



2003

Coca, Poppies, Kalashnikovs, and Cash: Illicit Drug Cultivation and Impacts of Anti-Drug Policy

Jared Crumm

Follow this and additional works at: http://trace.tennessee.edu/utk_interstp3

Recommended Citation

Crumm, Jared, "Coca, Poppies, Kalashnikovs, and Cash: Illicit Drug Cultivation and Impacts of Anti-Drug Policy" (2003). *Senior Thesis Projects, 2003-2006*.

http://trace.tennessee.edu/utk_interstp3/16

This Project is brought to you for free and open access by the College Scholars at Trace: Tennessee Research and Creative Exchange. It has been accepted for inclusion in Senior Thesis Projects, 2003-2006 by an authorized administrator of Trace: Tennessee Research and Creative Exchange. For more information, please contact trace@utk.edu.

FORM C
COLLEGE SCHOLARS PROJECT APPROVAL

Javed Crumm
Scholar

Dr. Don Clark
Mentor

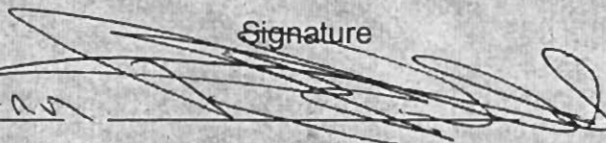
Coca, Poppies, Kalashnikovs, and Cash: Illicit Drug Cultivation and
Project Title Impacts of Anti-Drug Policy

COMMITTEE MEMBERS

(Minimum 3 Required)

Name

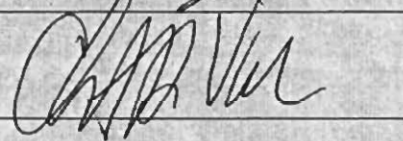
Signature

Perry Ballan 

William Jennings

William A. Jennings

Christian Vossler



Don P. Clark

Don P. Clark

PLEASE ATTACH A COPY OF THE SENIOR PROJECT TO THIS SHEET AND RETURN BOTH TO THE PROGRAM DIRECTOR. THIS PAGE SHOULD BE DATED AND COMPLETED ON THE DATE THAT YOUR DEFENSE IS HELD.

DATE COMPLETED 4/27/06

Coca, Poppies, Kalashnikovs & Cash
Illicit Drug Cultivation and Impacts of Anti-Drug Policy

University of Tennessee College Scholars Senior Thesis

April 27, 2006

Jared Crumm

Mentor:
Dr. Don Clark

Committee:
Dr. Don Clark
Dr. Christian Vossler
Dr. E. Perry Ballard
Dr. William Jennings

Introduction

Illicit drugs is a multi-billion dollar industry that spans the globe, and nearly every nation attempts to implement policies to control this trade. Two drugs that are identified as particularly dangerous and have been targeted by many nations around the world are cocaine and heroin. These drugs are derived, respectively, from the coca bush and the opium poppy, and it is the cultivation of these two crops which is the focus of this study. Through an examination of the economics and politics concerning these crops and an analysis of the policies aimed at them, this study will foster a better understanding of this part of the drug trade with the intent that more effective policies will result.

This specific portion of the drug trade was selected because of a general interest in economic and political issues in the world's less developed nations, as well as the added complexities of this segment of the illicit drug industry. These crops are grown in remote portions of a number of less developed countries, and unlike other parts of the drug industry, this segment is dominated by fairly poor peasants and farmers who are difficult to vilify. This characteristic, along with the wider array of policy options available for combating the cultivation of these crops adds a political complexity that is lacking in other portions of the drug trade.

It is important to note that the illicit nature of the drug trade leads to a lack of hard data, since it is in the interest of all industry participants to conceal their activities. As a result of this lack of clear and specific data, information is instead in the form of agency estimates, which include considerable error and vary greatly from agency to agency. Because of these issues much of the information presented in this paper will, by necessity, be more general and conceptual instead of concrete and specific.

The two main production regions for opium and coca, Afghanistan and Andean South America, will be analyzed separately. The national/regional analysis will examine the history and development of the trade in these crops, the economics of illicit crop cultivation, and the impacts, political and economic, resulting from the trade. After these analyses, policy impacts on illicit drug cultivation will be examined, and policy recommendations for each region will be given.

Afghanistan

Afghanistan is a Central Asian nation with a tumultuous past and considerable modern instability. The recent history of Afghanistan has been marred by nearly 3 decades of constant conflict, culminating in the overthrow of the Taliban and the current presence of international forces. This time period has also witnessed Afghanistan's transformation into the world's dominant producer of illicit opium.

History and Development

There is no certainty concerning when opium was introduced to Afghanistan. Some place its introduction to the time of Alexander the Great, when his armies came through Afghanistan, around 300 BC, on their way to India, others place the introduction of opium poppies to the time of the Muslim advance eastward across Afghanistan, around the 7th or 8th century AD (Asad & Harris, 2003, p. 26). In either case opium has been cultivated in the region for over 1,000 years and has, in its raw form, been used traditionally for both medicinal and recreational purposes (Asad & Harris, 2003, p. 26).

Despite the exploitation of opium for commercial use and trade in other parts of the British Empire, opium in Afghanistan remained a crop cultivated almost exclusively for domestic traditional consumption well into the 20th century (Noelle-Karimi, Scheffer, & Schlagintweit, 2002, p. 111). A number of international events that occurred in 1979 saw the Afghan opium trade change dramatically. During 1979 the Iranian Revolution and the start of the Afghan-Soviet War provided the necessary impetus to transform the Afghan opium trade from one of traditional domestic consumption to a main global source for illicit opium and its resulting heroin.

Prior to the Islamic Revolution of Ayatollah Khomeini, Iran was a main source of illicit opium, which was then processed into heroin either within Iran or in neighboring Turkey, before being transferred to the global heroin market. Following the Islamic Revolution, the government of Iran began a crackdown on opium cultivation, refining and trafficking, leading not only to a decrease in opium cultivation within Iran, but also to an expulsion of Iranians involved in the opium trade. A number of these individuals took up residence in Afghanistan and created an infusion of knowledge and experience concerning the processing and international trafficking of opium and its derivatives (Asad & Harris, 2003, pp. 51-52).

While the Iranian Revolution helped to provide the knowledge and the market shortage necessary to transform the Afghan opium trade, it was the Afghan-Soviet War that is widely considered to have sparked that transformation. Conflict within Afghanistan between the Soviet allied communist government of Afghanistan and Afghan resistance forces resulted in direct involvement of the Soviet military. The result of this was a decade-long war between the Soviet Union, and the Mujahideen, or holy

warriors, who were covertly supported by the United States. The need for a lucrative source of funding for the Mujahideen, combined with the destruction of infrastructure and traditional sources of livelihood, fueled the trade in illicit opium (Noelle-Karimi et al, 2002, p. 118).

The use of opium as a source of funding for Afghan fighters continued after the 1989 withdrawal of Soviet troops and the 1992 collapse of the communist government. The various warlords and factions fighting in Afghanistan throughout the 1990s wreaked even greater havoc on Afghan infrastructure and traditional sources of livelihood, further increasing Afghan economic dependence on opium. The U.S. invasion of 2001 brought a halt to much of the factional infighting of Afghanistan, however opium remains a vital part of the political and economic framework of the nation.

Economics of Illicit Drug Cultivation

Opium is obtained from the opium poppy, an annual plant that is grown in many regions around the world. In Afghanistan the poppies are planted in October or November, requiring low temperatures to germinate, and after germinating are capable of withstanding sub-freezing temperatures. The poppies then blossom in the spring and after pollination the seed capsule swells and the flower petals fall. This generally occurs around April, and it is at this stage that the opium is ready for harvest. Each pod receives up to 6 shallow incisions and is then left overnight to allow the resin that has leaked out to dry and firm. The resin is then scraped from the seed capsule and ready for sale or storage. This is a very labor intensive and tedious process, with the collection of 1kg of raw opium requiring an estimated 40 to 50 man hours of labor (Asad and Harris, 2003,

pp. 24-25). The opium poppy has a number of advantages that make its cultivation especially appealing. The poppy is a very drought resistant crop, with some indications that it can be grown with as little as 15 inches of annual rainfall, also the short growing season and the timing of the growing season allows for double cropping in some areas, where after the opium has been harvested another crop, often a staple food, can be grown. Once collected, the opium resin is easy to store, as it does not spoil or lose value, and is easy to transport, with a very high value to weight ratio (Asad and Harris, 2003, p. 24; Johnson & Leslie, 2004, p. 112).

Indications of the profit garnered from poppy cultivation compared to the cultivation of more traditional crops vary widely. One main reason for this variance is the dramatic swing in the price of opium that has been observed over the last few years. Estimates for the price of a kilo of opium varied from \$25 to \$60, based upon region and time of year, during the late 1990s, however this price structure would soon undergo a dramatic change. In 2000 the Taliban claimed opium to be against Islam and banned its cultivation, curiously however it did not ban the trade in opium. Following the ban the price of a kilo of opium skyrocketed, reaching the \$400-\$500 dollar range. The effects of this price shock lasted beyond the rule of the Taliban, with a kilo of opium still fetching a price above \$200 on into 2003, despite record harvests (Noelle-Karimi et al, 2002, pp. 130, 146; Johnson & Leslie, 2004, p. 115). Another cause of the variation in profit observations stems from variation of yield, some estimates indicate yields up to 50 kilos per hectare for non-irrigated land and up to 90 kilos per hectare on irrigated land, while others indicate regional yields of around 25 to 30 kilos per hectare (Asad and Harris, 2003, p. 11; Johnson & Leslie, 2004, p. 115). Regardless of the drastic variation in

estimates, it is clear that opium is a more profitable crop than wheat, the main traditional crop with which it is often compared. It is simply the magnitude of difference in profitability that varies, ranging from opium being 30 times as profitable as wheat, to being 50 to 100 times as profitable (Johnson & Leslie, 2004, p. 115; Noelle-Karimi et al, 2002, p. 145).

Another key characteristic of opium production in Afghanistan is that it fulfills the economic expectations concerning specialization in those goods which utilize the factors of production that are available in abundance while conserving those factors of production that are scarce. Opium cultivation is very labor intensive, especially relative to wheat, with the cultivation of one hectare of opium requiring 350 work days of labor, while wheat requires only 41 work days. In addition to this difference based on labor inputs, the cultivation of opium requires less than half the water necessary for the cultivation of wheat. Given the extreme unemployment in Afghanistan, estimated to be around 70 percent in Kabul in early 2000, and the scarcity of water in an arid environment with severe infrastructure damage, the cultivation of opium makes economic sense for its conservation of the scarce water resource and utilization of the abundant labor resource (Steinberg, Hobbs, & Mathewson, 2004, pp. 68-69).

In addition to these immediate economic conditions, there are a number of more structural conditions, largely the result of the decades of conflict, which shape the cultivation decision. As is common in warfare, the infrastructure of Afghanistan was widely targeted and largely destroyed. This destruction of the Afghan infrastructure system makes transportation of goods significantly more difficult, increasing the transportation cost of taking produce to market. It is this situation that helps to make

opium a much more attractive crop for trade purposes, since a given weight or volume of opium is considerably more valuable than the equivalent weight or volume of wheat, making the transportation costs of opium much smaller when measured as a portion of value. In addition to the general destruction of the infrastructure system during the conflict, the nature of the fighting, being Afghan against Afghan for many years, allowed for very specific targeting of those resources of greatest value.

An interesting characteristic of Afghan culture surrounds the cultivation of orchards, specifically walnut, pistachio, and mulberry, which acted as a natural famine relief. The deep rooted nature of these trees allows them to withstand the periodic droughts that strike Afghanistan, providing sustenance to the population in the event of crop failure, as well as providing a marketable surplus in times of plenty. These orchards, however, have been targeted and destroyed during the fighting, removing the traditional safety net put in place by the Afghans to fend off drought induced famine. There is considerable indication that many Afghan communities have replaced these orchards, which take many years to root and mature in the arid climate, with fields of poppies, which provide the same drought resistance and marketable surplus (Steinberg et al., 2004, p. 67). Another tactic utilized during the fighting that is indicative of the “scorched earth” nature of the conflict, and has attributed to the economic condition of Afghanistan, was the sabotage of irrigation systems. During the fighting opposing forces would mine the underground irrigation aqueducts, known as karez, as well as the surface canals that carried the irrigation water to the fields. This mining prevented the communities downstream from clearing the irrigation system of the annual sediment buildup, reducing the flow of water. This sabotage of the irrigation systems increased the scarcity of water in

an already arid region, causing residents to increase their reliance on drought resistant crops, namely poppies (Steinberg et al, 2004, p. 143).

When all these factors are together taken into consideration we can see that the alternatives to opium cultivation are limited, making the opportunity cost of producing opium minimal. Additionally there is little if any social stigma attached to the cultivation of poppies. In the event of a significant social stigma, one could view this as an additional cost of production, in which the decision to cultivate reduces social standing or causes one to be ostracized by society, theoretically reducing quality of life. This stigma would inflict a type of “psychic cost”, or quantity of income that would be willingly sacrificed in order to avoid this stigma. In this case however there appears to be little or no costs associated with social views of opium production. While there are some villages, landowners, and local commanders (warlords), which have forbidden the cultivation of poppies, the view of the vast majority of Afghans is that the crop is exported, and if any harm comes from the opium it is inflicted upon the West and is a result of their own hedonism and moral decadence (Johnson & Leslie, 2004, pp. 118,120).

The lack of a strong central government has led to a lack of significant costs associated with breaking the law. Normally when undertaking an illegal activity there is some fear of being caught and punished by the authorities. Associated with this fear is a perceived probability of being caught and punished, and a perceived cost of that punishment. The situation in Afghanistan has developed so that there is little if any fear of facing the legal consequences of involvement in the opium trade. The central government is extremely weak, the local governors and commanders (warlords) are largely either personally involved in the trade or receive bribes or “taxes” from the trade,

and the military forces on the ground are largely ignoring the cultivation of opium as they are faced with the ongoing insurgency. This combination of factors indicates that there is little to no cost associated with legal repercussions of poppy cultivation (Johnson & Leslie, 2004, pp. 117,129).

Looking at these facts, we see that opium is a good with strong economic incentives for production, high returns, low opportunity costs, and low institutional costs imposed by society or government. In addition to these economic conditions, there are some indications that the decision on the part of farmers to grow opium is not solely economic. While there was little information provided, and it is difficult to discern the level to which this affects the opium harvest, reference was made to the fact that opium cultivation was partially the result of the coercive influence of local commanders (warlords) (Steinberg et al, 2004, p. 79). These motivations for production have resulted in Afghanistan currently producing an estimated 4,000 metric tons of opium, accounting for nearly 90% of world illicit opium cultivation. Even more revealing is the fact that the opium and associated heroin industry accounts for an estimated 40-60% of Afghanistan's Gross Domestic Product (Committee on International Relations, 2005, pp. 1,2,4).

Impacts of Illicit Drug Cultivation

The use of opium to fund various Afghan fighting groups during the Afghan-Soviet war, and the continuation of this funding throughout the 1990s and through today has been the greatest impact of opium on Afghanistan. The funds provided by opium during the civil war of the 1990s helped to perpetuate the conflict and to increase the intensity of fighting and the number of groups involved. Opium provided increased

incentives for various commanders to gain control over fertile land and important trade/smuggling routes, as well as providing the money necessary to feed, pay, and most importantly arm their private armies. The result of this continuation of conflict was the continued destruction of the Afghan licit economy and the increase in dependency on the opium poppy (Noelle-Karimi et al, 2004, p. 111).

Even now, following the end of the civil war and the establishment of the Afghan government, opium has extreme influence over the power structures within Afghanistan. One significant way in which this political influence of opium is demonstrated is through its ability to corrupt officials of the Afghan government. Reports of opium traders bribing Afghan governors up to \$10,000 a month are indicative of the level of corruption that exists, as well as demonstrating the disproportionate wealth created by opium in a nation with a per capita GDP of \$800 in 2004 (Johnson & Leslie, 2004, p. 117; CIA, 2006). In addition to government officials, local commanders or warlords continue to earn substantial sums of money from the opium trade. The local commanders not only receive payments from traders similar to those paid to the government officials, but they also profit from direct involvement in the trade, growing poppies on their landholdings. The local commanders utilize significant portions of these proceeds to maintain their private militias and influence in their areas (Johnson & Leslie, 2004, pp. 117,123).

The corruption of local officials and enrichment and empowerment of local commanders de-legitimizes the state and places extreme restrictions on the policy options available. When local officials are so easily corrupted and the official policy of the state, in this case the illegality of opium, are flagrantly ignored it causes serious issues with credibility and confidence in state power. Even more importantly is the issue of

commander empowerment. Over twenty years of war, local commanders established bases of power and private militias, and the most recent changing of the guard in Kabul has had little if any impact on their power over the rural areas of Afghanistan. The weakness of the central government requires the state to co-opt these commanders and, if not gain their allegiance, at least eliminate open hostilities (Johnson & Leslie, 2004, p. 51). The heavy involvement of most of these commanders in the opium trade not only provides the funds necessary to maintain their positions of power, but ensures that the Afghan government cannot undertake any serious attempts at crushing opium cultivation. Any such attempt would risk open conflict across much of rural Afghanistan, a situation the government in Kabul simply cannot risk.

The impacts of opium on the economy of Afghanistan are somewhat unclear and are certainly complicated by the conflict that has engulfed the nation. The information from the Committee on International Relations concerning the trade in opium and its derivatives accounting for an estimated 40-60% of Afghan GDP demonstrates the height of Afghan dependence on the illicit drug trade. This infusion of wealth has dramatically changed the economic condition of many families and villages, bringing higher standards of living than are otherwise possible (Johnson & Leslie, 2004, p. 118). There is uncertainty whether this infusion of wealth boosts the legitimate economy or undermines it. It is difficult to determine how much of the dependence on opium is due to the superior profitability of the crop, and how much is due to the destruction of the legal economy. As was discussed in the incentives portion of the Afghan analysis, there are significant structural issues concerning destroyed transportation networks, sabotaged irrigation systems, and razed orchards which certainly play a part in the dominance of

poppies. It is likely that only after these conditions have been improved will we see the extent to which the opium poppy has, as a result of its individual characteristics and profitability, supplanted the licit economy and forced the whole of the Afghan economy to become increasingly dependent on its trade.

While opium has brought increased income to much of Afghanistan, it has also brought conflict and serious problems of governance. The Afghan state is not only weakened as a result of corruption and a lack of state credibility, but the continued power of local commanders poses a direct threat to state power. The boost to income caused by opium is ultimately overshadowed by its undermining of the state and the potential threat it poses to the legal economy.

Andean South America

The three Andean nations of Colombia, Peru, and Bolivia have been plagued by political instability and internal conflict. Against this backdrop of guerrilla movements, overthrown governments, and a general lack of state control, these nations have developed into the centerpiece of illicit coca production.

History and Development

The coca bush is indigenous to the Andean region of South America and has been used by the native cultures of Peru and Bolivia since pre-Colombian times. The coca leaves have been utilized for religious purposes, as well as for their ability to suppress hunger and relieve altitude sickness (Allen, 2005, p. 35). This traditional use of coca continues through today, and is very common in Peru and Bolivia.

Unlike in the case of Afghanistan, the transition of Andean coca cultivation from being primarily focused on domestic traditional use to being focused on the international cocaine trade is not clear and there appears to be no identified set of specific events that marked the shift. The growth of the illicit coca trade in the Andes was much more organic because the illicit market for cocaine was being created and developed at the same time as the supply of cocaine and illicit coca was being developed.

The greatest influencing factor in the development of the illicit coca trade was the development and explosion of the drug subculture in the United States. This initially led to connections in the early 1970s between American smugglers and Colombian farmers in the trade of marijuana. Colombian smuggling organizations quickly gained control over this trade, and beginning in the mid to late 1970s began to experiment with small shipments of cocaine. These shipments proved extremely profitable and as the smugglers acquired wealth their operations continued to expand. It is important to note that Colombia is not a historically significant producer of coca, as it has a very small indigenous population and there is little to no traditional use, as a result these early Colombian experiments with cocaine utilized Bolivian and Peruvian coca (Thoumi, 2003, pp. 84-85).

Paralleling this development in Colombia was the development of the coca/cocaine industry in Bolivia. Attempts to use the colonization of undeveloped lands and frontiers as a release valve for population pressures and economic constraints is quite common in Latin America. Since the 1940s the government of Bolivia has promoted the colonization of the Chapare to relieve highland population pressures. As a result of this colonization, the Chapare, also known as the Tropics of Cochabamba, has become the

site of nearly all of Bolivia's illicit coca cultivation (Thoumi, 2003, p. 111). In the early to mid 1970s the cocaine industry began to develop in Bolivia, with wealthy families of the agricultural elite organizing drug processing and trafficking syndicates, utilizing the coca cultivated in the Chapare. Some of these groups expanded and developed rapidly, with reports indicating that by 1978 the Bolivian organizations were delivering processed cocaine to both the East and West coasts of the United States (Allen, 2005, pp. 45-46). One important piece of information to note is that the Banzer dictatorship that controlled Bolivia from 1971 to 1978 had many ties to these Bolivian drug trafficking organizations. While there is no hard evidence that the Banzer regime was directly involved in the trade many individuals close to Banzer were key figures in the organizations and it appears clear that the government, at the very least, chose to look the other way (Thoumi, 2003, p. 119).

Peru's involvement was solely in the coca side of the trade. Similar to the case of Bolivia, the Peruvian government encouraged colonization of the Huallaga Valley. During the 1970s the military government of Peru took control of private property in the area and replaced it with state-managed cooperative farms, which ultimately failed and left the large population of recent colonists more or less abandoned. The lack of significant state presence in the area following the collapse of the state farms, and the newly booming demand for coca as a result of the growing cocaine industry in Colombia turned the Huallaga Valley, and especially the more remote Upper Huallaga Valley, into one of the world's dominant coca producing regions (Kay, 1999, pp. 100-101).

Following these developments in the mid to late 1970s, the cocaine and illicit coca trades came of age in the 1980s. Colombia specialized in the processing and

trafficking of cocaine, while Peru and Bolivia became the source for the necessary coca. Coca cultivation was concentrated in the Huallaga Valley of Peru and the Chapare of Bolivia, however Colombia began to increase its share of coca cultivation going from nearly zero coca to producing 11% of the world coca crop by 1987 (Thoumi, 2002, p. 105). Throughout the 1990s the trend towards greater coca cultivation in Colombia continued while eradication and interdiction efforts in Peru and Bolivia increased, and by the end of the decade Colombia had become the number 1 producer of coca in the world. The late 1980s and the 1990s have also witnessed the increased involvement of Colombian and Peruvian guerrillas in the coca and cocaine trade (Kay, 1999, p. 103; Davids, 2002, pp. 24-25). This series of events brings us to the current situation, and allows us to begin the examination of the modern drug trade.

Economics of Illicit Drug Cultivation

The coca bush is a perennial shrub that is indigenous to the Andean region and grows especially well between 500 and 1500 meters of elevation, and also requires substantial rainfall (Steinberg et al, 2004, p. 252). After planting, the shrubs must grow for at least 18 months before the first crop can be harvested, and full production is not reached until the plant is 2 to 4 years old. Once established, the coca fields can be harvested up to six times a year, providing a year round crop that has a reliable market. Following the harvest, the leaves must be dried in the sun within 2 to 3 days in order to prevent mildewing. After having been dried they can be sold for processing (Allen, 2005, pp. 36-37).

The profitability of coca cultivation varies considerably, however coca is generally 4 to 19 times as profitable as other crops. This variance in profitability is again

the result of varying yields and varying prices (Lupu 2004, 410). Estimated yields vary from 1.8 to 7.6 metric tons of leaf harvested annually for every hectare cultivated. The variation in yield is a result of varying climate, intensity of cultivation, and age of the shrubs, as production decreases beyond a certain point (Allen, 2005, p 36-37). The variation in price is very high as well, with prices varying from \$.40 to \$4.50 per kilo of dried leaves (Kay 1999, 107).

This price volatility was especially pronounced in Peru, where it was so drastic that for a period the profitability of coca decreased to the point that coca harvests actually declined. This swing in price was largely due to the aggressive aerial interdiction efforts of the Peruvian Air Force. Coca paste and cocaine base had been historically transported to Colombia for further refinement and later trafficking by way of the “Peruvian Air Bridge”, the use of many small aircraft to smuggle goods into Colombia. Beginning in 1989, attempts were made to shutdown this smuggling route. Over the next 6 years the operation was suspended and reinstated a number of times as the result of counterinsurgency operations, legal issues, and a brief military confrontation with Ecuador. Throughout this period the price of coca leaves inside Peru fluctuated markedly, peaking when the interdiction operation was suspended and collapsing when the operation was reinstated, in response to Colombian demand and the ability to fulfill it. Once the operation was reinstated in 1995 it remained in place and it was in the ensuing years that the price of Peruvian coca dropped to \$.40 per kilo. This price volatility in the early 1990s and the low price that persisted for a number of years following 1995 caused Peruvian coca cultivation to decline during the period, from an estimated 1992 level of 129,100 hectares under active cultivation to an estimated 1997 level of 94,000 hectares

under active cultivation and falling all the way to an estimated 2000 level of 43,000 hectares (Kay 1999, 107-109; Steinberg et al, 2004, p. 89). Peruvian prices again increased around 2000-2001 to \$4 per kilo, a response to alternatives to the “Peruvian Air Bridge” by utilizing river transports through the Amazon basin to fill the Colombian market gap that resulted from the aggressive and largely successful eradication campaign underway in Bolivia at the time. This price increase caused Peruvian cultivation to increase, from the 2000 level of 43,000 hectares to an estimated 2001 level of 51,000 hectares (Steinberg et al, 2004, p. 89).

As in the case of Afghan opium, coca also fulfills economic expectations concerning the utilization of scarce and abundant resources. Most importantly, coca needs very little initial investment to begin production, requiring between \$170 and \$250 per hectare in start up costs, compared to around \$500 for bananas, \$1,500 for hearts of palm, and \$5,000 for pineapple (Thoumi, 2003, p. 318; Allen, 2005, p. 37). Latin America is, much like the rest of the developing world, known for capital scarcity, and capital is especially scarce in the remote regions in which coca is grown. This limited need for capital and coca’s multiple harvests, which provides year round employment in regions characterized by high un- and under-employment, make it economically logical (Allen, 2005, p 37).

These comparisons of profitability, discussion of price signals, and analysis of input use are only one part of the comparison between coca and alternative crops. A significant factor behind the coca trade is the nature of the farmers’ coca cultivation and the environment in which they live. The regions that produce coca for the illicit market are almost exclusively areas that have been colonized in the second half of the twentieth

century, so that the transformation of the land was from virgin rainforest to subsistence crops and coca. The soils of the South American tropical forests are notoriously fragile. The settlers utilize slash and burn style agriculture to add nutrients into the soil which is adequate to sustain their subsistence crops for several years. The coca bush, being indigenous to the region, is well suited to the soil and does not face the same limitations of other crops, and is used as a cash crop by the settlers to supplement the food they are able to grow (Allen, 2005, p 37).

An examination of a plan presented as an alternative to coca illustrates the issues that arise from the quality of the region's soil. After having cleared the land and worked the ashes into the soil, rice is planted the first season, however as a result of the nutrient needs of rice the soil can only support one year of cultivation. Following the cultivation of rice, cultivation of pineapples can begin, however the soil will only be able to support their cultivation for 3 to 4 years. At the same time as cultivation was beginning of the pineapples, the farmer would need to plant trees such as heart of palm, citrus, or pepper, so that by the time the pineapple yield is reduced these will be productive, however they too are expected to have a limited productive capacity of 5 to 6 years. This requires the peasant to plant rubber trees or poplar trees while planting the palm, citrus, or pepper, so that harvests of either latex or lumber can begin once the intermediate crops begin to fail (Thoumi, 2003, pp. 335-336). This proposal for alternative crops has ignored either banana or coffee crops, two more standard alternatives, because despite being better suited to the climate and soil, they face significant infective problems in the regions, and the supply of these goods is already well established in regions far more accessible and competitive (Thoumi, 2003, p. 336). It seems clear that when faced with the option

between simply cultivating coca as a cash crop, or engaging in this rather involved and unfamiliar sequence of crops, coca will consistently win out in the absence of other strong incentives.

The illicit nature of the coca crop, and its rise as a result of migration to and settlement of frontier areas, ensures that it is grown in regions that are rather remote and where transportation costs are elevated and markets for most goods are extremely limited. This remoteness represents a serious obstacle to the viability of alternative crops, the ability to process the goods to a condition capable of long duration transport, and the delivery of goods to the main markets. A prime example of this issue is demonstrated by an alternative development project that was attempted in the Chapare. The development agency established an agreement with the German government to purchase frozen passion fruit juice at a price of \$1,100 per metric ton, however the cost of producing and transporting the frozen juice was nearly three times this value, leading to the collapse of the program. The lack of established markets for many of the envisioned alternative crops, the high cost of delivering many of the goods to the more lucrative markets in the main cities of the region or the international market, and the failure of planners to take these issues into consideration has led to the failure of nearly all alternative development programs (Lupu, 2004, p. 411).

The localized nature of coca cultivation and the fact that much of this cultivation is the result of migration to the coca growing regions requires some analysis of the migration incentives. Surveys carried out in the early 1990s in the Chapare region of Bolivia indicated that only 25% of residents were originally from Chapare, with around 40% coming from other area of Cochabamba Department, 16% coming from the mining

regions of Potosí and Oruro, and the remaining roughly 20% coming from other portions of Bolivia. In addition to this data, studies in the area have indicated that many of the migrants from surrounding highland areas are in fact seasonal migrants, going to Chapare to grow coca and some subsistence crops, while maintaining their permanent home and very small plots of land in their traditional highland communities. This study also found evidence that the families with members engaged in this seasonal migration had incomes markedly better than those families not engaged in the seasonal migration, expressed most clearly through quality of housing differences in the highland communities (Thoumi, 2003, pp. 113-114). In addition to this migration incentive in Bolivia, surveys from various Peruvian regions are also worth noting. A study was carried out in the early 1990s and looked at a number of rural districts in Peru, some heavily involved in the coca trade, some with little to no coca. The study found that the average income was substantially different, with observations that “a predominantly coca area would (have) double the income of a non-coca area”, which creates a migration incentive related to coca growing (Thoumi, 2003, p. 245). It is important to note that this study was done prior to the Peruvian coca price collapse of the late 1990’s, and is indicative of earnings of the coca trade in the absence of aggressive and consistent interdiction or eradication operations.

These observations of profitability of coca relative to alternatives, the viability, both economic and environmental, of alternative crops, and the evaluation of migration incentives indicate that, in the absence of intense interdiction pressure, coca supplies high returns and faces minimal opportunity costs. Similar to the case in Afghanistan, the costs related to social perception of coca cultivation are minimal if any. The long standing

traditional use of coca by the local populations, the remoteness of the regions and the isolation of their populations from much of the rest of society, and the view that the responsibility for the drug trade lies with the Western nations, especially the United States, who create the demand for the products, are all factors which culminate in little social aversion to coca cultivation (Steinberg et al, 2004, pp. 154-156).

The political situation in the Andean region is extremely complicated and must be examined on a nation by nation basis. The situation in Bolivia has historically been dominated by government targeting of the trafficking and processing segments of the industry. Up until 1997 this was the case and inflicted little punishment upon coca growers, indicating that the cost resulting from legal repercussions was minimal. This incentive structure changed drastically after 1997 when President Banzer announced “Plan Dignidad”. The policy was successful in eradicating nearly all coca in the Chapare by 2002, creating significant costs, the near certain destruction of one’s entire crop, associated with the legal repercussions of coca cultivation (Thoumi, 2003, p. 125). This policy however resulted in substantial backlash from cocaleros, and helped to see Evo Morales into the office of the Bolivian President. Morales’ status as a former cocalero and his pro-coca stance have seen the end of the eradication policy, again allowing the costs associated with legal repercussion to fall to zero (Branford, 2006).

The structure of political incentives in Peru have been shaped significantly by the activities of Sendero Luminoso, a Maoist revolutionary group, and Movimiento Revolucionario Tupac Amaru (MRTA), another leftist guerrilla organization. Both groups were active in the Huallaga Valley, Peru’s dominant coca growing region, from the mid 1980s until the early 1990s (Kay, 1999, pp. 102-103). In the early 1980s Peru

embarked on a forced eradication campaign in the Huallaga Valley. Shortly after the beginning of this program the revolutionary groups became involved in the area and, as a result of government operations and the brutality of the Colombian drug organizations, were quickly able to co-opt many of the coca growers. The Peruvian government decided that the guerrillas were a larger threat than coca and focused its efforts on counter-insurgency operations. After the massacre of several unprotected eradication teams at the hands of the guerrillas, the eradication operation was halted in the region. This policy move allowed the government to co-opt the coca growers and push back the guerrilla forces. Following the regaining of government control, anti-coca policies were again re-instated, leading to the guerrillas again gaining control of the area. Finally after this episode the Peruvian government abandoned forced eradication and focused its efforts on counterinsurgency and then on interdiction along the “Peruvian Air Bridge” (Thoumi, 2003, pp. 130-134). While MRTA has been destroyed and Sendero Luminoso has been largely defeated, there are still some guerrilla elements that remain, ensuring that the Peruvian government is hesitant to partake in extensive forced eradication campaigns, so that in the case of Peru the cost associated with legal repercussions is also zero.

The Colombian situation is even more complicated by the guerrilla factor. Colombia is in the midst of an ongoing civil-conflict, the main players being FARC (Fuerzas Armadas Revolucionarias de Colombia), ELN (Ejército de Liberación Nacional), AUC (Autodefensas Unidas de Colombia), and the Colombian Government. The involvement of Colombian guerrilla groups in the drug trade dates back to the 1980s, with the November, 1985, assault on the Colombian Palace of Justice in Bogotá by the

M-19 guerrillas. This attack was at the behest of the Medellin cartel, in order to destroy extradition records and to terrorize the Colombian government into halting the extradition of cartel members, and compensation to M-19 was estimated at \$1 million (Davids, 2002, pp. 23-24). Most indications are that the guerrillas continued to play a somewhat ancillary role in the drug trade until the early 1990s, when the collapse of both the Medellin and Cali cartels left a power vacuum into which they easily stepped (Davids, 2002, p. 24). This increase in guerrilla involvement, coupled with the near complete lack of state control in much of rural Colombia allows the drug trade to flourish with near impunity. The only substantial policy utilized by the Colombian state regarding coca has been attempts at aerial eradication. This operation has largely been targeted at areas outside of state control, and while substantial amounts of coca have been fumigated the high level of new planting that is occurring in these areas is largely offsetting what is destroyed. For example, during 2002 122,695 hectares of coca were reported to have been destroyed by fumigation, however the total coca crop in Colombia declined by just over 25,000 hectares, indicating that there were almost 100,000 hectares of new coca planted in Colombia to offset much of the eradication effort. The feeling of impunity that encourages this high level of new planting stems largely from two factors, the lack of a state presence on the ground, and questions of the sustainability of this program, do to both financial limitations and the high level of violence it has encountered. There were over 380 incidents of aircraft being damaged and four planes crashing as a result of ground fire in 2003 alone (Youngers & Rosin, 2005, pp. 112-116). The extensive destruction of coca fields creates some costs associated with legal repercussions as a result of crop destruction. The lack of any semblance of state control over areas of coca

production, and the largely ineffective eradication campaign, as evident by the large scale new planting, however, indicates that the effective costs imposed by the policy are minimal.

Looking at all of these factors we see that coca has high returns, faces minimal opportunity costs, minimal costs associated with social stigma, and faces costs due to legal repercussions that are largely ineffective or inconsistent. In addition to these incentives, there is clear evidence that coercion is also used by drug traffickers to influence the production decisions of farmers. Douglas Davids, in his book “Narco-Terrorism”, relays the story of a Peruvian acquaintance of his who witnessed the decapitation of two of his brothers when they refused to grow coca, and given the extreme violence that has been characteristic of the Colombian drug trade over the last 2 to 3 decades, it is reasonable to assume that this was not an isolated incident (Davids, 2002, p. 93). The overall result of this incentive structure and coercive influence is that the Andean region of South America now produces roughly 300,000 metric tons of coca leaf which is refined into around 800 metric tons of cocaine HCL annually (Allen, 2005, p 38, 44).

Impacts of Illicit Drug Cultivation

The examination of the impacts of coca on the nations of Andean South America requires that the Colombian situation be analyzed separate from the evaluation of Peru and Bolivia as a result of the substantially different nature of the current Colombian situation.

Colombia

There is little doubt that the dominant impact of the drug trade in Colombia has been political. The increased involvement of fighting groups in the drug trade following the collapse of the Medellin and Cali cartels has boosted their funding and resulted in substantial increases in operations during the late 1990s (Thoumi, 2002, p. 111).

Estimates of revenue from involvement in the drug trade for FARC and ELN are a combined \$600-\$750 million in 1997 alone, with the AUC also benefiting substantially (Davids, 2002, p. 25). The open conflict in the Colombian countryside between government forces, leftist guerrillas, and right-wing paramilitary forces, the latter two groups now largely funded with proceeds from the drug trade, has resulted in the displacement of an estimated 1.4 million people, with 308,000 displaced in 1998 alone (Davids, 2002, p. 27). In addition to the escalation of conflict, drug funds have also led to the corruption of state officials. The most egregious example of this corruption was the contribution of over \$6 million by the Cali cartel to the election campaign of President Samper in 1994, indicating that every level of the Colombian government was for sale (Thoumi, 2003, p. 223).

This expansion of civil conflict and the exposure of high level corruption helped see Alvaro Uribe into office in 2002. As president of Colombia, Uribe has taken a very hard-line stance against the guerrillas. Uribe's administration has overseen an increase in military excursions into guerrilla controlled areas, an increase in military and police powers, and the formation of rural peasant militias (BBC, 2005). These policies have seen a decrease in the rates of kidnappings, displacements and murders (BBC, 2006). Recent years have also seen a large number of AUC fighters disarmed and disbanded,

and in 2005 the ELN began peace talks with the government (BBC, 2006). Despite these successes the conflict in Colombia continues, since FARC, the largest and historically most active guerrilla organization is still at war with the Colombian government.

The economic impacts of the drug trade are largely a result of the political situation it has created. The role of the drug trade in the Colombian economy has decreased since the 1980s, falling from around 7-10% of GNP to 3-4%, alleviating concerns that the cocaine trade is increasing in economic dominance and undermining the licit economy as a result (Thoumi, 2002, p. 109). It is instead the increase in conflict resulting from better funding that has caused serious repercussions for the Colombian economy. The increased conflict has destroyed and damaged productive assets, decreased general security and trust, and most importantly has increased the general condition of instability in the country. This has resulted in increased costs of doing business, decreased investment, both foreign and domestic, and increased capital flight (Thoumi, 2003, p. 191). The estimates of the impact of the conflict on the overall economy of Colombia vary, but all are in excess of \$1 billion lost annually. Some estimate that the increased conflict may be reducing the growth rate of Colombia by 2 percentage points, amounting to an annual cost of roughly \$6 billion (Davids, 2002, p. 97; Thoumi, 2002, p. 111).

Peru and Bolivia

As in Colombia, the main impact of the drug trade in Peru and Bolivia has been political, however to a markedly different degree. While, as previously noted in the study, Peru has a history with drug funded civil conflict, neither Peru nor Bolivia faces

the violence that is present in Colombia. The main political impacts of the drug trade in these nations are state corruption and limitations of state power. The lucrative nature of the drug trade, especially the trafficking portion of the trade, allows for the easy corruption of government officials, and in both countries has led to involvement of government, and especially the military, in the actual trafficking of narcotics (Thoumi, 2003, pp. 257, 261).

Even more important than the ability of the industry to corrupt the government is the division that drug cultivation has created between the state and significant portions of the population. The state position towards the cultivation of coca in both of these nations inherently puts the state at odds with the thousands of citizens involved in, and dependent upon, coca cultivation. This division, and its expression through opposition political parties or the residual threat of insurgency, severely limits the ability of the government to act effectively and consistently on its stated policy of coca illegality. In Bolivia this is seen in the formation of sindicatos, or coca growers unions, which are prevalent throughout the Chapare. The sindicatos have moved to the national stage and were important in the formation and election victory of MAS, Movimiento a Socialismo, the political party of Evo Morales, which came to power partly as a result of cocalero resistance to the eradication campaign of Plan Dignidad, which it has halted (Thoumi, 2003, p. 259; Branford, 2006). The expression of this division in Peru takes on the characteristics of an undercurrent, while there are no organizations as clearly identified and organized as the sindicatos and MAS of Bolivia, the memories of the 1980s are fresh in everyone's minds. The increase in power of Sendero Luminoso and the alliance of coca growers with the movement during the 1980s, which was largely the result of

eradication campaigns, combined with the current persistence of a small group of fighters, imposes significant limits on the modern policies of the Peruvian government (Kay, 1999, p. 121).

The economic impacts of the coca trade in Bolivia and Peru are rather limited, largely because the nations are mostly involved in cultivation and very basic processing, and not involved in the more lucrative trafficking. The entirety of the drug trade is estimated to account for roughly 4% of the GNP of Bolivia and less than 2% of the GNP of Peru, both of which are figures that have decreased significantly since the cocaine boom of the 1980s (Thoumi, 2003, pp. 154, 157). Important to note is the relative isolation of this economic activity. While coca cultivation creates considerable employment in the more remote regions of Peru and Bolivia, and provides incomes above what would otherwise be possible, the extreme remoteness of the Chapare and Huallaga Valley, combined with the rather basic and non-input intensive nature of coca cultivation, has resulted in very minimal linkages to the rest of the economy (Thoumi, 2003, p. 239). This relative isolation of the coca industry results in a minimal economic impact on the legal economy outside of the main coca growing regions.

The impacts of coca, like those of opium, seem to most decisively affect the politics of a nation, and impact the economic conditions of the nation mainly as a result of the political situation. While the coca trade brings income and employment to the rural areas, it also brings considerable corruption, division between government and populace, and above all violence.

Policy Impacts

There are a number of policy responses to the issue of illicit drug cultivation which will be examined. However before examining policies that are directed towards controlling the drug trade we will look at a sample of western policies that are carried out for domestic or humanitarian reasons, but have unintended effects on the incentive structure of illicit drug cultivation.

Indirect Policies

The first policy examined is food aid carried out in Afghanistan by the World Food Program (WFP). The WFP has been involved in distributing wheat throughout Afghanistan, and while there are many individuals in Afghanistan who need food aid, and the policy has clear humanitarian intentions, the manner in which it is being carried out is creating perverse incentives. The WFP has brought in massive amounts of wheat from outside of Afghanistan, with indications that it has, in fact, brought more wheat than is truly needed. In addition to the infusion of surplus wheat, the WFP has made no attempt to purchase any wheat within Afghanistan from farmers with surplus. The combination of these factors has led to a collapse in wheat prices in significant parts of Afghanistan in response to the flood of supply (Johnson & Leslie, 2004, p. 126). The status of wheat as one of the traditional crops grown in Afghanistan, and its position as one of the main alternative crops to poppies makes this policy disastrous. The actions of the WFP and similar organizations not only exacerbate the difference in profitability between opium and wheat, further decreasing the opportunity cost of producing opium, they also punish

many of those Afghan communities that have refused to grow poppies. Ultimately this policy simply pushes the incentive structure further in favor of poppy cultivation.

A set of policies which has a significant unintended impact on the incentive structure of Andean coca cultivation is American agricultural policy. Modern American agricultural policy is a combination of subsidies and guarantees to farmers which cause over-production and price depression, as well as protectionist policies that stifle imports. The Inter-American Development Bank found that American agricultural policy in the late 1990s depressed the price of corn by 1.4%, the price of soybeans by 3.7%, and the price of cotton by an amazing 9% (Jank, 2004, p. 114). These crops are of special interest since corn is a main agricultural product of all three countries of interest, cotton is important in Peru and Bolivia, and soybeans are an important crop in Bolivia. The importance of these crops means that boosts in their world price are likely to boost the overall economy of these nations (CIA, 2006). It is also important to note that these estimates are based on the policies that were in place in the late 1990s, and that the new set of policies enacted in the 2002 Farm Bill were anticipated to have an even greater effect on price (Jank, 2004, p. 114).

In addition to the effects of the subsidy and guarantee programs, the study indicated that the current protectionist policies also substantially affect these nations. Liberalization of import restriction was estimated to increase total agricultural exports from Andean Community countries by 5% and increase exports of processed foods and other processed agricultural goods by 6.25%. The goods expected to see the greatest increase in exports were sugar, poultry, and dairy, as well as the products of the beverage and tobacco industries (Jank, 2004, p. 98). While none of the crops or industries

mentioned is a direct alternative to coca, therefore not affecting the opportunity cost associated with the cultivation decision, the current U.S. policy of import restriction and domestic support does affect the incentives concerning migration. The depressing effects of these policies on Andean economies reduces the opportunity costs associated with migrating to coca growing regions, and like the situation in Afghanistan the policy not only boosts the incentive to be involved in the illicit industry, it also hurts many of those who chose not to be involved in drug cultivation.

Direct Policies

The three main policies implemented by the governments of producer nations with the intent of reducing the cultivation of illicit drugs are alternative development, interdiction, and eradication. The evaluation of each policy will include the manner in which the policy aims to manipulate the incentive structure of cultivation and a discussion of the effectiveness of the policy. It is important to note that, given the situation in Afghanistan and its history over the last twenty years, the examples in this section are weighted more heavily towards Andean South America.

Alternative Development

The central idea behind alternative development is to make alternative crops, or alternative sources of income, more lucrative so that farmers can be weaned away from the illegal crop. This policy hopes to narrow the gap in profitability between the illicit and licit activities, thereby increasing the opportunity cost of illicit drug cultivation, hopefully resulting in a decrease in drug production. The overall history of this policy

approach points to it being a failure as a stand-alone policy, without any example found that these policies have led to a reduction in drug cultivation without being accompanied by eradication measures. As was determined in previous sections of this study the gap in profitability is not the only factor leading to the production of illicit crops, with structural issues such as infrastructure, and especially in the case of coca, soil quality contributing to the cultivation decision. The list of alternative development projects that have failed is extensive, however Lupu examines two of the more recent attempts in Bolivia, looking at the Agroyungas program and the Chapare Regional Development program (2004). These projects are simply some of the most recent additions to the failure of alternative development, and the failure of these projects was largely the result of previously discussed issues concerning adverse growing conditions for alternative crops and an inability to get the alternative goods to markets.

Despite these failings as a stand-alone policy there are some indications that the policy may have merit due to its ability to build relationships between the state and local communities and its ability to placate individuals affected by other government policies. The most significant example of this use of the policy was in the Cauca and northern Nariño departments of Colombia where there was a reduction of nearly 75% of the coca crop in communities involved. The program included extensive cooperation with community leaders in development of alternative crops and the construction of necessary processing facilities, such as slaughterhouses and sugar and coffee mills, in addition to an eradication campaign (Thoumi, 2003, p. 346). The most important lesson from this project is that when utilized in concert with other policies that greatly affect the incentive structure of the cultivation decision, alternative development policies are able to

compensate for the potentially negative repercussions of more coercive policies, making them sustainable.

Interdiction

As a policy approach to illicit crop cultivation the aim of interdiction is to disrupt the flow of coca or opium from the producing nations or regions to the refining operations. By intercepting these shipment the policy intends to deprive cultivators of the main demand for their crop. This reduction in demand will cause the price to drop, leading to reduced production. The best example of this policy is the targeting of the “Peruvian Air Bridge”, discussed in a previous section of this paper, which led to the collapse of the Peruvian coca price and the reduction of Peruvian coca cultivation by an estimated 86,000 hectares. While this policy was remarkably successful at the national level throughout the late 1990s, an examination of the coca trade from the regional level and examinations of market shocks highlight the weaknesses of this policy.

The main impact of this policy on the regional level was not a reduction in coca cultivation, but a displacement of coca cultivation from Peru to Colombia. The reduced supply of coca in Colombia increased domestic coca price and contributed to a boom in Colombian coca cultivation throughout the 1990s. The Colombian coca crop went from an estimated 40,000 hectares in 1991 to 80,000 hectares in 1996, and continued to climb to in excess of 130,000 hectares by 2001, offsetting the reductions in Peruvian cultivation (Thoumi, 2003, pp. 86-87,152). In addition to the displacement effects of this policy, it is also susceptible to externally imposed market shocks and smuggler flexibility. These weaknesses were demonstrated by the increase in Peruvian coca price and harvest in

2000-2001 resulting from the Bolivian eradication operations, the market shock, and the increased use of river transport in the Amazon basin, smuggler flexibility (Steinberg et al, 2004, p. 89).

Eradication

The most controversial and coercive policy is the forced eradication of illicit crops. This policy most often consists of either manual eradication, on the ground destruction of the crops, or aerial eradication, using chemical herbicides to attack the crops from plane. This policy utilizes government force to impose a cost on cultivators, by destroying the crop the government creates a cost equal to the value of the future earnings and past investment embodied by the coca fields. This policy clearly affects the incentive structure of the cultivation decision by increasing costs and potentially destroying all gains, a key factor is how extensively the policy is implemented, modifying the odds of a specific producer's field being affected and the perceived costs of the legal repercussions.

The main example of this policy is "Plan Dignidad", implemented in Bolivia in 1998. Through a reassertion of state control in the Chapare by constructing military bases and police posts, the government imposed a policy of forced eradication which was surprisingly effective and resulted in the eradication of nearly all Bolivian illicit coca (Steinberg et al, 2004, p. 159). The backlash to this policy was dramatic, which should not be surprising. The policy significantly damaged the economic position of an estimated 50,000 families in the Chapare, and despite promises of alternative development and other aid programs, only 25% of those affected received assistance

(Farthing and Kohl, 2005, p. 187). As previously mentioned the backlash from the policy helped bring Evo Morales into government and led to the cessation of the eradication policy.

The Bolivian experience demonstrates the importance of state control for eradication operations, especially when compared with the Colombian, Peruvian, and Afghan experiences. The Bolivian government has control over the Chapare region, and as a result the eradication effort could be consistent and effective, the lack of government control over drug growing regions in the other three nations has resulted in eradication efforts being ineffective and dangerous. The failure and danger of the current Colombian attempts at aerial eradication and the Peruvian manual eradication in the 1980s have already been noted. The Afghan example comes from Nangarhar Province in 2002. While attempting to eradicate opium fields nine government officials were murdered and farmers then blockaded the region's main highway in protest of the policy. A visit by the Afghan Defense Minister to the area in response to the protests was met by a bombing that resulted in a further 27 dead and 60 wounded (Steinberg et al, 2004, p. 84).

As in the case of interdiction, the policy of eradication can be effective at the national level, but leads to a displacement of coca cultivation, not a reduction, at the regional level. The resurgence of Peruvian coca cultivation in 2000-2001 in response to market signals following the Bolivian eradication operation is evidence of this.

Policy Implications and Suggestions

The examination of the history of illicit drug cultivation and the history of policies intended to halt this cultivation has one central theme. A lack of state control is

the core upon which this industry is built. The lack of control in Afghanistan, recently settled portions of the Andes, and guerrilla controlled portions of Colombia has been necessary for the development of the trade in illicit crops and the limitation of policies to suppress this trade. The importance of state control in this trade is especially clear in the Andes where cultivation has followed the path of least resistance and is now firmly rooted in rural Colombia, well beyond the reach of government policy. As Peru and Bolivia increased control over their territories and borders, through crushing guerrilla movements, increasing military and police presence in frontier regions, and aggressive pursuit of smugglers, the trade found safe haven in war-torn Colombia.

This flexibility in supply of illicit crops, whether it is the shift in coca cultivation between Peru, Bolivia, and Colombia, or the shift in opium production from Turkey and Iran to Afghanistan, is coupled with an inelastic demand for the final products of the coca and opium trade. The demand for opium and heroin in the United States and Western Europe is price inelastic, meaning the quantity demanded by the consumers of these goods is relatively unresponsive to price changes. In layman's terms this means that users of these drugs generally will have a fairly fixed consumption and their use will not be deterred by higher prices, they will be willing to pay more to get their fix (Allen, 2005, p. 108). The combination of this geographic flexibility of supply, the price responsiveness demonstrated earlier by Peruvian producers, and the willingness of consumers to pay significantly higher prices when faced with supply shortages poses serious issues for the goal of reduced consumption through supply-side policies of drug control.

In light of these issues the following policy approaches seem most appropriate.

Afghanistan

The central government is far too weak to risk a direct confrontation with the opium trade, and what little forces it does have are already involved in combating the remaining Taliban fighters. Additionally, the Afghan economy is far too dependent on opium production, removal of the trade, even if possible, would have a nearly unimaginable impact on the livelihood of the Afghan population. The first priority of the Afghan government is to rebuild the economy so that some semblance of a viable alternative exists. The government must improve the transportation network, bring the irrigation system back into operation, and institute a nursery program to help replace the orchards and other traditional crops that were destroyed. While there is the very real concern that improvements to the transportation and irrigation systems may result in increased opium production in the near term, these policies at least create the opportunity for the resurgence of the legitimate economy.

Further consolidation of state power and increases in the strength of the Afghan military and police forces are also necessary before directly confronting opium cultivation. In lieu of eradication campaigns and other policies targeting opium production, a more feasible policy for the central government to pursue aggressive interdiction and counter-heroin operations, since these will create far less division between the government and general population.

Only after the legitimate economy has grown and the balance of power has shifted in favor of the government, can Afghanistan hope to confront opium cultivation with any success. The resources of the Afghan government will be best spent rebuilding the

national economy and building strong military and police forces loyal to the central Afghan government.

Peru and Bolivia

Neither Bolivia nor Peru face serious threats to state control, and as a result are able to engage in the whole spectrum of control policies. Both nations should increase interdiction pressure. Interdiction efforts should target the traditional air bridges utilized by smugglers, as well as the over-land and riverine networks that have been developed in response to aggressive aerial interdiction. Additionally both countries should engage in combination eradication and alternative development operations. The goal of this policy is to repeat the successes experienced in the Colombian program mentioned before.

This policy would require the maintenance of substantial police forces in the coca growing regions as well as significant interaction with community leaders, which in the Chapare is likely to include leaders of the sindicatos. Through this interaction the organizers could explain the timetable set by the state for coca eradication and could begin discussions of the alternative development options available to the communities. It is likely that these development policies would include some form of relocation and land distribution program since the alternative livelihoods in the coca growing regions are severely limited by the fragile soils. This combination of policy approaches could replicate the successes of “Plan Dignidad” without the negative impacts on livelihoods and political backlash.

Colombia

The most pressing matter for Colombia is to regain state control over its territory. While this seems like a rather ridiculous statement to make about a country that has seen decades of continuous civil conflict, it is essential if there is ever to be any true impact on the region's drug trade. The first policy action should be a suspension of the aerial eradication campaign. This operation has proved largely ineffective at controlling the coca issue, and even worse it causes further division between farmers in the guerrilla controlled areas and the state. Colombia needs to follow the Peruvian example and court the coca farmers as potential allies against the FARC and the ELN. It certainly makes sense and is advisable that the government aggressively attack operations further along the cocaine supply chain in hopes of cutting into guerrilla funding, but to continue to attack coca fields in areas outside of government control will only force Colombian coca growers further into the guerrilla fold. Only after Colombia has regained territorial control and has suppressed any remaining insurgent groups can it hope to implement meaningful and effective counter-coca policies.

The best use of Colombian resources will be in counter-insurgency operations. Colombia must reassert state control, to allow eradication policies with, at best, questionable effectiveness to continue to draw resources away from this central goal makes little sense. Along these lines, it would also be advisable to allow Colombia to utilize the funds from Plan Colombia for counter-insurgency operations. This move would likely face some opposition in the United States, but would help establish state control, allowing the implementation of more effective coca policies at a later date.

Conclusion

Few if any are foolhardy enough to believe that the drug issue can ever truly be resolved. A world with out illegal drugs will be a world without crime, one that is simply beyond belief. The economic incentives for the cultivation of opium and coca are strong. The profits are substantial, and alternatives are either not economically competitive or not ecologically viable. The lack of state control in production areas allows growers to operate with near impunity and is the heart of the current problem. The hope is that through the implementation of policies like those mentioned above, state control and accountability can be exerted region-wide, reducing or eliminating the havens that have enabled drug production. This situation would not only hold the possibility of reducing the trade and production of illegal drugs, but would also increase stability in the regions concerned.

This study has provided the opportunity to explore and understand the incentives and conditions that have led to the modern drug trade, as well as the complexities involved in combating and restraining it. Hopefully through more studies on this topic and more extensive exploration of policy impacts, the producer nations, as well as the consumer nations, involved in the drug trade will implement more effective and sustainable policies for its control.

Reference List

- Allen, C. A. (2005). An industrial geography of cocaine. New York: Routledge
- Asad, A. Z., & Harris, R. (2003). The politics and economics of drug production on the Pakistan-Afghanistan border. Burlington, VT: Ashgate
- BBC News Online (March 2, 2006). Colombia rebels in election truce. BBC News. Retrieved May 7, 2006, from the World Wide Web: <http://news.bbc.co.uk/1/hi/world/americas/4767956.stm>
- BBC News Online (November 25, 2005). Profile: Alvaro Uribe Velez. BBC News. Retrieved May 7, 2006, from the World Wide Web: <http://news.bbc.co.uk/1/hi/world/americas/3214685.stm>
- BBC News Online (March 12, 2006). Profiles: Colombia's armed groups. BBC News. Retrieved May 7, 2006, from the World Wide Web: <http://news.bbc.co.uk/1/hi/world/americas/4528631.stm>
- BBC News Online (May 24, 2005). Q&A: Colombia's civil conflict. BBC News. Retrieved May 7, 2006, from the World Wide Web: <http://news.bbc.co.uk/1/hi/world/americas/1738963.stm>
- Branford, B. (2006, April). Coca quandary for hard-up Bolivia. BBC News. Retrieved April 22, 2006, from the World Wide Web: <http://news.bbc.co.uk/1/hi/world/americas/4902192.stm>
- Central Intelligence Agency (2006). Afghanistan. CIA World Factbook. Retrieved April 22, 2006, from the World Wide Web: <http://www.cia.gov/cia/publications/factbook/geos/af.html>
- Central Intelligence Agency (2006). Bolivia. CIA World Factbook. Retrieved April 22, 2006, from the World Wide Web: <http://www.cia.gov/cia/publications/factbook/geos/bl.html>
- Central Intelligence Agency (2006). Colombia. CIA World Factbook. Retrieved April 22, 2006, from the World Wide Web: <http://www.cia.gov/cia/publications/factbook/geos/co.html>
- Central Intelligence Agency (2006). Peru. CIA World Factbook. Retrieved April 22, 2006, from the World Wide Web: <http://www.cia.gov/cia/publications/factbook/geos/pe.html>
- Committee on International Relations House of Representatives. (2005, March 17). U.S. counter-narcotics policy in Afghanistan: Time for leadership (Serial No. 109-17). Washington, D.C.

- Dauids, D. J. (2002). Narco-terrorism: A unified strategy to fight a growing terrorist menace. Ardsley, NY: Transnational
- Farthing, L., & Kohl, B. (2005). Conflicting agendas: The politics of development aid in drug-producing areas. Development Policy Review, 23 (2), 183-198.
- Jank, M. S. ed. (2004). Agricultural trade liberalization: Policies and implications for Latin America. Washington, D.C.: Inter-American Development Bank.
- Johnson, C., & Leslie, J. (2004). Afghanistan: The mirage of peace. London: Zed Books
- Kay, B. H. (1999). Violent opportunities: The rise and fall of “King Coca” and Shining Path. Journal of Interamerican Studies and World Affairs, 41 (3), 97-127.
- Lupu, N. (2004). Towards a new articulation of alternative development: Lessons from coca supply reduction in Bolivia. Development Policy Review, 22 (4), 405-421.
- Noelle-Karimi, C., Schetter, C., & Schlagintweit, R. eds. (2002). Afghanistan: A country without a state? London: IKO
- Steinberg, M. K., Hobbs, J. J., & Mathewson, K. eds. (2004). Dangerous harvest: Drug plants and the transformation of indigenous landscapes. Oxford: Oxford U
- Thoumi, F. E. (2002, July). Illegal drugs in Colombia: From illegal economic boom to social crisis. Annals of the American Academy of Political and Social Science, 582, 102-116.
- Thoumi, F. E. (2003). Illegal drugs, economy, and society in the Andes. Washington, D.C.: Woodrow Wilson Center Press
- Youngers, C. A., & Rosin, E. eds. (2005). Drugs and democracy in Latin America: The impact of U.S. policy. London: Lynne Rienner