

Lessons for Drug Policy Series



COCA INDUSTRIALIZATION

A PATH TO INNOVATION, DEVELOPMENT, AND PEACE IN COLOMBIA

**OPEN SOCIETY
FOUNDATIONS**

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COCA INDUSTRIALIZATION A PATH TO INNOVATION, DEVELOPMENT, AND PEACE IN COLOMBIA

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GLOBAL DRUG POLICY PROGRAM

**OPEN SOCIETY
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Cover photograph: A farmer holding coca leaves in Cauca, Colombia, June 2012.

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FOREWORD

In Colombia, as in many other parts of the world, armed conflict and the illicit drug market are symbiotically linked. When there is a major shift in one of these two phenomena, a change to the other is inevitable. Colombia's momentous ending of a 50-year civil war was a pivotal moment for the global war on drugs. The signing of a peace accord in 2016 by the Colombian Revolutionary Armed Forces (FARC) and the Colombian government closed half a century of war during which more than 200,000 people were killed, almost 6 million were internally displaced, 27,000 were kidnapped, and 25,000 people were disappeared. Such an enduring conflict with so much bloodshed and disruption is not easily healed. However, the popular desire for peace has been a powerful salve. Despite strong opposition from different political sectors, the disarmament and demobilization of FARC has already shown concrete results reducing violence in Colombia to its lowest level in decades.

The original conflict in Colombia was triggered by deeply rooted political and socioeconomic exclusion of both rural and urban poor communities. Some of these factors are still present. The World Bank ranks Colombia among the 10 countries with the most unequal income distribution in the world. The conflict emerged in the 1960s within the context of social, economic, and political disenfranchisement. In the early 1980s, the tensions increased and violence reached epidemic proportions. By 2002, the violence reached 67.3 homicides per 100,000 inhabitants (compared to Mexico's 22.6 peak in 2011 or the United States' recent 4.9). This was partially a result of the steep expansion of the illicit production and trade of cocaine that allowed armed actors to expand their presence in Colombia, increasing firepower and the violence associated with drug cartels. As the world's top producer of coca and cocaine, Colombia

became a battlefield for the global “war on drugs” and the “war on terror” that was technically and financially supported by the U.S. government, among other nations.

This scenario was, in part, facilitated by the 1961 United Nations Single Convention on Narcotic Drugs which established that “the Parties shall so far as possible enforce the uprooting of all coca bushes which grow wild. They shall destroy the coca bushes if illegally cultivated” (Article 26). It even went further, defying ancient indigenous traditions, by introducing in article 49 that “coca leaf chewing must be abolished within twenty-five years from the coming into force of this Convention.” The 1961 Convention turned a sacred plant that has been used in the Andean region for almost 8,000 years into an illicit commodity from which criminal organizations could profit and wars could be financed.

Despite the provisions introduced by the UN and heavily enforced by member states, the reality is that the coca leaf’s uses extend well beyond the production of cocaine. For millennia, it has been used in the indigenous Andes as a cultural artifact, a manifestation of sovereignty, a core nutritional ingredient, and an essential medicine. The peace accord between FARC and the Colombian government attempts to break the distorted view of the coca leaf and the violence that grew from its production into cocaine by dedicating one of the six chapters of the agreement to the “Solution to the Illicit Drugs Problem.” The chapter views the drug phenomena in Colombia through the lens of human development. With this perspective, coca-growing communities can actively participate in reducing dependency on coca crops and can potentially design their own local development plans. Furthermore, the agreement also offered the opportunity to restore rights to communities by promoting policies that “maintain the recognition of the ancestral and traditional uses of the coca leaf as part of the cultural identity of indigenous communities and enable the possibility of utilizing crops with illicit uses for medical or scientific purposes as well as other legitimate purposes that may be established.”

Within the context of the provisions of the peace accord, concrete policy innovations were introduced in 2017. The National Training Service (SENA), a government entity in charge of offering vocational training in vulnerable communities, a peacebuilding organization, and members of the Lerma coca-growing community formed a partnership that became the key to success in advancing policy reform. Thanks to this partnership, and the dedicated

work of Dora Lucila Troyano Sanchez, the National Narcotics Fund (FNE) granted the very first permit to legally purchase, transport, and stock raw coca leaves for their transformation into licit goods such as fertilizers and nutritional ingredients to be used in scientific research.

Colombian President Juan Manuel Santos has called for a rethinking of the design and implementation of policies aimed at controlling the supply of drugs. In a recent speech to the UN General Assembly, the Nobel Peace Prize winner assured the world's leaders that the war on drugs "has not been won, nor is being won and we require new approaches and new strategies." The small policy changes Colombia has made represent a gradual move toward a more humane approach to the drug phenomena.

One cannot be naïve and suggest that coca industrialization will fully absorb the illicit market for coca that currently supplies cocaine to more than 18 million users around the world. This industry will dignify the work of thousands of farmers by allowing them to legally profit from a traditional agricultural practice and will promote the rights of communities that have been using coca as an element of their culture. However, as long as these issues of culture, rural development, poverty, and inequality are approached narrowly from the penal and punitive perspective, the illicit market will flourish.

The new approaches outlined in *Coca Industrialization: A Path to Innovation, Development, and Peace in Colombia*, open opportunities to allow coca-growing communities to find their agricultural practices destigmatized, decriminalized, and productively regulated. Alliances and pathways that this industry has yet to explore are numerous; from pharmaceutical applications to addiction treatment and nutritional possibilities. However, the fact that responsible policy reform has been conducted based on evidence and led by civil society and the *cocaleros* (coca farmers) themselves, has placed Colombia in the vanguard of international efforts to promote innovative drug policy reform.

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EXECUTIVE SUMMARY

For decades, Colombia has faced the challenge of promoting economic development and peace in its coca growing regions while quelling the flow of coca for unlawful purposes. During this time, the country has rarely considered promoting economic development *with coca*, partly because the national and international conversation has written off coca growers as one of the main drivers of the drug trade.

Coca Industrialization: A Path to Innovation, Development, and Peace in Colombia seeks to challenge this perspective, primarily by conceiving of coca as an agricultural product with ample industrialization opportunities that fit within the existing national and international legal arrangements. This report explores coca's diverse potential in applications as varied as nutrition, natural medicine, personal care, and agro-industry—as well as coca's historical cultural uses.

The report addresses the following questions regarding this controversial plant and its use in economic ventures: What are the benefits of coca leaf for nutrition? What examples are there in Colombia of initiatives that advance coca industrialization? Is there a legal framework for developing enterprises in Colombia based on coca? What would need to be true to expand the horizons for coca industrialization?

The report suggests seeing the coca plant (*Erythroxylum spp*) as an agricultural product. It proposes building a coca leaf industry that, firstly, guarantees a sound income for farmers; secondly, provides good quality, sustainable raw materials for manufacturers; and, thirdly, ensures traceability, and control across the supply chain, with adherence to international laws.

The report is divided into four sections. The first chapter, “What Does the Coca Leaf Offer,” considers the coca leaf’s value and uses. It describes the results of a recent bromatological study that explores coca’s nutritional value, applying the national regulator’s standards for food products. This chapter concludes that coca indeed appears to have significant nutritional potential and offers a research agenda to help fully confirm this hypothesis.

The second chapter, “Coca Industrialization Experiences,” describes Colombian entrepreneurship surrounding coca leaf. It maps the business initiatives that have sprung up in the gray area of the current normative framework. This chapter briefly reviews Bolivia and Peru’s coca leaf markets, and examines how these countries facilitated the development of new products across coca’s traditional and modern uses.

The third chapter, “The Normative Framework for Colombia,” outlines and analyzes the laws and regulations relating to coca. Despite Colombia’s political changes, industrializing coca leaf for non-drug uses remains challenging. The current policy framework tolerates a gray area where small businesses can operate, but has failed to define norms that would promote industry growth from farmer to end user. We scan the laws passed since colonial times right up to the State Council ruling issued in the first half of 2015, which widened the narrow legal window that allows coca manufacturing and distribution.

The final chapter, “Horizons for Coca Industrialization,” offers approaches for building a coca leaf industry around non-narcotic uses. We describe the experience of the National Training Service (SENA) partnership with the southern Cauca village of Lerma. This state-community partnership (which we call the Lerma Model) offers a process to incrementally build the coca leaf industry and gradually reform Colombia’s coca control framework. The Lerma Model focuses on advancing community well-being via technological innovations that benefit the entire supply chain. Drawing from experiences in Lerma and the Andean region, we conclude with a proposal that reinforces the Colombian state’s rural development policy stemming from the 2016 Peace Agreement framework. This proposal scales the Lerma Model into a social and technology innovation program based on sectoral pilots that accelerate coca industrialization while building a system of local social control. This strategy contributes to a more legitimate and effective drug and rural development policy via a process based on science, innovation, and mutual benefit, which invites all social and political sectors of a polarized country.



Coca leaf tea in a cafe in La Paz, Bolivia, January 2006. © Evan Abramson | Getty Images

1. WHAT DOES THE COCA LEAF OFFER?

1.1 Geographical Distribution

Five regions in Colombia have been historical coca growing centers, where coca leaf has been habitually cultivated, processed, and consumed from pre-Hispanic times to the present day (see Figure 1). From north to south, these regions are:

- The Sierra Nevada de Santa Marta, in the State of Magdalena;
- The Soatá region, in the State of Boyacá, near Bogotá;
- The Tierradentro and Macizo Colombiano regions, in the State of Cauca;
- The Caquetá piedmont, spanning both Huila and Caquetá States; and
- The Colombian Amazon, spanning the States of Putumayo, Amazonas, Caquetá, Vaupés, Guaviare, and Guainía.

**“Leaves of wondrous
nourishment... from
which our faint and
weary bodies find more
succour... than can
your Bacchus and your
Ceres joined.”**

Abraham Cowley,
from *History of Coca*
by W.G. Mortimer

In the twentieth century, coca cultivation and culture desisted in Soatá. In the four remaining areas, coca leaf is still a traditional product, central to these areas’ community-building activities, rites of passage, and everyday work, and is thus integral to community functioning and identity.¹

In the mountainous regions of the Andes and the Sierra Nevada, the traditional coca variety used is *Erythroxylum novogranatense novogranatense*. In these areas, coca leaves are dried and placed in the cheek to form a quid, in a practice known across

South America as *aculli*, *chaccheo*, or *mambeo*.² Once the coca leaf quid is used up, the leaves are discarded.

In the Amazon region, the main coca variety used is *Erythroxylum coca ipadu*. Rather than using whole dried leaves, *Ipadu* leaves are toasted and crushed into a fine green powder filtered to discard fibrous elements. The powder is mixed with the ashes of dried cecropia tree leaves, serving as the alkalinizing solution. As with coca practices in the mountainous areas, the Amazonian pre-mixed powder forms a quid in the cheek, but this is slowly absorbed and swallowed rather than discarded. This may result in different nutritional outcomes that have yet to be studied.

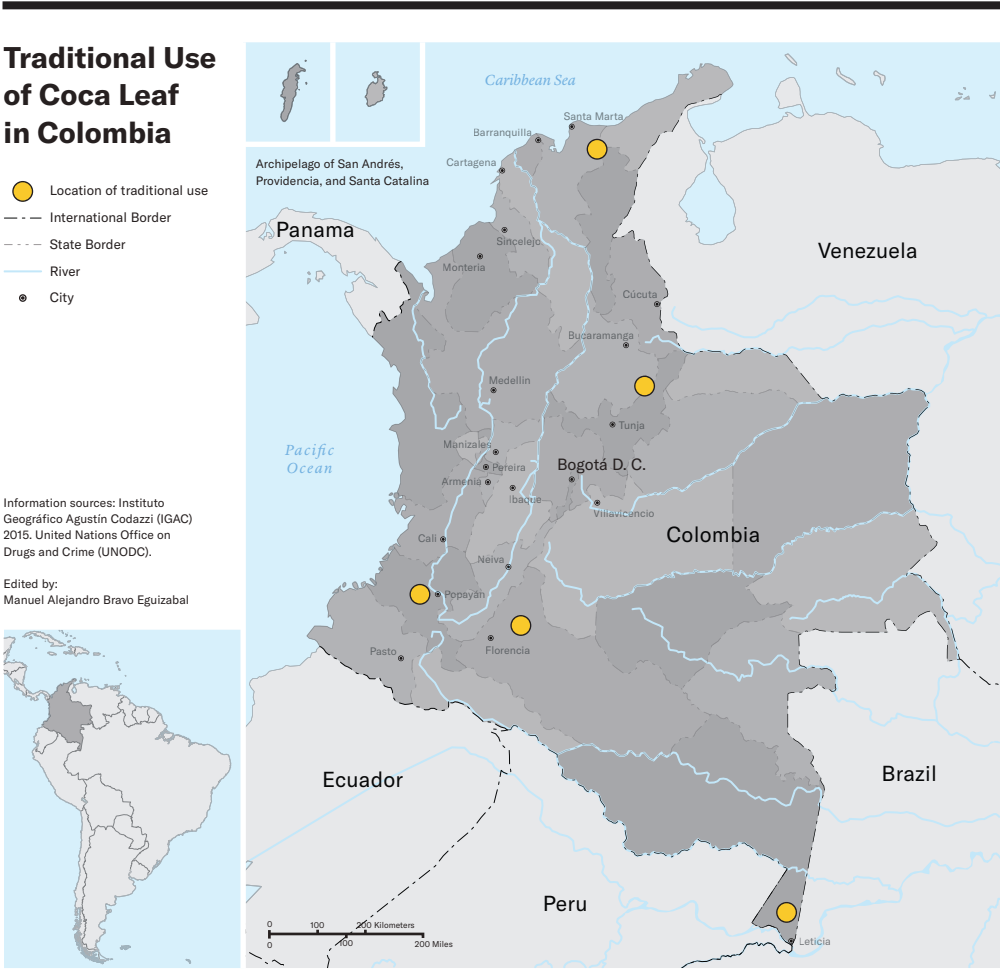
As will be expanded upon in chapter 3, Colombia’s indigenous peoples have fought for and won recognition of their cultural rights to use coca leaf. However, coca leaf is also integral to several mestizo and Afro ethnicities, particularly in Cauca, where *mambeo* is common and the coca leaf retains a central role in local identity.

Indeed, beyond the five historical areas, coca has been and remains a common garden plant, used in home remedies as a natural painkiller and tonic. Due to Colombia’s conflict and conflation of that conflict with coca, many people in mestizo Colombia

1. For further information of the rich cultural and spiritual context of coca in Colombia, see Henman (2008), Davis (2014), Cure (2015). A formal census on the number of coca leaf consumers in Colombia does not exist. However, thousands of traditional consumers are reported across the main traditional coca growing areas. These are reported in Henman (2008) and García-Yí (2014).
2. These terms refer to the habitual consumption of coca leaves, using a catalyst, referred to as a *llipta*, *tocra*, or *mambe*, depending on the region. In urban settings, the catalyst often used is bicarbonate of soda.

ignore the historical positive associations of the coca leaf. That said, there has also been a parallel revival of traditional coca leaf practices, featuring urban mestizo sub-cultures where *mambeo* and coca products are part of efforts to recover connections with indigenous knowledge and the natural world (Cure, 2015).

FIGURE 1
The centers of traditional use of the coca leaf in Colombia



Source: Instituto Geográfico Agustín Codazzi, 2015³

3. Placement of traditional areas of coca leaf locations is based on authors’ fieldwork, see also Henman (2008).

1.2 The Question of Coca's Nutritional Value

Despite its longstanding presence throughout the country and its cultural importance, coca leaf consumption has been questioned since the Spanish colonization. Faced with this issue, a question researchers frequently raise is whether coca is nutritious.

To address this question, we analyzed two samples of coca leaf flour⁴ using plants grown in Cauca that belong to the *Erythroxylum novogranatense novogranatense* variety, also known as “*Pajarita Caucana*” (“Little bird of the Cauca”). This same variety is known as *Hayo* in the north of Colombia.

This analysis met the requirements established by the Colombian National Food and Drug Surveillance Institute (Instituto Nacional de Vigilancia de Medicamentos y Alimentos or INVIMA) to commercialize foodstuffs fit for human consumption. This INVIMA application requires submitting a laboratory analysis detailing the crude protein, phosphorus, potassium, calcium, ash, carbohydrate (the combined amount of cellulose and hemicellulose), lignin, and humidity content. The testing included two 250 gram samples and was carried out in a certified facility at the Soil and Water Laboratory at Universidad Jorge Tadeo Lozano.

The figures obtained were compared with the benchmark study by James A. Duke, Timothy Plowman, and David Aulick, published in October 1975 as “The Nutritional Value of Coca” in Harvard University’s *Botanical Museum Leaflets* journal. The study both acknowledged the nutritional value of the coca leaf and criticized reports in the 1950s and 1960s that dubbed traditional coca chewing an unhealthy “vice” of indigenous Americans with no basis in sound scientific evidence.

1.3 The Data

When analyzing the laboratory data, we noted that the figures for the dry leaf were often higher than those reported in the 1975 study (Table 1). This difference may stem from improvements in analysis technology or the quality of the sample. In addition to the parameters analyzed in the 1975 study, we included others that are currently required by the authorities.

4. This consists of coca leaves that have been toasted at low heat and ground by hand. Its name can be explained by its similarity to types of flour. It does not, however, contain gluten, and for its use in dessert making it is mixed with traditional wheat, barley, or corn flour.

When carrying out a brief comparison of the most-frequently analyzed parameters in vegetable foodstuffs, we confirmed that coca's values stand out (Table 2), particularly for crude protein, phosphorus, calcium, and iron. Coca's 20.2% crude protein value is particularly significant, given that it is not a legume. The calcium, phosphorus, and iron content also suggest high nutritional value.

TABLE 1. A comparison of 1975 and 2015 laboratory results

PARAMETER	UNIT	DRY BASE RESULT		
		LAB. 1 (2015)	LAB. 2 (2015)	DUKE, ET AL. STUDY (1975)
Crude protein	%	20.2	20.17	18.9
Phosphorus	Mg	1400	1390	911
Calcium	Mg	1600	1620	1540
Potassium	Mg	1.10	1.11	2.02
Iron	Mg	55.8	56.2	45.8
Neutral detergent fiber*	%	47.1	46.9	No data
Acid detergent fiber*	%	20.5	20.3	No data
Hemicellulose*	%	26.5	26.5	No data
Cellulose*	%	9.8	9.8	No data
Ashes	%	9.0	9.0	9.0
Carbohydrates	%	36.3	36.3	46.2
Lignins*	%	10.7	10.69	No data
Humidity*	%	7.20	7.20	6.5

* Parameters analyzed in the 2015 study which were not recorded in the 1975 study.

TABLE 2. Comparison of the 2015 dry base results (250 grams) of coca and other plants⁵

PARAMETER	UNITS	DRY BASE RESULT				
		COCA ⁶	LENTILS	BEANS	CORN	PLANTAIN
Crude protein	%	20.2	23.5	22.5	8.4	3.1
Phosphorus	Mg	1400	411	351	0.25	23
Calcium	Mg	1600	70	97	6	29
Potassium	Mg	1.10	837	387	267	104
Iron	Mg	55.8	8.2	7.5	1.7	3.9

5. Dry base refers to the dehydrated vegetal matter submitted to the laboratory for analysis.

6. Values from Laboratory No. 1 are used, rather than an average of both results.

1.4 The Results

The 2015 bromatological analysis points to coca's significant nutritional potential, particularly due to the high amounts of crude protein, iron, phosphorus, and calcium. However, the presence of these nutrients alone does not guarantee that they will be absorbed and incorporated in the body's metabolic activity. Nonetheless, it is necessary to recall the 1975 study's thought process, which states:

[T]he nutritional values of coca are uniquely significant. The fact of the population of rural communities and small communities within the inland departments of the country presenting only very rare cases of malnutrition could be due, at least in part, to the role played by coca in the local diet. There would seem to be little doubt as to coca's direct contribution to the balanced diet of individuals (Duke et al. 1975).

This position has been asserted on numerous occasions over the past 40 years as proof of coca's nutritional value. However, for it to be fully confirmed, further research should be undertaken in the following areas:

- Botanical characterization and phyto-chemical comparison for each significant coca variety identified across the Andes and Amazon, determining which varieties display the most significant mineral and secondary metabolite content, and relating nutritional density to cultivation conditions;
- An analysis of the bio-availability of each significant coca leaf nutrient across population groups defined by age, nutritional condition, and product (for instance, swallowed pulverized leaf vs. non-swallowed whole leaf methods), and impact of coca's alkaloids, if any, on nutrition outcomes;
- Method of absorption of coca leaf nutrients in birds and other livestock.

Though promising data are now available, further research is needed to comprehensively evaluate the product, its performance, and its efficacy. In Colombia, no study has been carried out to understand the plant's efficacy. The only study on coca leaf deals with its botanical characterization. This was conducted by William Ariza Cortes, at Universidad Distrital Francisco Jose de Caldas, entitled "Variedades de coca cultivadas en Colombia: estudio morfológico y clave para su determinación"

(The varieties of coca cultivated in Colombia: a morphological study and the key to their determination) (Ariza, 2004) and presented at the IV Colombian Congress of Botany. Fear of legal repercussions, due to enforcement against coca, has interfered with advancing coca leaf's research agenda. However, new research avenues are now opening, as will be discussed in chapter 4.

**“Coca is good for hunger,
for thirst, for fatigue, for
the heat, for the cold,
for pain, for joy... It’s
good for life. Coca opens
enchanted clearings,
lagoons and rivers. The
living live with coca.
The dead depart with
coca in their hands.”**

Ciro Alegría, *Broad and
Alien is the World*,
Santiago de Chile, 1941



A worker inspects bottles of Coca Sek (Sun Coke) at a bottling and distribution plant in Popayan, Colombia, February 2006. © Matt Shonfeld | Redux

2. COCA INDUSTRIALIZATION EXPERIENCES

To understand the lawful commercial options presented by the coca leaf, we scanned coca industry developments in Peru and Bolivia, which feature coca production conditions akin to Colombia's.⁷

2.1 Overview of Legal Coca Leaf Industries in Peru and Bolivia

In Perú, the government founded the National Coca Company (ENACO) in 1949, 12 years prior to the 1961 UN Single Convention on Narcotic Drugs banning coca.

7. The case of Argentina is not examined due to the absence of coca cultivation.

Perú's commitment to the non-narcotic uses of the coca leaf is apparent given that ENACO is a state-owned company. Similarly, Perú signed the 1961 Convention with one caveat:

That it should not be obligated to characterize as a criminal offence the legitimate and illegitimate cultivation of coca, and that as a result the chewing of the coca leaf in the country would remain ongoing. Latterly, in an attempt to achieve the legal acknowledgement of traditional uses, Peru (and Bolivia) negotiated on Article 1, paragraph 2 of the UN 1988 Convention on the Illegal Trafficking of Narcotic Drugs, which specifies that the measures to eliminate the demand and cultivation of narcotics should duly acknowledge legitimate uses for which historical evidence can be found (Transnational Institute, 2012).

Perú's policy allowed it to lead the development of a coca leaf industry, which turned it into a template for commercializing, registering, and regulating coca. Today, ENACO is a "public limited company" with both a consumer brand (Delisse) and business-to-business activities. Although the Peruvian government has failed to enable ENACO to maximize its innovation potential, ENACO's coca research and development has allowed it to develop an extensive product portfolio.

In Bolivia, the development of a modern coca industry is more recent. In 2006, the government introduced the Coca Leaf Vice Ministry, which houses the General Directorate of Coca Leaf Commercialization and Industrialization, a government agency that regulates the coca leaf market and provides technical support to the vice ministry. In 2011, the Government launched the Bolivian Community Coca Company, which purchases coca leaf as well as processes flour and other coca preparations. The Bolivian coca industry is based on a local social control system that seeks to maintain coca production within bounds and minimize diversion to the illicit market. Coca growing unions oversee and enforce the system, particularly the adherence of its members to their *cato*, an amount of coca that farmers can grow legally (Farthing & Ledebur, 2015).

Though both Perú and Bolivia face challenges in their approach to coca industrialization, they have put forward a comprehensive legal framework covering coca cultivation and coca markets. This has resulted in the development of over 150 types of products, across categories as varied as traditional ritual products, foodstuffs

(such as teas, flours, and extracts), and personal care and medicinal products. Enabling coca leaf to be transformed into non-narcotic by-products has permitted the emergence of a coca leaf industry that promotes development by both increasing the value added to coca products and generating employment.

The Peruvian and Bolivian experiences thus indicate that regulation promotes coca markets for non-narcotic uses. These have not increased the size of the coca crop (Farthing & Ledebur, 2015), as coca cultivation depends far more on the input-intensive narcotic trade. Instead, formalizing coca leaf turns it into a conventional agricultural product that contributes to stabilizing coca-growing communities. While diversion of coca harvests into the narcotic trade may persist, legal coca markets create an alternative supply chain that helps shield farmers from involvement in narcotic processing and shipping, where violence is more common. Additionally, by respecting coca growers' economic activities and cultural identification with coca, legal coca markets help improve relations between coca growers and the state, reducing confrontation with security forces and enabling investments in local governance and economies (Farthing & Ledebur, 2015). The prices coca leaf farmers obtain in markets with legal avenues are also higher, as will be discussed in chapter 4. This further contributes to improving the economic conditions and livelihoods of coca growing communities.

2.2 Overview of Colombia's Coca Leaf Industry

Colombia is home to a handful of companies that process coca leaf into nutritional, medicinal, and cosmetic products. Approximately 19 initiatives have been identified across the country, though they tend to have primarily emerged from the regions where cultural links to coca are strongest.

Colombia's pioneering coca initiative is a company led by members of the *Resguardo de Calderas*⁸ (Calderas Reservation), in the Inzá municipality of the State of Cauca. Through the support of both their local council and the Juan Tama Association of Indigenous Councils, reservation members founded Coca Nasa in 1993. Coca Nasa processes coca into teas, cookies, flour, soft drinks, and other traditional products. The company invites council members to participate and works to benefit the

8. A *resguardo*, in Colombia, is a self-governing indigenous territory similar to a reservation.

Calderas community by seeking to re-invest a proportion of earnings in projects that improve living conditions in the reservation.

This initiative gained traction with a permit issued by the local indigenous authority. By obtaining publication in the *Diario Oficial*,⁹ the permit enshrined the first national-level authorization for commercializing coca leaf. Subsequently, Coca Nasa developed a carbonated drink that attained regional and national visibility. This helped the company become a point of reference for legal coca leaf commerce and prompted further community-based coca leaf ventures across the country.

Two such community-based ventures in southwestern Colombia are Yutuk Nasa, in Morales, Cauca, and Kokasana, in the Yanacona reservation of the neighboring Huila department. Yutuk Nasa produces a variety of food and medicinal products commercialized regionally in the Cauca and Valle departments. Kokasana commercializes infusions nationally using family-owned crops.

In Lerma, a village in Bolívar, Cauca, the CIMA organization (*Comité de Integración del Macizo*—Committee for the Integration of the Colombian Massif) helped support a local initiative called Hayu Guas that processes coca leaf into nutritional products, selling them in the local *Tienda del Macizo* and other artisanal outlets in Cauca. Coca growers in Lerma decided to improve their nutritional security by manufacturing food products inspired by their ancestral knowledge of the coca leaf. Local organization and coca leaf transformation activities became a way for the community to assert political sovereignty, reaffirm cultural identity, protect the environment, and resist armed conflict. The project has spread to other municipalities in Cauca, such as Balboa, Argelia, and El Tambo. It also shaped a coca leaf research partnership with SENA (*Servicio Nacional de Aprendizaje* or National Training Service),¹⁰ which is discussed below.

In the mid-2000s, Eco Jardín was founded to research and promote medicinal plants. It works to improve the living conditions of both raw material suppliers and a

9. *El Diario Oficial* is the official journal that contains the laws, decrees, acts, and public notices of the Government of Colombia.

10. SENA is a public educational institution within the Ministry of Labor that focuses on providing training to Colombia's rural and urban workforce. Founded in 1957, it is a long-lived and highly regarded institution, as it has become a contributor to promoting social mobility and development. Its work in coca will be further discussed in chapter 4.

women's collective linked to the company. Eco Jardín obtains its raw materials from mestizo farmers in Cauca, who formed a cooperative in the Totoró municipality. The company's manufactured products include topical coca gel and essential oils.

In the Sierra Nevada de Santa Marta, several communities have backed coca leaf ventures, which have built links with Bogotá-based distributors to commercialize food products such as chocolate bars and coca leaf oils. Though certain elders in the Sierra Nevada have withheld their formal approval of coca leaf trade, participation in coca leaf industrialization initiatives has continued.

Amazonian communities in Putumayo, Caquetá and the department of Amazonas also partake in solidarity networks that market coca leaf. They sell *mambe* (pulverized coca leaf) in urban areas through distributors acquainted with *mambe's* cultural significance.

Aside from Colombian coca products, a small import market has sprung up around cultural trade fairs that promote Andean products, mostly of Peruvian origin. The Bio Coca project is an example of the micro-import segment.

Beyond economic ventures, there are several noteworthy cultural and research initiatives that advance coca industrialization. For instance, the Foundation for the Stimulation of Arts has promoted the benefits of coca leaf consumption through numerous events, and learning and artistic spaces. Research into coca leaf transformation for non-edible uses was pioneered by Mama Coca, which designed a coca paper formula that combines recycled paper and coca unfit for human consumption (owing to its high agro-chemical content) and developed the first composted fertilizers with coca.

The Cauca branch of SENA has further built up research into coca industrialization by developing a series of agro-industrial coca leaf applications. These include fertilizers, nutritional supplements for farm birds, and laboratory growth media. Additionally, SENA's special programs, such as *Jóvenes Rurales* (Rural Youth), now called *SENA Emprende Rural*,¹¹ have installed production units to help communities transform

11. SENA Emprende Rural is a government program that promotes the generation of income for the rural population through training initiatives that develop and strengthen technical skills for the rural sector and promote entrepreneurship.

coca into liqueur *mistelas* and baked goods. Through these efforts, SENA Cauca has innovated a model for community-based coca research and innovation that is helping shape coca industrialization in Colombia. This will be further discussed in chapter 4.

Table 3 below summarizes the current coca leaf initiatives identifying their year of founding, ethnicity, and products. Currently, the products sold through these initiatives cannot be registered with INVIMA. This blocks coca products from trading in national commercial channels such as supermarkets and pharmacies, which demand INVIMA product registries. As a result, the market for coca products remains restricted to either local or informal distribution networks, which hampers this category from achieving its potential. Further discussion on the legal barriers and opportunities to commercialization are explored in chapter 3.

TABLE 3. Coca leaf processing initiatives in Colombia

YEAR	ETHNIC ORIGIN	INITIATIVES	PRODUCTS
1993	Indigenous	Coca Nasa	Biscuits, oils, condiments, dry leaves, flour, drinks, liqueurs
1995	Indigenous	Koka Sana	Infusions
1998	Indigenous	Yutuk Nasa	Creams, leaves, condiments
2000	Mestizo	Sierra Nevada de Santa Marta —several initiatives	Chocolates, biscuits
2002	Mestizo	Eco Jardín	Gels and essential oils
2003	Mestizo	Hayu Guas	Flour, biscuits, nutritional supplements
2003	Not Relevant	SENA	Flour, compost, liquid fertilizers, nutritional staples
2003	Mestizo	Mama Coca	Coca paper, crafts
2000s	Indigenous	Amazonian indigenous communities —several initiatives (ex. Huitoto)	<i>Mambe</i> (pulverized coca leaf)



A field of coca plants in Caqueta, Colombia, June 2002. © Carlos Villalon | Redux

3. THE NORMATIVE FRAMEWORK FOR COLOMBIA

3.1 Brief History of Colombia's Coca Laws

When the Incas expanded into what is now southern Colombia, they found coca was both indigenous and widely consumed. Coca's abundance and value allowed it to be used as currency, particularly in exchange for labor, a practice that remained widespread in colonial times. For instance, "coca eggs"¹² or "coca pounds" were used to pay laborers, depending on their type of work, their performance, and their coca

12. As a point of reference, a common chicken's egg, weighing 60-65 grams, was used on scales—the eggs were placed on one plate, then the dried coca leaves were added to the other until the amount sought was obtained. This amounted to up to nine egg equivalents per half kilo (500 grams) or more, depending on the type of egg.

leaf consumption requirements. Coca leaf was also used to acquire goods, such as food, clothing, and services. The practice of using coca as currency survived well into the twentieth century, particularly in the State of Cauca.

During the reign of King Philip II of Spain (1527–1598), the first attempts to limit the cultivation of coca were enacted. The crown restricted coca cultivation among Spaniards, to prevent labor from being redirected to coca cultivation and away from mining. These ordinances set rules around the interaction with indigenous people and established standards to compensate their labor.

After these early laws, no significant coca leaf laws were enacted until 1920, when the Colombian government restricted the distribution of cocaine and other narcotics.

In 1946, Law No. 45 prohibited the payment of laborers in coca leaf, which mostly impacted landowners in Cauca, where this practice was widespread. However, Law No. 45 was repealed in the same year after Cauca politicians pushed back. Their economic interests suffered both by the need to switch from in-kind payments to cash, and by coca grower protests (Ceballos Bedoya, 2012).

In 1961, Colombia and most countries around the world signed the UN Single Convention on Narcotic Drugs, which prohibited the cultivation and transformation of the three plants with the most notorious psychotropic potential: coca, poppy, and marijuana. The convention exempted “medical and scientific uses” from prohibition, though it failed to define these uses. It also allowed the production of de-alkalized products for the food and textile industries.

The 1961 Convention banned coca leaf chewing,¹³ lacking sound scientific evidence to demonstrate its harm, and thus persecuted an ancient and widespread South American cultural practice.

Ten years later, the 1971 Convention on Psychotropic Substances, enacted in 1976, created an opening for the industrial development of coca leaf products, by stating that:

If a prepared substance containing a psychotropic substance other than those in List 1 has a composition such that its undue use is nil or

13. Article 49, section 2 paragraph e. of the 1961 Single Convention stipulates that, “Chewing coca leaves will be prohibited within 25 years to follow the entry into force of this Convention.”

insignificant and the substance cannot be retrieved by easily effected means for a quantity used unduly, then it does not give rise to a health or social problem and the preparation may be exempt from the same inspection measures set out in this Convention in accordance with the provisions of paragraph 3.

With this provision, many coca leaf products could feasibly gain legal market access, if their production process renders the subsequent extraction of alkaloids inviable.

During these years, Colombian governments passed other laws and decrees dealing with the control of coca plantations and the drug supply chain. These earlier laws were superseded by more recent legislation from the 1980s to the present day, and are thus not examined here.

In Colombia, Law No. 30 of 1986, known as the “Anti-narcotics Statute,” established the National Council for Narcotic Drugs (*Consejo Nacional de Estupefacientes-CNE*). This entity was charged with regulating the cultivation of plants used in the production of narcotics.¹⁴ As such, this law appeared to proscribe all activities outside the remit of the CNE, including all aspects of traditional cultivation, such as owning seeds, sowing, and tending such plants, as well as any associated activities (Ceballos Bedoya, 2012).

In 1990, the peace agreement with the armed group M-19 led to the National Constituent Assembly of Colombia, resulting in a new political constitution. The 1991 constitution recognized the country’s multiculturalism, which has since enabled modern and alternative uses of coca leaf in indigenous territories. This recognition, however, runs contrary to Colombia’s upholding of international drug conventions as the latter clash with Colombia’s multicultural model.

Colombia’s constitution understands that the uses, practices, and knowledge centered on coca are rooted in the indigenous population and in their cultural heritage. This recognition appeals to the principle of protecting the customs and rights of ethnic groups and honoring Colombia’s cultural diversity (ILO-Convention 169 on Indigenous and Tribal Peoples, as ratified by Colombia on August 7, 1991) (Chaves & Zambrano, 2014).

14. To date, these regulations have not been promulgated. According to the information supplied by the Ministry of Justice and Law, its drafting was explored in 2016-17.

As mentioned in chapter 2, in 2002, the Juan Tama¹⁵ Association of Indigenous Councils, of the Inzá municipality in the State of Cauca, issued Resolution No. 001 granting authorization to use the coca leaf to produce infusions. This administrative act enabled Coca Nasa to launch its business legally and utilize a legal “gray area,” a concept developed by researcher Marta Zambrano that is explained in the following section.

The Constitutional Court has backed the traditional uses and customs of “original peoples” in Colombia. In 2003, sentence SU-383 ruled in favor of the Organization of Indigenous Peoples of the Colombian Amazon and against the President of the Republic, the National Council for Narcotic Drugs, and other entities within the national government, for the presumed transgression of their fundamental rights to life, existence as a community, a wholesome environment, and the participation of indigenous peoples in decisions affecting them. The grounds for the claim included propagating herbicides to eradicate illegal crops without prior consultation that caused considerable environmental damage in indigenous territories. The Constitutional Court found that:

Studies referred to by the Court enable it to reach the conclusion that the indigenous and tribal communities of the Amazon, in general, meet the conditions established by Article 1 of ILO-Convention 169 for its application, inasmuch as they are subject to social, cultural and economic conditions which differentiate them from the other areas of the national community, are governed totally or partially by their own customs and traditions and have occupied their territories since before the Conquest and the Colonization of today’s state borders.

The court reiterated that the coca leaf is tied to the beliefs and traditions of numerous indigenous communities of the Amazon, which means that aerial spraying could risk their ancestral practices. Effectively, the court, grounded on the technical evidence and academic documentation presented, noted that, for some communities in the Amazon, the coca leaf fulfilled a role as a means of exchange, as it is used in rituals and in the acquisition of goods through bartering.¹⁶ The court protected the higher right to cultural use and mandated an end to fumigation in collective territories.

15. The Juan Tama Association of Indigenous Councils groups eight indigenous reservations together. It is a secondary-level organization, enshrined through a 1993 resolution providing for association among indigenous councils.

16. Bartering is understood to be the exchange of goods and services without the use of an official currency.

Though recognition of cultural rights created a space for coca, two regulatory standards blocked coca industrialization. Firstly, INVIMA circular V.C.M-601-0294-07 stated that products manufactured using coca leaf are restricted to indigenous communities. Secondly, INVIMA Health Warning 001 from 2010, “warned” the Colombian population to refrain from consuming and commercializing teas, infusions, biscuits or any foodstuff containing coca leaf. According to the health warning, “these products are not on the Health Register and any medical, preventive, curative or therapeutic benefits which may be asserted in support of their consumption are neither authorized nor endorsed by INVIMA.”

The 2010 INVIMA Health Warning requests health secretariats across the country to intensify the monitoring and control of chain stores, hypermarkets, natural goods shops, and other establishments distributing food products, and to remove coca products from the market. This pushed emerging coca leaf companies into financial turmoil.

In 2011, the Constitutional Court reformed Article 49 of the constitution via judgment C-882/11. The court set out that the right to cultural identity among indigenous communities may be exercised not only in indigenous lands, but also throughout the national territory, as their right extends beyond the site in which the community is located.

The State Council has ruled in alignment with the Constitutional Court. Its ruling, published on July 18, 2015, states that:

The commercialization of the coca leaf by indigenous communities is enshrined in the Constitutional Principle of cultural identity, based on which resolutions from indigenous authorities, which are duly acknowledged, have been passed, and which authorize the commercialization of this natural product.

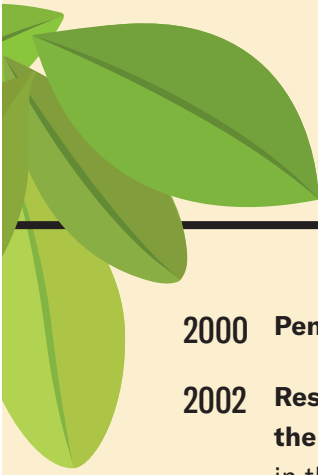
This recent State Council decision strengthens a pathway for indigenous communities to commercialize coca leaf products anywhere in the national territory. This decision turns coca leaf industrialization into a viable development option across the country. However, INVIMA rejects the State Council’s jurisdiction over coca leaf commercialization, and refuses to issue registries for coca products, restricting their reach to niche trade channels and closing the door to the mass market (i.e., supermarkets, pharmacies, and chain stores) that require INVIMA certification.

Figure 2 provides a summary of the main legislative and jurisdictional acts relevant to the coca leaf in Colombia.

FIGURE 2

Colombia's legislative and jurisdictional acts regarding coca (1920–2015)

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- 1920 Law 11:** This law allowed for the free cultivation of coca bush and other crops now considered illegal, but restricted their consumption to medical prescription only.
- 1936 Penal Code:** It neither penalized coca bush cultivation nor the consumption of alkaloids, but it did punish the trafficking of narcotics.
- 1946 Law 45:** It extends repression to the cultivation and storage of coca.
- 1947 Decree 0896:** It prohibits the use of coca leaf as currency.
- 1961 Convention on the Trafficking of Narcotics:** Article 27 licenses coca when used for flavoring extracts utilized in the production of beverages and foods.
- 1986 Law 30:** The statute on narcotics is adopted.
- 1988 United Nations Convention in Vienna:** Establishes a window of legality for coca cultivation amongst indigenous communities.
- 1989 Agreement 169 of the International Labour Organization:** Establishes special protection for the cultural identity of indigenous peoples, which includes respect for their customs and traditions.
- 1991 The Political Constitution of Colombia:** The National Constitutional Assembly reforms the constitution and opens a space of dialogue and agreement with local communities.
- 1993 Law 67:** Ratifies the 1988 Convention against Illicit Traffic in Narcotic Drugs and Psychotropic Substances.
- 1994 Sentence C-176:** Colombia's Constitutional Court declares that the 1988 Convention against Narcotic Drugs is lawful.
- 1997 Law 397:** The consumption of coca leaf can be understood as part of the immaterial cultural legacy of indigenous people.



-
- 2000 Penal Code:** Article 375 sets out the sanctions against coca cultivation.
- 2002 Resolution No. 001 of the Juan Tama Association of Councils in the Inzá Municipality of Cauca:** Authorizes the Calderas Reservation, in the region of Tierradentro (Cauca), to use coca leaf in their territories to produce infusions.
- 2003 Sentence 383:** Prior consultation and fumigation. Constitutional Court.
- 2006 Resolution 1478 of the Ministry of Social Protection:** Article 6 includes coca leaf and its derivatives in the list of substances subject to state monopoly.
- 2007 INVIMA Newsletter V.C.M-601-0294-07:** Notifies that: “products derived from Coca (tea, infusions, biscuits, soft drinks, sweets, etc.) manufactured and commercialized in indigenous reservations CANNOT be commercialized or promoted in the rest of the national territory.
- 2007 Resolution 940 Ministry of Social Protection:** Modifies Resolution 1478 of May 10, 2006, and declares that only cocaine for therapeutic uses is subject to state monopoly, thus removing coca leaf and its derivatives from the state monopoly list.
- 2010 INVIMA Health Warning 001:** Warns Colombians to abstain from consuming and commercializing tea, infusions, biscuits or any food product containing coca leaves as an ingredient.
- 2011 Constitutional Court C-882:** Establishes the right to ancestral use of coca leaf.
- 2012 Constitutional Court T 477:** Authorizes the use of brands.
- 2015 State Council. Administrative Dispute Chamber:** Annuls INVIMA Health Warning 001 of February 23, 2010.

3.2 The “Gray Area”: The Colombian State’s Dual Stance toward Coca

Reviewing Colombia’s current coca-related legislation points to what researcher Marta Zambrano dubbed, “a gray area in national institutions.” This situation shields urban micro-companies selling coca foodstuffs and drinks from enforcement (Chaves & Zambrano, 2014), but shies away from promoting them.

The gray area emerged through a combination of national legislation, the 1991 Constitution, and international legal frameworks described above. By signing the 1988 UN Convention and ratifying ILO-Convention 169 in 1989, the Colombian government secured a window of legality for the coca leaf, appealing to the protection of indigenous cultural identity and respect for indigenous customs and traditions.

The Santos government, through the Ministry of Justice and Law, and congress initiated attempts to regulate coca leaf cultivation and processing at certain points during the administration. For instance, there have been legislative proposals to broaden the legal space for coca, particularly via a framework that promotes associative and community-based enterprises that target “medical and scientific” coca leaf applications (Flórez, 2015). However, these efforts have not progressed. Divisions among coca leaf producers and civil society organizations appear to have prevented a clear proposal from materializing. Similarly, other topics linked to the peace agreement with FARC, such as the issue of acquiring or formalizing land holdings, seem to have dominated discussions. Further challenges and opportunities for coca industrialization stemming from the peace agreement and its emerging institutions will be discussed in chapter 4.

Certain coca stakeholders fear that prompting coca legislation and regulation may invite corporate interests that could dominate the coca industry and exclude traditional coca growers and small communities. However, it may be possible to favor a community-focused approach to coca reform, by linking the coca leaf reform process to institutions where local community interests hold sway, particularly those linked to rural development.

Similarly, opposing coca leaf legislation to recognize coca use by indigenous communities undermines fully enshrining their cultural rights and protecting indigenous cultural and intangible property related to coca. It seems such legislation would help create a legitimate differential space for promoting ethnic entrepreneurship, alongside other cultural assets (Chaves & Zambrano, 2014).

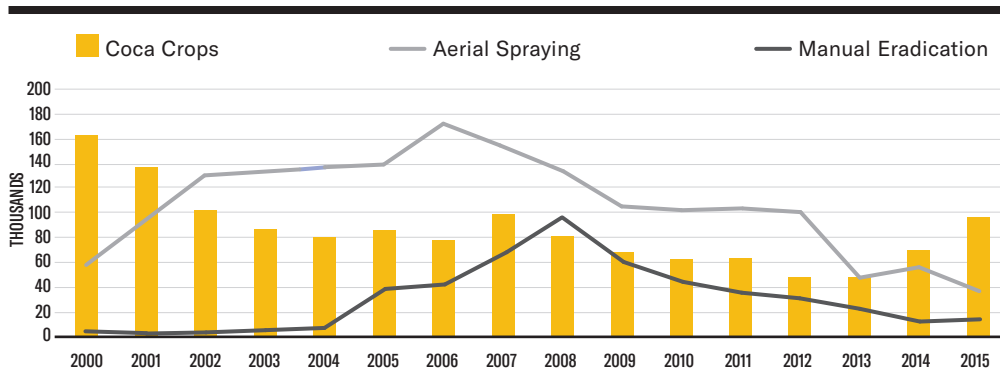
Despite the absence of legislative proposals, we can identify several cases of institutional duality—that is, where state institutions supported coca uses, even as other parts of the state rejected them. In 2003, the president’s office published encouraging news on its website for the Kokasana company. The communiqué applauded the initiative as an example of entrepreneurship, sustainable agriculture, and cultural respect:

As an example of sustainable agriculture, various agricultural authorities singled out aromatics which are made, through coca leaves, by the indigenous inhabitants of Pijaos del Tolima and Yanaconas del Huila (Presidencia, 2003).

Ironically, while the presidency celebrated Kokasana, it also unleashed an unprecedented level of aerial spraying on rural Colombia (Figure 3). The eradication campaign, compounding the 2010 INVIMA Health Warning, provoked outrage in civil society and the media, as well-known journalists openly rallied in favor of affected communities.¹⁷

FIGURE 3.

Hectares of coca crops affected by aerial spraying and manual eradication*



* The chart is developed with data from the 2018 SIDCO database, published by the Colombian Drug Observatory of the Ministry of Justice and Law. The coca hectareage sprayed and eradicated can exceed the total coca crop due to data problems (i.e., measurement inaccuracies and inconsistencies in the dates when the data are registered) as well as eradication mistakes (i.e., eradication of licit crops) and coca regrowth during the reported year.

Source: Comisión Asesora Para la Política de Drogas en Colombia, 2015 and Observatorio de Drogas de Colombia, 2018.

17. In his article “Más Monsanto, Menos País” (More Monsanto, Less Country) published in March 2007, journalist and sociologist Alfredo Molano wrote, “Indigenous peoples of the Cauca are now not only persecuted by low-flying aircraft and riot control squadrons, but also by tie-wearing, hair-gelled bureaucrats who are confiscating products made by a micro-business of the Cauca that manufactures tea, biscuits, sweets, and a fizzy drink called Coca-Sek.”

Like the presidency, the Ministry of Health and Social Protection (formerly the Ministry of Social Protection) has also displayed institutional duality. On March 30, 2007, the ministry issued Resolution 940 that specified cocaine, not coca, is subject to state monopoly. This action struck coca leaf from the list of controlled substances, indicating that the ministry saw coca leaf products as permissible even as INVIMA, one of the agencies the ministry controls, continued seeing them as illegal.

In September 2011, the Ministry of Culture's program to stimulate Colombia's culinary and cultural heritage rewarded members of the Misak community, in Cauca, for:

A dish comprising a coca leaf tortilla, which is regularly eaten by the Guambiano indigenous community, living in the south-east of the country. This was awarded the first place in the 5th version of the government-led National Prize for Gastronomy in Colombia (*El Espectador*, 2011).

It was acknowledged that:

This is a contest which is accessed through a public call for entries which prepares, sponsors and comprises the Stimulation Program run by the Colombian Ministry of Culture. This is a program that reflects policy supporting knowledge and safeguarding of, as well as the promotion of, the traditional cuisine of Colombia (*El Espectador*, 2011).

It is significant that the value of the coca's culinary versatility was nationally recognized as a cultural asset. It hints that coca use among non-indigenous communities could also be recognized.

Finally, as discussed in chapter 2, SENA has also supported rural development and applied research projects with coca. As a public institution, SENA's coca leaf projects constitute a further example of the government's endorsement of coca industrialization. From 2005 to the present, SENA's efforts with coca in Cauca and Guaviare via special programs such as *Jóvenes Rurales* (Rural Youth) have installed local production units that allow local communities to transform coca into a series of products, while equipping apprentices with the skills needed to run their businesses.

SENA Cauca has also conducted research into agro-industrial applications for coca. This included designing and testing formulations for liquid and solid fertilizers that use coca leaf. Other recent initiatives have produced a low-cost growth medium for in

vitro cultivation combining ground coca and agar.¹⁸ SENA's coca product development efforts have created a space for the government to have dialogue with coca growing communities regarding their economic needs, and develop tools that help build up local capacity for transforming coca (and other raw materials) into products with higher added value. SENA provides an avenue for integrating coca industrialization in rural development programs, and formulating new ways of implementing coca control, a concept further explored in chapter 4.

The above examples of the Colombian government's promotion of coca leaf industrialization do not transgress international law. According to a 2016 interview with researcher Juan Carlos Garzón,¹⁹ the 1961 Convention allows exceptions to prohibition for products used in medicine or science, provided there are measures to prevent their inappropriate or adverse uses (Garzón, 2016). These exceptions enable the government to recognize and register products derived from the coca leaf. Such products need only be designed in such a way that, from an economic or chemical perspective, it is inviable to produce cocaine from them. Alternatively, they may also be marketed if safeguards are introduced to prevent diversion to illicit uses. As mentioned earlier, the medical-scientific exceptions, adopted into Colombian law by ruling C-176/94 of the Constitutional Court, invalidate assertions that "Colombia is infringing upon international provisions" through "the manufacturing of drinks using coca leaves." These statements, based on an incorrect understanding of the law, were made by the Ministry of Foreign Relations on November 16, 2006, and the National Directorate of Narcotic Drugs on December 4, 2006.

To help consolidate the coca industrialization opportunity, Garzón-Vergara suggests INVIMA (and other product regulators) needs to assess which products should be registered as medicine, as phyto-therapeutic products, or as foodstuffs. To this end, it would be necessary to run a legislative process that mandates the regulation of coca, a product governed by an international convention. This would include a scientific assessment as to whether coca products could be unlawfully used or harmful to health. Such assessments would enable the product registration process to make it compulsory to inform consumers of potential risks and adverse interactions with coca leaf, if this were the case, but still enable coca commercialization.

18. These developments are made in the Agro-Fisheries Center and the Center for IT and Industrial Production in the Cauca region. In Guaviare, work has been underway within the Center for Industrial, Tourism and Technological Development in Guaviare.

19. Researcher for Fundación Ideas Para la Paz (FIP), Bogotá, Colombia.

3.3 Opportunities for the State to Strengthen Coca Industrialization

To summarize, we draw out the overall implications of the normative framework in Colombia for coca, which yields a mix of both supportive and limiting factors for coca industrialization:

- Coca leaf has been stricken from the controlled substances list subject to state monopoly. Though it is still considered a controlled substance, no penalties are defined for consuming it. Similarly, the law neither protects nor prosecutes processed (non-narcotic) coca leaf products.
- The state allows coca cultivation in indigenous territories and coca product commercialization across the country (as of 2015), based on the multicultural constitutional model that defends the traditional use of coca leaf as part of indigenous cultural identity.
- There are currently no legal protections for non-indigenous coca farmers or processors of coca leaf into non-narcotic products, be they traditional or more recent adopters of coca crops, as coca cultivation is part of the penal code. As will be discussed in chapter 4, small farmers are currently de-prioritized from enforcement (and the 2016 Peace Agreement discussed in the next chapter calls for differential penal treatment), but neither this policy nor a concrete definition of “small farmer” is enshrined in law (as of the writing of this paper).
- There are no clearly defined rules for obtaining formal market access in mainstream commercial channels (notably, those requiring product registries from national regulators such as INVIMA and ICA, the Colombian Agricultural Institute²⁰). In theory, a permitting process for commercializing coca leaf would require approval from either or both the product regulators and the National Narcotic Fund, except when the product’s controlled coca alkaloids are unrecoverable. This process remains uncharted. Indeed, the process to obtain permits for research with coca leaf has only recently begun to be defined.

20. The Colombian Agricultural Institute (ICA) regulates agro-industrial products.

The Colombian state needs a reform process that both strengthens the supportive factors and lifts the limitations, advancing the coca industrialization opportunity and drug control objectives in tandem. As a key priority, the state needs to address the lack of protections for small coca growers, which keeps their future in limbo. Then, to ensure coca industrialization is an opportunity to promote the well-being of coca growing communities, the reform process should support them in articulating their needs, weighing the reform options, and shaping the legal and regulatory outcomes. An integral part of this process is research and experimentation, both on products and normative frameworks, in collaboration with coca growers. This would help build the evidence base around products that benefit both users and suppliers and ensure that control methods are legitimate from the local to the national level.

The community-state partnership model developed organically by SENA Cauca with the community of Lerma offers an approach to implement a reform process for coca industrialization in alignment with the above reform strategy. The Lerma Model is particularly appropriate considering both the institutional framework of the 2016 Peace Agreement and the challenges that such institutions are likely to face moving forward.



Coca products from Lerma displayed at the VII International Coca Leaf Forum, Popayán, Colombia, August 2016. © David Restrepo

4. HORIZONS FOR COCA INDUSTRIALIZATION

4.1 The 2016 Peace Agreement Context

The 2016 Peace Agreement between the national government and The Revolutionary Armed Forces of Colombia—People's Army (FARC-EP) has enabled the country to contemplate new policies for managing crops declared illicit. These are addressed in Point 4 of the agreement, “Solution to the Problem of Illegal Drugs.”

The 2016 Peace Agreement dictates that drug control strategies must be built via participatory and consensus-based processes. They must involve all relevant stakeholders and be aligned with “integrated rural development” goals. Such goals are built into development plans tailored by each community to meet its social and economic needs. The logic underlying the agreement’s approach is that poverty,

marginalization, and lack of land ownership must be overcome to deal with the main drivers of illegal economies (Peace Agreement, 2016).

In alignment with the 2016 Peace Agreement's consensus principle, the primary mechanism for controlling coca (and other crops with illicit uses) is voluntary crop substitution. To drive the state's crop substitution policy, the agreement founded the National Integrated Program for Substituting Crops with Illicit Uses (*Programa Nacional Integral de Sustitución de Cultivos de Uso Ilícito*–PNIS). PNIS is implemented via local agreements between coca growing communities and the state to commit to removing coca crops in exchange for payments (given to coca farmer families, coca harvesters, and their surrounding communities).²¹ Non-voluntary drug control methods, such as forced eradication, are meant to be used as a secondary tool targeting large plantations controlled by armed groups or large-scale drug traffickers.²²

The crop substitution framework foresees both a transitional and longer-term period. It calls for Immediate Attention Plans (PAI) and more comprehensive Integrated Municipal and Community Substitution Plans (*Planes Integrales Municipales y Comunitarios de Sustitución*–PISDA), each with their resources and institutions.²³

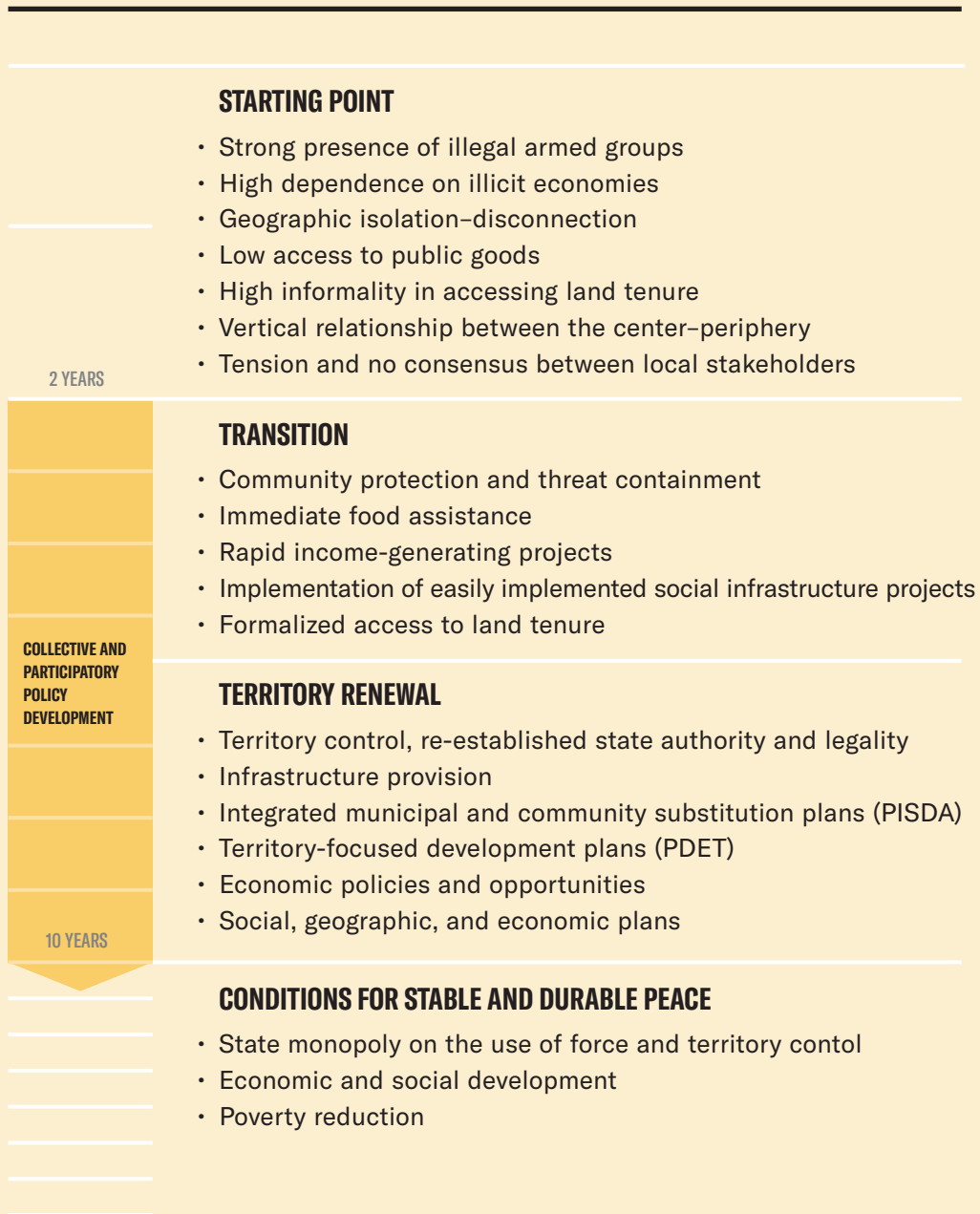
The 2016 Peace Agreement expects initial payments will help coca-growing communities rapidly remove coca (and other crops with illicit uses), while newly minted rural development and land distribution institutions promote a sustained switch to legal economic activities.²⁴ Figure 4 (from Garzón and Suárez, 2018) summarizes the crop substitution framework currently underway.

It should be reiterated that, in the spirit of the 2016 Peace Agreement, community autonomy, well-being and human rights—including cultural identity—are not to be trumped by drug control objectives. Indeed, the agreement states that drug control policies must:

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21. Thirty-two million pesos or around U.S.\$ 10,000 per year for coca farmer families, and 12 million pesos per year for coca harvester families.
 22. However, it appears to be difficult to distinguish between small- and large-scale plantations in the field (Garzón & Suárez, 2018).
 23. For further discussion on the implementation of the 2016 Peace Agreement, see Garzón & Suárez, 2018.
 24. Key entities include the Territory Renovation Agency (*Agencia de Renovación Territorial*–ART) and the National Land Agency (*Agencia Nacional de Tierras*–ANT).

FIGURE 4.

The 2016 Peace Agreement's long-term crop substitution framework



Source: Edited from Fundación Ideas para La Paz, (Garzón & Suárez, 2018)

...recognize the ancestral and traditional uses of the coca leaf as part of the cultural identity of indigenous communities, and enable the possibility of utilizing crops with illicit uses for medical and scientific purposes as well as other legal purposes that may be established (Peace Agreement, 2016).

The 2016 Peace Agreement thus indicates there is a legitimate role for coca leaf industrialization in a process of rebuilding rural communities' social, economic, and environmental health that overcomes the structural drivers of conflict. The agreement explicitly names the right of indigenous communities to use coca leaf. However, by appealing to the right to cultural identity, the agreement seems to entail protections for communities with "ancestral and traditional" coca leaf uses, regardless of ethnicity. Similarly, the agreement restates previous legislation legitimizing medical and scientific uses for coca, and provides an opening for other purposes that may be established as legal in the future. This implies that underlying the agreement is the notion that coca leaf applications focusing on cultural and beneficial uses have a legitimate place in Colombian society.

The overall premises of the 2016 Peace Agreement's drug control approach for coca leaf, predicated on a public health and human rights focus, can be summarized as follows:

- Policies will prioritize voluntary forms of control, based on promoting community well-being and fundamental rights.
- Initiatives promoting the social and economic well-being of communities are the key tool and prerequisite for drug control, as they address important underlying causes for participation in illicit economies.
- Ancestral and traditional uses linked to communities' rights to cultural identity must be recognized.
- Beneficial uses—medical and scientific, as well as others—are welcome.
- The state will continue to coordinate with the international community on drug policy reform and tackling illicit economies via alignment with international drug control frameworks and initiatives.

Coca industrialization clearly fits in the 2016 Peace Agreement's approach, but it was not sufficiently articulated in the peace process, partly due to the omission of coca industrialization stakeholders in the peace talks. As a result, the Colombian state has overlooked a gap in its institutional architecture to formulate its coca industrialization policy, either within the agreement's institutions or more broadly as part of the

institutions responsible for rural well-being (Ministry of Agriculture and Rural Development) and drug control (Ministry of Health and Social Protection).

Addressing the institutional gap for coca industrialization is a key opportunity for future Colombian governments as the implementation of the 2016 Peace Agreement unfolds. Coca industrialization is an instrument that rewards farmers for focusing on cultivating high-quality crops and participating in value-adding activities such as raw material processing. By boosting coca industrialization, coca farmers gain strength vis-à-vis the illicit supply chain, both via economic relationships with new legal buyers and through closer relationships with state institutions.

Strengthening the relationship and trust between state institutions and coca growing communities via coca industrialization will become an ever more present need over time, as the inherent sustainability challenges of crop substitution become more salient. These are worth summarizing:

- Sustainably substituting coca crops can be costly, difficult, and time-consuming, which drags out the implementation of the 2016 Peace Agreement.²⁵
- Even with significant resources, substitution is hard to sustain if the demand for cocaine around the world continues and the transnational illicit trade persists. These conditions are expected to remain in the foreseeable future.²⁶
- The expectation of crop substitution payments (as well as a reduction in prices for commodities like gold) may incentivize coca planting or re-planting in rural communities (i.e., perverse incentives).
- If the crop substitution program manages to initially reduce the supply of coca, while demand for coca remains unchanged or increases, it is expected that the price of coca will rise and incentivize re-planting (or shift cultivation to new areas both inside and outside Colombia, in the oft-cited balloon effect that influences illicit economies).

25. The cost of financing the crop substitution program is valued at four billion pesos for 51 municipalities and 127,000 families (Garzón & Suárez, 2018).

26. The transnational illegal trade in cocaine remains strong as neither cocaine demand is collapsing nor is there much progress in legally regulating cocaine around the world.

- If the crop substitution program fails to reduce coca cultivation, the legitimacy of the program may come under pressure, both nationally and internationally. Calls to intensify forced eradication may then increase. However, a return to this well-worn policy will drive a wedge between the state and coca growing communities, clashes with the 2016 Peace Agreement framework, and stokes a renewed cycle of conflict.

Coca industrialization could help provide a pressure valve for the ongoing and future challenges of crop substitution. Like crop substitution, it is no “silver bullet” for resolving illicit economies, but it is a complementary component in a reform model driven by community well-being and human rights priorities. Coca industrialization dignifies coca farmers as coca farmers. It serves as the basis for creating local social control institutions with a better chance at legitimacy—and effectiveness—than coercive methods. While Colombia and the world innovate on ways to sensibly regulate the cocaine trade, the Colombian state and its people will benefit from adding coca industrialization to a drug policy toolkit that promotes well-being in its rural communities.

Additionally, in the long term, a vibrant coca industry could help offset the cost of expensive drug control policies like crop substitution. Through cross-industry alliances to generate links between coca farmers, coca leaf processors, and partner industries (i.e., the agricultural, medicinal, and consumer sectors), commercializing value-adding coca products could generate new revenues benefitting each participant in the supply chain. For instance, coca-based fertilizers appear to improve profitability for horticultural and short-cycle crops, through both higher yields and lower input costs. Promoting coca industrialization for agro-industry, among other applications, could reduce the amount of funds required for crop substitution straining state coffers, and then provide income both to supply chain participants and the state (via direct and indirect tax revenues).

Coca industrialization could also facilitate price transparency, a promising tool to help decouple the coca leaf industry from drug trafficking and drive fairer profits for coca growers. With coca industrialization, price transparency could be implemented through weekly regional price reports spanning the Andean region. Currently, Colombia coca growers receive the lowest compensation. In Peru and Bolivia, where coca commerce is legal, 25 pounds of coca sells for U.S. \$85 in La Paz and U.S. \$50 in Lima (February 1, 2017, data). Meanwhile, in the south of Colombia, an equivalent

amount of coca sells for U.S. \$18, with prices only reaching U.S. \$25 during the peak season of August–September. It can be inferred that illegality, the presence of coercive armed groups, and the absence of price information reduces the negotiating power of Colombian coca farmers, which forces them to accept the prices buyers impose. Supplying a price comparison mechanism would eliminate misinformation that contributes to disadvantaging farmers. As the coca transformation industry grows, price transparency would similarly allow for a price premium to be paid to farmers who adhere to better cultivation standards.

To seize the potential of coca industrialization, it would be necessary to build coca industrialization laws, regulations, and institutions aligned with the 2016 Peace Agreement’s drug control approach. Coca industrialization dovetails with the agreement’s drug control frameworks and has even been dubbed *crop use* substitution and productive eradication (Baptiste, 2017; Moreno, 2017), when used as a drug control strategy. In embarking on coca industrialization, the Colombian state will not be starting from scratch: the experience SENA Cauca pioneered with Lerma serves both as a point of departure and a guide for the journey. SENA’s partnerships with local communities and civil society organizations provide a model for reform that can help build the coca industry centered on addressing community needs. The model evolved organically in Lerma, but is already being applied in other Cauca communities, indicating its relevance for the varied Colombian coca growing landscape—and beyond.

4.2 Lessons from the Lerma Model: SENA Cauca’s Community-Centered Approach to Coca Research and Industrialization Reform

In 2017, the Cauca branch of the *Servicio Nacional de Aprendizaje* (SENA–National Training Service) secured the first permit in Colombia’s history for conducting scientific research with coca leaf, granted by the FNE (*Fondo Nacional de Estupefacientes* or National Narcotic Fund). For clarity, the permit allows:

- The local purchase of coca leaf by SENA Cauca (from communities allowed to grow and sell coca—i.e., those with traditional uses);
- The use of the acquired coca for research purposes only, referencing the exception to prohibition for medical and scientific uses in the 1961 UN Convention.

By issuing this permit, the Colombian state began to set a precedent that may accelerate research into the coca leaf's uses across its beneficial applications. SENA Cauca's success in obtaining the coca research permit also demonstrated the Lerma Model's potential in contributing to reforms that promote coca industrialization to promote the well-being of rural communities.

SENA's mission includes working with communities to provide work and management skills as well as help set up "production units" (i.e., small-scale industrial infrastructure that serves as a basis for new businesses or cooperatives). SENA's research programs complement its training and development agenda by creating practical tools and processes with immediate field value, built collaboratively between researchers, instructors, trainees, and communities.

As part of SENA missions, instructors in Cauca encountered embattled coca growing areas, struggling with Colombia's conflict, limited economic opportunities, and criminalization. One of these communities is Lerma, a village in the Bolivar municipality of southern Cauca. Part of the indigenous *Yanacona* cultural sphere, Lerma retains the ancestral practice of coca leaf *mambeo*, going back generations.

An intense period of violence in the 1980s linked to the illicit cocaine trade resulted in the death of a significant percentage of Lerma's population. In response, Lerma's community leaders regrouped and decided to focus on rebuilding the village's social fabric. They launched several initiatives to promote civic and environmental education, food security, local history, and the arts. Critically, Lerma leaders decided to resist both armed groups and the state's criminalization of their livelihood by developing alternative uses for their coca crops. They recognized the profound cultural role of coca in their lives and its potential for good. As they strengthened their local governance (via their *junta de acción*—comunal or local action board), Lerma's community leaders began containing the violence. They also gradually encouraged the illicit drug trade to move narcotic processing activities outside of their community.

Lerma found in SENA Cauca a receptive partner in its objective to strengthen local coca industrialization capabilities for beneficial uses. With the support of SENA Cauca and civil society partners, the village began to design a portfolio of non-narcotic coca products and services. Initial experiments focused on food and beverages based on traditional coca leaf products. The small-scale experiments evolved into a research partnership with SENA Cauca, prompting the application for the permit to conduct coca leaf research, focusing on agro-industrial uses.

The organic fertilizer research project illustrates how SENA's partnerships foster product experimentation and innovation, research, and incremental reform for coca—all at once. SENA Cauca's intimate understanding of its partner's economic and social needs helped formulate a research project that is demonstrating significant cost reduction in crop fertilization expenses, improvement in the management of local organic wastes, increases in the quality and quantity of crop yields, and new outlets for coca harvests—with minimal capital investment or training time. SENA's links with civil society partners helped secure the technical assistance and complementary funding that supported the research program in reaching its objectives. The achievements of the Lerma partnership have also helped SENA Cauca begin replicating its service model for coca growing areas in Cauca and the rest of the country.

To understand the value of the Lerma Model for coca research, rural well-being initiatives, and drug policy reform, it is useful to reflect on the supportive conditions on which the model is based, the barriers it has overcome, and the remaining opportunities to scale up its service to communities.

Beginning with enabling conditions at the local level, the nature of the Lerma Model partners and the purposes of the partnership are key. The partnership is composed of three distinct stakeholder groups:

1. A community with strong local governance structures that culturally identifies with the coca leaf (i.e., Lerma), recognizes coca's potential for beneficial uses, and can effectively formulate common needs regarding its utilization;
2. A well-regarded and trusted educational and research institution, part of the Colombian state (i.e., SENA), that focuses on improving communities' livelihoods, with both the capability to run development and research programs and an intimate relationship and knowledge of its community partners' challenges.
3. Organizationally solid civil society partners (particularly, *Fundación Tierra de Paz*, *CIMA* and the Open Society Foundations) contributing expert networks and resources that have supported the successful execution of research programs.

The partnership has grounded its efforts on addressing the well-being needs articulated by Lerma's people. Its educational, research, and reform activities have

been subsidiary to this purpose. SENA's commitment to Lerma, its shared values, and permanence have been reciprocated by Lerma's receptiveness and commitment to SENA projects. This has generated an environment of trust, which fosters educational, research, and economic development outcomes.

From a reform perspective, the Lerma Model has used the following sequence:

- Building strong local relationships based on understanding and addressing community needs;
- Formulating projects incrementally to address those needs (both training and product development related) via experimentation (with curriculum offerings and product formulas);
- Building up capacity, skills and infrastructure—gradually to enhance the partnership's reach, both in partner communities (Lerma) and the state (SENA Cauca), with the support of civil society organizations;
- Structuring reform efforts (e.g., the research permit provided by FNE) to address concrete project requirements.

The nature of the Lerma partnership has allowed SENA Cauca to take advantage of favorable macro conditions (i.e., a political environment friendly to drug policy reform and a somewhat conducive normative framework). It has also provided resilience vis-à-vis less favorable conditions in the past as well as ongoing structural barriers for conducting coca industrialization research. These include the continued ignorance and stigma surrounding the coca leaf, the unclear rules for cultivating, purchasing, processing, and analyzing legal coca inputs for research purposes, and the latent security risks (which have attenuated significantly since the peace process with FARC).

The need to keep strengthening the resilience and impact of the Lerma Model (for Lerma and beyond) has led SENA Cauca and partners to tackle its limitations and maximize its opportunities. For instance, the partnership has focused on expanding its research output. This is a crucial starting point for reform, as building the evidence base is a pre-condition for commercializing coca leaf under the UN Drug Conventions' "scientific and medical use" exemption. An immediate objective following the successful research permit application is to accelerate research efforts within SENA Cauca, in other SENA branches and with external research allies (i.e., academic and industry-focused research centers, programs and networks, such as the Humboldt Institute, Colciencias, and industry association research programs).

Research is an important step toward scaling the benefits of coca industrialization for coca growing communities like Lerma. But research alone is not enough. Commercializing communities' output at sufficient scale is also required, and this necessitates further allies in the Colombian government, the research sector, and industry. This is where the needs of the Lerma Model meet the needs of the state to strengthen the 2016 Peace Agreement with coca industrialization.

We can now develop a proposal that extends the Lerma Model as an approach to improving both rural well-being and coca control, while delivering coca industrialization. This proposal will be offered to the next Government of Colombia elected in 2018, as a strategy to improve the implementation of the 2016 Peace Agreement. The recommendations are aligned with the forward-looking stance regarding alternatives to drug prohibition now taking place in Colombia, around the world, and across the spectrum of political leanings.

4.3 Scaling Up the Lerma Model: Coca Innovation to Strengthen the Implementation of the 2016 Peace Agreement

To scale the Lerma Model and integrate coca leaf industrialization into the 2016 Peace Agreement, we propose an expanded innovation program with the following two interdependent lines of work:

1. A technology and market development program, focused on validating coca's value and formulating industry models benefiting small farmers, their communities, and supply chain partners;
2. A gradual coca policy reform process, focused on improving the legitimacy and effectiveness of coca governance via local social control systems.

The innovation program would work to seize the technology and market development opportunities that coca offers. It would run scientific research to build the evidence base that:

- Demonstrates the value of the coca leaf's applications across the agro-industrial, consumer (i.e., nutritional and cosmetic), and phyto-therapeutic sectors, evaluating the benefits and risk profile for existing and new product prototypes developed by SENA and its partners;

- Assesses the economic opportunity for coca farmers and their supply chain partners;
- Provides sustainable development tools for community entrepreneurship and environmental stewardship;
- Understands the extent of alkaloid presence and recoverability for various coca products;
- Establishes partnerships from coca cultivators to end-users (i.e., industries or consumers) to define needs, design attractive business models for all supply chain participants, and implement traceability and control methods to comply with drug laws;
- Quantifies the extent of coca production required to serve the traditional and new legal uses for coca.

The innovation program would be anchored in the SENA–community relationship of the Lerma Model to ensure community needs and feedback to inform innovation outcomes. The program would be articulated via a series of sector-specific pilots with the participation of relevant state, research, and industry sectors, providing input on national policy coordination, research quality, and alignment with drug control frameworks. Rural development stakeholders would maintain a strong role throughout all pilots, to ensure small farmer interests retain centrality. Drug control agencies would play a consistent but subsidiary role throughout.

As an illustration, agro-industrial pilots for coca innovation would leverage the coca fertilizer, laboratory growth media and pesticide prototypes developed by SENA Cauca. The pilots would then recruit additional innovation partners, such as:

- The Ministry of Agriculture and Rural Development and the Ministry of Labor;
- Research centers and promotion agencies (such as the Humboldt Institute, the University of Cauca, Colciencias, etc.);
- Industry associations and their specialized research bodies (i.e., Cenicafé, Cenicaña);
- Sector-specific product regulators (in this case, ICA—the Colombian Agriculture Institute);
- Drug control agencies, such as FNE, the Anti-Drugs Policy office, and the PNIS.

From a logistical point of view, innovation pilots could be linked to forums driving the implementation of the 2016 Peace Agreement, particularly those building local, comprehensive rural development plans.

To provide representativeness, a range of coca-growing communities and individuals with varying cultures and social conditions would be engaged. In terms of cultures, the innovation program would include representation from the many ethnic backgrounds of coca growers (indigenous groups, Afro-Colombians, and mixed race communities) and their varied attitudes toward the coca leaf (i.e., a deep spiritual and cultural significance, an instrumental significance as a work-enabling practice, and/or a more transactional, economic significance). In terms of social conditions, the program would also involve communities and people experiencing different economic and land holding structures (i.e., communal property, ownership, rental or large landowner/company holdings—all of which may be either official or informal).

The innovation program's research would benefit from macro data complementing locally derived information. This would include a census of traditional coca user communities and individuals (as their number is currently unknown) and their consumption patterns. It would also analyze the spatial evolution of coca crops over the national territory, providing further evidence confirming the areas with longstanding versus more recent coca crops.²⁷

In parallel to the technology and market innovation program, we also propose a gradual coca policy reform process in the form of a dialogue between coca growing communities and the stakeholder groups included in the innovation program. This dialogue would equally be centered on SENA's community relationships and led by the rural development sector, with the support of trade groups, regulators, and drug control agencies.

This community-centered coca policy innovation process would define:

- The characteristics of the local social control system to pursue both local legitimacy and alignment with the national and international drug control regime;

27. This could leverage historical aerial photography from the IGAC (Agustín Codazzi Geographical Institute), as well as other national and international (i.e., UNODC) databases.

- The legislative, regulatory, and administrative changes to promote coca industrialization.

The local social control model is the only known coca control approach that balances the many objectives of the innovation program: coca industrialization, human rights and rural development, consensus and participation, and respect for international drug conventions. Local social control models are based on devolving control for coca quantity and destination to local governance structures, such as cooperatives or coca growing unions, preferably at the village level. Social control is predicated on having community members agree on incentives and penalties for maintaining production of coca leaf within bounds and reducing diversion into the narcotic trade. Participating in a local social control system can help maintain prices, provide more reliable cash flow, and improve participant's reputation and access to other goods accessed via the cooperative (i.e., training, networks, events, etc.) (Farthing & Ledebur, 2015). By helping establish the total quantity of coca needed for supplying the legal markets, a local social control system would also help negotiate authorized levels of legal coca production with national and international control bodies (i.e., the FNE and the INCB), based on local productivity characteristics.

The coca policy-reform process would explore the mechanics and implications of concrete social control methods in the participant communities. At a local level, it would look for processes and standards that satisfy control requirements and manage the potential for conflict. At a national level, it would also define the scope of an overarching coordination entity that helps communities define agreements and distribute quotas linked to legitimate production—that is, the supply levels to serve emerging coca industries and traditional consumption. The overarching entity may also be tasked with certifying the quality of local governance and the promotion of best practices.

By linking the deliberation of local social controls to technology and market opportunities, the policy reform process would help motivate clear proposals from local communities and their partners for conducive normative frameworks for the coca industry. All the necessary sectors to structure consensus-based policy would be working under a common program seeking gains for all parties. Compelling technology results would provide tangible benefits to communities, sparking demand for reform that would be readily communicated to innovation partners in the state. These calls would be reinforced by industry partner endorsement, since existing industries would share in the benefits.

The main strategic principle in the community-based policy reform process is keeping to a path of gradual change. That means initially focusing on “quick wins,” such as administrative and procedural decisions possible within the current institutional arrangements that permit the innovation program to make headway. As the innovation program yields returns (both economic and political), it would enable investment in “marginal reforms”—narrow legislative proposals or rule changes within the prerogative of relevant state institutions. Over time, this added space for the coca industry will help it ramp up, de-stigmatizing coca industrialization and generating further support from consumers and industry groups. It may then be possible to launch large-scale legislative proposals that set down comprehensive institutions conducive both to the coca industry and to its local social control system.

The key to take the policy reform process forward is to provide a minimum basis for it to grow and formulate further reforms. Critically, the integrity of the 2016 Peace Agreement needs to be defended. Though the agreement has gaps from a coca policy perspective, its principles constitute a solid platform. The agreement prioritizes voluntary controls, community participation, respect for human rights and community well-being as key elements for formulating drug policy. These principles must be protected to sustain the institutional platform on which meaningful progress can be made.

The 2016 Peace Agreement calls for differential justice reform to protect small coca growers, but this is still pending as of the writing of this report. Therefore, a risk of suffering eradication and prosecution still hovers over small coca farmers—including traditional coca communities outside of indigenous territories. Differential justice legislation must be prioritized. Furthermore, while awaiting coca farmer protections to be enshrined in law, the government must maintain administrative mechanisms that provide relief for coca growing communities. For instance, they should be given as extensive a deliberation period as possible, open to extension, before having to decide on crop substitution. During this period, the moratorium on coca enforcement for small farmers must continue. Additionally, both indigenous and non-indigenous coca growing communities with traditional uses should be granted indefinite deferral of enforcement until their differential status can be assured. This differential treatment should serve as a starting point for rules that discount coca serving the legal industry from the total tally of “illicit” coca crops—which places undue pressure on the Colombian state and population.

In terms of the minimum basis to promote coca technology research, significant progress has been made to ensure that the FNE, industry regulators, and rural development agencies are receptive to evidence-based policy formulation and innovation. The future government of Colombia needs to at least maintain, and ideally strengthen this approach. The FNE needs to continue (and preferably standardize, expedite, and simplify) the issuance of research permits for all the stakeholders involved in coca innovation (and other crops and controlled substances). This includes coca cultivation research permits as well as research permits for shipping, handling, processing, and analyzing (via alkaloid diagnostics) coca leaf products. The FNE and product regulators have a pending task to agree on a common standard of evidence for alkaloid recoverability and coca product safety, as well as to define their corresponding jurisdiction in the commercialization permitting process. Finally, Colombia must continue strengthening its innovation infrastructure and legal frameworks (including intellectual and cultural property regimes), and increase funding for projects with a social innovation agenda. It would favor Colombia's competitive advantage in international trade to utilize coca innovation pilots to structure a research institution focused on promoting science and entrepreneurship that supports the socially equitable and environmentally sustainable commercialization of Colombia's biological and cultural wealth.

4.4 Summary of Recommendations

1. Guarantee protection from prosecution for *small* coca farmers, enshrining these protections in law. The definition of small coca farmer should be based on a comprehensive, direct, and representative consultation with coca farmers themselves.
2. Extend and strengthen administrative protections from enforcement for small farmers while legal protections are in progress.
3. Promote the recognition of indigenous traditional coca uses, and include among them traditional, multi-ethnic coca using communities.
4. Facilitate the application for permits across the stakeholder groups needed for coca leaf research (i.e., from the FNE, within the Ministry of Health and Social Protection).
5. Define reasonable, common standards of evidence and jurisdictions for alkaloid recoverability and coca commercialization permits between the

FNE and the national regulators (i.e., INVIMA within the Ministry of Health and Social Protection, and ICA, within the Ministry of Agriculture and Rural Development).

6. Promote coca research and innovation alliances between SENA (Ministry of Labor), the rural development sector (Ministry of Agriculture and Rural Development), the research sector (e.g., Colciencias–Ministry of National Education), trade associations, and drug control agencies (e.g., FNE and the National Anti-Narcotics policy unit). This should be carried out at both the national and departmental level. These alliances based on concrete pilots could serve as a basis for a national research center promoting the socially equitable and environmentally sustainable use of Colombia’s vast biological and cultural diversity, benefiting source communities and Colombia overall.

CONCLUSIONS

For decades, Colombia's policy toward the coca plant has consisted mainly in trying to extinguish it, allegedly to reduce the flow of narcotics and spare the world from the harms of drugs. The approach backfired. Coca cultivation linked to narcotic production proliferated and growing profits in the illicit trade stoked the fire of a violent dispute for territorial control. The state's attitude toward coca left coca growers in the crossfire of licit and illicit armed groups, preventing the state from reaching vulnerable but strategically important communities.

If trying to remove the coca plant has only fostered its negative uses, could coca's positive uses stand a better chance via a path of acceptance and scientific research?

This report has provided evidence of coca's beneficial applications. It has given visibility to scientific studies providing strong support of its nutritional potential. It also has shown the promising coca innovations in agro-industry and phyto-therapeutics that have emerged despite a fruitless policy against the plant, via persistent efforts to open a window of legality where coca industrialization has started. There is no evidence that these non-narcotic coca applications cause harm or addiction, most of them lack recoverable alkaloids, and traceability methods are readily available to provide control.

For coca industrialization to reach its full potential, Colombian state policy needs to shift from its current duality to fully recognizing the versatile coca plant as a valuable part of its cultural and biological heritage. Via the technology, market, and policy innovation program we have described, the coca plant could join the pantheon of previously underappreciated Latin American agricultural products now conquering

new national and world markets and providing a stimulus to rural economies. These products include quinoa, avocados, maca, chía, yerba mate, guayusa, yakón, physalis, and lúcuma.

The innovation program is based on a tested model for coca research matured by SENA, a dynamic part of the Colombian state working to support its rural communities. Scaling the SENA Cauca model in Lerma would keep community needs as the guide for technology and policy innovation, while bringing allies from the research, industry, regulatory, and drug control sectors, generating benefits across the supply chain while ensuring integrity and greater control over the coca crop.

This path of innovation with coca is an important consideration for implementing the 2016 Peace Agreement beyond 2018. It will foster trust between the state and coca growing communities, and help set the basis for more sustainable, cost-effective, and legitimate social controls.

Colombia is now at the vanguard of worldwide drug policy innovation, through its efforts on medical cannabis, harm reduction, and the 2016 Peace Agreement. Its innovative approach has secured it the highest quota for legal medical cannabis production in the world.²⁸

It is in the Colombian population's interest for the state to extend this competitive leadership in drug policy—by promoting innovation on the beneficial uses offered by the coca leaf. It would help turn the damage and shame of illicit economies into a source of well-being and pride in our heritage. Leveraging an innovation model that places communities at the center would not only support development outcomes, but help defuse the polarization regarding the challenges of implementing the 2016 Peace Agreement. The path of coca innovation is open to Colombians across the political spectrum and all segments and ethnicities in Colombian society. It is now up to Colombia's new leaders to either remain stuck on the circular paths of the past, or choose a new path of respect, science, and well-being offered by coca innovation.

28. Colombia was granted over 40 tons for medicinal cannabis from the INCB in 2018 (Angarita, 2018)

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APPENDIX: INTERVIEWEES

Aida María Quilcué, Advisor to the Cauca Regional Indigenous Council (*Consejo Regional Indígena del Cauca [CRIC]*), Colombia

Antonio Navarro Wolf, Healthcare Engineer, Alianza Verde (Green Alliance) Senator, Colombia

Baldomero Cáceres, Sociologist, Peru

Carlos Maca, Main Advisor to the Cauca Regional Indigenous Council (*Consejo Regional Indígena del Cauca [CRIC]*), Colombia

César William Díaz, Executive Director, FUNDECIMA, Popayán, Cauca, Colombia

David Curtidor, Public Administrator; Owner, Nasa Esch Company, Bogotá, Colombia

Dionicio Núñez, Former Vice Minister of Coca, Bolivia

Fabiola Piñacué, Political Scientist; Founder and Owner of Nasa Esch, Bogotá, Colombia

Felipe Valencia, Senate Secretary under the mandate of Senator Luis Fernando Velasco, Colombian Congress

Fredy Chicangana, Poet; Owner of Coca Sana, Neiva, Huila, Colombia

Herney Ruiz, Lerma Community leader, Bolívar Municipality, Cauca, Colombia

Hugo Caviezes, Economist, Perú

Javier Flórez Henao, Political Scientist; Former Director of the Ministry of Justice Drugs Office; Director, Acceso a Tierras (Access to Land), National Land Agency, Ministry of Agriculture, Bogotá, Colombia

Juan Carlos Garzón, Political Scientist; Researcher, Fundación Ideas Para la Paz (Ideas for Peace Foundation), Bogotá, Colombia

Julián Wilches, Researcher, Fundación Ideas Para la Paz (Ideas for Peace Foundation), Bogotá, Colombia

María Mercedes Moreno, Founder, Mama Coca Collective, Paris, France

Oscar Campo, Cauca Governor, Colombia

Pedro Arenas, Director, Observatory of Crops and Cultivators Declared as Illicit, OCIDI-INDEPAZ, Bogotá, Colombia

Ricardo Soberón, Economist, Perú

Silvia Rivera Cusicanqui, Sociologist, Bolivia

Víctor Collazos, Member, CIMA Directive, Popayán, Cauca, Colombia

ABOUT THE AUTHORS

Dora Lucila Troyano Sanchez

Dora Lucila Troyano Sanchez has worked for nearly 20 years with coca farmers in Bolivia, Peru, and Colombia, researching and promoting the coca leaf as an agricultural product that can contribute to the economic development, well-being, and empowerment of coca-growing communities. In August 2016, Troyano Sanchez was awarded the *Mérito Galardón Chacaltaya de Oro* from the Parliamentary Brigade of La Paz, Bolivia, for her contributions to research, preservation, knowledge diffusion, defense, and promotion of the coca leaf and Andean ancestral knowledge. She has worked with several international organizations including Bolivia's Coca and Sovereignty Campaign, the Association of Mountain Peoples of the World (France), and the Association for the Promotion of Science (Colombia). As a professional in conservation ecology, she is an instructor-researcher with SENA, the National Training Service in Cauca, Colombia. She has also consulted for the Inter-American Development Bank, Fundación Tierra de Paz, and the University of Cauca. Troyano Sanchez is currently an ethnobiology and bio-cultural studies PhD candidate at the University of Cauca.

David Restrepo

David Restrepo works on drug policy reform and product innovation in Colombia and Peru, with a focus on the coca leaf. Restrepo is a policy and management consultant, experienced in implementing strategy and innovation projects across Latin America, Europe, North America, and Asia-Pacific, where he helped launch successful businesses in the public health, technology, and consumer sectors. He has studied the coca leaf and its political, economic, and cultural significance for the Andean and Amazonian regions since 2006. He holds an MA in regulation from the London School of Economics and Political Science and a BA in international politics and economics from Middlebury College.

Open Society Global Drug Policy Program

Launched in 2008, the Open Society Global Drug Policy Program aims to shift the paradigm away from today's punitive approach to international drug policy, to one that is rooted in public health and human rights. The program strives to broaden, diversify, and consolidate the network of like-minded organizations that are actively challenging the current state of international drug policy. The program's two main activities consist of grant giving and, to a lesser extent, direct advocacy work.

At present, global drug policy is characterized by heavy-handed law enforcement strategies that not only fail to attain their targets of reducing drug use, production, and trafficking, but also result in a documented escalation of drug-related violence, public health crises, and human rights abuses.

Open Society Foundations

Active in more than 100 countries, the Open Society Foundations work to build vibrant and tolerant democracies whose governments are accountable to their citizens. Working with local communities, the Open Society Foundations support justice and human rights, freedom of expression, and access to public health and education.

Coca Industrialization: A Path to Innovation, Development, and Peace in Colombia is the eighth in a series of publications by the Open Society Foundations' Global Drug Policy Program that documents positive examples of drug policy reform around the world. We hope these case studies will inspire policymakers and advocates in consultation with people affected by drug policy to design rights-centered policies that are scientifically sound and humane.

Coca Industrialization: A Path to Innovation, Development, and Peace in Colombia is the second of the Lessons for Drug Policy Series to explore supply-side drug policy. Colombia has endured a decades-long civil war that, in part, has been fueled by the illicit drug trade. Forced eradication of the coca plant, a tactic criticized for its violence and gross human rights violations, has failed significantly in reducing coca crops. This report explores the potential that the coca leaf holds as an agricultural product for lawful uses as well as the challenges and opportunities that have influenced industrialization. It then sets out the parameters for a system that could significantly expand coca industrialization in a manner that makes the most of its social, political, economic and environmental benefits.

In addition to drug policy reform, the Open Society Foundations work around the world to advance health, rights and equality, education and youth, governance and accountability, and media and arts. We seek to build vibrant and tolerant democracies whose governments are accountable to their citizens.

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