Becoming Coca…
A materiality approach to a commodity chain analysis of *hoja de coca* in Colombia

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Abstract

Coca is a controversial plant, existing on the boundary between legality and illegality. This study is aimed at providing an analytical technique for discussing the problematic of coca in Colombia. Using new theoretical propositions in human geography, a 'more-than-human' approach is adopted to encounter coca holistically. The results are a narrative account of coca's social life as experienced by the researcher following its network of non-cocaine derivatives. The analytical section applies Foucault's 'dispositif' to the drug trade and utilizes concepts of informed materials and technological zones for describing coca outside a political economy discourse. The research finds that coca's dynamic materiality complicates it as a commodity and that conventional approaches do not fully encapsulate this complexity. By grappling with the 'messiness' of coca's materiality, this paper reveals the multiplicity and interplay of coca's definitions, which lie at the heart of many conflicts.

Key words: coca, Colombia, commodity chain, drug trade, materiality, technological zone

"For Spinoza, the world is in constant movement, involved in a constant process of self-construction. It is always becoming because matter is internally disposed to create its own motion." (Thrift, 2003: 111).

1. 1. Introduction

Coca (*Erthyroxylum* species) is a controversial plant, existing on the boundary between legality and illegality. As an illegal commodity, it affects coca 'producer' countries (Colombia, Peru and Bolivia) as well as cocaine 'consumer' countries, notably the US. US-Colombia relations largely center on coca eradication, which has brought a flow of aid, mainly as military assistance under 'Plan Colombia' since 2000 (Fukumi, 2008; Tickner, 2007). These eradication programmes include spraying herbicides on coca plantations (aspersion), which has been criticised for its environmental and health repercussions. Other strategic manoeuvres include crop-substitution initiatives and manual crop removal, which is dangerous in light of allegations that the cocaine trade finances Colombia's guerrilla army, the Revolutionary Armed Forces of Colombia (FARC).

Conversely, coca's role as a legal substance dates back centuries in the Andes where chewing coca leaves ('*mambeo'* in Colombia) is a sacred practice for the indigenous people. Recently in Peru and Bolivia, State intervention has led to an increase in the production of legal coca products, which has created a lucrative global market. In Colombia, two indigenous groups, Kokasana and Cocanasa, are manufacturing coca products from the departments of Amazonas and Cauca respectively. In 2004 Cocanasa

started manufacturing an energy drink called CocaSek from coca leaves (Henkel 2006). At the time this was legal as indigenous groups have a constitutional right to cultivate coca for traditional use. However, the right to supply legal coca products to retailers outside reserves was revoked by President Uribe in 2007. The decision has been criticized, especially in light of the contrasting coca policies of the Bolivian and Peruvian governments. Speculation about the naming rights case that Coca-Cola lost against CocaSek as a possible trigger for this decision is rife. Since 1904 the Coca-Cola Company has used coca leaves with the cocaine alkaloid removed to produce Coca-Cola and continues to do so despite coca's being a banned substance under the 1961 Single Convention on Narcotic Drugs (Karch 2006).

The interconnectedness of these situated 'coca events' requires a unique analysis to make sense of this entanglement of connections or 'hybrid actor network' (Foster 2006: 293). Some previous studies have employed a traditional, value chain approach to cocaine (Wilson and Zambrano 1994) whilst others that have used historical narratives of coca/cocaine commodity chains (Gootenberg 2006). Anthropological accounts of coca like that by Henman in Colombia (Antonil 1978), more recently by Cusicanqui in Northern Argentina (2005) and Taussig's (2004) in-depth account of gold and cocaine in Colombia, provide novel insights into the politico-cultural aspects of the plant. However, geographical accounts remain in the realm of political ecology (Young 2004) and geo-biopolitics (Sanabria 2004, Corva 2008). Although these provide useful frameworks through which to understand the plant, they underplay the interconnectedness of the coca network. I therefore employ a materiality approach within a commodity network analysis

in order to disrupt the traditional dualistic discourses surrounding resource studies. This is an amalgamation of the 'thicker' circuits of culture approaches employed by authors like Cook (2006) and actor network theory based studies (e.g. Whatmore 2002).

In his overview of commodity geographies or 'critical fetishism,' Foster (2006) notes the gap in the literature for mapping illicit commodity networks, which is addressed in this paper. By adopting a materiality approach in a sector that has been dominated by a political economy focus centred on the realist paradigm of US foreign policy (Fukumi, 2008), I aim to 'acknowledge the embeddedness of social action, whether it be embedded in the world of things, bodies, networks or socio-ecological relations' (Bakker and Bridge, 2004: 18). Through the analysis of a boundary substance like coca. I explore coca's materiality using Bennett's (2004) concept of 'thing-power' which focuses the researcher on the everyday liveliness of 'less specifically human' objects that nevertheless have an effect on us.

However, a simple focus on materiality is an insufficient analysis for the coca/cocaine complex, which is a unique research subject to 'follow' because of its multiplicity and transitivity. As a material within conflicted political space, coca is surrounded by different Deleuzian assemblages that define it as a particular entity, usually cocaine. These practices themselves transform coca as a material object and the result is a snow-ball effect of self-perpetuating redefinition. In order to animate this, I explore the constitution of coca as an 'informed material'- the idea that the identity and properties of a material are not intrinsic, but 'are dependent on relations with other entities, including

information' (Barry 2006: 242). In order to monitor progress, inform policy and for lobbying purposes, these coca-assemblages are dedicated to metrological practices. I therefore also use Barry's concept of technological and metrological zones as 'space(s) within which differences between technical practices, procedures and forms have been reduced, or common standards have been established' (Barry, 2005: 239).

Drawing these threads together is Foucault's 'dispositif' as used by Callon (1998). Peeters and Charlier (1999) describe the dispositif as an intermediary figure, on the one hand giving the idea of a structural approach and homogenous order and on the other, a rhizomatic approach of open, complex ensembles which brings with it notions of the hybrid. By using Foucault's 'dispositif,' I describe the drug trade as a set of assemblages and processes that create disciplined bodies/states from 'narco-delinquents'/'narco-space' (Corva 2008) through the illiberal policies (e.g. Plan Colombia) of both governmental/supranational agencies and narco-capitalists and their opponents. This renders those most affected powerless because they are unable to engage with the evidence, debate and response.

The combination of approaches employed in this study provides a holistic encapsulation of the coca-assemblage. Through a re-working of Foucault's 'dispositif', I aim to capture the 'thingness' of coca whilst simultaneously analysing the human-centred metrological practices that co-constitute it. This is my following of coca.

1.2 Research reflexivity

A diary with a few scrappy mementos, a laptop folder full of photos and videos, 386 MB of audio clips, books and papers (mostly in Spanish), an Español-Inglés dictionary (exposing myself as a '*gringa'*) and two boxes of Nasa Esh's coca tea: this list exhausts what is tangibly available to me to recount 'the social life of coca in Colombia'. And yet, I cannot help thinking that with all the theoretical underpinnings underlying the process of my research, very little of the final document will reflect the integral process of research 'co-fabrication' (Whatmore 2003). 'Becoming coca' is not a straightforward procedure, but instead looks rather something more like this (Figure 1):

Figure 1: Researching coca

Cook (2006) describes the mental chaos that ensues when researchers attempt to tell stories where there is no real focus, beginning or endpoint other than the object of study

itself. These (un)disciplined… risky ventures can 'do your head in' because so many things that do not come together in theory turn out to be closely bound in practice (Cook 2006: 658). 'Following' or 'becoming' your research subject means letting go of that fixed origin/end-point that we deem necessary for research, but rather requires a method of 'get[ting] inside networks, go[ing] with the flows and look[ing] to connect' (Cook 2006: 657).

My journey from ignorant student who barely made the connection between the Andean plant and the "champagne" drug to coca-savant is such an account. It illustrates the hybrid nature of coca in its various guises as well as the multitude of networks within which it performs its materiality. Coca is simultaneously one of the most and least easily accessible commodities. The process of discovering coca not only transforms the plant as research subject, but transforms the researcher as she makes and breaks connections, absorbs literature in different localities, transports herself according to the demands of her research subject and becomes a part of the network.

What follows is a written account of the circulating commodity as encountered by me, which is by no means a finite delimitation of the coca network.

2. The Coca journey

2.1 Reflections of a researcher

9 am lecture, a packet of dried leaves and Lupi tea bags are passed around to be put into boiling water. 'It's *mate de coca*: coca tea from Bolivia: illegal in England because it is the same leaf that is used to make cocaine,' our lecturer explains. Fascinated by this clandestine activity, the class is suddenly awake. Or is it just the stimulating effect of the coca tea?

This defines the coca plant: you are never quite sure whether you are constructing your reaction to the plant based on the effect its alkaloids (e.g. cocaine) have on your system or whether you are simply reacting to your perception of what this effect should be. As Antonil (1978: 128) states; "the effectiveness of the alkaloids is dependent to a greater degree on the biological and mental state of the coca chewer, than it is on the actual pharmacological properties of the leaves themselves". However, the beneficial results of coca tea are not limited to indigenous fancies, but have infiltrated all sectors of society. Four months later, a chance encounter with a lady working in the Colombian Ministry of the Environment allowed an insight into the power of this sacred Andean plant: "I first heard about coca tea three years ago and I tried it because I suffered from severe stomach pains due to an inflamed colon. As soon as I drink it, the pain stops immediately and now I always have it in the house for emergencies. Now I drink less coffee and more coca tea; it is healthier, more enjoyable and digestable… delicious."

Indeed, the taste and look of the tea contributes significantly to its medicinal reputation. It can range from a light, yellowy-green with a very faint taste (Colombian Nasa Esh's tea) to a darker brown-green with a sharp, yet earthy smell (Peruvian Wawasana/Bolivian

Lupi tea). Although the taste can initially be overpowering (especially if made directly from the leaves and not from tea bags), it soon grows on you as its sweet undertones become apparent. It is therefore not surprising that after an internet search, I discovered an entire world of coca products, consisting mainly of tea from Peru (and their state-run coca company, Enaco) and to a lesser extent, Bolivia. Coca tea can now be found on shelves as far away from its 'native' origins as South Africa, Japan and the Czech Republic.

The question that arises at this point is why legal coca products are centred on Peru and Bolivia when Colombia is the world's biggest coca grower (UNODC 2007b). Simple answer: Colombia contributes 62% to the world's cocaine supply (UNODC 2007b). But, why Colombia and why in this particular form?

2.2 Cocaine Experimentation

The idea for my Colombian coca journey is rooted in a documentary by the former Blur member, Alex James (BBC 2008). His mission: to discover the Colombian side of the cocaine chain, beginning with a visit to coca plantations in Nariño, then to the San José del Guaviaré military base's anti-narcotics programme, on to a *chongo* (cocaine workshop) in the jungle and ending with a dealer in his hotel room. It was a striking story of how cocaine infiltrated the country so extensively that it became Colombia's 'national product.' I was also sucked into Alex James' Colombia-as-cocaine-world because despite focussing on quasi-(il)legal coca, it was impossible to ignore the shadow of the drug trade

looming behind the coca plant. My invitation to attend a coca festival in Cerro Tijeras as part of my journey was to reinforce this dark aspect as I saw and heard firsthand accounts of its direct impacts on the lives of Colombia's people.

From a transnational commodity chain perspective, Wilson and Zambrano (1994) tell an enthralling tale of cocaine as a Colombian commodity through its production chain to export, distribution and consumption. They offer the economic incentives for the persistence of the drug trade as 'Latin America's only successful multinational' (President García in Wilson & Zambrano 1994: 309). This occurred in spite of the US war on drugs spearheaded by Nixon and then extended by Reagan in the 1980s through Congressional legislation (despite the evident clash of this 'transnational illiberal narco-governance' in Latin America with his neoliberal agenda (Corva 2008)). The US-Colombia link forged by cocaine is of immense economic and political importance, not only since the inception of Plan Colombia, but because the most profitable stage of the cocaine industry lies in the US- its distribution network (Wilson & Zambrano 1994). The introduction of crack cocaine in the mid-80s created another US market opportunity for increasing profit margins and since the highest value is added in the global North (Allen 2005), the bulk of the profits of this lucrative industry enter the US financial system, not Colombia's. Furthermore the US supplies most of the chemicals necessary to make cocaine- In bold below (Wilson & Zambrano 1994).

<u>Pasta básica recipe:</u>

1 kg ground coca leaves, mixed with a handful of dried cement and a half litre of petrol

Add cold water and **sulphuric acid**

Drain gasoline leaving the paste behind

Boil paste and add reagent (e.g. **potassium permanganate**)

From this base, the final cocaine **hydrochloride** product is then produced in clandestine laboratories before export.

But, Colombia has not always been at the forefront of cocaine trafficking. In the 1950s and 60s the cocaine trade was run by Cubans and Chileans (Fukumi 2007) and until the 1970s the cocaine business itself was a 'small cottage industry run mainly by Peruvian and Bolivian nationals' (Wilson & Zambrano 1994). In the 1970s the Cubans and Chileans sought direct trade with Colombian organisations that had experience from the marijuana boom as well as a strategic geographic location: the Caribbean coast for access to US cities like Miami, and the Amazonian border making entry into Peru easy (Fukumi 2007). The Colombians then started challenging the Cuban monopoly because of their direct contact with the US through men like Carlos Lehder. This marked the beginning of the infamous Medellín traffickers led by Pablo Escobar (Fukumi 2007). By the early 1980s the cocaine trade had become a 'far-reaching multinational predominantly run by Colombian organisations' (Wilson & Zambrano 1994: 304) and the trafficking routes moved into Mexico. In essence, the structure was that coca leaves and paste were produced in Peru and Bolivia and then transported to Colombia for manufacture into cocaine, but due to continuous control over the industry, coca cultivation slowly began to move into Colombia, which became the major producer country that it is today (Fukumi

2007). Since the dissolution of the old Cali cartel, coca cultivation in Colombia has tripled, leading to the radical reactionary policies like Plan Colombia being implemented (Karch 2006).

To give an idea of the scale of the industry in Colombia; the Cali cartel had an estimated US$ 7 billion annual income in the mid-90s and when the Medellín cocaine industry collapsed in the mid-80s, it was said to employ 30% of the population (Fukumi 2007). "Medellín became addicted- not to cocaine, but to the effects of cocaine- to the money, scandal and power created by cocaine, to the novelty of consumption and the eruption of the late 20th century capitalist culture made possible by cocaine" (Roldán 2006).

2.3. Coke, Charlie, Crack, Freebase, Cocaína, Chang

Coca in its illegal derivative form as the drug cocaine infiltrated Colombian society so successfully that today the country's story is as inextricably bound to the plant as it is to FARC guerrillas. How an insignificant-looking plant cultivated in the Andes became transformed into a multi-billion dollar industry proves a fascinating story.

Coca as an official global 'problem' officially starts with the 1961 Single Convention on Narcotic Drugs, but the story of international co-operation attempts at drug control measures can be traced to the beginning of the 20th century with the US Pure Food and Drug Act of 1906 whose origins lay with a 'witch-hunt' against the Coca-Cola company (Karch 2006). The US government was the first to make drug control policy a topic for

diplomatic debate. From 1906 they started a wave of initiatives curtailing the illicit trade, which stemmed not from a coca problem, but rather one of opiates (Karch 2006). In 1922 the US Congress prohibited the import of coca leaves into the country except for small amounts for 'legitimate, medical purposes' and the manufacture of Coca-Cola (Plowman 1982). With more than half a century of groundwork it is unsurprising that the Single Convention makes not only cocaine, but also its plant of origin, illegal.

The inclusion of coca under this convention has been referred to as an 'historical error' (Metaal *et al* 2006) and despite the clause in Article 14 (2) of the 1988 UN Convention against Illicit Traffic in Narcotic Drugs and Psychotropic Substances stating that 'The measures adopted shall respect the fundamental human rights and shall take due account of traditional licit uses, where there is historic evidence of such use, as well as the protection of the environment,' this does not happen in practice and even coca tea is illegal under the convention although it is considered harmless in several South American countries (Metaal *et al* 2006). The main reason given for including the coca leaf in Schedule 1 was because cocaine is readily extractable from the coca leaf (WHO 1993), However this opportune classification has more recently been challenged by those who believe its inclusion on List 1 as more political than scientific. At a United Nations Office on Drugs and Crime (UNODC) meeting held in March 2009, Bolivian '*cocalero'* president Evo Morales again called for its exclusion from List 1… and so the debate continues.

2.4. ***La planta sagrada***

An interviewee from the Yanacona people described coca as "*una hoja sabia- sagrada*" (a wise leaf- sacred). Mortimer (1901:7) calls "*Khoka* the tree beyond which all other designation was unnecessary". It is *Esh* in the native tongue of the Nasa people of Cauca, a distinct, harsh and powerful sounding word, which carries with it all the significance and symbolism of the plant.

Mambeo is the oldest tradition of using coca leaves and has been documented by countless sources over the centuries. In an interview, Anthony Henman[1] explained that its use is not restricted to priests or shamans, although it was used during all sacrifices to the gods, but that everyone would chew the dried leaves and they would carry them in a special pouch where the leaves and powder are kept in easy reach. It is a precise art of measuring the correct amount of alkaline powder to mix with the leaves so as to create the desired effect without burning the mouth and it takes many years of experience (Antonil 1978). The production of heat is an important feature of this process and although the numbness that spreads through the mouth as a result of the leaf-ash combination releasing the cocaine alkaloid is significant, it is the heat that is the vital aspect of *mambeo*, which is recorded in myths.

I must admit, however, that despite chewing coca myself, I never really experienced this heated sensation and the numbness of my mouth was only transitory. The role of coca as a conversation stimulant, although it helped Anthony during our 3-hour interview, did not overcome my English-Spanish barrier. In fact, whilst a huge packet of coca was being

passed around at the discussion meeting on my first night at the coca festival, my only thought as I grabbed a handful of leaves and started chewing was of the harsh, bitter taste of the leaves- with the odd sensation of chewing crunchy vegetation. My relief on finishing my handful was palpable and I stuck to tamer alimentary versions of coca from then on. However, before recalling my gastronomic coca experience, which is the culmination of this narrative section, I wish to touch briefly on the spirituality of coca.

2.5. A chance encounter

“Laura, guess what, there is a coca bush growing upstairs, come look!” Santi shouted to me one Sunday morning in Popayán. The owner and cultivator of said plant (Figure 2) later explained why he had a coca plant growing on the roof in the middle of the city whilst he showed us his packet of dried leaves (secretly hidden in a pile of boxes that were casually lying next to the stairs) and his container of ground limestone.

Figure 2: Coca tree growing on the roof of a house in Popayán, Colombia.

His story was one of premonition, ritual and *energías* (energies). The most striking description was the use of coca (sometimes with *aguardiente blanco*, a potent locally-brewed alcohol) to communicate with *energías* and as a stimulant for premonitions. It can be used to observe and expel good and bad energies as well as to find and observe things like physical and spiritual sickness or other problems within a community. The cosmological aspect or *cosmovision* of coca forms a special part of the significance of the plant.

2.6. *Arroz mixto con coca* by motorbike

In order to reach the coca festival in Cerro Tijeras, it was necessary to take various modes of transport across Colombia. The journey culminated in an hour long ride on the back of a motorbike over five mountains to reach the community of Altamira in the north of Cauca. On arriving, although exhilarated, I was relieved to alight. These travelling experiences, although distinct from my project itself, made me thinking about the coca's accessibility. Had I not had a friend at Oxford who had a friend in Colombia whose boyfriend worked with Carlos who had been invited to present a talk on the political economy of drugs at the coca festival, this experience would have been completely closed to me. This typifies coca. Although I stumbled upon it in the most random locations like lecture rooms, rooftops and health stores in chic Colombian malls, it was at the same time extremely difficult to plan an encounter and despite my best efforts I never managed to see a coca field and had to suffice with descriptions. Despite these setbacks, however, I settled for the gastronomic coca experience and I was not disappointed.

Within my first half an hour on the top of the mountain, I had sampled ground coca with salt and coca biscuits only to be presented with a savoury rice dish with coca sprinkled on top and then the hugest slice of coca cake with pink icing. This was of course all washed down with coca wine. I had also conversed with a boy on sale duty as to the various coca products on offer at the festival, what they contained and how they were used. The inventory included coca tea, CocaSek, coca wine (CocaBeka), coca yoghurt (Yogofruta), coca soap and various other culinary delights.

For dinner we had meat dipped in *salsa de coca* and the next day there was a coca mayonnaise dip- *que rica*! As much of a shock to the system as this proved, one of the most surprising things was to learn what an integral part coca played in the nutrition of Andean people and how recipes were passed down between generations. A booklet by Fuertes (2006) detailed how coca could be an answer to malnutrition and came complete with coca recipes like *'crema de dodo de coca,'* '*cocapi*' and even coca ice-cream! The nutritional benefits of coca are well-known and its high calcium content is often referred to, but there is very little discussion of its use as a tool for fighting malnutrition.

In countries like Peru and Bolivia where there is a more numerous indigenous population, where coca is more freely available even if it is not less stigmatized and where different 'legal' forms of coca can be accessed more readily, there is an industry for coca products. However, in Colombia the revival of this alimentary coca culture can largely be attributed to the entrepreneur David Curtidor and his wife, Fabiola who is the creative genius

behind the variety of products I was introduced to at the coca festival. This started ten years ago when David and Fabiola started selling coca tea to students outside the Javeriana University in Bogotá and took off from there (Henkel 2006). In a fascinating interview with David, he explained the obstacles they faced trying to create a successful industry for 'legal' coca products. This had proved especially difficult after the recent ban on coca products outside indigenous reserves. Apart from these legal issues arising from the case with Coca-Cola, David also mentioned problems with sourcing leaves as they were often confiscated by the narcotics police. One of the main reasons for the festival was not only to showcase what can be done with coca, but also to discuss future possibilities.

Figure 3: David Curtidor and his wife, Fabiola, pictured with some of their coca products on display at the festival. David is holding a can of the infamous CocaSek energy drink

However, resistance to the commercialization of this plant is not only from the outside. There are also tensions within indigenous communities themselves about these 'legal' coca products, either from a traditional standpoint where *mambeo* is regarded as coca's sole function as a sacred plant whose properties should be kept for those who understand its significance. There is also opposition against the political struggle for legalization which is a necessary step in the commercialization process. An ongoing project against the effects that coca as an illegal substance has is largely spearheaded by the academic activist group Mama Coca.

The strongest message that I was left with as I made my way back down the mountains was the combination of western commercialization with indigenous Andean traditions and culture. Coca was not going anywhere fast. This modernization of coca usage has already been documented by Cusicanqui (20005) in northern Argentina, but it seems to be a trend destined for global consumption.

This has led me to contemplate other 'Western' coca inventions, the most notable of which is the famous Vin Mariani, a creation of the Corsican Angelo Mariani, which consisted of wine with coca leaf extract (Mortimer 1901).

Figure 4: The marketing of Vin Mariani included not only posters such as the one pictured above, but used celebrity endorsements from famous people, including Pope Leo

XIII who was said to have sent Mariani a golden medal showing his ecclesiastical approval of the beverage (Mortimer 1901).

The continual transformation of coca whether in its physical composition as a commercial product or even as a plant that can be grown, hidden under the leaves of banana and *panela*, was fascinating. But despite coca's agency in this network, was I not focusing so intensely on this materiality that I was forgetting that interaction is a two-way process and that there may still be some element of human and environmental agency to be addressed? Then an analytical method hit me whilst reading Bennett's 'The Force of Things' (2004) on returning to Bogotá. Her interpretation of Spinoza's concept of nature as a place where bodies interact in order to enhance their 'power of activity' as well as where humans and their thoughts become part of a 'mobile set of material assemblages' encouraged me to look not only at the thing-power of coca, but at the entire coca-assemblage that included humans interrelating with the plant (Bennett 2004: 353, 364). Within networks, certain materials like money, oil and drugs attract more focus, thus creating a greater number of connections with other entities and thereby increasing their 'power of activity'. These can be seen as peaks within a 'flatter' network with the increased connections acting as scaffolding to maintain the peak. Coca is one such 'peak actant.'

But what is so significant about these materials that they generate so many connections? This cannot be answered by focusing on the material alone, but must consider the rest of the network and the other key actants interacting within it. In the next section, by

including humans and their interventions in the coca network, I attempt to analyze coca as a 'peak actant' using Foucault's 'dispositif'.

3. The 'dispositif' of the drug trade

3.1. An 'informed material'

Here, I apply Barry's (2005) concept of an 'informed material,' defining coca as a material that can embody information. One of the most useful aspects of a journeying research method is that it allows the research to follow paths that result from chance encounters and similarly to explore the temporal element of how a material is constituted. Historically coca was a 'peak actant' within the Andean indigenous network. It is embedded within the history and culture of the Andean peoples and this role is reinforced through practices like coca-chewing and even the more recent generation of products like coca soap and flour which modernise traditional forms of coca. This revival is not limited to conventional coca producing countries, but Argentina is similarly experiencing a cultural reinvention of coca as the urban elite in the North-west use it as a symbol of belonging and a rejection of Eurocentric norms embodied in Buenos Aires (Cusicanqui 2005). The revolution that coca has stirred within the ranks of indigenous communities in Colombia is more openly political and is a symbol of defiance for activist and lobby groups like Project Kokasana and Mama Coca.

Coca is not only historically informed by indigenous Andean practices and cultural belief, but also by accounts of conquistadores and scientific documentation. Colonial perceptions of indigenous practices like *mambeo*, which was seen as 'an idle and offensive habit' (Mortimer 1901: 9), informed the authorities' and the Church's negative response to the plant. A scientific event of coca-transformation occurred with the isolation of the cocaine alkaloid around 1859 as this sparked the cocaine revolution. The economic significance of this is evident in the countless coca and cocaine based products that were churned out in the West. Spillane (2006) gives a full account of these; from coca wines like Vin Mariani, the Lambert Company's Wine of Coca with Peptonate Iron and Extract of Cod Liver Oil to medicinal cocaine products like the Az-Ma-Syde catarrh cure which came with a guarantee to cure asthma or your money back (Spillane 2006: 24–27). This economic coca revolution (currently being mirrored by indigenous people trying to resuscitate the appeal that it had in the mid-to-late nineteenth century) is another aspect of information embodied in the plant's materiality. I argue that one way of understanding coca is as an informed material within which historical information is embedded thereby constructing the complex material that it is today.

The scientific definition of the plant has a similarly convoluted and contested history. According to Rusby; "It is doubtful if anyone ever wrote or approved a definition of 'coca' without misgiving" (Plowman 1982: 20). Samples of different coca plants circumnavigated the world as a means of identification for new species claims, documentation purposes and even as gifts. The (re)commercialisation of coca that began in 1884 (when Köller discovered cocaine's stimulatory and anaesthetic properties and

Freud published Über Coca), increased its potential as a cash crop and further encouraged these scientific endeavours (Plowman 1982).

It was not only the scientists that contributed to this taxonomic fervour, but individual plants too. The most famous of these is London's "Kew Plant," a native Colombian species *Erythroxylum novogranatense* var. *novogranatense.* Plowman (1982) writes an account tracing this plant's contested origin (initially misquoted as a gift from the Bishop of Huánoco in Peru despite a being a Colombian variety) as well as that of its alleged relatives and progeny. He finds possible links to a plant received by Regel in Germany in 1869 as well as plants in the Botanical Gardens at Hyères in France and Bogor in Java where the first coca plants were sent from Belgium in 1875. He attributes these connections to the Belgian H. Linden Company that shipped plants and seedlings previously grown or imported into Europe to Dutch Java for cultivation. The trans-national interconnectedness of coca as it travelled around the world as herbarium samples, seeds, leaves and even entire plants is emblematic of Latour's circulating reference (1999); the ongoing transformation and multiplication of materials through scientific research and in this case, commercial interests too.

This continues today despite the advances in herbarium taxonomy. The 2007 UNODC illicit crop census refers to a study conducted at the University Francisco José de Caldas on the varieties of coca found in Colombia. 439 samples were analysed with two species and three varieties identified despite the existence of many more vernacular names. Even with complex Linnaean nomenclature, there is ongoing debate in describing and

classifying these species and varieties. The botanical practice of repetitive sampling creates a method of layering information onto the body of the plant. The botanist attributes characteristics to the plant in order to identify it, but simultaneously transforms it by embedding this knowledge and practice in its materiality. Coca's complexity arises from its constant transformation, multiplication and redefinition through a variety of practices. Recognising these assemblages and multiplications is a necessary step for developing a global coca agenda.

3.2. Coca metrology

Barry's metrological zone is a valuable conceptual tool through which to discuss coca's calculative elements within the 'dispositif'. To be an efficient drug cartel-busting, cocaine-eradicating force, the UNODC requires figures, numbers and charts from all its focus countries to measure its 'success'. Colombia is one of its key countries in the war on drugs and it closely monitors progress against the cocaine trade. The annual coca survey (UNODC 2007a/b) is a joint project by the UNODC and the Colombian government documenting the progress against the drug trade in Colombia through scientific and statistical methods. Controversially, one could argue that it is merely a practice justifying the controversial practice of coca eradication.

Plan Colombia's contemporary objectives fall under two categories: fighting the drug trade and providing military assistance to eradicate the FARC's income, which is allegedly dependent on cocaine production. Coca aspersions by the Colombian

government require monitoring, documentation and proof of results in order to justify the highly criticised policy. During an anonymous interview in the Environmental Ministry, I was shown documents, including lists of equipment per mission (helicopters, computers etc.) recording this practice for monitoring purposes. I was also informed that the environmental effects of the herbicide Glyphosate were carefully monitored; soil and water tests were done before and after spraying and again after six months and that there were no long-term effects based on this data. In fact, only 10-14% of Glyphosate in the country is used for coca eradication and the rest is for commercial use to control weeds in other crops like rice and palm and is thus considered safe. The herbicide only kills the leaves, not the roots and so the plants are able to re-grow. This was confirmed by BBC footage showing coca plants growing where there had been aspersions only four weeks earlier, but the damage to surrounding plants like banana trees was more severe (BBC 2008).

I was also told during this interview that Glyphosate is a category four herbicide whilst the chemicals used by cultivators (like Paraquat) are category one and therefore more toxic. It begs the question of how herbicide classification takes place. The science determining Glyphosate as safe is disputed by activists citing the health problems of people living in the areas where the herbicide is sprayed (WOLA 2008). This dispute exists because the metrological zone in which herbicides are classified does not include those who suffer the effects of the classification. Using a Stengerian cosmopolitical argument, the lack of lay involvement in the classification process exacerbates the issue.

A major repercussion of Plan Colombia is that coca plantations have moved into National Parks because aspersions are forbidden there. The cocaine 'curse' has thus spread into one of the most bio-diverse areas in the world. Manual eradication has been proffered as a plausible solution, especially in National Parks as it does not have the environmental and health implications associated with herbicides. However, in order to discourage this, landmines are planted in coca fields (Ministry of the Environment interview 2008). These have led to civilian deaths as well as soldiers clearing plantations. Clearly this is not the best alternative, yet it appears to be the only way to continue with 'environmentally friendly' coca eradication. However with so much uncultivated land in Colombia, all that this process seems to be achieving is the displacement of the problem and more environmental damage (TNI 2007).

Aspersion opponents cite other examples of Plan Colombia's failures using the government's own figures as evidence (WOLA 2008). The loss of livelihoods and displacement of people due to practices both by those in the drug trade and those trying to eliminate them have become human rights issues. There are references that the aspersions, rather than eliminating environmental damage, are themselves causing an '*ecocidio'* (ecocide) as well as an '*etnocidio*[2]*'* (WOLA 2008).

Apart from the rights-based argument and direct contradiction through a differing interpretation of the statistics and numbers supplied by the government, there are three other key arguments put forward by the pro-coca camp. The first refers to the nutritional and medicinal properties of the plant (Metaal *et al* 2006; Fuertes 2006). The second is the

assertion that coca is the only viable plant for some producers both because they are forced by the FARC and drug cartels to grow coca and because it makes financial sense (Smith 1992). Móndragon states that in the current format (i.e. half a hectare of the 4-5 hectares cultivated by campesino families dedicated to coca) the economy of coca cultivation 'depends fundamentally on the necessity to sustain the families of campesinos and indigenous people… it is a form of survival' (Hector Móndragon interview 2008). The BBC documentary supported this in an interview with a coca cultivator who said that 'the spraying was affecting everything, even food and so they would die of hunger…they grow coca because they have no choice, but if the government offered alternatives nobody would grow coca' (TNI 2007; BBC 2008). The coca survey bolsters this argument with data showing that only 9% of coca cultivators said that they had been offered any support to abandon their crop, 28% saying that they had no other choice but to grow coca and 17% saying they grew it because it was part of the local culture (UNODC 2007b).

The third is an economic argument. Based on data from the UNODC report, the farm-gate value of production of coca leaf was 0.5% of Colombia's GDP in 2006 and 5% of the agricultural GDP (UNODC 2007b). A coca cultivator said that before he started growing coca he would earn $130 a month, but now he makes $550 (BBC 2008). With such high returns, the incentives for cultivation far outweigh disincentives.

This confusing set of affairs, added to the extended impacts of cocaine to Colombia's GDP also in the form of money laundering, completes this dispositif of practices,

structures and assemblages of the drug trade as it relates to coca. The Colombian government is debating the aspersion strategy's effectiveness (BBC 2008) and they realize that the current practice is not a long-term solution. Many alternatives to the current situation have been proposed by individuals encountered during this coca journey, but it is beyond the scope of this paper to analyse these.

4. In conclusion: the contribution of a materiality approach

The aim of this study was to apply a combination of new theoretical techniques in human geography to the problematic of coca in Colombia. With a focus on the 'dispositif' of the drug trade, this analysis highlighted the complicated metrological and other systems that have been developed around coca. This 'dispositif' continually transforms and redefines the plant, resulting in its perpetual state of 'becoming coca.' Coca is the epitome of Spinoza's *natura naturans* as 'a materiality that is always in the process of reinventing itself' (Bennett 2004: 350).

From a sacred Andean plant, coca becomes a green smudge on a satellite image, which then transforms into a number for statistical purposes in census reports. This results in its eradication because of the perception that it is the weakest link in the drug chain. Entire organisations (UNODC), bilateral agreements (Plan Colombia) and monitoring programmes are then formulated around this procedure. In response, lobby groups (Mama Coca) and indigenous organisations (Kokosana, Cocanasa) have evolved to counter the effects of this drug-trade 'dispositif' creating more network structures and

raising coca into a ‘peak actant’. This perpetuates a cyclical generation of numbers, policies and counter-policy lobbying whilst the drug trade through which coca is defined, flourishes.

As with other critical geographic approaches, a materiality approach does not suffice with on-the-surface analyses of policy, but scrapes away at the problematic to reveal a naïve core material-reality. Thus, the aim is not to posit solutions, but rather to blow open constructed understandings of the world to reveal the oft’ overlooked power of things. Engaging with this ‘thing-power’ embodied in a quasi-(il)legal natural resource like coca, is a democratizing tool for cutting through the ‘multiscalar politics of narco-governance’ (Corva 2008: 182). Hence, although the meta-policy questions still remain to be answered, this study, which recognises that coca is a ‘messy’ material that cannot be coerced into any particular definition, is hopefully a breath of fresh air in a debate that has been bogged down with political discourses.

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[1] The author of Mama Coca, an anthropological account of coca and cocaine in Colombia in the 1970's. In Britain, the books were seized and the publisher prosecuted under the Obscene Publications Act although the prosecution lost the case in 1984.

[2] The 'ethnocide' of indigenous and afrocolombian communities through health repercussions, displacement and loss of livelihoods and culture.