue doing more damage”

Attempts to promote incentives for conservation have had different origins and purposes since, according to the majority of the testimonies, in the eyes of the state coca cultivation has been a problem in terms of increased violence and organised crime. These incentives, for the most part, are distributed through local organisations that are not only responsible for raising funds for the implementation of projects with ecological services, but also for providing resources for those who intervene in the impacts on forest areas.

In the case of Putumayo, the Corporation for the Sustainable Development of the South of the Amazon, Corpoamazonia, is the environmental authority in charge of guiding processes that contribute to improving the quality of life of the communities in the region by reducing conflicts over resources and strengthening the institutional role in the sustainable regulation of the territory. However, a problem identified by people in Putumayo, in terms of the regulations of this entity on the use of the territory, is that

the restrictions on the community and on the other actors that participate in logging dynamics vary according to the required licences and permits. That is, the peasants who use the soil, the wood and the forests for their own subsistence encounter more limitations than the big companies responsible for unlimited extraction, since they invest large amounts of money to do it freely.

In addition, although there are farmers with an interest in accessing credits and subsidies with Corpoamazonia in order to be part of programs to protect the environment and mitigate, in some way, its impact on the increase in deforestation, the options they can access are scarce and those who generate more contributions always have priority. Therefore, the mismanagement of public resources continues to contribute to scare and sometimes non-existent incentives for the community to participate, work, and learn through more sustainable strategies.

Road access: “It is difficult to get products like bananas, cassava and corn out; there are no routes and the river is expensive; people came back to survive”

This variable is essential to understand the relationship between deforestation and illicit coca crops in Putumayo. As peasants have greater access to roads,

they will be able to transport their products more easily and market them without so many additional costs. Jorge commented the following: “We are neither guerrillas nor drug traffickers, we are growers and small-scale growers who choose to plant illicit crops because we don’t have land routes” (personal communication, 2022)

Additional factors identified

The testimonies of the 13 coca farmers from Putumayo revealed that not all the factors that encourage their participation in the cultivation of illicit crops are included in the UNODC theoretical model. Therefore, it should be noted that the following variables are proposed as items that must be considered to enrich the understanding of the situation in the region and, thus, to be able to propose better public policies regarding the cultivation of illicit crops as a possible cause of deforestation.

The presence of oil companies: “Oil companies make us move elsewhere, we have to move and deforest to make a new life”

According to the testimonies of the peasants, the increased presence of oil companies in the region has triggered increased deforestation and illicit crops. This is because they contaminate the water, leave the land barren, and generate social breakdowns, meaning people

cannot continue working with crops on their land, and activities like livestock farming are also affected by these extractive activities. Hence, people end up displacing, deforesting to occupy vacant land, and consolidating coca crops as the only option they know will give them sustenance to support their families.

Corruption

Finally, it is important to include this item as a variable that directly affects the dynamics of the peasants in Putumayo. From the testimonies collected, it was possible to demonstrate a constant in the comments of the interviewees. They have all been promised large investments in the territory, either in terms of money or of inputs for productive projects, but these have not been implemented as promised. Therefore, the resources allocated to these communities are not reaching the territories that need them in order to move towards legal economies, but rather end up in the pockets of third parties. Camilo explains as follows:

While nothing reaches our families, we do receive a lot of papers to sign. Since my life doesn't improve, I'm forced to cut down another hectare of forest and to plant coca because I cannot let myself starve (personal communication, 2022).

Conclusions and Recommendations: Proposals for the Construction of Policies More Sustainable with the Environment and Communities

Although this Policy Paper has focused on Putumayo, its contributions have a national scope at the level of the different territories of the Colombian Amazon.

1. There is a heterogeneity of factors that influence deforestation caused by coca crops. Although the field work was carried out in Putumayo and similar conditions are likely to exist in other areas of the Colombian Amazon, it is necessary to identify the relevance of each factor in each specific territory. The state must try to identify the most relevant factors and better focus and design its intervention to achieve better results.
2. There is a diversity of agents that deforest to plant coca. These direct and indirect agents can be characterised as proposed by UNODC, allowing a better understanding of their behaviour. The set of factors or variables that influence agents to deforest and plant coca acts

differently in each one, meaning it is important to know the preponderance of the different agents in different territories in order to design and implement more effective interventions; it is necessary to study more deeply the reality of each area before intervening.

3. The components of an intervention must be comprehensive; that is, their interaction with the most relevant explanatory factors must be considered in order to achieve the expected change in behaviour. The intervention of specific programs, such as the PNIS, assuming that they are successfully implemented, would be insufficient because they do not address the set of factors indicated (sociopolitical, economic, and environmental). This requires a great coordination effort by the state at a horizontal level across the various executive sectors that intervene, as well as a vertical effort due to the necessary participation of departmental and local authorities.
4. The duration of the intervention must be medium- and long-term. Deforestation due to coca crops has led to structural problems that require not only a focused and comprehensive intervention strategy, but also adequate timing to reverse the problems, difficulties, and limitations, as well as to create the

necessary conditions to promote legal and sustainable activities.

5. The loss of trust in the state due to the breaking of its promises in the implementation of crop substitution programs will be very difficult to restore, and the reaction has provoked more deforestation for coca crops. Reversing this situation will require a better-designed intervention, duly budgeted and with real implementation capacity. The state must reformulate this intervention to recover trust and achieve greater participation by the peasants; and perhaps consider state intervention first, and then eradication.
6. The development of oil activities could be having a negative effect on the displacement of peasants towards new territories, with the consequent deforesting of forests for the planting of illicit crops. It would be necessary to investigate the situation further in order to determine the real impact that this extractive activity could be generating, and to design actions that avoid or mitigate its negative effects.
7. The acts of corruption that have been denounced would clearly affect the effectiveness of the interventions implemented. Greater transparency in the activities implemented, social control by local

social organisations and a period accountability scheme to local actors, could contribute to reducing corruption.

8. Although the field work did not allow validation of all the variables or factors of the theoretical model presented, it can explain the behaviour of the different agents/actors studied. It is necessary to deepen the research and diagnoses in the different areas affected, in order to have a more comprehensive analysis and develop more effective interventions.
9. The Colombian state has detailed information for monitoring the deforestation of its forests and, in particular, regarding coca crops. Predictive models that include the various factors analysed should be

perfected and joint inter-sectorial work should be strengthened to prevent and mitigate deforestation due to coca crops.

10. Finally, although it is recognised that the planting of illicit crops is an activity that directly and indirectly impacts the increase in deforested areas, these are not the main cause of the high deforestation rates in the region, excluding their illicit use. Extensive livestock farming, the unregulated extraction of natural resources, such as wood, fumigation with glyphosate, and monoculture agriculture are consolidated as determining factors. To this is added the intervention at different scales of a wide variety of actors who, with different (legal and illegal) purposes, promote the felling and destruction of forests.

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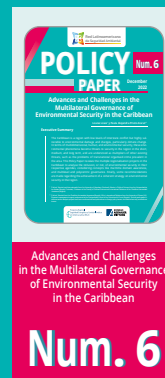
POLICY PAPER

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The Impact of Illicit Crops on the Increase in Deforestation Rates: Views and perspectives from the Putumayo region of Colombia

Num. 5



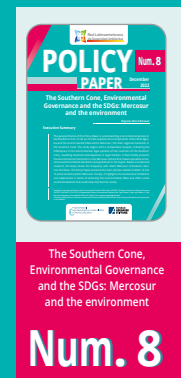
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Explanation of the network:

The Latin American Network of Environmental Security aims to produce knowledge in the academic field and opinion work on the threats, risks and challenges facing environmental security in Latin America and the Caribbean through various case studies. To achieve this, it has generated spaces for dialogue with civil society organizations, academia, economic actors, and decision-makers from the public sector, to dialogue, raise awareness and seek consensus on the need to give relevance and priority to the threats presented by the region in environmental matters. Thus, through the preparation of papers (policy and working) and books, it is proposed to collect the study work of the network on specific cases to make visible the main problems and propose recommendations to provide inputs to decision makers in both the public and private sectors to respond and mitigate the threats that endanger environmental security in its different dimensions in Latin America and the Caribbean.

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