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# Lessons from the Andean Counter-Drug Initiative

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## INTRODUCTION

The principal objective of the U.S. Government's $2.2 billion Andean Counter-drug Initiative (1989-1994) is to reduce the supply of cocaine coming to the United States from the Andean countries. A total of $1.1 billion is to be provided for Law Enforcement (support for Andean government interdiction and eradication efforts). An additional $1.1 billion (later reduced to $950 million) is to be allocated for Alternative Development (broad-based economic growth in the Andean countries) which generates job opportunities and foreign exchange earnings and helps people make the transition out of coca production. These are considered by the U.S. Government to be mutually supportive approaches to reducing the supply of cocaine.

In September 1992, a conference was held in La Paz, Bolivia. Personnel from U.S. Embassies and USAID Missions in four Andean countries (Bolivia, Colombia, Ecuador, and Peru) came together to discuss progress and problems in implementing the Alternative Development programs. They identified certain recurring issues of Alternative Development and the counter-narcotics program--issues which required further analysis:

- Successes to Date in Alternative Development: Have There Been Any?;
- Alternative Development on a National Scale or in Coca-Growing Regions Only? What is the case for broad-based economic growth as a counter to coca production?;
- Economic Policy and Cash Transfers: A Valid Part of the Counter-narcotics Strategy?; and
- Relationship Between Alternative Development and Law Enforcement. What must law enforcement provide in order for Alternative Development to work?;

The U.S. Agency for International Development, which is charged with carrying out the economic objectives and the Alternative Development program under the Andean Counter-drug Strategy, commissioned an independent economic consultant (see biographical sketch of Patrick Clawson, attached) to prepare analytical briefs on each of these subjects. The briefs are only preliminary; more experience and data will be needed to resolve the issues addressed. In addition, much of this work is based on estimates rather than hard data because of the absence of detailed, reliable data in the counter-narcotics field. We hope this work will serve as the basis for a continuing dialogue on the subject.

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**I. Successes to Date of The Alternative Development Approach in Bolivia**

The U.S. Government's Alternative Development strategy can be judged by various criteria, including the contribution to economic development. But one important criterion is its success in reducing the supply of cocaine flowing into the U.S. There is no direct measure of the Alternative Development contribution to that goal, but there are several important signs that the approach is having the desired results. Given that the start of the Peru program has been delayed by factors beyond the U.S. Government's control and that the Colombian program is only peripherally about Alternative Development, this paper focuses on Bolivia.

**A. Bolivia's Coca/Cocaine Income is Down, with Prices Lower and Area at Least No Larger than in the Past.**

The World Bank estimates that Bolivia's coca/cocaine income was $1.1 billion in 1987, $670 million in 1989, and $320 million in 1991. [1] That is a major achievement, due largely to law enforcement but in part to Alternative Development. Again according to the World Bank, Bolivia's coca/cocaine exports went from $470 million in 1988 to $240 million in 1990. (USAID/La Paz estimates that coca/cocaine income and exports at lower levels than those reported by the World Bank; it also estimates a decline from 1988 through 1992)[2]

One element in the reduction is that the volume of coca leaf produced appears to have stagnated. After years of rapid increase, potentially harvestable leaf increased a mere 1.5 percent over the three years 1988-1991.[3] The area planted to coca has fallen during the same period, thanks to the GOB's compensated voluntary campaign to eradicate mature coca plants and coca seed beds. [4] That campaign would never have taken place without U.S. Government efforts, including the ESF funds conditional on progress in eradication. With leaf production stabilized or falling, interdiction becomes more effective (seized products cannot be so readily

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[1] Bolivia: Updating Economic Memorandum. Washington, DC: World Bank. October 8, 1992.

[2] USAID/La Paz estimates value added in the coca/cocaine industry fell from $425 million in 1988 to $245 million in 1992, while exports fell from $454 million to $279 million in the same period.

[3] International Narcotics Strategy Report 1992, p 97; the increase was from 77,245 metric tons to 78,400. In the 1989 and 1990, output was somewhat lower than in either end year.

[4] According to the International Narcotics Control Strategy Report 1992, harvestable coca area in 1991 was 2 percent less than in 1988 (area rose some in 1989 and fell in 1990 and 1991). Other estimates are more optimistic: the New York Times (March 13, 1992) reported that the coca area had fallen 15 percent in three years. USAID/La Paz, on the other hand, estimates that the area harvested as increased 2.8% a year from 1988 through 1991.

replaced) and the volume of cocaine reaching the U.S. can be cut. To be sure, the drop in output is small relative to the size of the problem, but they are no small improvement compared to years of rapid growth in coca output.

More important than the volume reduction, however, has been lower coca prices. Leaf prices have been on a secular downward trend for six years, with many peaks and valleys around the trend line. [5] The low price is due in good part to Bolivian (and Colombian) law enforcement efforts. The efforts by the Government of Bolivia were in part the quid pro quo for U.S. Government assistance. Lower coca leaf prices will eventually lead to lower coca production: that is what is predicted both by economic theory and by coca farmers themselves.[6] To date, the principal effect appears to have been to slow planting of new coca bushes. If the International Narcotics Control Strategy Report data on cultivated area and the Bolivian government eradication data are accurate, plantings have fallen close to zero in 1991 and 1992. [7]

However, it is still profitable to harvest the existing bushes. Coca grows on bushes, the planting of which represents a significant capital investment for the farmer. It will remain difficult to persuade farmers to abandon cultivation once they have made a major expenditure on planting; dissuading new plantings is easier. But if current trends continue, then over time, the existing bushes will age and few replacements will be planted, so output will fall. Were there no new plantings, output would fall each year by the same absolute amount (some 6 percent to 10 percent of its current level), which would be a larger percentage each year of the constantly declining base, until in about twelve years output would be close to zero. More rapid reductions would come only if farmers could be persuaded to tear up or abandon existing plants.

**B. Population in Bolivia's Coca-growing Region is Down, in part Because Jobs Are Being Created Elsewhere, in the Legal Economy.**

Coca production in Bolivia is highly dependent on job opportunities in the legal economy. Most coca is **not** produced by long-settled farmers who have decided to switch into more-profitable coca from less-profitable legal crops. In fact, the longer-resident farmers, who came to the Chapare before 1970, have generally eradicated much (though not all) their coca and are

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[5] On average from June 1986 through December 1991, the price of a 100 pound carga fell each year by \$7.50 (the equivalent of an annual price drop of \$.165 per kilogram).

[6] The Rivera and Jones surveys and the AID personnel working in the Chapare cited below all report comments by farmers to this effect.

[7] Thanks to Ken Beasley, USAID/La Paz, for pointing this out.

shifting to legal crops. [8] Instead, coca is produced primarily by those who came to the Chapare since the coca boom started in the mid-1970s. They came, despite disliking the region, because job opportunities are poor elsewhere. The most detailed sociological study of the area (Rivera, 1990) found that 95 percent of the migrants retained homes in their areas of origin. [9] These people--who have few ties to the Chapare--are the most likely to respond to U.S.-Government-assisted programs that create jobs in Bolivia's legal economy. A U.S.-financed pilot project in the Cochabamba High Valleys, from which many migrants come, demonstrated that migration could be reduced by 70 percent if the laborer's farm was made productive enough to support his family.

According to an in-depth study of the labor force in coca (Jones, 1991), "Without this migratory labor, there could have been no coca boom." [10] At the height of the boom, the recent migrants provided at least three-fourths of total labor. The situation changed sharply after the boom ended and conditions in the legal economy improved. To be sure, one group of migrants--those who established their own farms--largely continue to produce coca. However, the largest group among the migrants were the landless laborers and sharecroppers. According to Jones in 1991, they have "for the most part (but not totally) departed [since 1989]; this emerges clearly from the interviews in both the High Valleys and the Chapare." They left as soon as the legal economy picked up, which it did in 1990-91. According to President Paz Zamora, 100,000 jobs were created in the legal economy in 1991 while only 50,000 new entrants entered the labor force: a margin that allowed absorbing the marginally and illegally employed.

To be more specific, the U.S. Government program has been able to reverse the rapid growth in the Chapare population. The Chapare's population went from about 100,000 in 1976 to as high as 350,000 in 1985-88. [11] By 1990, the population had fallen to 100,000 or less,

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[8] As reported at a recent AID conference by P. Alvarez, the NAS official most involved with the eradication program, and M. Ford, who is in charge of AID's project in the Chapare, as well as in Jones' study.

[9] Rivera P., Alberto. Diagnóstico Socio-Económico de la Población del Chapare. Cochabamba: PDAR, April 1990.

[10] Jones, James. Farmer Perspectives on the Economics and Sociology of Coca Production in the Chapare. Institute for Development Anthropology Working Paper No. 77, January 1991.

[11] Brackelaire 1989. A 1988 USAID survey estimated the population at 208,224, which was on the low side. Jones cites a variety of surveys for 1985-88, including one dubious one claiming 600,000. As to the population pre-boom, Jones, who did extensive field work, estimates the 1976 population at 110,000, while Rivera points out the 1976 census implies a

according to Jones and Rivera. They did surveys in the Chapare and in the migrant-origin regions. As indirect indicators, Rivera cited a dramatic drop in the number of businesses and in the sales of those remaining open, e.g., a Chapare restaurant that went from serving 300 breakfasts daily to 20-30, and a bar that saw its beer sales fall from 20-30 cases per week to one. The 1991 Rural Household Survey, the 1992 Census, and UMOPAR reports suggest that the population has if anything fallen further since then. [12]

The lower labor force has not yet translated into lower coca output, in part because the bushes planted earlier have now come into their most productive phase. The main effect appears to have been on planting, which is a labor-intensive process. Much as with the price drops, the lower labor supply will have major effects on coca output primarily through the effects on planting of bushes. The change in output will therefore come with a lag, as explained above.

Lower labor supply is an impediment to coca output, not a death-knell. Bolivian farmers could respond to the lower labor supply by substituting more capital-intensive techniques of production, e.g., sustaining yields by using more fertilizer and less weeding. Substitution is not cheap (though it is done only if it is cheaper than paying the higher cost of labor which motivates it), so farmers still face the problem that the cost of producing coca is going up.[13]

**C. Farmers in Bolivia's Coca Region Have Diversified into Legal Crops, and Many Are Positioning Themselves to do without Coca Altogether.**

The farmers' attitude towards alternative crops has changed sharply. Whereas in the mid-1980s, farmers would at time harass extension agents and few came forward to receive training and seedlings for legal crops, now the complaints are that there is not enough training and

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much smaller population. The 1967 census found 25,000 residents.

[12] The Rural Household Survey found 11,000 households in the coca-growing regions; using the average household size of 4.76, that implies about 50,000 residents. However, it is not clear if the coverage of migrants was as thorough as in the Jones and Rivera data, nor if the survey reached the communities newly established in isolated regions to avoid the authorities. The 1992 census shows similar results and may similarly not include many of the migrants. The UMOPAR evaluation of continuing population decline was in La Presencia, April 14, 1992.

[13] In practice, technological change makes the analysis more complex. If farmers are able to use better but cheap technology to increase yields at a fast rate, then they may be able to reduce production costs. That has been the history of U.S. farming, but it requires substantial agronomic research to find the new technologies, and there is little sign of such research for coca.

seedlings. [14] Some 21,000 producers, representing the great majority of farm families, received technical assistance for alternative crops in the Chapare in 1992.

The legal crops are starting to produce revenue at an impressive rate of growth. Compared to the total coca leaf income of roughly $60 million for the Chapare farmers,[15] consider that the sales of only one new crop--pineapples--have grown from zero in 1990 to $1 million in 1992.

To be sure, to date the farmers appear to be planting legal crops while maintaining much of their coca. The farmers are cautious: they need to see that the legal crops actually produce (which can take several years after planting) and that the income is adequate. But farmers realize that the future is not in coca: they are not planting coca but they are planting legal crops). [16]

**D. Bolivia Has Reduced its Dependence on Coca for Foreign Exchange Earnings and GDP.**

According to the World Bank, in 1987, at the height of the coca boom and near the bottom of the slump in the legal economy, coca/cocaine was 26 percent of Bolivia's legal GDP. In 1991, coca/cocaine was 6% of legal GDP--a drop of 20 percentage points! In 1987, immediate elimination of the coca industry would have led to economic catastrophe. In 1991, coca/cocaine was no longer central to the economy; indeed, income from coca/cocaine was small enough that it could be plausibly argued that the economic disadvantages from coca/cocaine were greater than the benefits. This change facilitates mobilizing Bolivian public opinion behind stronger counternarcotics measures.

Again according to the World Bank, coca/cocaine exports were equal to 68 percent of legal exports in 1988, and that is counting legal exports of both goods and services. The Chapare, if not Bolivia as a whole, was practically a coca monoculture economy before the

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[14] Jones wrote, "The few early promoters who volunteered [in 1985-6] to serve as extension liaisons in their communities were sometimes ostracized, even physically assaulted, by fellow residents.... There is no doubt that the decline is the coca price beginning in August 1989 has created an opening for alternative development in the Chapare.... Because of these price swings, many farmers in the Chapare are agonizing over whether to eradicate their coca.... A common strategy seems to be to eradicate a part of one's coca plants."

[15] Estimate of the AID Bolivia coca model, prepared by Oscar Antezana, USAID/La Paz.

[16] Jorge Aldunate, AID's Chapare coordinator, and Jorge Gutierrez, head of the Alternative Regional Development Project planning office, reported (interview, August 1992) farmers regularly talk about the need to shift out of coca within a few years, which explains the sharp rise in interest in extension services for legal crops.

Andean Counter-drug Initiative was launched in 1988. In 1990, coca/cocaine was equal to 25 percent of Bolivia's legal exports according to the World Bank--a decline of 43 percentage points! That is no small success.

All these estimates are approximate. The cocaine industry is hard to measure, given that it is illegal. But the respected estimates of a Bolivian private economic consulting firm (Muller y Asociados) show much the same trend.

U.S. Government programs have had much to do with the declining ratio of coca/cocaine income and exports to legal income and exports. The share fell because the coca numerator shrank and the legal economy denominator grew. In particular, according to the World Bank, the legal GDP went from $4.2 billion in 1987 to $5.3 billion in 1991, while legal exports went from $670 million in 1988 to $975 million in 1990 (both had shrunk in the preceding four years). For GDP, one fourth of the decline in the coca/cocaine share was due to the growth of the legal economy; for exports, one half was due to legal growth.

The growth of the legal economy is directly attributable to U.S.-funding support for reforms in the legal economy. A small part of the growth came from the U.S. Government's modest programs for export expansion and micro-enterprise development. [17] More important was the growth attributable to macroeconomic reforms--reforms made possible by balance of payments financing, which provided a cushion against the immediate pain of reform medicine until the recovery produced a healthier economy. The U.S. Government has been the largest single source of balance of payments financing, though additional sums have come from other donors and international organizations.

Consider the transformations undergone by the Bolivian economy since the reform program began in mid-1985. The economy was stabilized; inflation went from 24,000 percent in 1985 to 14.5 percent in 1991. The ground was laid for future growth; investment rose from 7.2 percent of GDP in 1985 to 13.8 percent in 1991. The private sector was unleashed: its share in exports went from 15 percent in 1985 to 55 percent in 1991. The legal economy diversified away from its dependence on mining (mostly tin and hydrocarbons); non-traditional exports went from 5 percent of exports in 1985 to 30 percent in 1991.

**E. In Conclusion, Bolivia's Coca Problem Has Been Reduced to Containable Levels, and U.S. Government Support for Alternative Development has played an Important Role in this Development.**

Before the Andean Counter-Drug Initiative was started in 1989, Bolivia's coca problem was growing by leaps and bounds, in good part because the legal economy was shrinking. The first

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[17] For a cost of $3 million, the Export Promotion project has created $15 million in exports and attracted $1.4 million in foreign investment.

success was in stopping the growth of the cocaine industry and stabilizing the legal economy. The next success was to provide viable alternative sources of income as income from coca was shrinking. Hopefully this has laid the basis for a future third stage, in which the coca industry is reduced to a shadow of its former self, through a combination of the creation of better income-earning opportunities and vigorous Bolivian law enforcement (with the Bolivian Government no longer held back by fears of economic catastrophe if coca is eliminated).

Planning Minister Samuel Doria Medina, in an interview, traced Bolivia's coca problem to its economic crisis:

> When the currency was losing value by the hour, when imports could not be had, when there were few legal ways to make money, when the government was not to be trusted, Bolivians naturally looked for a way to earn dollars outside the formal economy. But once there were attractive legal alternatives, then fewer Bolivians choose the risks of being outside the law.

The cocaine problem can be contained at a much lower level than today. It is neither realistic nor appropriate to aim to eliminate the Andean cocaine industry. The cost of reducing cocaine production from a low level to zero would be outrageously high compared to the benefits achieved. As a recent influential work argued, drug policy should oppose excessive aims as well as excessive drug consumption. [18]

## II. Alternative Development: On a National Scale or in Coca-Growing Regions Only?

A.I.D.'s strategy has been to promote economic development throughout the coca-producing countries as well as to work in the illegal coca producing areas, although in practice this strategy has been fully implemented only in Bolivia with the large-scale attention to the Cochabamba region including the coca-growing Chapare area. The paper will ask what would be the consequences of shifting from this approach to alternative strategies: concentrating resources either on the illegal producing regions or on promoting national economic development.

### A. Can the Coca-Growing Regions Be Developed?

Any policy of concentrating on the coca-growing regions faces the question, how good are those regions for development? With respect to Bolivia, there is near universal agreement on the answer, which comes in several parts:

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[18] Kleiman, Mark, Against Excess: Drug Policy for Results, New York: Basic Books, 1992.

■ Bolivians will continue to leave the high plain (altiplano) and the high valleys; the only question is where they will go. As the project Paper for the Cochabamba Regional Development Project explained, "Since the colonial period, members of High Valleys rural families have had to migrate periodically in order to supplement farm income . . . Earlier in this century, the routes were primarily to Argentina and Chile and in the 1970s to commercial farms in Santa Cruz. In the 1980s, the main trail shifted to the Chapare, where the work for seasonal wage laborers was plentiful."[19]

■ The Chapare coca-growing region has a limited ability to absorb population. A detailed study by a Bolivian sociologist concluded that without coca, the Chapare region can sustain only 75,000 people,[20] whereas the current population is about 100,000. The problems include ecological fragility and also remoteness from regional export markets, i.e., the population centers of northern Argentina and southern Brazil. James Jones, an anthropologist who specializes in the region, argues, "Some areas of the Chapare, because of their ecological fragility, should have neither roads nor agriculture. And anyway, it is unlikely that sustainable markets will be found for production in such areas. So why build roads there? Why try to develop these areas?"[21] Surveys of Chapare residents reveal that many dislike the region and suffer from health problems since moving there; 95 percent retain homes elsewhere.[22]

■ In the absence of coca or of artificial stimulus to the Chapare, the natural direction of population flow will be to the Santa Cruz region to the southeast of the Chapare. Natural conditions there are well suited to a whole range of products; there is ample land for sustainable development for a large population; and the region is closer than any other in Bolivia to the large markets of northern Argentina and southern Brazil. As The Economist wrote, "Long-term, says [Planning Minister] Mr. Doria Medina, the best hope for the altiplano farmers is not growing more and bigger potatoes for the local market, but leaving their small plots to go east as paid labor to the semi-tropical region around the city of Santa

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[19] Bolivia Project Paper: Cochabamba Regional Development (CORDEP), Washington, D.C.: A.I.D., no date (July 1991?), Annex on Socioeconomic and Social Soundness, page 11.

[20] Alberto Rivera P., Diagnóstico Socio-Económico de la Población del Chapare, Cochabamba: PDAR, April 1990. The Chapare's peak population during the 1980s coca boom was in excess of 250,000 while 1992 population is under 100,000.

[21] James Jones, Farmer Perspectives on the Economics and Sociology of Coca Production in the Chapare, Institute for Development Anthropology Working Paper No. 77, January 1991, page 61.

[22] Cf. the Jones and Rivera studies cited above.

Cruz. Farming there is export-oriented, producing cotton, soya, wheat, cattle, and timber. That is where new jobs must come from, and where investment is starting to come in."[23]

■ Without coca and without special development programs, there would be some development in the Chapare. Marion Ford, a USAID official who has worked in the area off and on for 30 years, points out that A.I.D. began its work in the Chapare in the 1960s long before there was a coca problem precisely because A.I.D. saw that the Chapare would play a role, albeit a small role, in the development of Bolivia's tropics. One factor promoting development in the Chapare is that in the alternative tropical area for migration--i.e., Santa Cruz--the local population has low regard for the migrating ethnic group.[24] The migrants dislike the Chapare, but they may not like Santa Cruz any better, and so some may rather stay in the Chapare despite lower incomes.

Special efforts to promote the development of the Chapare carry a serious risk for the U.S. Government: if coca is a crop well suited for the region, then farmers in the area will always have the option of growing coca when the price is right and law enforcement is lax. That risk does not exist if development takes place instead in the Santa Cruz area, in La Paz, the high plains, or the historic mining region, because all those regions are ecologically ill-suited to producing coca.[25]

One good indication that the Chapare region has few advantages for non-coca development is that donors other than U.S. have been reluctant to get involved in the region. Despite the large aid inflows engendered by Bolivia's far-reaching economic adjustment program since 1985, donors have not been prepared to go into the Chapare in any significant way. The World Bank staff has indicated informally that it finds the rate of return on the projects it has looked at in the area to be unacceptably low (although this could change once the U.S. has provided the region with good infrastructure which lowers production costs).[26]

**B. Do Alternative Development Projects Facilitate Coca Production?**

Some U.S. Government officials working on Bolivia are skeptical that development programs in the coca-growing regions have done much to reduce coca production. Clark Joel, long-time USAID/La Paz economist, argues Alternative Development will generally be

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[23] The Economist, August 17, 1991.

[24] A point made by Jorge Aldunate, PDAR Cochabamba, and by the anthropologist James Jones.

[25] A point made by Clark Joel, long-time USAID senior economist in La Paz.

[26] Conversation (not for citation) with Ann McDonald and Kramer in La Paz, September 1992.

alongside coca, rather than replacing it, until income levels well above the current level are achieved.[27]

But there is a graver issue than whether the programs are having a positive effect. There is a danger that A.I.D.'s work in the coca-producing regions may provide infrastructure that facilitates coca production and makes life attractive in those regions so that farmers move there and plant more coca. Take two examples. First, the development of schools and clinics in the Chapare may make it an attractive region in which to settle, thereby redirecting some migration which would otherwise have gone to the Santa Cruz area. Second, the CORDEP project provides technical assistance, such as training on how to use fertilizer, which can be used by coca growers just as well as by legal farmers.[28]

But A.I.D.-financed infrastructure and technical assistance may assist legal crops and counter-narcotics efforts more than they help the coca producers. Consider the case of road improvements. To be sure, better roads lower costs for coca producers and roads can serve as landing strips for coca planes. However, as James Jones notes, roads bring police, so coca production thrives furthest from the roads.[29] Furthermore, the transport costs are more important for legal crops which are all bulkier than coca. Marion Ford, of USAID Cochabamba, gives the example of bananas, for which transport is 80-85 percent of the cost by the time the bananas arrive in the regional city of Cochabamba.

A.I.D. has made some efforts to tie provision of services to co-operation in eradication. A.I.D. provides grant agricultural inputs worth $500 to those who have an eradication certificate, those who get an annual certificate that they have not planted any new coca are given easier terms on their A.I.D.-financed loans, and a $200,000 fund from A.I.D. provides services to the communities which participate most fully in the eradication program.[30] On the other hand, it is not clear to what extent A.I.D. has been able to implement an idea once discussed to tie provision of productive services to participation in eradication by 30% of a community and of social services to participation by 70%. Furthermore, it would appear that many farmers regard as "Alternative Development" only that which they get for

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[27] During interviews in La Paz, August and September 1992. Michael Shelton, Embassy Economic Attache, made much the same argument, as did James Elliott of A.I.D./Washington.

[28] A point made by William Baucom, director of ARD at USAID/La Paz.

[29] Jones, op. cit, writes, "I doubt that more roads will bring more drug trafficking." Careful design and can also reduce the risk, e.g., the cement bus stops along the new Chapare roads provided barriers that prevent planes from landing.

[30] Information from Marion Ford and Lt. Colonel Alvarez (USA) in Bolivia.

eliminating coca, not the other services going into the community, which are regarded as the normal responsibility of the government.[31]

No matter how carefully programs in the coca-growing region are designed, they will inevitably cut costs and improve living conditions for coca producers as well as for other residents. The best that can be achieved is to limit this spill over.

**C. Does National Economic Development Affect Coca Output?**

The issue with a strategy of national economic development is whether it will create alternative opportunities that will attract producers and laborers away from coca or whether it will improve the standard of living in the legal economy (quite possibly primarily in the major cities) while leaving unaffected the coca producers and wage laborers who will continue their activities.

Certainly it would seem difficult to get sufficient economic development in Bolivia to reduce the attractiveness of cocaine. Bolivia has a large reservoir of underemployed, which are not reflected in data on unemployment. Open unemployment is small because the unemployed cannot survive in the absence of social support programs, but many are forced into occupations that use only a small portion of their time and skills. Any jobs created are likely to draw upon this pool of available labor. Plus those in the Chapare have a vested interest in staying there: they have acquired skills and in some cases land.

But the empirical evidence suggests strongly that job creation has had an effect on the Chapare population. The Bolivian Government says that the formal economy created 100,000 jobs in 1991 compared to a labor force growth of 50,000.[32] Perhaps these numbers are exaggerated, but there is little disagreement that formal sector jobs have been expanding more quickly than the rate of population growth. Meanwhile, the Chapare population has been falling as migrants left the area. A conservative estimate would be that the population has dropped from 250,000 during the coca boom to under 100,000 now, with the recent Census and Rural Household Survey indicating that the population may be less.[33] Continuing to attract migrants out of coca/cocaine will be made easier by the good prospects for job creation in the Bolivian national economy over the next few years. Those prospects

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[31] Lt. Colonel Alvarez vigorously argues that this viewpoint is widespread, while Marion Ford suggests that complaints driven by jealousy are the natural by-product of the start of the project.

[32] President Paz Zamora, in his state of the nation address on August 6, 1992.

[33] The most detailed work on the question has been done in the studies cited above by Jones and Riviera. They did surveys themselves as well as analyzing the studies of others. The numbers cited in the text understate the population change they say occurred.

have been assessed positively by a recent World Bank/IMF conference and by the respected British business publications The Economist and The Financial Times.[34]

It would appear that national economic development in Bolivia offers the prospect of attracting workers out of the coca-growing regions.

**D. The Peruvian Case**

Until security conditions in Peruvian coca-growing areas like the Upper Huallaga Valley improve, it is not cost-effective for A.I.D. to provide large-scale Alternative Development assistance in those regions. Alternative Development is unlikely to have much impact when terrorists like the Sendero Luminoso systematically attack facilities for processing, marketing, and transporting legal crops. However, the security situation in the Huallaga Valley appears to have improved considerably since the arrest of Sendero leader Guzman and the increased military presence. It may therefore be possible for A.I.D. to operate in the area without excessively costs of protection.

The question of counter-narcotics regional development in Peru has some similarities to that in Bolivia. Both countries have a long tradition of migration from the high plains to the major cities and to tropical agriculture, and in both the coca boom was made possible by a collapse of the legal economy that led migrants to go to coca regions rather than to the legal economy elsewhere. But the differences are greater. Peru's Upper Huallaga Valley is entirely different from that in Bolivia's Chapare. The Upper Huallaga is a much richer region in natural resources; it would be a logical site for development irrespective of cocaine. The problem with concentrating on Upper Huallaga development is that large areas of Peru are well-suited to coca cultivation. There are already indications that new coca plantings are occurring increasingly in areas to the south and east of the Huallaga Valley. One way to view the situation is that a regional development program for the Upper Huallaga would accelerate an already-occurring shift to lower coca production; another way to view it would be that Upper Huallaga regional development would do little to curb coca production since that production would continue to expand elsewhere.

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[34] IMF/World Bank seminar on Bolivia's economy reported on in IMF Survey, April 27, 1992. The Economist, August 17, 1991 reports, "Confidence is growing. John Burnham, in article entitled "Bolivia prepares mining industry for reincarnation," in the Financial Times, April 16, 1992, wrote, "Excited mining analysts and businessmen claim that country is on the threshold of a boom the like of which it has not seen since the days of the tin barons of the 19th century. A timely combination of pro-business legislation and important discoveries have attracted a swarm of international mining groups [to new projects, but not to the state mines which may or may not be privatized]." An assessment in the same newspaper on July 11, 1991 had been positive but less enthusiastic.

As for national economic development, Peru is in the third year of a bold national adjustment program which merits support from the donor community. The World Bank, IMF, IDB, and Japanese governments are providing significant financing which offers promise over the medium run of raising per capita real growth to 3-5 percent per annum. However, the counter-narcotics effects of that program may be small for some years, given that Peru's experience to date confirms the lesson from countries around the world that the initial effects of adjustment programs is to exacerbate unemployment, with the positive effects only being felt after a lag that can often be three to seven years. Plus the Peruvian government is not likely to be enthusiastic about counter-narcotics efforts until such time as the new export industries have demonstrated that they can provide alternative sources of foreign exchange. The continuing security problems are likely both to slow the emergence of new jobs and new export industries as well as to make the government reluctant to devote more resources to counter-narcotics.

As in the Bolivian case, once non-coca employment picks up, there is likely to be a considerable lag until coca production falls. The principal effect will be to reduce new plantings of coca bushes. That will inevitably lead to a decline in output, but only with a lag since farmers will be reluctant to abandon the considerable capital investment they have made in the existing bushes. Over time, the existing bushes will age and few replacements will be planted, so output will fall. Were there no new plantings, output would fall each year by the same absolute amount (some 6 percent to 10 percent of its current level), which would be a larger percentage each year of the constantly declining base, until in about twelve years output would be close to zero.

In short, regional development faces more problems in Peru than in Bolivia. National economic development offers promise, but as the experience in Bolivia illustrates, the counter-narcotics results will only come after employment picks up, which means several years after reforms begin. The return to solid growth in Bolivia took six years after the 1985 reforms; Peru's reforms are not yet three years old.

**E. How to Target Potential and Actual Coca Producers**

The aim for development funds allocated for counter-narcotics reasons should be to discourage new entrants into the coca/cocaine business and to encourage those in the business to leave it, with a secondary aim being to create the conditions under which a return to coca/cocaine becomes less feasible. The aim should not be interpreted mechanically: it is not practical to determine exactly who is a potential coca producer and then to design a program that will focus like a laser beam on him. Instead, the best means to achieve the aim is to prevent a new coca boom while creating the economic growth that in the long run makes coca unattractive compared to the legal economy.

The evidence suggests that it is on balance better to devote more resources to national economic development than to concentrate on the coca-growing areas. Regional economic development could backfire, to become development complementary to or even supportive of coca. But national economic development should not be oversold as a counter-narcotics tool. To attract farmers and laborers out of coca requires that economic growth has be raised to the point where good-income jobs are increasing faster than the population growth. Furthermore, the effects of national growth will be felt on coca output only with a lag of years.

In addition to its direct effects on coca producers, Alternative Development also functions as a political carrot to the Andean governments. The producers can form an important lobby opposing counter-narcotics, as has been seen in the Chapare. By providing programs to raise their incomes--even if those programs do nothing more than allow coca farmers to earn some extra income by diversifying into other activities while still growing coca--the programs may improve the image of the U.S. and of the national government, thereby reducing resistance to counter-narcotics efforts. To the extent that the aim of Alternative Development programs is to promote government cooperation with law enforcement programs, then Alternative Development should be targeted where it will have the greatest impact on reducing political opposition to law enforcement. In Bolivia, given the high degree of organization in the coca-growing region (most of the settled population belongs to union-like groups called sindicatos),[35] that probably means providing coca farmers with extra income and more services.

## III. ESF Funds and Sound Economic Policy as Part of the Counter-Narcotics Strategy

A.I.D. has provided large amounts of ESF balance-of-payments financing in the Andes, especially to Bolivia. Have these funds "bought" economic reforms that have contributed to reducing the flow of cocaine to the U.S.? The answer to that question has several parts, which we examine in turn.

### A. ESF Funds and Eradication

The most obvious way in which ESF funds have contributed to reducing the flow of cocaine to the U.S. has been by their contribution to the coca eradication program. Coca eradication targets have been the main issue in negotiations over ESF agreements, and the disbursement of funds has been tied closely to the realization of eradication goals. Many Bolivians perceive U.S. ESF cash aid purely as the reward for co-operation on coca

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[35] Alberto Rivera P., Diagnóstico Socio-Económico de la Población del Chapare (Cochabamba: PDAR, April 1990), page 51, estimates that out of the Chapare's 91,000 population, about 63,700 are permanent residents and of those 39,749 belong to syndicates, i.e., 62% of total population.

eradication. Especially given the organized opposition to the program from farmers, it is unlikely that the coca eradication program would have continued on anything like its actual scale had the U.S. not tied ESF funds to the number of hectares eradicated.

However, there are reasons to be concerned that the reported reduction in hectares may overstate the effects of the program on the flow of cocaine to the U.S. Farmers may be eradicating older plants that would have soon ceased producing anyway. They may be using the compensation payments to either: (1) replace the areas eradicated with new plantings in hidden locations (in which eradication might actually increase production because vigorous new plants will have higher output than tired old plants), or (2) purchase additional equipment and inputs with which to raise yields on their remaining plants (the history of crop set-aside programs in the U.S. is that they stimulate yields and therefore do not reduce output much if at all). Furthermore, to the extent that the eradication reduces supply, it drives up price, thereby making coca production more profitable, giving farmers increased incentive to keep their remaining plants.

Whatever has been the effect of the eradication program, there has been another channel by which ESF cash grants have influenced the cocaine flow to the U.S., namely, by the effects on economic reforms. Let us turn to that issue, beginning with some background on the reforms.

**B. Bolivian Reforms**

After several years of disastrous economic performance culminating in hyperinflation, Bolivia adopted a dramatic reform program in 1985. The first steps were to restore macroeconomic stability. The budget deficit--which had been 28 percent of GDP in 1984--was cut overnight to about 5 percent of GDP. [36] Within a few months, inflation dropped from 24,000 percent per annum to 15 percent; it has since declined to 11 percent.

Having achieved macroeconomic stability, the government could tackle structural reforms to restart economic growth. Progress has been considerable, but problems remain. The tax system and government regulations have been simplified and restructured to encourage foreign trade, eliminating restrictions and distortions. Employment in the country's largest enterprise, the state-owned COMIBOL mining firm, was cut 80 percent. On the other hand, continuing resistance from unions has prevented privatization and rehabilitation of the state-owned firms.

Economic reforms have been complemented by political reforms. Having had more than 200 governments in 170 years, nearly all brought to power by coups, Bolivia democratically

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[36] Unless otherwise noted, all economic data are from the World Bank's World Tables pages for Bolivia. These data are from the IMF's RED.

elected a president in 1985 who served his full term until 1989, democratically elected a president in 1989 who has served since, and is now preparing to repeat that process. However, neither the 1985 and 1989 elections resulted in a clear winner among the three major parties; both times, governments were formed as a coalition between two parties with quite different philosophies. Private businessmen remain worried that a future government could reverse the present pro-growth policies.

Partly because of concerns about the sustainability of reform, the economy has responded slowly to the reforms. GDP growth averaged 2.6 percent per annum in 1986-1990, but it picked up to 3.8 percent in 1991-1992. The ground has been laid for future growth: investment rose from 7.2 percent of GDP in 1985 to 13.8 percent in 1991. The private sector has been unleashed: its share in exports went from 15 percent in 1985 to 55 percent in 1991. Prospects look good, driven by a vibrant tropical agricultural sector in the eastern Santa Cruz area (which had some weather problems in 1992) and by the extractive industries (natural gas and mining).

**C. Does ESF Support Economic Reform?**

Peru launched its dramatic 1990 economic reforms in large part to enable the country to be reintegrated into the international financial community, in the phrase used repeatedly by Peruvian officials. President Fujimori expected the U.S. to provide cash balance-of-payments assistance as well as to convene a donors' group and to encourage the international development organizations to lend to Peru. Support from the U.S. has been key in persuading Fujimori to stick with the reform program at several moments when he hesitated, faced with public objections and/or with the need to take new steps to continue the reform process. Some of that support has been nonfinancial, e.g., U.S. assistance was key in working out the procedures by which Peru could clear its arrears first with the IDB, then with the World Bank, and soon with the IMF. But in addition, the U.S. provided key cash and commodity (food) aid prior to the April 1992 self-coup.

The case of Bolivia is worth exploring in detail. Its reforms would not have been launched without foreign aid. The initial decision to implement drastic stabilization measures was influenced by the advice of Harvard's Jeffrey Sachs that the reforms would attract aid, by demonstrating the seriousness of the government's purpose (He also argued the reforms would reveal that, no matter how strong the effort, Bolivia could not service its debt, so that much of the debt should be forgiven, which indeed happened). The strategy worked: grants and official loans rose from an average $200 million in 1983-85 to an average $400 million in 1986-88.

Starting dramatic reforms is, in the experience of many Latin American nations, easier than sustaining them, e.g., Argentina's Austral plan or Brazil's two shock programs. The Bolivian reform effort would not have kept going in the absence of substantial foreign aid. Aid cushioned the drop in consumption which was the initial effect of the reforms (higher taxes and lower subsidies were felt immediately, while it took some time to re-start growth and thereby raise income). In 1986-88, grants and loans were the equivalent of 50 percent of imports of goods and non-factor services. The record of this period helped convince the government elected in 1989 to sustain the reform process. [37] In 1989-92, continuing high aid flows were essential at preventing 'reform exhaustion.'

U.S. financing was a key part of the higher aid that kept Bolivia on the reform track. Multilateral organizations (the World Bank, the Inter-American Development Bank, and the IMF) made an extraordinary effort, but they could not provide sufficient funds. Cash from ESF was particularly welcome because cash aid can respond to an immediate crisis, cash being disbursed much more quickly than the project funds which are most of what the IDB and World Bank provided. In addition to the contribution of the ESF funds, a small part of the growth came from AID's modest job-creation programs, e.g, export promotion and micro-enterprise development.[38]

In short, U.S. government funds were vital to the economic reforms. The paradox is that in recent years, the principal condition for disbursing funds has not been progress in economic reforms but instead coca eradication. The ESF cash grant have in fact served to "buy" two things for the price of one: both coca eradication (in which the achievements were small) and economic reform (in which the success was great).

**D. Do Economic Reforms Cut Cocaine Flows?**

ESF cash may have done good things —— promoting economic reforms and therefore growth —— but has it had any effect on the flow of cocaine to the U.S.? It is easy to be skeptical. After all, the flow of coca/cocaine from Bolivia has not to date shrunk much if at all, despite several years of economic reform. Bolivia has a large pool of underemployed, which suggests that it might take years of economic growth before there would be sufficient alternative employment opportunities to attract producers out of cocaine. Plus cocaine would appear to be such a profitable crop that it would appear nearly impossible to get farmers to stop growing it.

In fact, economic growth is the best way to cut coca flows over the long term. Law enforcement can respond to the immediate problem, although in fact a Bolivian cocaine industry is so large and the profits so high that the vigorous law enforcement effort in recent years has not reduced much the amount of cocaine being produced. But solving the cocaine

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[37] President Paz Zamora's party had opposed the reforms, but agreed to sustain the process in order to form a government with Hugo Banzer's ADN.

[38] For a cost of $3 million, the Export Promotion project has created $15 million in exports and attracted $1.4 million in foreign investment.

problem requires more than a fire-fighting approach: it requires fixing the firetraps in which the flames spread so quickly. Shifting metaphors, we need to combine a law enforcement approach that lances the boil with an economic development approach that is the medicine that will cure the infection. That means providing sufficient employment at high income to make unattractive illegal work that earns $1,000-$3,000 per year (while continuing with law enforcement to drive down the income from illegal work). Through growth promoted by sound policy, cocaine can be made irrelevant over a time span of ten to twenty years: not good, but the best we can offer.

Seven years into this process, we can already see some impressive results. Sound economic policy has expanded jobs. The Bolivian Government says that the formal economy created 100,000 jobs in 1991.[39] This has helped reverse the flow of labor; during the coca boom and the legal economy bust, labor went into coca-producing regions, but in recent years it has done the reverse. Note that most coca is produced by migrants who came to the coca-growing Chapare region because jobs could not be had elsewhere; the migrants dislike the area and 95 percent retain homes in their regions of origin.[40] The lower labor force has not yet translated into lower coca output, in part because the bushes planted earlier have now come into their most productive phase.

Furthermore, the profitability of the coca/cocaine industry is not such a barrier as is sometimes suggested. A quick reality check is useful: if coca is so much more profitable than other crops, as some argue, then why has the area planted to coca in Bolivia not been growing? Harvestable leaf increased a mere 1.5 percent over the three years 1988-1991; the area planted to coca has fallen during the same period.[41] The fact is that coca's comparative advantage in Bolivia has shrunk sharply, as its price has dropped and as conditions for marketing and transporting legal crops have improved. Consider what has happened to the income from coca/cocaine, which the World Bank estimates went from $1.1 billion in 1987 to $320 million in 1991. [42]

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[39] President Paz Zamora, in his state of the nation address on August 6, 1992.

[40] Brackelaire 1989. A 1988 USAID survey estimated the population at 208,224, which was on the low side. Jones cites a variety of surveys for 1985-88, including one dubious one claiming 600,000. As to the population pre-boom, Jones (Farmer Perspectives on the economics and Sociology of Coca Production in the Chapare, Institute for Development Anthropology, 1991), who did extensive field work, estimates the 1976 population at 110,00. Rivera (Diagnóstico Socio-Económico de la Población del Chapare, PDAR, 1990) points out the 1976 census implies a much smaller population. The 1967 census found 25,000 residents.

[41] International Narcotics Strategy Report 1992, p 97; the increase was from 77,245 metric tons to 78,400. In the 1989 and 1990, output was somewhat lower than in either end year.

[42] Bolivia: Updating Economic Memorandum, October 8, 1992.

The comparison of Peru to Bolivia is instructive. Coca production appears to continue to grow in Peru while it has stagnated in Bolivia. It strains the imagination to think that is unconnected to the fact that reforms have been underway in Bolivia long enough that growth is now solid whereas reform has started more recently in Peru so that its positive effects have not yet clearly outweighed the initial pain.

Another effect of economic growth which follows reform, as shown by the Bolivian case, is to make the government more willing to pursue vigorous counter-narcotics efforts. As the legal economy collapsed during 1975-85, Bolivians turned to coca/cocaine. That industry became the mainstay of the economy. In 1991, coca/cocaine was no longer central to the economy, which surely must be a factor in the Bolivian government's willingness to attack the industry more actively now than it did in the mid-1980s.

In conclusion, ESF funds are vital to economic reforms that promote growth, and economic growth is the best route to eliminating the coca/cocaine industry in the long run. The best route to eliminating the coca/cocaine industry is to create sufficient employment in the legal economy that the cocaine industry is not attractive. That takes time: reforms affect growth only after a lag of some years, growth takes some years to create enough jobs to reduce significantly the pool of underemployed, and the shift of labor out of cocaine takes some years before it causes output to drop.

It may be tempting to say that we cannot wait until economic reform eliminates cocaine. But what is the alternative? The short-term results from other techniques do not seem impressive either. We would not be discussing how to eliminate the cocaine industry if the billions spent on law enforcement had been so successful that the industry was no longer a problem. The brutal fact is that none of our short-term techniques work very well. And economic reform has the advantage that it does work over the long run. Law enforcement requires getting into the same swamp day after day; catch the bad guys today and there will be new bad guys tomorrow. Economic reform will drain the pool which breeds the bad guys.

## IV. The Relationship Between Alternative Development and Law Enforcement

The U.S. Government's Andean Counter-drug Initiative is predicated in part on a working interrelationship between law enforcement (eradication and interdiction) in producing countries and Alternative Development activities in the coca-growing regions. The relationship between law enforcement and Alternative Development is complex, and experience in 1990-92 has shown that the relationship is less clear than theory would have predicted. This section looks at selected topics: security conditions, coca/cocaine price, eradication and interdiction. It raises some of the current issues which should be reviewed by the U.S. Government, but it does not claim to be comprehensive.

**A. Security Conditions and Alternative Development**

Adequate security is a prerequisite for legal economic development. Coca production, like other illegal activities, thrives where the state is weak, because there is less risk of seizure or of punishment. Legal production, on the other hand, suffers; investment is a gamble because there is no assurance agreements will be honored, and costs at each stage are increased by the need to provide private security. In other words, where the state is weak, illegal activity will grow at the expense of legal activity. The problem is compounded when the state's weakness is combined with the strength of terrorist groups like Sendero Luminoso which are ideologically opposed to producing for the market (preferring self sufficiency) except in the case of coca (said to be a means to undermine capitalism).

A.I.D.'s experience is that the promotion of Alternative Development is possible only when law enforcement has provided enough security that (1) farmers and other entrepreneurs are prepared to invest in legal activities and (2) development officials (foreign and local) can operate in the area. To date, security conditions in Peru's Upper Huallaga Valley have not been stable enough to permit much Alternative Development, though that may change soon if the situation keeps improving at the same rate as in 1992. A.I.D. is also studying the experience of the United Nations Drug Control Program (UNDCP), which appears to have been more successful than A.I.D. at operating in areas with security problems.

**B. Law Enforcement, Coca Leaf Price, and Cocaine Flows to the U.S.**

The paradox of U.S. policy is that its aim is to lower the coca price in order to promote farmers to abandon the crop but to raise the cocaine price to consumers in order to discourage consumption. These two targets can be made compatible by increasing the cost of getting from coca leaf to cocaine at the consumer level. The economists' way of stating that aim is to say that the goal is to increase the intermediation margin.

It might be thought that success at an Alternative Development goal--lowering the price of coca leaf--could endanger the overall goal of raising the price of cocaine to the U.S. consumer. Possibly, but there is no evidence that this is the case: after all, the cost of the leaf is less than one percent of the U.S. retail cost of cocaine.

There is a vigorous debate about whether any actions in Latin America--law enforcement or Alternative Development--have much effect on the street price of cocaine in U.S. The debate starts from the observation that cocaine prices in Colombia are less than five percent of the U.S. retail price. Some argue the relationship of Colombian price to U.S. retail price is additive, so that a doubling of the Colombian price will raise retail price by about five percent. In this case, law enforcement in Latin America (as well as Alternative Development) is largely irrelevant to the price of cocaine to the U.S. consumer. Others argue that the relationship is that of a multiplier, so that a doubling of the Colombian price will double the U.S. retail price, implying that law enforcement in Latin America (and

Alternative Development) can have a substantial effect on the price of cocaine to the U.S. consumer.

As Kleiman explains, [43]

> Nothing less than the value of a large part of federal government's drug law enforcement effort is at stake in this debate over whether the relationship of retail price to wholesale price is almost additive (with a small multiplicative term) or almost multiplicative (with a small additive term). . . To date, the question remains open, with arguments and evidence on both sides.

This debate is important, but it is more important to remember that the final aim is not to change the price of coca or cocaine. The bottom line for the U.S. government is that price is only an instrumental goal towards achieving the final goal, which is reducing cocaine consumption.[44] The ideal would be that the price of cocaine to the consumer falls to zero because no one wants to buy the product.

**C. The Effect of Eradication on Supply**

Eradication aims to reduce the area planted to coca. It may instead drive farmers further from roads, thereby opening up new producing areas--a pattern that has been repeated numerous times in both Peru and Bolivia. The Bolivian eradication program aims to minimize problems of new plantings by targeting seed beds; the effect of destroying an acre of seed bed is several times greater than that of tearing up mature bushes.

Suppose eradication is successful in reducing the coca area. In that case, eradication may have the same effect as the crop area reduction programs in the U.S., i.e., encourage farmers to devote more effort to the smaller area, thereby raising yield to fully offset the reduced acreage. Indeed, according to the 1992 INCSR, between 1990 and 1991, in Bolivia the area cultivated in coca fell 9% while the harvestable leaf rose 2%; in Peru, the area stayed flat and the potential harvest rose 13%.

The problem--increasing yields offsetting decreasing areas--is particularly likely under a program of voluntary compensated eradication. The compensation payments may cause farmers to tear up old, low yield plants to get the cash with which to plant new, vigorous plants on the

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[43] Kleiman, Mark, Against Excess: Drug Policy for Results, New York: Basic Books, 1992, p 121.

[44] Kleiman explains (p 122) that many law enforcement professionals believe that enforcement works not through its effects on price but "by destroying dealing organizations and thus reducing the capacity of the drug-distribution system."

smaller area remaining — in which case the eradication program raises output. Consider that in Bolivia, the compensation payment per hectare may exceed the investment cost for a hectare of new cocaine; in this case, there is a substantial price range for coca leaves in which farmers find it profitable to eradicate old coca but also to plant new coca. Empirical evidence suggests that eradication has not been accompanied by replacement planting: if the International Narcotics Control Strategy Report data on cultivated area and the Bolivian government eradication data are accurate, plantings have fallen close to zero in 1991 and 1992.[45]

Suppose eradication is successful in reducing both the area planted to coca and furthermore the volume of coca harvested. In that case, eradication reduces the coca supply, which means that the coca price rises. To be blunt, an eradication program that achieves its goals is a coca support program which raises coca prices and makes coca a more profitable crop to grow. By making coca a more profitable crop, a "successful" eradication program encourages farmers to remain in the business. In this case, eradication contributes towards the goal of immediately reducing the cocaine flow to the U.S. at the expense of making more difficult further reduction in volume. Having made coca more profitable, the remaining coca farmers are more reluctant to abandon the crop. In addition, because eradication has made coca more profitable, more farmers are eager to start growing coca, so more and more law enforcement resources will be needed each year without end to prevent new plantings of coca and to eradicate a large enough area to offset any rise in yields. It seems quite possible that an eradication program that succeeded in reducing the volume of coca harvested in year one would encourage new plantings and more attention to yields that would raise output in year three, when the first crop is harvested from the new bushes.

The socio-political effects of eradication depend greatly upon whether the program relies on force or on compensation. Forcible eradication contaminates relationships between farmers and government, including agricultural extension agents. This impedes substitution of legal crops for coca, since farmers usually require education on how to grow the new crops in (particularly in Bolivia but also to a degree in Peru, coca zone farmers are often unfamiliar with other tropical crops, especially improved varieties). Compensated eradication programs might be expected to be popular, since they offer farmers cash, but in practice they have more often been lightning rods for discontent against the government, evidently on the principle that when offered nothing, you expect nothing but when offered something, you complain at how small is the offer.

Eradication has important positive effects as well as problems. Compensated voluntary eradication provides funds which can be used to finance planting legal crops; lack of financing is a major barrier to growing the tropical tree crops that may not bear first fruit for several years. Eradication--especially forcible eradication--may be associated with a more vigorous

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[45] Thanks to Ken Beasley, USAID/La Paz, for pointing this out.

government presence in a region, which increases the risks for the traffickers and therefore may reduce demand for leaf--the one plausible way in which eradication can reduce coca leaf price.

**D. The Effect of Interdiction on Supply**

Interdiction makes the purchase of coca leaf less attractive, because it raises the risk that coca products will be seized before they can be sold. In other words, interdiction raises intermediation costs. It therefore raises the price of coca to the consumer, although the size of the effect depends upon the crucial debate on how prices are formed, referred to above. The higher price in turn has some effect in achieving the goal of reducing consumption, though again the magnitude of the impact is unclear.

Interdiction may also reduce local demand for coca leaf at least temporarily and therefore cuts the price paid to the farmer, which makes other crops more attractive relative to coca. [46] When the Colombian government launched a major crackdown on traffickers in the summer of 1989, coca leaf prices plummeted. However, it is not clear if law enforcement can permanently reduce the coca leaf price. The price of coca leaf in Bolivia (for which good data exist) was on a downward trend from 1986 through mid-1991, but it is not clear that law enforcement was the cause. Traffickers and farmers are creative at finding new ways around any restrictions, plus it has proved difficult to sustain permanently a high level of law enforcement activity. Indeed, the vigorous late 1992 "Ghost Zone" law enforcement campaign in Bolivia does not seem to have caused a drop in coca leaf price.

Unfortunately, a temporary price drop is unlikely to lead farmers to tear up bushes. A coca bush is a significant capital investment, which takes about a year to produce after planted and which can keep on producing for 12 to 20 years. Farmers base decisions about planting and tearing up coca bushes (or any tree/bush crop) on the long-term expected price. The short-term price affects primarily the decision about whether to tend the plants and whether to harvest. It would be a very demanding task to ask law enforcement to drive the coca leaf price so low as to make unprofitable the leaf harvest, it being a low-cost operation.

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[46] If in fact cocaine prices are determined by coca price plus a relatively fixed additional dollar amount, interdiction will have little effect on the price of cocaine to the consumer and therefore the quantity demanded. But it would take more coca leaf to produce the same amount of cocaine (since more leaf is interdicted), so the demand for leaf would increase. In that case, interdiction could have the perverse effect of raising the price of coca leaf -- a point made by James Elliott (A.I.D./Washington), "Coca and Alternative Crops," November 1992. The same problem (interdiction raising demand) would occur if interdiction does raise price but the price has no appreciable effect on the quantity of cocaine demanded (i.e., cocaine demand is highly price-inelastic).

Fortunately, the temporary price drops from bouts of intense law enforcement can make the price of cocaine variable. Farmers dislike variable prices, because they need to be able to count on the income: having little safety net of savings to fall back on, they can become desperate if prices fall, as happened in the fall of 1989. By increasing the variability of coca leaf price, interdiction can make planting coca less attractive compared to planting other crops.

To summarize, interdiction may (but not necessarily does) lower coca leaf price while raising the price of cocaine, which means that interdiction facilitates Alternative Development while simultaneously helping reducing demand for cocaine.

Much as the economic effects of interdiction are more positive than those of eradication, so too with the political effects. Unlike eradication, interdiction does not affect traditional consumption, which has a strong political lobby. Interdiction hits the part of the coca/cocaine industry that has the least political support, namely, the production of cocaine from coca. Interdiction hurts the traffickers directly, while eradication affects first the farmers who then complain that law enforcement is targeting the poor. Interdiction discourages farmers from going into processing, increasing the separation between farmers and traffickers. That greatly reduces the number of people who are engaging in an illegal activity (processing and trafficking in cocaine being illegal, growing coca being plausibly legal[47]), which means law enforcement can concentrate on the few criminals while appealing for support from most of the community.

In short, only if a host of unlikely conditions hold will eradication reduce the flow of cocaine to the U.S. Interdiction would seem to be a more promising policy, based on socio-economic analysis. However, other factors not considered here may come into play, for instance, the use of eradication as a way to signal to producers and traffickers the seriousness with which the government is dedicated to counter-narcotics. The relative merits of eradication and interdiction, as well as the more general issue of the relationship between law enforcement and Alternative Development, needs more study by joint teams that combine development experts and law enforcement professionals.

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[47] Coca leaf growing is legal in Peru only in areas registered with ENACO, but the status of many plots is dispute. In Bolivia, coca leaf growing is legal in the Yungas and for now in the transitional zones of the Chapare.

## Patrick L. Clawson

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