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Article

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POLICY COMMENTARY

Addressing Coca-Related Deforestation in Colombia: A Call for Aligning Drug and Environmental Policies for Sustainable Development

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In Colombia, deforestation is one of the most relevant environmental problems, and the cultivation of illicit coca crops is often mentioned as one of its direct and indirect drivers. Over the past two decades, both dynamics have been converging, and are now found in largely the same areas. These tend to be characterized by weak governmental control, the presence of illegal armed groups, and adverse socioeconomic conditions. Alarming, almost half of the illicit coca cultivation has recently been found in the environmentally sensitive Special Management Zones of Colombia (such as protected areas and forest reservation zones or ethnic territories).

This policy commentary highlights potential sustainable development approaches to address coca-related deforestation in Colombia. It takes into account the country's current public policy framework and practical experiences of the Colombian Government as well as the Global Partnership on Drug Policies and Development (GPDPPD), a programme at Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH, and its partners. These interventions are based on the Alternative Development (AD) concept that introduces viable and legal livelihood alternatives in coca-growing areas to promote rural development and discourage illicit cultivation.

The article suggests aligning drug and environmental policies to implement integrated AD programmes with an environmental dimension through elements such as agroforestry, forest governance strategies or Payments for Ecosystem Services. It further calls for improved framework conditions through an updated cadastral and land titling system. In Special Management Zones, differentiated approaches are necessary to tailor interventions to the specific environmental and cultural conditions of these territories.

Keywords: Colombia; deforestation; illicit coca cultivation; Alternative Development; protected areas

Introduction

Deforestation is one of the most alarming environmental concerns in Colombia, and it has affected and changed the country's land cover extensively over several decades. Most recent figures of the Institute of Hydrology, Meteorology and Environmental Studies (IDEAM, Spanish acronym) show that between 2015 and 2018, annual deforestation in Colombia rose from 124,035 to 197,159 hectares (ha), falling back to 158,894 ha in 2019 (IDEAM 2020). Parallel to this, the area under illicit coca cultivation in Colombia grew from 96,085 to 169,019 ha (2015–2018) and was reduced to around 154,457 ha in 2019 (UNODC–SIMCI 2020: 173).

The changes in forest cover cannot be primarily attributed to illicit coca cultivation. Nevertheless, the cultivation of illicit coca crops is often identified as a relevant direct and indirect driver of the degradation and clearance of primary forest in Colombia (González et al. 2018; Erasso & Vélez 2020). Even though their respective dynamics vary by region and municipality, illicit coca cultivation and deforestation share certain characteristics and are often closely intertwined, as they tend to occur in the same regions of Colombia.

This policy commentary seeks to identify integrated policy options to address forest loss and illicit drug economies in regions where the two dynamics overlap, taking on a perspective of sustainable development.

To this end, it briefly focuses on the convergence of deforestation and illicit coca cultivation in Colombia and then analyses responses to these issues as outlined in national drug and environmental policies, highlighting potential for synergy. Adding a practical notion to the discussion, the commentary looks at exemplary policy interventions promoting sustainable rural development in areas affected by both dynamics that have integrated elements to curb deforestation. The examples include programmes of the Colombian Government as well as pilot projects of the Global Partnership on Drug Policies and Development (GPPD), a programme at Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH. The measures presented are based on the conceptual framework of Alternative Development, an approach seeking to reduce the dependence of small farmers on illicit coca cultivation through licit livelihood alternatives and rural infrastructure improvement (BMZ 2020).

Deforestation and Illicit Coca Cultivation in Colombia: Two Converging Dynamics?

Deforestation and illicit coca cultivation develop independently in many parts of Colombia. There are long-term and complex societal processes that contribute to deforestation indirectly, which may be social, economic, demographic, technological, political, and institutional as well as cultural (Lambin & Geist 2006). Aside from illicit coca cultivation, IDEAM (2018) furthermore lists forest-to-pasture conversion (*praderización*), illegal mining, extensive cattle raising as well as the development of infrastructure works for transport and timber extraction as the main direct causes of deforestation.

Nevertheless, when analysing the development of illicit coca cultivation and deforestation over the past two decades, it appears that both dynamics have been converging (see **Figure 1, Map 1, Map 2**). While from 2000 to 2005, 95% of the annual nationwide deforestation took place in 24 of the 32 Colombian departments, the same share occurred in only 15 departments in 2019. Interestingly, those highly overlapped with the main departments with 95% of illicit coca cultivation, whose number declined as cultivation concentrated.

In Putumayo, Norte de Santander, Antioquia, Caquetá, and Guaviare, high shares of both illicit coca cultivation and deforestation coincide over the past two decades. These areas have thus been hotspots of both phenomena. A similar coincidence can be found in Meta, Nariño, Cauca, Bolívar, and Chocó, excepting a few years of differing dynamics. All of the aforementioned areas contain most of the municipalities that were prioritized for the implementation of the peace agreement between the Colombian government and the FARC-EP guerrilla signed in 2016 (ART 2020).

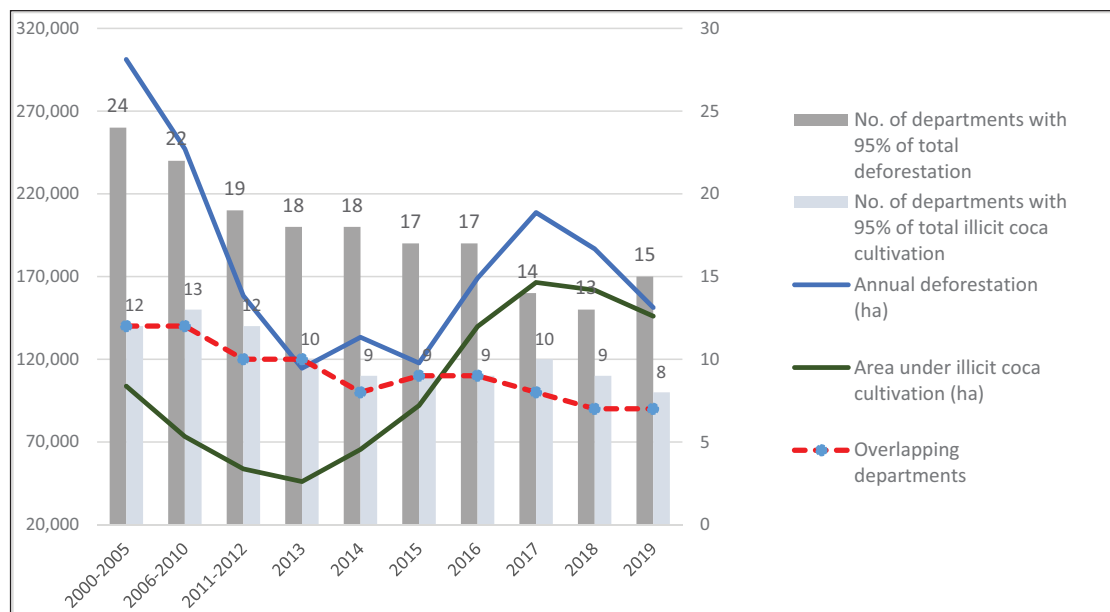
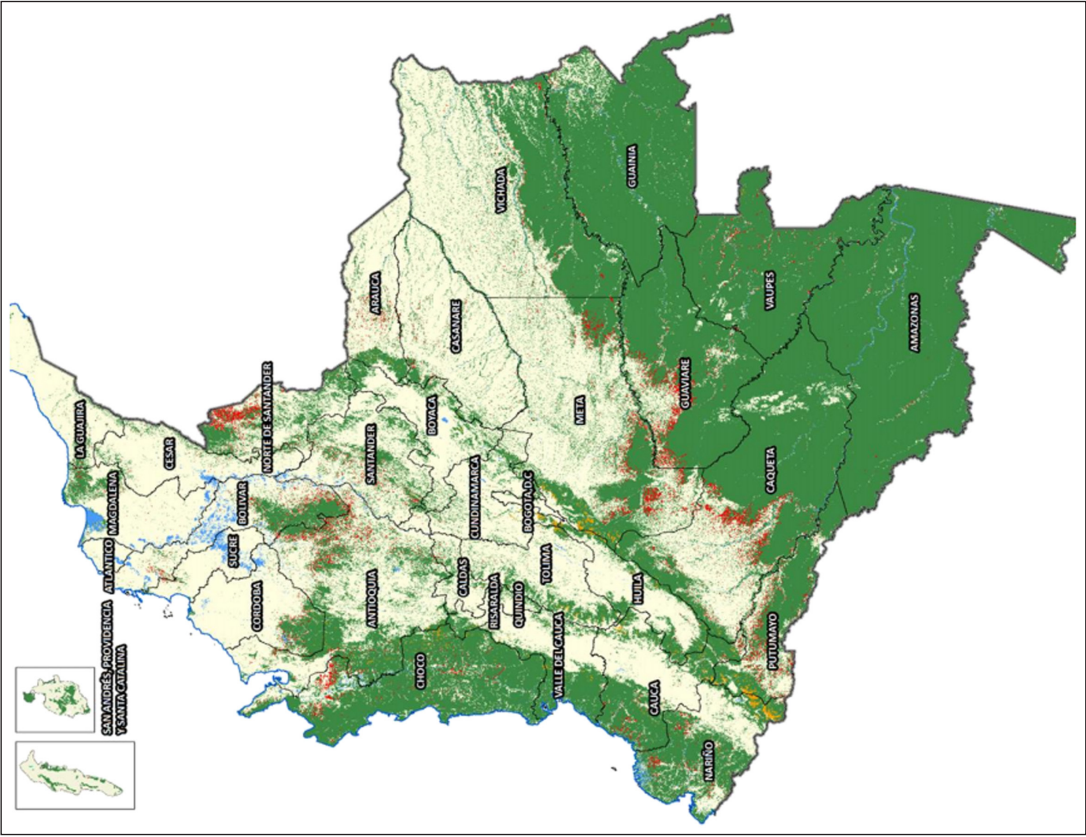
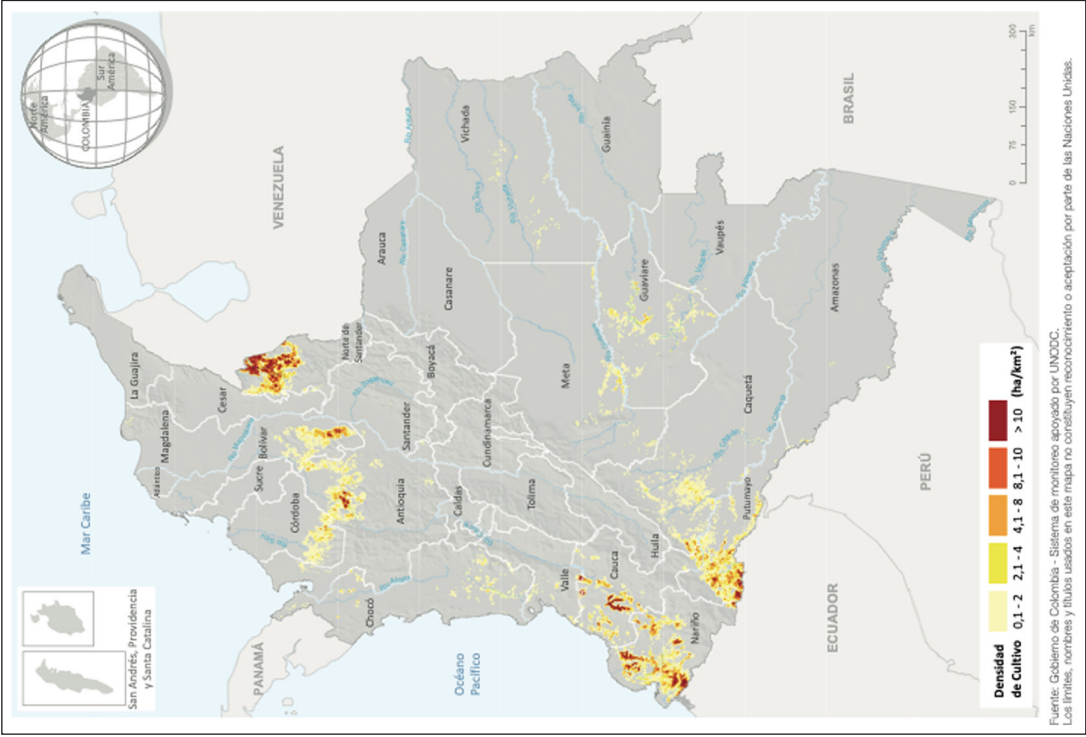


Figure 1: Number of departments with 95% of illicit coca crop cultivation and/or deforestation 2000–2019.

Source: Own elaboration based on the online databases of IDEAM (n.d.) and ODC–MinJusticia (2020). For 2000–2005, 2006–2010 and 2011–2012, the deforestation data corresponds to the annual average reported by IDEAM. For the same period, annual coca cultivation data was averaged.



Map 1: Hotspots of deforestation (red) and forest cover (green) in Colombia, 2019 (Source: IDEAM 2020).



Map 2: Illicit coca cultivation density in Colombia, 2019 (Source: UNODC–SIMCI 2020).

A UNODC study assessing coca-related deforestation in the regions Amazonía and Catatumbo indicates that between 2005 and 2014, only 6% of forest loss¹ was directly caused by the planting of illicit coca crops. However, 42% of total deforestation in these regions was found to be associated with coca cultivation² (UNODC 2018a: 20). Forested areas seem to be selected for illicit coca cultivation for several reasons that influence the cost-benefit calculations of farmers shifting cultivation to these lands. According to the study, coca-driven forest loss and degradation occur in territories with very low commercial value. Among others, it is assumed that the ecosystem value of the forest is not a relevant criterion for establishing land value in these regions. In addition, the productivity and thus profitability of coca cultivation are perceived higher in natural forests due to an increase in soil productivity after slash-and-burn practices. Finally – as formal land titling in part of the studied areas is restricted due to their location within forest reserves, and cadastral data is scarce – the purchasing transactions taking place are informal and land grabbing is ubiquitous. Unaware of the legal restrictions and driven by the low commercial value, farmers displace their productive activities – including illicit coca cultivation – to forested lands, contributing to the expansion of deforestation (UNODC 2018a: 49–52).

According to the Integrated System for Monitoring Illicit Crops in Colombia (SIMCI, Spanish acronym) (UNODC–SIMCI 2018, 2019), the largest proportion (47%) of illicit coca cultivation in Colombia is located in so-called Special Management Zones,³ including National Natural Parks (PNN, Spanish Acronym), forest and indigenous reserves as well as Community Councils of Afro-Colombian communities. The particularities of these protected territories, notably the proximity to forest zones that are difficult to access and low institutional presence facilitate these dynamics (UNODC–SIMCI 2018: 64). The SIMCI states that drug policy programmes in these areas should be adapted to the specific regulations defining feasible interventions in these zones (UNODC–SIMCI 2020: 23). It further recognizes the need to align Colombia's development, conservation, and cultural visions in strategies encouraging the effective protection of cultural and biological diversity (UNODC–SIMCI 2019: 27).

Bonilla-Mejía and Higuera-Mendieta (2019) note that while illicit coca crops have in recent years expanded into PNN⁴ – partially explained by the ban on aerial spraying in these areas – collective territories of indigenous and Afro-Colombian Communities have in general contributed to avoiding deforestation, including in remote, less developed regions with a weak state presence. In that context, Vélez et al. (2020) find that the assignment of collective property rights together with strengthening local community-based organizations to actively establish environmental policies for community use of natural resources such as the forest can play a major role in preventing or reducing deforestation.

The regions where deforestation coincides the most with illicit coca cultivation have two characteristics in common: low population density and high levels of violence (Bonilla-Mejía & Higuera-Mendieta 2019). The lack of state presence in the often-remote regions partly explains the spread of illicit activities there, especially where internal conflict endures and illegal armed groups actively participate in the illicit economies (ibid.; UNODC & Government of Colombia 2016; UNODC–SIMCI 2016). Furthermore, there are certain socioeconomic factors determining the living conditions of the communities living in these areas, part of which engage in the cultivation of illicit coca crops. An analysis of the situation of families involved in the Colombian government crop substitution programme (PNIS, Spanish acronym) showed that (multidimensional) poverty and insufficient land tenure are among the main challenges for households in coca-growing regions. Fifty-seven per cent of these households live in monetary poverty, and only 13% are formal owners of their land. For 21% of these families, coca-growing is the main productive activity. Other vulnerabilities include the lack of or severely limited access to health institutions, education, and other public services such as electricity (FIP & UNODC 2018).

To find a balanced strategy in areas with a coincidence of illicit coca cultivation and deforestation, the weak institutional and socioeconomic conditions, and the complexities given by environmental regulations and ethnic particularities need to be taken into account. Long-term approaches with a right balance between economic, cultural, and environmental dimensions should be explored. Colombia's current political framework could offer opportunities for moving towards a sustainable development focus, if the existing potential is used.

¹ Forest loss was defined as the sum of coca-driven deforestation and degradation of natural forests.

² Forest cover loss in the proximities to coca-driven deforestation or forest degradation (1 km or less).

³ The current drug policy issued by the Ministry of Justice and Law in 2018, 'Ruta Futuro' with the aim of having adequate interventions to the territorial conditions defined three main categories: i) Special Management Zones; ii) Strategic Interest Zones; iii) Free-Intervention Zones.

⁴ The various categories of national Protected Areas include Unique Natural Areas, National Natural Parks, National Forest Reserves, Natural Reserves, Fauna and Flora Sanctuaries and UNESCO Biosphere Reserves and World Heritage Sites.

The Increasing Role of Sustainable Development and Environmental Protection in Drug Policy

Before assessing Colombia's policy framework, a brief digression shall provide some background on how sustainable development is understood in the context of drug policy. Sustainable development approaches in addressing illicit drug crop cultivation as well as the potential negative environmental impacts of the drug economy have only in recent years enjoyed increased international attention (Brombacher & Westerbarkei 2019). Already decades ago, governments experimented with crop substitution programmes to replace illicit cultivation with legal crops, mostly as a complement to eradication and law enforcement interventions. Their narrow scope, however, soon proved ineffective as the projects did not address broader sustainable development challenges such as 'enhancing governance and security, respecting human rights, and fostering women's empowerment', or environmental concerns (Brombacher & David 2020: 66). The learnings of some South American and Southeast Asian governments – most notably Thailand's experience from its successful elimination of opium poppy cultivation (Diskul et al. 2019) – often supported by European countries such as Germany or other international donors, have been brought together in the principles of the Alternative Development approach.

Alternative Development (AD) considers development deficits the root cause of small-scale farmers' dependency of the illicit drug economy. It takes on a people-centered perspective and focuses on the improvement of living conditions and income opportunities of farmers in rural areas with a strong presence of illicit drug crops. While the primary aim of conventional strategies is to reduce the hectares of land cultivated with coca (or opium in other world regions), AD seeks to ameliorate human development indicators like household income through the integration of farmers into the legal economy, or the improvement of rural infrastructure and access to basic services (BMZ 2020). A key notion of the approach is to take on a long-term perspective, acknowledging that sustainable development requires time and continuous commitment. This means allowing farmers several years to prepare for crop eradication by establishing a stable income alternative first and letting the effect of development interventions unfold before the illicit crop is eliminated. Another fundamental requirement is to ensure active participation of the communities throughout the entire transition process (Diskul et al. 2019). In line with the global Sustainable Development Goals (SDGs), the multidimensional approach emphasizes integrating any measure into existing policies promoting gender equality, human rights standards, good governance, security, land rights, and environmental sustainability (BMZ 2020; Diskul et al. 2019; UNODC 2015).

Globally, an increasing number of governments are embarking on the sustainable development agenda in drug policy, either implementing AD projects themselves or supporting them abroad (for an overview, see UNODC 2019). At the same time, awareness on the potential negative environmental and climate impacts of illicit drug crop cultivation has risen. The United Nations Guiding Principles on Alternative Development (UNGA 2013) stress that AD programmes 'should include measures to protect the environment at the local level, [...] through the provision of incentives for conservation, proper education and awareness programmes so that the local communities can improve and preserve their livelihoods and mitigate negative environmental impacts' (UNGA 2013: Appendix, A/11). Furthermore, the Outcome Document of the 2016 Special Session of the United Nations General Assembly (UNGASS) on the World Drug Problem – the first high-level international drug policy document with stand-alone chapters on human rights and Alternative Development (Brombacher & David 2020) – also underlines the importance of 'addressing the consequences of illicit crop cultivation [...] on the environment' (UNGA 2016: 23) and to include 'criteria related to environmental sustainability' (ibid.: 25) in evaluating the success of rural development measures. In recent years, the World Drug Report as the prime reference for scholars and policymakers on trends in drug production, trafficking, and use, also devoted special chapters on Alternative Development (UNODC 2015) and the nexus between illicit drug crop cultivation and the environment (UNODC 2016).

These tendencies in global drug policy have highlighted the expanded range of options states have to address illicit drug crop cultivation, and acknowledged the interconnectedness of policy fields related to the drug economy, including environmental protection. However, translating these political statements into immediate action needs to be further encouraged.

Pulling in The Same Direction: Aligning Drug and Environmental Policies in Colombia

Transferring these observations to the case of Colombia, it seems that targeting illicit coca cultivation and deforestation require thinking national drug strategies, environmental policies, as well as rural development and peacebuilding programmes together. In fact, many objectives regarding this issue outlined in the respective national policies already overlap.

One of the general objectives of Colombia's current drug control strategy for 2019–2022 – *Ruta Futuro*, issued by the Ministry of Justice and Law – is the mitigation of the environmental impacts of illicit coca cultivation and production. Coca-driven deforestation is recognized as a major risk to biodiversity, contributing also to the release of greenhouse gases as well as increased soil nutrient loss and erosion (Government of Colombia 2018: 25). The strategy suggests developing alternative sources of income that integrate conservation instruments to reduce deforestation and recover ecosystems of particular ecological importance (ibid.: 21). However, no concrete plan of action is proposed regarding addressing coca-related deforestation.

The peace agreement signed in 2016 between the Colombian Government and the FARC-EP mentions deforestation and forest recovery less specifically. The issue is, however, integrated in the outline of a Comprehensive Rural Reform for Colombia as well as options proposed for addressing illicit drugs and coca cultivation (chapters one and four of the agreement), namely the establishment of the national crop substitution programme PNIS, including the advancement of Alternative Development projects (OHCP 2016). The implementation framework of the peace agreement is more specific proposing to accelerate the creation or updating of the cadastral system, and environmental zoning for the implementation of Payments for Ecosystem Services (PES) schemes (DNP 2018: 27).

The cadastral update, led by the Geographic Institute 'Agustín Codazzi' (IGAC, Spanish Acronym), seeks to contribute to the conservation of areas of environmental interest, as their identification and subsequent strategic land planning will be facilitated. An updated cadastral system may open the possibility for improved implementation of measures mitigating deforestation. At the same time, it encourages land access for the most vulnerable populations (IGAC 2020). Furthermore, the partnership among the Governments of Colombia, Norway, Germany and the United Kingdom on the Reducing Greenhouse Gas Emissions from Deforestation and Forest Degradation (REDD+) framework has highlighted the potential of a comprehensive land registry for addressing deforestation and committed to supporting the registry or update of 1 million hectares within deforestation hotspots in Colombia (BMU 2019).

Payments for Ecosystem Services represent an economic incentive that can be used to encourage the protection of ecosystems. The core idea is that beneficiaries of ecosystem services (such as carbon capture and storage by intact forests or clean water) issue direct or indirect payments to the providers of that services (e.g., the farmers cultivating the land near these ecosystems). Thereby, preserving or maintaining the ecosystem service is remunerated (UNDP 2020; Erasso & Vélez 2020). PES could be used as a complementary tool in AD programmes to increase their environmental sustainability, especially in Special Management Zones. Aside from contributing to environmental protection, they could leverage resources for a variety of purposes such as infrastructure development (Erasso & Vélez 2020). The related regulations developed by the Colombian Ministry for the Environment and Sustainable Development⁵ (MADS, Spanish acronym) provide a legal basis for their implementation.

With regard to the national crop substitution programme PNIS, a protocol for its implementation tailored to PNN has been under development since the end of 2018. Even though there has been progress in terms of inter-agency collaboration, the implementation has struggled with the lack of specialized technical assistance on the ground due to unstable security conditions, amongst others (FIP 2020: 26–27). In March 2020, guidelines for establishing illicit crop substitution models called 'conservation territories' with specific attention to families living in PNN and forest reserves with coca crops were approved. However, according to Colombia's General Attorney, this initiative currently lacks funding and could only be realized through joint efforts and financing of regional and local authorities, the private sector and international cooperation (Vélez 2021). Moreover, the scope of the PNIS seems to be insufficient in Special Management Zones when looking at the targeted areas of intervention. As **Table 1** shows, the actual amount of land cultivated with illicit coca crops in these areas significantly exceeds the area identified for implementing the PNIS.

After consulting a range of governmental and non-governmental stakeholders, the Ideas for Peace Foundation (FIP, Spanish acronym) proposes some more concrete recommendations for areas in PNN affected by illicit coca cultivation (FIP 2020). These ideas seek to conciliate forest conservation and community livelihoods through income-generation measures tailored to the requirements of the protected areas. The authors suggest the relocation of communities under human rights standards, and the establishment of a transitional regime for farmers settled in PNN. Moreover, the FIP identifies the need for protecting communities and authorities involved in Alternative Development and environmental protection in view of the tense security situation in these areas.

⁵ Law Decree 870/2017 and Decree 1007/2018 issued by the Ministry of Environment and Sustainable Development (MADS, Spanish Acronym).

Table 1: Area under illicit coca cultivation in Special Management Zones and area under illicit cultivation identified for PNIS implementation.

Special Management Zone category	Total illicit coca cultivation identified in 2019 (ha)	Area cultivated with illicit coca crops identified for PNIS implementation (ha)
Forest reservation zones	27,760	6860.2
National Natural Parks	5,873	1905.2
Indigenous reservations	14,022	715.3
Community councils of Afro-Colombian Communities	24,640	3077.6
Total	72,511	12,558.3

Source: Own elaboration based on UNODC–SIMCI 2020: 35 and UNODC & Government of Colombia 2019: 46–48.

Considering environmental conservation elements for rural and alternative development strategies in ethnic jurisdictions, the insights developed under the REDD+ framework in Colombia represent a relevant input. The Afro-Colombian and indigenous communities underlined the necessity of differentiated, context-specific approaches for addressing coca-related deforestation in their territories. While common proposals focus mainly on the introduction of productive alternatives to illicit coca cultivation – such as agro-forestry, forestry, or ecotourism – the measures proposed by the communities themselves emphasize other aspects like the strengthening of forest and territorial governance, forest restoration, and stakeholder dialogues, amongst others (García et al. 2018a; García et al. 2018b).

The public policy framework described above indicates a slight shift from a sectoral to a more territorial perspective, which better recognizes overlapping dynamics in the regions where such policies are implemented as well as their limitations and opportunities. While there has been increased recognition of the potential synergies between drug and environmental policies, implementation remains a challenge. The political pressure and the urgency to reduce both the area of coca cultivation and of deforestation make it difficult to put into practice coordinated actions with a long-term, people-centred, and territorial approach. As long as the main focus and attention of drug policy remains on eradicated hectares or inhibited production, sustainable development and environmental indicators stay in the background. In order to induce a shift of priorities, practical examples may lead the way in showing what an integrated approach can look like.

Development-Oriented Interventions for Addressing Deforestation Linked to Illicit Coca Crops: Experiences and Potential

Implementation is still lagging behind political recognition of coca-related deforestation and other environmental impacts, as well as a comprehensive environmentally sustainable approach. Nevertheless, some attempts have been made to design rural development projects in coca-growing regions with an environmental perspective. Alternative Development programmes of the Colombian government aimed at improving living conditions and providing diversified livelihoods for farmers in illicit coca cultivation regions have recognized early that forest conservation or revegetation elements need to be integrated into project design and implementation. For example, the government AD programme (2003–2006) emphasized that its sustainability depended on its integration with sectoral environmental programmes and policies (DNP 2003). It was designed to support families involved in or vulnerable to illicit crop cultivation in environmentally sensitive areas. The assistance was tied to the conditions that the communities would voluntarily cease illicit coca cultivation, and that the farmers would agree to conserve or revegetate specified forest areas. As part of the initiative, the Forest Warden Families Programme (PFGB, Spanish acronym) aimed to revegetate 40,000 ha and to conserve 700,000 ha of natural forest (ibid.). This programme focused on households directly involved in illicit crop cultivation as well as families at risk. More than 120 thousand families joined the PFGB along its seven phases (UNODC & DPS 2014: 17).

A study on two AD programmes of the Colombian Government – the PFGB and the Productive Projects Programme (PPP), which benefitted 59,324 families (UNODC & DOS 2014: 20) – measured the carbon dioxide captured in the agroforestry systems and conserved or revegetated natural forest areas established through the projects from 2003 to 2010. It estimated that the agroforestry systems (that mostly combined coffee, cocoa, or banana crops with timber or fruit forest species) had captured 37,103 tons of carbon (tC). The recovery of natural forests was measured to have captured 123,714 tC. Further, it calculated that the

conservation of 546,328 ha of natural forest contributed to the storage of around 75 million tC that were not released into the atmosphere (UACT, CICB & UNODC 2012).

The application of environmental policy instruments in Alternative Development projects has also been tried out in several pilot projects of the GIZ, whose implementation through the GPDPD started in 2016. The projects in the Amazon region combined REDD+ measures to decrease or prevent coca-driven deforestation with AD elements to establish ecologically and economically sustainable licit livelihoods as an alternative to illicit coca cultivation. The projects promoted agroforestry, silvopastoral systems and the sustainable harvesting of non-timber forest products (e.g., local fruits such as Asaí, Arazá und Copoazú). Around 200 farmers were involved who live across eight municipalities that are affected by both illicit coca cultivation and deforestation. Their living conditions resemble the characteristics described above, including multidimensional poverty and a lack of formal access to land. As part of the REDD+ safeguards (UN-REDD Programme 2020), the projects also incorporated measures aimed at guaranteeing gender equality in project design and implementation (see also David et al. 2019). This included prioritizing the balanced participation of men and women in all trainings and events, but also ensuring the women's active involvement through assigning them representative roles within the projects and encouraging them to proactively take part in decision-making processes. Further, a specific training on value addition for cocoa production was given upon request by the women involved in the projects (UNODC 2018b: 52, 106).

One specific example from these projects of how income alternatives can be created with an environmental approach is the case of Asaí harvesting in natural forests in Puerto Asís (Putumayo). The project assisted in the preliminary analysis of Colombian environmental regulations for accessing non-timber forest products as a source of income. Through encouraging dialogue among environmental authorities, farmers' organizations, and the private sector, it was possible to adapt the existing regulation to the particular conditions (e.g., informal land tenure, low levels of income) of the territory in question (Moreno 2019). This process was accompanied by forest governance measures like community agreements on harvesting techniques and quotas, community forest monitoring, conservation agreements, and technical studies to guarantee the sustainability of harvesting Asaí in natural forests. At the same time, improving knowledge about the forest favoured the identification of other non-timber products potentially harvestable.

The results obtained were used as an input for the discussion on existing regulations on forest resources as a source of income. In the project municipalities, a harvesting permit for Asaí or other non-timber forest products can nowadays be obtained for less money without losing the technical rigor of the process. The opportunity for an alternative income from the sustainable use of the forests contributes to preventing deforestation to enable the cultivation of illicit crops or even less sustainable options such as cattle ranching. In accordance with the principles of successful Alternative Development interventions (BMZ 2020), the projects paid special attention to strengthening local producers' associations to increase ownership for a long-lasting impact in the affected regions. Furthermore, continuous participation of civil society was encouraged through a more horizontal dialogue with the authorities, exchange visits, and business roundtables.

The pilot interventions did not yet include PES schemes, but two current initiatives of the GPDPD/GIZ in Valle del Cauca may soon serve to assess their potential for AD programmes. These initiatives involve 60 farmers in forest reservation zones with illicit crop cultivation in the municipalities Bolívar and Dagua. Several aspects have not been developed in detail yet, that should be considered in applying the model. These include the proper identification of areas targeted for conservation or restoration as well as of potential payers, while monitoring mechanisms have to be integrated from the beginning.

One of the learnings of the GIZ pilot measures was furthermore to consider reducing conditionality during the early stages of the development interventions. Traditional AD interventions have conditioned farmers to eradicate their coca fields prior to establishing licit income alternatives. This requirement was often related to pressure to achieve immediate results in terms of reduction in cultivated land. However, due to the high informality of the settings, project implementers are often not able to verify whether the communities have seized cultivation, or if they simply moved their plots elsewhere to receive the benefits of the programme. The persistent need of farmers for economic support and income combined with a general distrust among stakeholders of the projects have often led to these unintended consequences.

A similar effect could happen to projects aiming to reduce deforestation if the benefits are provided only under the condition of signing forest conservation agreements prior to starting the intervention. A negative result may potentially be that farmers deforest even more patches to expand their activities to other forest areas, as income alternatives are not yet provided.

Therefore, the first stage of implementation should focus on trust-building between the local communities and project implementers, rather than on quick results on eradication or forest conservation. While this may entail delaying the reduction of illicit cultivation and forest loss, this long-term approach allows to improve the effectiveness, performance, and durability of conditionality schemes. Therefore, the GIZ projects focused on participation, trust building, and stakeholders' engagement during the process, while forest conservation agreements were only signed as a result of the project after around one year of intervention, not as a precondition.

Even though is too early to say whether these pilot-scale projects can be considered successful, exemplary interventions, the qualitative and quantitative results collected with the stakeholders showed a good performance of social, economic, and environmental objectives. However, the GIZ projects as well as the programmes initiated by the Colombian government demonstrate how interventions can transition from a perspective strictly focused on drug control to an orientation towards broader development and environmental goals and can serve to expand the empirical basis for such a widened scope of action, which in turn might increase political commitment for longer-term initiatives.

Conclusion

The factors impeding human development or leading to environmental degradation are often complex and interlinked – rarely do they occur one at a time. Facing illicit coca cultivation and deforestation in regions of Colombia where these dynamics overlap at once is a challenge, but it promises a more integrated and sustainable response that takes a territorial rather than sectoral approach.

Practical experiences in addressing coca-driven deforestation through sustainable (alternative) development interventions are promising, yet isolated and scarce. Several public policies of Colombia already contain elements to jointly respond to illicit coca cultivation and deforestation, but implementation is lagging behind. For effective models, inter-agency cooperation is needed in both strategic coordination as well as implementation. Furthermore, the specific conditions of Special Management Zones need to be taken into consideration, and differentiated approaches be developed.

Accessing non-timber forest products and adding Payments for Ecosystem Services are two promising but not yet established approaches for adding value to natural forests and preventing coca-driven deforestation encouraged by a low commercial value of the affected areas. Their further development requires value chain analyses and development plans, the improvement of institutional capabilities as well as continuous regulatory and impact assessments.

The experiences made by the GPDPD/GIZ in the frame of its Alternative Development interventions in selected municipalities of Colombia invite to think beyond the mere introduction of alternative income sources. The long-term sustainability of such interventions, both in economic and ecological terms, depends on the commitment of local and regional stakeholders. Therefore, trust-building measures and natural resource governance play a key role. Against that background, it is recommendable to closely scrutinize existing conditionalities for becoming beneficiaries of the projects, as they can unintentionally undermine trust-building processes and diminish the probability of project success.

Finally, aside from a comprehensive land titling system, the foundation of the successful implementation of any intervention is an increased presence of state institutions in the affected areas. As Prem, Saavedra and Vargas (2020) note, state-building efforts need to complement peace-making milestones such as the bilateral peace agreement to avoid environmental damage. While the issue of security has only been touched marginally in this commentary, it needs to be pointed out in this context that the improvement of security conditions in the rural areas targeted for intervention is crucial. From the perspective taken in this article, security operations should be aimed at protecting the lives of community members as well as officials and implementers involved in development-focused programmes.

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Competing Interests

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