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Final Report

Opium Subsector Survey

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Preface

This report was prepared in response to Delivery Order 23 of A.I.D. Contract No. 306-0205-C-00-9385-00, the Afghanistan Studies Project. The work was carried out by the joint venture of Nathan Associates Inc. and Louis Berger International, Inc.

The field work, occurring during May-June 1992, took place in the areas of Peshawar and Quetta in Pakistan. The field work and the preparation of the draft report were performed by a team consisting of Dr. Thomas Timberg (team leader), Dr. Nek Buzdar, Dr. Abdul Wakil, and Mr. Jeffrey Miller.

Executive Summary

The purpose of the Opium Subsector Survey was to assist the Office of the A.I.D. Representative for Afghanistan in developing a national antinarcotics strategy for Afghanistan. A primary objective of the survey must therefore be to provide an understanding of the entire subsector: from the cultivation schedule and inputs, to farmgate sale, to transportation to and sale in domestic and foreign markets. As part of its effort to suppress cultivation and use of narcotics, the U.S. has an interest in Afghanistan, the world's second largest producer of opium after Burma. Afghanistan forms part of the Golden Crescent area of Southwest Asia, which according to U.S. government estimates provides 23 percent of the heroin used in the United States. The Golden Crescent area ranks only slightly behind the Golden Triangle of Southeast Asia as a source for the American heroin market. Like the countries of the Golden Triangle, the borders between Iran, Pakistan, and Afghanistan are poorly policed. Near-anarchy in Afghanistan (similar to that in sections of Burma) enables poppy cultivators and drug traders to operate with relative impunity. Both Pakistan and Iran have taken steps to suppress their drug trade, but they have been only partly successful. Like the Golden Triangle or most other drug-producing regions, the countries of the Golden Crescent have a large addicted population, consuming opium and, increasingly, heroin.

In many respects the opium economy of the Golden Crescent must be treated as an economic unit, although this report necessarily focuses on Afghanistan—as will any A.I.D. policy directed toward that country. U.S. government figures show that the countries of the region produced 1,025 metric tons of refined opium in 1991, although numerous commentators insist that this figure underestimates the actual quantity.

Within the Golden Crescent, Afghanistan has in recent years been the major producer of raw opium, which was shipped to Pakistan where much of it was converted into heroin in factories in the Khyber Agency and Girdi Jungle, and perhaps elsewhere as well. This pattern appears to be changing as some heroin factories move into Afghanistan. Further changes are to be expected if, as indicated in a recent United Nations Drug Control Program (UNDCP) report, smuggling across the former Soviet border increases.

OPIUM SUBSECTOR

Opium poppy cultivation in Afghanistan has a long history: it had been largely cultivated for traditional medicinal purposes for centuries in various parts of the country. The transformation of poppy into a major cash crop is a phenomenon of the last few decades. In their 1972 study *Poppies in Afghanistan*, Owens and Clifton found poppy cultivated primarily in four provinces: Nangarhar, Qandahar, Balkh, and Badakhshan. Poppy was typically cultivated during the same seasons as wheat (planted in the fall or winter and harvested in April or May) and was used as part of a double cropping pattern with corn, cotton, and vegetables.

Opium cultivation in Afghanistan has increased dramatically since the Russian invasion in 1979. The factors responsible for this include (1) the general absence of government or central authority in rural areas; (2) the disruption of traditional transport and market systems; (3) the effect on farmers of war-induced deprivation and poverty; (4) a reduction in opium cultivation by traditional growers—Iran, Pakistan, and Thailand; and (5) a sharp increase (at least regionally) in addiction.

Most poppy production comes from southwest Afghanistan, particularly northern Helmand province, which is northwest of Qandahar, and the eastern provinces, particularly Nangarhar. These regions appear to show a rapid increase in poppy growing. Considerable poppy growing is reported in Badakhshan, but production there is reportedly decreasing. Some poppy growing takes place in central provinces of Uruzgan and Bamyan; the northern provinces of Balkh, Faryab, and Jawzjan; and around Herat, in the far west. These appear to be smaller centers, but the information available is limited. The most salient reason for the provincial pattern seems to be the attitudes of local authorities. Those in several former opium-growing provinces, such as Konar, have shut down the trade, just as others, such as Akhuzada in Helmand, actively promote poppy cultivation. According to the Swedish Committee for Afghanistan, the provinces in which poppy cultivation is increasing may have a smaller portion of abandoned land and an increasing inequality in landholding patterns. These facts are difficult to link, however, with trends in poppy cultivation.

Except for Badakhshan, in most areas of Afghanistan poppy is irrigated and planted in the fall and harvested in the spring. Poppy cultivation has two labor-intensive phases: hoeing and harvesting. An adequate supply of skilled labor is crucial for a successful harvest because the poppy pods must be incised and the raw opium gum collected several times during a period of approximately 2 weeks.

Estimates of yields abound, but the most common ones show yields of 30 to 40 kg/ha. All sizes of farmers cultivate opium poppy under various tenurial arrangements. It is several times more profitable than wheat, its common alternative.

Dr. Nek Buzdar of the survey team estimated that the net returns from opium cultivation in southwest Afghanistan are \$2,115/ha. Dr. Abdul Wakil, another member of the team, calculated the returns for eastern Afghanistan at \$2,192/ha, using a somewhat different methodology. Using an equivalent methodology, Buzdar estimated net returns of \$2,555 and Wakil of \$2,463. UNDCP price figures for May 1992 show prices for opium of \$76 to \$96 per kilogram in eastern Afghanistan and \$96 to \$112 per kilogram in Khyber Agency in Northwest Frontier Province (NWFP).

Opium has more than a dozen alkaloids, including morphine, a product 10 times more potent than opium. Heroin, another alkaloid of opium, is produced by relatively simple chemical processes using morphine base and acetic anhydride as primary inputs. In its purest form the drug is three to four times more powerful than morphine.

Factors affecting the prices of heroin include opium and other input prices, government restrictions, and purity levels. In Quetta a 0.7 gram *puri* white heroin was sold for US\$2 in early June, indicating a street price of \$3,440/kg. In Girdi Jungle and Dalbandin, the retail price was reported to be \$1,600 to \$1,800 per kilogram for white and \$800 to \$1,000 per kilogram for brown. The May 1992 UNDCP report indicates prices of \$2,400 to \$2,600 per kilogram for white and \$800 to \$1,000 per kilogram for brown in eastern Afghanistan and NWFP.

TRADE CHANNELS AND IDENTITY OF TRADERS

In southwestern Afghanistan, most farmers sell their opium gum produce immediately after harvest to traders or agents of processors. Some poorer farmers short-sell their standing crops for 60 to 70 percent of their postharvest value. Many farmers, particularly those from Qandahar and Helmand, take their produce to Sanguin, in Helmand, which is the largest opium market in southwestern Afghanistan. Still others have their own processing arrangements or sell their opium directly to processors who in most cases are located near the Afghanistan-Pakistan border in Balochistan. Farmers in Nangarhar and eastern Afghanistan sell their product under similar arrangements. The processing was formerly done inside the Khyber Agency but is now done increasingly in Afghanistan.

Almost all the opium-producing farmers except those in Badakhshan are Afghan Pashtuns, as is the population in the opium-growing areas. Among the traders, processors' agents, and those who collect and transport opium to the Pakistan-Afghanistan border in the southwest, there is a good number of Afghan Baloch. The traders in eastern Afghanistan and Badakhshan are also Pashtuns, Afghans, or from Pakistan's tribal areas such as Shinwari, Mohmands, and Afridi.

The processors in the southwest are both Pashtun and Baloch, some originally from Iran. The Baloch probably shifted their operations to the region after the crackdown on narcotics by the Khomeini regime in 1979. Most of the processors in Khyber are tribal area Pashtuns, though originally there were some "foreigners." In the Pakistani border town of Chaman and in Quetta, the opium business was controlled for many years by members of border tribes of Achakzai and Noorzai, many of whom belonged to the Hizb-e-Islami of Hekmatyar. Most of the growers and traders in Nangarhar, like everyone else there, are associated with the Hizb-e-Islami of Khalis. It is well known that for many years the Akhuzadas of Musa Qala controlled most of the opium business in southwestern Afghanistan.

Serving southwest Afghanistan, Balochistan has close to a 1200-km-long border with Afghanistan. For various reasons there does not seem to be much heroin processing and trade activity to the north and east of Quetta. To the southwest until last year heroin laboratories existed on both sides of the border, most on the Pakistan side. All current indications are that since last year the factories have been moved to the Afghanistan side of the border because the Pakistan government has become more strict, seizing drugs and arresting people.

From Girdi Jungle, to the west of Quetta, the drugs are transported west toward Rabat along the Pakistan-Afghanistan border and south toward the Makran coast along the deserts of Kharan and Makran. From Rabat, drugs enter Iranian Balochistan and then move on to other areas of Iran, finally reaching the Kurdish areas of Eastern Turkey. Southbound consignments reach Makran, from where some portion goes to southern Iran, some portion is marketed in Makran itself, and the rest is transported by sea to Karachi or elsewhere. Most of the opium from Nangarhar and Badakhshan appears to flow through the Khyber Agency of the Tribal Territories.

ANALYSIS AND RECOMMENDATIONS

Neither as a problem nor in its solution is narcotics primarily an affair of individual addicts, farmers, and traders. Nations are concerned because of the overall social impact of large-scale narcotics production and use, and nations as a whole move as a matter of social policy to eliminate them. One of the principal factors influencing the spread of poppy is a social decision by those who control an area to prevent or protect its cultivation.

For more than 150 years nations have tried to suppress the drug trade, and since the early 20th century they have tried to mobilize international cooperation to that end. Five factors have influenced national decisions and the effectiveness of their implementation:

1. The effects of drugs on the moral and physical health of citizens or subjects. (This is seen in the conviction among many Afghan commanders and other local leaders that prohibition of narcotics use by Islam is the single strongest factor leading them to suppress poppy cultivation.)
2. The economic drain that drug use imposes on the economy.
3. The threat to national security and stability posed by the power represented by those who control the drug trade.
4. The dependence of certain governments on drug-related income.

5. The ultimate unsustainability of governments and national economies dependent on narcotics exports.

These factors have been important in the dynamics of the drug trade since its first modern manifestations and are salient in the current Afghan situation. The difference in Afghanistan is that although these matters are typically decided and affected by individual nation-states, in Afghanistan as in China before 1950, all types of local controllers are also in a position to make independent decisions.¹

CONCLUSIONS INFLUENCING DRUG-CONTROL STRATEGIES

The five factors described above have influenced the decisions made and efforts taken by governments in confronting the drug problem. From these factors, five salient conclusions can be drawn that influence the discussion of possible strategies to reduce the drug economy to less threatening proportions.

First, the decision to protect or repress the drug economy is taken by the authorities who have effective control over any given area. Without their commitment, any reduction in poppy cultivation and drug production is difficult to accomplish. Although the national government in Afghanistan currently has little control of the country, various local authorities do have control and largely determine where poppy is and is not cultivated.

Second, as a consequence of the first conclusion, securing the cooperation of local authorities is crucial.

Third, because political decision making is so critical, factors that might influence farm management decisions—such as the relative prices of competing crops or of different inputs—are now less salient. Nevertheless, the more favorable these factors are to poppy alternatives, the easier repressing the narcotics economy will be. However, the marginal effects of price changes, and even the development of alternative agricultural possibilities, are likely to occur relatively slowly.

Fourth, simply substituting crops is not enough. Alternatives are required for cultivators, but also for the others who are involved in the economy as runners, couriers, and so forth. Overall economic development is likely to assist in suppressing narcotics, much as it affects population growth and many social ills.

Fifth, in the narcotics economy, as illustrated in a diagram later in this report, there are two points at which the heroin production process narrows in terms of the number of people involved: at the heroin laboratories and at the points of export. This occurs because the number of people who have the connections, the technical abilities, and the social and political protection to perform these functions is limited. At the same time, those who control these nodes normally use force to limit the number of competitors. Because of the limited number of actors, attacking the heroin flow at these two nodes would seem easier than at other points. Whether this is, in fact, the case is the subject of an ongoing debate in the enforcement community.

ALTERNATIVES TO POPPY

The U.S. government, the United Nations, and many other organizations have implemented a number of antinarcotics development projects in many poppy-growing countries, including Pakistan. A major complaint about these projects concerns the "balloon effect," which is the shifting of poppy cultivation from the project area to another area that had been previously free of poppy, just as pressure in a section of a balloon displaces air in that section to the other areas of the balloon.

Among the projects that have been implemented in NWFP in Pakistan, which has climatic and other characteristics similar to parts of Afghanistan, is A.I.D.'s Northwest Frontier Area Development Project in Gadoon-Amazai. Although this project was successful in substantially reducing the area under poppy cultivation, it has been criticized generally for its high costs and particularly for balloon effects, the failure of substitute crops to produce returns per acre as high as those of poppy, and heavy dependence on subsidies. There are also reports that because of higher prices for opium, cultivation is again increasing in certain of the tribal agencies of NWFP. A large number of other narcotics projects have been implemented by various organizations in NWFP as well.

The study examines the potential of substitute crops for poppy in Afghanistan. Some crops, especially fruits and nuts, can provide returns higher than those currently provided by poppy. However, these returns depend on the establishment of marketing networks for the crops and also fail to account for the ability of drug traffickers to raise the prices paid to farmers for opium without seriously diminishing profit margins.

1. Introduction

SURVEY OBJECTIVES

The purpose of the Opium Subsector Survey is to assist A.I.D. in developing an antinarcotics strategy for Afghanistan. If implemented, the A.I.D. strategy would be part of a broader U.S. antinarcotics strategy and would be coordinated with all relevant units of the U.S. government, the antinarcotics strategy of the new Afghan government, and Pakistan's antinarcotics strategy. The U.S. Government needs an overall strategy, both to deal with its current assistance operations and, more importantly, as a resource in negotiating an assistance agreement with the Government of Afghanistan (GOA) in Kabul when a normal bilateral program can be restored in the country. Such a coordinated strategy would likely include elements for increasing narcotics awareness and measures for promoting income substitution for opium and treatment for addicts. A.I.D.'s strategy and specific activities should dovetail with other antinarcotics efforts by the U.S. government, including those designed to strengthen police agencies in antidrug enforcement and engage in policy dialogue in order to strengthen efforts by the Afghan and Pakistan governments in antinarcotics, support the destruction of crops, and interdict the flow of drugs and drug-related commodities. To formulate such a strategy, data on the economic, social, and political situation of the opium subsector in Afghanistan is needed.

The specific objective of the Opium Subsector Survey must therefore be to provide an understanding of the entire subsector: from cultivation scheduling and inputs, to farmgate sale, to transportation to and sale in domestic and foreign markets. An important element of understanding the subsector is identifying the people who influence the production of opium and control the processing and marketing of opium and heroin in Afghanistan and how the sociopolitical system provides them with the opportunities and protection to do so.

A second objective of this study is to provide baseline data on the cultivation of opium poppy, processing of opium into heroin, and marketing of raw opium and heroin. These data will be essential for the development of future policies and programs to curtail opium and heroin production. Finally, the Opium Subsector Survey will identify possibilities for influencing the agricultural system to reduce poppy production, especially through income substitution. Although the study focuses on the opium subsector of Afghanistan, some overlap with aspects of the opium subsector of Pakistan will be needed because the two subsectors are highly interconnected.

HISTORICAL BACKGROUND OF POPPY CULTIVATION

Prewar

Afghanistan has a long history of cultivating opium poppy. For centuries, and in various regions of the country, poppy was processed into opium for traditional uses, including medicinal purposes. Around 1500, the Moghul emperor Babur referred to one of his friends as an opium eater. Villagers have used opium as a pharmaceutical to relieve pain and even to pacify infants since before the British began describing the country in the 19th century.

By the time of their 1972 study *Poppies in Afghanistan*, Owens and Clifton found poppy cultivated primarily in four provinces: Nangarhar, Qandahar, Balkh, and Badakhshan. Poppy was

typically cultivated during the same seasons as wheat (planted in the fall or winter and harvested in April or May) or was used as part of a double-cropping pattern with corn (maize), cotton, and vegetables.

Postwar

Opium poppy cultivation in Afghanistan has increased dramatically since the Russian invasion in 1979. As will be shown later, Afghanistan now grows the largest amount of poppy in the Golden Crescent (Pakistan, Afghanistan, and Iran). The Golden Crescent area is the second largest source of opium in the world for several reasons, including (1) the general absence of government or central authority in rural areas, (2) the disruption of traditional transport and market systems, and (3) the effect on farmers of war-induced deprivation and poverty.

The increase of opium poppy cultivation in Afghanistan since 1979 is marked by increased intensity of cultivation in some of the four provinces described in the Owens and Clifton study and by expansion to other provinces.

HISTORY OF AFGHANISTAN'S DRUG-CONTROL POLICY

Afghanistan has been a party to several drug-control treaties, including some in the first part of the 20th century—in particular, the treaties of 1912, 1925, and 1931. Afghanistan is also a party to the 1961 UN Single Convention on Narcotic Drugs, but not to the 1972 UN Protocol amending the convention. It is a party to the 1971 UN Convention on Psychotropic Substances, but not to the 1988 UN Convention Against Illicit Traffic in Narcotic Drugs and Psychotropic Substances.

In addition to international treaties, Afghanistan has enacted its own laws in an effort to control narcotics, for example,

- A 1944 law for the prevention of illicit cultivation of narcotic crops;
- Prescription requirements for medication in 1950;
- A law against illicit trafficking in 1957; and
- A 1969 law on prevention of smuggling, which was amended in 1989 to include more severe penalties.²

A new penal code was enacted in 1975 and remains in force. As of May 1991, a new law on all aspects of drug-abuse control was reported to have proceeded through Parliament and was awaiting presidential signature.³ The defeat of the communist government in 1991-1992 presumably renders this law moot. In 1973-1979, Badakhshan, a province with a large addict population, was the site of antidrug activity by the Afghan government.⁴ Such activities occurred in other areas as well.

In May 1990, the State High Commission for the Campaign against Narcotic Drugs was established by decree in Afghanistan. All drug-control activities were to have been reorganized under the High Commission, which was presided over by the Vice-President of Afghanistan and was to meet monthly according to statute. The future of the High Commission in particular and drug-control activities in general under a new Afghan government remains uncertain.

However, on June 30, 1992, President Rabbani, in his first speech on Kabul Television, said that the new Islamic government would fully observe its international commitments and strive to prevent drug trafficking, production, smuggling, and use. The state, President Rabbani said, is eager to protect the youth from unscrupulous anti-Islamic elements who undermine youth for financial gain. The

president added that efforts to rehabilitate addicts would be given priority. He expressed hope that all Afghans, foreign countries, and the United Nations would assist in the antinarcotics endeavor.⁵

U.S. POLICY INTEREST

The history of U.S. policy interest in opium and heroin can be traced to the early 1900s, when the United States was forced to deal with a large number of heroin addicts in the Philippines, which it had taken over from Spain. In 1909, representatives of 13 nations met in Shanghai at the request of President Theodore Roosevelt to consider methods of curtailing opium smoking.⁶ In the following decades, conventions and protocols were signed. Among the strictest of these was the 1953 Protocol, which designated seven countries as being eligible to undertake legal export of opium; however, this agreement did not provide an effective control mechanism.⁷ In 1970 the United States was the primary force behind passage of UN Resolution 1559. This resolution established the UN Fund for Drug Abuse Control (UNFDAC), which was transformed into the UNDCP.

One of the key strategic elements in the U.S. war on illicit drugs is to stop their production in order to curb their availability.⁸ This is done by encouraging and helping countries to control production of, and to eradicate, stop transportation of, and otherwise impede the flow of, illicit crops. Besides bilateral assistance, the United States seeks cooperation in prosecuting traffickers, seizing their assets, and blocking their financial transactions. The United States is committed to supporting multilateral antinarcotics organizations.

Nine federal agencies are involved in the antinarcotics effort. Foremost among them are the Drug Enforcement Agency (DEA); A.I.D.; and International Narcotics Matters (INM), a section of the U.S. Department of State. DEA is the leading agency in drug enforcement; A.I.D., in cooperation with INM, provides development assistance to promote alternative development in areas affected by drugs; and INM is responsible for overall coordination, including financing pilot development projects, securing host country cooperation, and communication.⁹

On the international level, this source country strategy is pursued in cooperation with various host countries, as well as with multilateral organizations. Generally the large bilateral donors, other than the United States, operate through the United Nations rather than run bilateral antidrug programs themselves. While recognizing the usefulness of multilateral programs and providing an important part of their financial support, the United States has found that bilateral programs are a valuable part of the antidrug effort. Perceptions of the differences in the approach to narcotics control by the United States and that by bilateral and multilateral organizations were expressed in a report by the General Accounting Office (GAO) in 1990. These differences, reflected in various UN programs—particularly those of the UNDCP and World Health Organization (WHO)—justify the maintenance of separate programs by the United States.¹⁰

According to its 1982 policy statement, A.I.D.

1. Seeks to design projects to provide economic alternatives to farmers in narcotics growing areas;
2. Requires host countries to suppress narcotics cultivation in project areas by mean of "poppy clauses" in project documents;
3. Works to support involvement by the United Nations and other multilateral and private voluntary organizations in alternative development activities in poppy-growing areas; and
4. Cooperates with other federal agencies to analyze, disseminate, and use information on development activities related to narcotics control as required by the 1979 Interagency Agreement for Sharing Information.

By March 1985, A.I.D. had reported six antinarcotics projects in four countries, involving a total obligation of US\$62.4 million.

Although the United States has no bilateral antinarcotics program with Iran and Afghanistan, it has quite an active program with Pakistan. In fact, some of the increase in cultivation of poppy and production of heroin in Afghanistan probably responds to the effectiveness of suppression efforts in Pakistan. It is almost certainly also attributable to increasing turmoil in Afghanistan.

The U.S. antinarcotics program in Pakistan calls for a considerable amount of cooperation with Pakistani authorities in assisting police and enforcement agencies to extradite leading narcotics suspects and gather antinarcotics intelligence. The United States and Pakistan are involved in dialogue on more effective legislation and enforcement. The United States supports alternative agriculture and rural development programs in NWFP and potentially in the Khyber Agency, as well as antinarcotics demand reduction activities such as the Drug Abuse Prevention Research Centre (DAPRC).

Despite considerable activity and progress in some areas, the 1991 *International Narcotics Control Strategy Report* reported "mixed success" in controlling poppy growing. Opium production increased in 1990 and 1991 despite the reported destruction of 438 ha. of poppy. Pakistan, which had no heroin addicts in 1979, is now estimated to have 1.2 million, one of the world's largest addict populations. Enforcement efforts, particularly in the tribal areas on the Afghanistan border, are often ineffective—a condition related to traditional Pakistani reluctance to intervene vigorously in these areas.

In view of the focus of U.S. foreign policy on suppressing the cultivation and use of narcotics, the United States has maintained a keen interest in Afghanistan, which at present is estimated to be the world's second-largest producer of opium after Burma. During 1990-1991, A.I.D. implemented its Narcotics Awareness and Control Project (NACP) to counter drug production in Afghanistan. NACP initially provided assistance to areas controlled by commanders committed to suppressing production as well as to public education and research. The efforts to encourage opium crop substitution were discontinued in early 1991 because of differing interpretations of foreign assistance legislation and absence of congressional approval. The entire project was canceled in December 1991 for similar reasons.

The NACP was composed of the following sections: (1) the survey unit, (2) the data processing unit, (3) the crop research unit, and (4) the library. Among the significant outputs of the project were the 1990 update of the report *Poppies in Afghanistan*, surveys and analyses of drug use and awareness among Afghan refugees, reports of crop surveyors, and educational materials.

Poppies in Afghanistan is the most relevant of NACP's outputs. The report covered eastern Afghanistan (Nangarhar and parts of Konar provinces), northeastern Afghanistan (parts of Badakhshan), and southern Afghanistan (parts of Helmand, Qandahar, and Uruzgan provinces). The primary source of information for the study was interviews with Afghan refugees in refugee camps in Pakistan. Most of these Afghans were poppy farmers, or landlords whose land was in areas of poppy cultivation, who continue to cultivate their land in Afghanistan.

Since the termination of the NACP project, A.I.D. antinarcotics programming in Afghanistan has been limited. To quote from the *International Narcotics Control Strategy Report*:

At the present time, U.S. involvement in drug control in Afghanistan is limited to monitoring efforts conducted from Pakistan. All U.S. assistance agreements involving Afghanistan contain antinarcotics provisos, and the U.S. urges all other donors to require such provisions in programs they support in poppy-growing areas.¹¹

OPIUM-RELATED PROGRAMS OF OTHER ORGANIZATIONS

The UNDCP has significant operations directed at the control of illegal drugs in Afghanistan. The Afghanistan UNDCP program has two main elements: (1) raising public awareness about the effects of drugs and (2) promoting crop substitution, aimed at the provinces of Badakhshan, Helmand, Konar, and Nangarhar. The UNDCP, which established offices in Peshawar in 1989 and in Kabul in 1991, also has projects for the treatment and rehabilitation of addicts, in Peshawar and in the refugee camps in Pakistan, and in Kabul. The status of the Kabul program is currently uncertain and likely has very limited impact.

2. State of Poppy Cultivation

POPPY CULTURE

Golden Crescent

Afghanistan forms part of the Golden Crescent area of Southwest Asia, which is estimated by the U.S. government to provide 23 percent of the heroin used in the United States. The Golden Crescent ranks only slightly behind the Golden Triangle of Southeast Asia as a source for the American heroin market. As is the case with the countries of the Golden Triangle, the borders between Iran, Pakistan, and Afghanistan are poorly policed. Furthermore, a situation verging on anarchy in Afghanistan (similar to that in sections of Burma) enables poppy cultivators and drug traders to operate with relative impunity. Both Pakistan and Iran have taken steps to suppress their drug trade, but they have only been partly successful. Like the Golden Triangle, or for that matter most other drug-producing regions, the countries of the region have a large addicted population, consuming both opium and, increasingly, heroin.

The opium economy of the Golden Crescent area must be treated as an economic unit comprising all three countries, although this report necessarily focuses on Afghanistan—as will any A.I.D. policy directed toward that country.

U.S. Government figures show that the countries of the region produced 1025 MT of refined opium in 1991, although numerous commentators insist that this figure underestimates the actual quantity.¹²

Figures for demand in the Pakistan-Afghanistan area come from the same U.S. government figures as those for supply. An estimated 50 MT of heroin (300 to 500 tons of raw opium) are needed to supply Pakistan's domestic heroin addicts. The Golden Crescent area is estimated to account for 23 percent, or 154 tons, of America's total heroin imports of roughly 700 tons. Each ton of heroin requires 7 to 10 tons of opium. Two hundred tons of heroin would require a minimum of 1,400 tons of opium, which is more than the region's total production. Large amounts of opium are directly consumed in Pakistan and Afghanistan, and an undetermined amount is exported to Iran and Europe. If the demand figures are correct, the supply figures may be underestimated.

Experts on Pakistani patterns of drug use suggest that the average addict may use a much lower amount of heroin than is the norm elsewhere.¹³ In any case, the Golden Crescent is certainly a major user as well as producer of opium and heroin. But a considerable surplus clearly exists for export. Within the Golden Crescent, Afghanistan has in recent years been the major producer of raw opium, which has been shipped to Pakistan where much of it was converted into heroin in factories located in the Khyber Agency, Girdi Jungle, and perhaps elsewhere.

This geographical pattern of cultivation and processing appears to be changing as heroin factories move into Afghanistan. Further changes are to be expected if, as is indicated in a recent UNDCP report, use of narcotics in the former Soviet Union continues to increase and smuggling across the former Soviet border also increases.¹⁴

Regions within Afghanistan

Afghanistan has a number of agro-climatic regions in which poppy, the raw material for opium and its derivatives (heroin and morphine), is grown. A map showing the general pattern of Afghanistan opium poppy cultivation is provided at the end of this report. The growth of opium is concentrated in a few regions. Reservations about the data underlying this map will be discussed later in the section on data sources, as well as in Appendix A.

The Swedish Committee for Afghanistan, in the *1991 Agricultural Survey of Afghanistan*, defines three regions for the growth of poppy: one with small irrigated farms of less than 15 jeribs (1 jerib = 0.483 acre), including the entire east of the country and Nimroz and Herat; a second with medium-sized rainfed and irrigated farms of 15 to 30 jeribs, including Balkh in the north and Helmand and Qandahar in the south; and a third with rainfed farms mostly larger than 30 jeribs, including Badakhshan.¹⁵

U.S. estimates of land planted with poppy are as follows:¹⁶

<i>Year</i>	<i>Number of hectares</i>
1988	23,000
1989	17,190
1990	12,375
1991	17,790

The factors influencing the reported cultivation trends are difficult to determine. The biggest change has occurred in Helmand province and reflects changes in the policies of local commanders. Other sources, particularly UNDCP and nongovernmental organizations (NGOs), mostly funded by UNDCP, have estimates that suggest significantly higher levels. The regional supply and demand estimates indicate that somewhat higher levels are possible. But the UNDCP figures seem much higher than what could readily be absorbed.

The bulk of opium production occurs in the southwest portion of the country, particularly (1) northern Helmand, (2) northern Qandahar, and (3) the eastern provinces (particularly Nangarhar). Poppy cultivation seems to be increasing rapidly in these regions, for which we have the most information.

Southwestern Afghanistan has a region of poppy cultivation that includes the districts of Musa Qala, Naw Zad, and Nad Ali in Helmand; Khakrez, Arghandab, and Arghistan in Qandahar; Mizan in Zabul; and Deh Rawud and Tirinkot in Uruzgan. In this region, small-scale poppy cultivation to obtain opium for domestic and medicinal use has occurred for more than a century. But only during the last decade or so has poppy been cultivated in these areas on a large-scale and commercial basis. Much of the cultivation is reported to be under the Akhunzadas of Musa Qala, who reportedly cut production severely in 1990—probably in connection with negotiations with American authorities. However, production quickly recovered in 1991 after the assassination of the leading member of the clan. All reports for 1992 indicate that poppy cultivation in the region is significantly higher than in 1991. The Helmand estimates vary from 3000 ha. in poppy to several times that figure. The Swedish Committee for Afghanistan reported in 1991 that roughly 37 percent of farmers surveyed in Helmand province sold opium in an average amount of 4 "seers" (roughly 28 kg) and for a price of Afs. 439,143 a seer (about US\$800 a seer, or US\$3,200 for 4 seers, using an exchange rate of US\$1 = Afs. 550). The

Swedish Committee for Afghanistan's samples for Qandahar and Uruzgan are too small to be significant but show roughly comparable production and price levels to those in Helmand.

Among the eastern provinces (Konar, Nangarhar, Paktia, Parwan, Bamyan, Laghman, and Badakhshan), the province of Nangarhar is by far the largest producer of poppy, followed by Badakhshan. In Badakhshan, poppy cultivation has been banned in the Yaftal, Teshkan, and Shewa areas by the commanders who are in control, but it is grown elsewhere in the province. According to several sources, some farmers continue to cultivate on hard-to-reach areas of their land. When caught, they have been punished by commanders.

Nangarhar is the major center for poppy in Afghanistan, accounting for from 10,000 ha. to several times that amount, according to various estimates. Some districts are reported by the UNDCP to have more than 80 percent of their cropped land in poppy. An April 1992 UNDCP mission reported that 85 percent of the land in Achin, 80 percent in Ghani Khel, 65 percent in Rodat, and 60 percent in Deh Bala were planted in poppy.¹⁷ The Swedish Committee for Afghanistan reports that 366 of the 661 farmers surveyed in Nangarhar, 55 percent of the total, sold some opium, with an average of 2 seers (roughly 14 kg) each, at an average price of Afs. 164,846 a seer (or roughly US\$300/kg at US\$1 = Afs. 550). How this reconciles with another estimate by the Swedish Committee for Afghanistan that 79 percent grew poppy on an average of 2.4 jeribs, and with an average yield of 1 seer a jerib, is unclear. (Perhaps some who grew poppy did not process it themselves.) UNDCP reported 4,000 ha. under poppy cultivation in Badakhshan in 1989, and that the figure was declining; other observers reported a much lower estimate.

Konar grew poppy before the war and for some time during the war, but Maulvi Jamilur Rahman, the leading local authority, banned poppy growing in this province and none is grown now. In fact Jamilur Rahman compensated those who had already spent money on land preparation and planting when he imposed his ban in the 1980s.

Laghman has never grown much opium; no commercial-scale production takes place in the plains of Laghman. In the northern tip of Laghman, in the districts of Alishing and Alingar (near the border with Badakhshan), some poppy is now cultivated, but the amount is small, as indicated in Tables 2-1 and 2-2.

Paktia is another eastern province where considerable amounts of poppy were grown before the war. According to some reports, no significant production takes place now, although other sources report several hundred hectares. According to one source, the district of Sayyid Karam is the only one in Paktia producing drugs, specifically, hashish. Poppy cultivation in Paktia has declined because intense fighting during the early stages of the war in this province prevented farmers from planting poppy. Subsequently, a high percentage of the population fled to Pakistan. Furthermore, Commander Haqqani was active in this province during the war, and his almost permanent presence influenced people not to resume planting.

Some growth is reported in Bamyan and Uruzgan provinces near the center of the country and in the far west around Herat. However, it should be recognized that information about poppy cultivation in these areas is sketchy. They probably are not currently major growing areas at present, or at least are not as important as Helmand and Nangarhar. Parwan has no significant production.

Tables 2-1 and 2-2 show the relative intensity of poppy cultivation in various districts of major growing provinces.

Data Sources

Most current data from Afghanistan are uncertain—population figures, crop yields, the identity of the individuals in power—and especially narcotics-related data. Individuals involved in narcotics-related activities have special incentives to conceal their activities. Nonetheless, the data we have are likely the best available. Data in Table 2-2 are gathered from various sources and are based on methodologies not defined. Probably some are interpretations of satellite imagery and estimates of average yield.

Table 2-1. Intensity of Poppy Cultivation

Province and Districts	Intensity
Nangarhar	
Shinwar	XXX
Durbaba	XXX
Bati Kot	X+
Rodat	XXX
Chaparhar	XX+
Mohman Dara	XX
Lalpur	X
Kama	—
Goshta	XX
Surkh Rod	XXX
Behsud	—
Hisarak	XX
Kuz Konar	XX
Dara-e-Nur	XX
Khogiani	XXX
Pachir Wa Agam	XXX
Sherzad	XXX
Laghman	
Mehtarlam	—
Qarghayi	—
Dawlat Shah	—
Alingar	X
Alishing	X

Table 2-1. Intensity of Poppy Cultivation

Province and Districts	Intensity
Paktia	
Gardez	—
Speyra	—
Khost	—
Manduzai	—
Sabari	—
Trazai	—
Dara-e Darang	—
Tani	—
Gorbaz	—
Nadir Shah Kot	—
Mush Khel	—
Hassan Khel	—
Jani Khel	—
Jadran	—
Shamal	—
Sayyid Karam	—
Chamkani	—
Dand Wa Patan	—
Lajmangal	—
Zurmat	—
Wolma	—
Jaji Maidan	—
Badakhshan	
Jurm (by the following villages):	XX
Khash	XXX
Peshkan	XX
Jabab	XX
Ferghanunj	X
Yaftal	—
Teshkan	—

Table 2-1. Intensity of Poppy Cultivation

Province and Districts	Intensity
Shewa	—
Qandahar	
Khakrez	XX
Arghandab	X
Maruf	X
Arghistan	X
Helmand	
Musa Qala	XXX
Naw Zad	XXX
Sanguin	XX
Baghran	XXX
Uruzgan	
Tirinkot	XXX
Deh Rawud	XX
Zabul	
Mizan	X

Note: Level of poppy cultivation: X = light, XX = medium, XXX = heavy. Dashes indicate no significant level of poppy cultivation.

Table 2-2. Opium Production In Afghanistan

Province	1989		1990		1991	
	Number of hectares	Number of metric tons	Number of hectares	Number of metric tons	Number of hectares	Number of metric tons
Helmand	3500	110	200	—	3600	120
Nangarhar	9800	330	10400	360	11700	400
Paktia	1000	—	500	—	800	—
Uruzgan	2200	100	600	—	400	—
Bamyan	300	—	100	—	500	—
Konar	500	—	300	—	—	—
Badakhshan	4000	200	ND	ND	ND	ND

Notes: ND = no data. Dashes indicate production lower than 100 MT.

The most accurate figures come from ground-truthed satellite imagery. UNDCP is currently interpreting satellite imagery and has completed ground truthing for the Nangarhar and Helmand areas. A new set of relatively accurate figures is expected from the UNDCP effort by the end of 1992. For now, we must rely on various estimates. The current UNDCP estimates appear to be higher than those from other sources, but are based on careful observations by UNDCP's field staff.

Other figures used in this report, besides those for poppy acreage, are taken from a variety of sources. Data from a survey conducted by NACP in refugee camps are particularly questionable and often differ widely from those from other sources. When such differences were noted, as for prices of opium, we used the more common figures. Prices used were from recently released figures from UNDCP that corresponded roughly to figures elicited from selected interviews and related to those in the last publicly available figures from *Intelligence Trends*, released by DEA in 1990. When no other figures were available, NACP figures were occasionally used. Other figures emerged from interviews with reputable sources in Pakistan. Appendix A contains a discussion of the different available published data sources and their coverage.

The data on heroin processing are even less reliable than those on opium cultivation. We have largely avoided naming names and giving precise locations—both because it would expose our informants and because we are in no position to treat what is essentially hearsay as hard evidence. However, the locations of a number of laboratories in Pakistan, and even some in Afghanistan, are widely reported. Reliable sources report more than 100 in Pakistan alone.

The information on which this report is based includes interviews with refugees in the camps of the Girdi Jungle, Aamri, Posti, Chagai, and Zorchah areas of Chagai district—all located in Balochistan close to the Pakistan border with Afghanistan; Malghee near Muslim Bagh; Sorkhab near Pishin; and Mohammad Khel in Quetta. Interviews were conducted in Peshawar with refugees involved in running cross-border programs that are in all of the affected provinces as well as in the Khyber Agency. Interviews were also held with officials of Government of Pakistan and those of international organizations concerned with narcotics control and prevention programs in Quetta and Peshawar. Agricultural data gathered inside Afghanistan by the Swedish Committee for Afghanistan and A.I.D. and UN-funded programs were also used to prepare this report. Appendix B contains a bibliography of works consulted. Appendix C contains a partial list of individuals who were interviewed or cooperated with our research.

CULTIVATION PRACTICES

Land Preparation

Poppy grows best in moderately textured, light clay soils, but it can be grown under a variety of climatic and soil conditions. In Afghanistan as well as in NWFP, poppy has been successfully grown on marginal and poor lands. In general, however, it is grown on good-quality irrigated land (in contrast to Pakistan).

Land preparation for poppy cultivation in the main growing areas starts immediately after the spring crop is harvested, sometime between August and October depending on factors such as temperature, precipitation, and altitude. In Uruzgan and Zabul land preparation must be completed by the end of October, so that the poppy crop can be sown in November. In Nangarhar, sowing normally occurs in late November to early December, and land preparation continues until sowing time.

The land is plowed with a traditional wooden plow with a locally made share or a with a relatively modern moldboard for deep plowing. A harrow or a cultivator is used to stir soil and create mulch

conditions for the seed. Many farmers apply farmyard manure at this preparatory stage at a rate of 15 to 20 MT/ha. for best yields; however, many use much less.

In most of the poppy areas in the eastern provinces, where holdings and plot sizes are small, people do not own tractors. Therefore, land is normally cultivated by a pair of oxen with wooden, locally made tools. The wooden plough has a small, pointed, shovel-like piece of metal at the end. In the southwest, the use of tractors is more common, including for preparing land for poppy cultivation.

Sowing

Sowing in the southwest takes place between the last week of October and the second week of December. In the colder, high-altitude areas of Uruzgan and Zabul, sowing is normally completed about the middle of November, while in the relatively low-lying, warmer areas of Qandahar and Helmand, sowing continues until the middle of December. In exceptional years, when fall sowing cannot be completed on time or when the crop is destroyed by a natural disaster, spring sowing is undertaken in February or March. In Nangarhar, as mentioned above, sowing takes place in late November and early December. In Badakhshan, poppy is grown on both irrigated and unirrigated land. On unirrigated land it is sown in November and December. On irrigated land the crop is sown in March and April, usually immediately after the snow melts.

In the southwest, 2 to 5 kg/ha. of seed are mixed with soil or sand and sown through broadcasting. In the eastern provinces, the rate is 10 kg/ha. After the seeds are broadcast, a wooden plank called *mala* is pulled over the field so that the seeds are covered with soil. The *mala* is made of dense wood (usually mulberry) and is about 2 m long, 25 cm wide, and 10 cm thick. The seeds normally germinate in about 1 to 3 weeks, depending on temperature and soil moisture content. The growing season ranges from 5½ to 6½ months. The seeds used are all local. There are some reports of improved and high yielding seeds imported from NWFP being used in some areas. However, neither the reports of their use nor the fact that NWFP seeds are superior to the local seeds could be confirmed. The common practice is for farmers to save their own seeds for the next year's crop.

Irrigation

As mentioned previously, some dry farming of poppy is done in some areas of Afghanistan, particularly in Badakhshan in the northeast region, but in the southwest and east all poppy is cultivated on irrigated lands. The main sources of irrigation in Zabul and Uruzgan are *karez*s, springs, and small and medium-sized seasonal and perennial rivers. The *karez*s, also found by the thousands in neighboring Iran and Balochistan, are subterranean channels that convey water from underground aquifers located at higher elevations to the fields located at lower elevations, through natural gravity. However, open-air river irrigation is more common. Small and temporary diversion structures are erected on rivers and *jui*, or small canals, lead out to the fields. Structures on the rivers in the Arghandab and Helmand areas in the provinces of Qandahar and Helmand are modern and more permanent, and large-scale cultivation takes place in these areas.

Poppy in Nangarhar is mostly irrigated from adjoining rivers (river diversion) and springs. Depending on the rain pattern in any given year, poppy is irrigated as many as three times. The farmer has to be careful not to overirrigate because excess water leads to lower opium quality.

In the southwest, the poppy crop is generally irrigated four to six times depending on water availability and weather conditions. The first irrigation is given 4 to 7 days after sowing. If planting takes place on November 15th, the first irrigation will be given on November 22nd, the second in mid-December, the third in mid- to late February, the fourth in mid-March, the fifth in early April at

the time of flowering, and the sixth in May, just before opium harvesting begins. The land is generally irrigated by flooding the fields.

Whatever the technical reasons, the common belief all over the southwest is that crops grown on traditional *karez* and spring irrigation systems are superior in quality to those irrigated with river and canal waters. There are reports that during the mid-1980s the ousted communist regime in Kabul initiated large-scale poppy cultivation in the Kajakai dam command area in Helmand Valley. However, the opium produced was far inferior in quality to that produced elsewhere in Helmand and Uruzgan under *karez*-irrigated conditions. This reportedly resulted in lower prices and in the consequent failure of the government effort to earn adequate profits. Conversely, all reports indicate that poppy growing has escalated during the last year, in both traditionally irrigated and canal-irrigated areas.

Weeding and Thinning

The most important operation in growing poppy is hoeing. Many weeds grow in the poppy fields and must be cleared. The poppy plants themselves come up rather thick and have to be spaced. In the eastern provinces, the land is weeded and thinned usually three times, starting in January. On unirrigated areas in Badakhshan, the land is weeded three or four times at intervals of 7 to 10 days; irrigated land is weeded only twice, but the crop is thinned. Hand hoes are used, and much labor is needed.

The farmers in the southwestern provinces, particularly those in the Helmand Valley, are also aware of the benefits of weeding and thinning the poppy crop. A crop sown in November is normally thinned in December and January. At this time the first weeding is also done in the field. More weeding is done at later stages when necessary.

The first weeding is the most difficult and requires more labor because the poppy plants are small and the weeds abundant. This operation alone may take as much as 75 person-days. The second hoeing is easier, and the third easier still. These second and third hoeings together require the same amount of work as the first hoeing alone.

A higher than normal wage is paid to laborers who hoe because some experience is needed, and the demand for labor at this time is great. The wages paid to harvesters are higher still because harvesting is more difficult and more specialized. Wages paid in the 1992 season were Afs. 2,000/day (roughly US\$4) for hoeing and Afs 2,500/day (roughly US\$5) for harvesting. (The rate of exchange used for this calculation was US\$1 = Afs. 550).

Fertilizer Application

Poppy is reported to show a high response to fertilizer application. Fertilizer application is common for opium poppy. Even so, fertilizer is applied to only half the total poppy-cultivated area. In the Helmand valley farmers apply urea at a rate of 1½ bags or 75 kg/ha., one-half to one-fourth of it in November before planting. Equal doses of the remaining urea are applied in February and in March. Two to three bags (100 to 150 kg) of nitrophous or diammonium phosphate (DAP), if available, are applied in two or three doses, the first in November during sowing. In Nangarhar, 125 to 200 kg of DAP and 100 to 150 kg of urea are applied for highest yields. Some farmers apply the fertilizer at the time of planting, others split the urea and apply it two or three times during the growing season. Farmyard manure is also applied as part of soil preparation.

Pests and Diseases

Poppy appears to be vulnerable to fungal attacks, at least in the Nangarhar area, and probably other pests as well, but farmers apparently take no preventive or protective steps against them.

Harvest

Poppy plants start flowering in early to mid-April in the southwest. Within a few days after the petals fall, the green pod or capsule receives the first of many scratches or incisions with a sharp instrument called a *neshtar* or *nesh* 1 to 2 mm deep. The latex, or poppy fluid, oozes out immediately and collects on the surface of the pod, where it is left to dry and oxidize. Generally the incision is made in the afternoon and the thickened dry and oxidized latex, or gum, is scraped and removed from the pod 12 to 18 hours later. Each pod is incised and its gum collected between four and six times. This practice continues for the entire harvest period, which lasts 2 to 3 weeks. The harvest, or gum collection, is carried out from the end of April through the end of May in warmer areas of Helmand and Qandahar, and from mid-May to mid-June in colder areas of Uruzgan and Zabul. The process for harvesting opium in Badakhshan is no different from the process used elsewhere in Afghanistan. In the eastern provinces poppy is harvested just before the wheat harvest, generally in early May.

The opium gum collected in this manner loses some of its moisture but is still raw. This gum is sold as raw poppy gum. The longer the gum remains with the producer, the more moisture lost and the higher the selling price. The dealers fix a price for the product at any stage on the basis of its moisture content. The price usually increases 50 percent by fall of the year of harvest and 100 percent by the end of the year. The gain in price, however, is offset by a loss in volume. From the farmer's point of view, it is usually better to sell early because the gain from increased weight outweighs the loss from a higher moisture content.

The harvest of seeds, pods, and stalks begins soon after completion of the opium gum harvest. Opium is sold to local or wandering traders, whereas seeds, pods, and stalks are normally used on the farm. Seeds (*khashkhash*) are used for medicinal and health purposes, and edible oil is extracted from them. Some seeds are also simply eaten by the farmers, and some seeds are saved for the next year's planting. The dry opium pods are boiled to extract the residual opiate, which is used as medicine. The remaining pods and stalks are used for fuel. In drought years the stalks and pods are fed to domestic animals.

Harvesting is a labor-intensive and time-consuming job. Because pods remain green and productive for a relatively short period, generally even farmers with very small holdings need outside help. In addition, a certain level of skill and experience is required. The extent of harvesting-related losses is unknown, but they are probably large and due to untimely or improper incision of pods and inadequate scraping and collection.

Yields

There are wide variations in yield estimates. The NACP report *Opium Production in South-Western Afghanistan* estimates yields between 45 and 90 kilograms per hectare. Other individual NACP reports indicate yields of 60 kg/ha. and 70 kg/ha. DEA also reported yields of 60 kg/ha. The Swedish Committee Agricultural Survey of Nad Ali (Helmand) showed yields of 105 kg/ha. The report by Owens and Clifton estimates gum yields of between 20 and 50 kilograms per hectare. Still other reports show 30 kg/ha. A refugee from Uruzgan interviewed in a camp near Muslim Bagh spoke of a yield of only 4.5 kg/jerib (22.5 kg/ha).

Table 2-3 shows production, yields, and prices of dry opium by province, based on research conducted by NACP in refugee camps during 1990-1991. Yields in the provinces of Konar and Nangarhar are reported to be 30 kg/ha. and 34 kg/ha., respectively. The average yields for Helmand and Uruzgan were 32 kg/ha. and 31 kg/ha., respectively. The report by Owens and Clifton did not give figures for Qandahar and Zabul, but an NACP report¹⁸ indicates a total area of 3800 ha. and an average production of opium of 45 kg/ha. The NACP levels are considerably lower than those from other sources. It appears that 70 kg/ha. is the best figure available.

Table 2-3. Production, Yields, and Prices of Opium in Southwestern Afghanistan, 1990-1991

Province	Poppy Area (ha.)	Yield (kg/ha.)	Price (Afs./kg)	Price (US\$/kg) ^a
Helmand	20800	47.5	65,584	119
Qandahar	3800	45.0	72,658	132
Uruzgan	5440	65.0	61,448	112

Note: Data from NACP are questionable and often differ significantly from other sources.

^aUS\$1 = Afs. 550.

LAND TENURE SYSTEMS, FARM SIZE, AND CROPPING PATTERNS AND INTENSITY

Land Tenure Systems

The system of land tenure in Afghanistan is characterized by the lack of a comprehensive set of written records of land ownership.

The majority of land owners do not have their lands registered in their own names. According to a report prepared in 1978, only 20 percent of all landowners had registered legal title to their land, and of these the number of landowners with titles listed in the cadastral survey was probably less than 5 percent. In view of the continued division of land in rural areas under the prevailing inheritance law and the reduced ability of government to register these transfers by inheritance, the proportion of land owners has probably declined sharply over the last 13 years [1978-1991].¹⁹

According to the Nathan-Berger study on Afghanistan land ownership, most of the arable land in the rural north was privately owned before the war. However, in southern Afghanistan, especially in Pashtun areas, a large portion of land came under communal ownership. The study provides a further description of the prewar tenure situation:

About half a million people were estimated to be landless and working primarily as sharecroppers and farm laborers before 1978. These sharecroppers and laborers typically worked for large farmers. Sharecroppers in particular were estimated to have cultivated 40 to 50 percent of the country's lands . . . Different categories of sharecroppers received one-third to one-seventh of the crop, depending to some extent on whether they supplied their own oxen and implements . . . Leasing farmland on cash rent was on a much smaller scale than sharecropping. It was estimated that 3 percent of the total land farmed annually was leased.²⁰

The sharecropping systems differ from place to place and sometimes from individual to individual. A common system is one in which the owner provides land, seeds, and fertilizer and the sharecropper contributes his labor and a pair of bullocks. The produce in this case is shared, so that the sharecropper receives one-third, and the owner receives the remainder. Under another system followed mostly in Qandahar, all inputs are contributed by the owner, and the sharecropper receives one-fourth of the produce for his labor.

The land tenure system in Afghanistan historically has varied among the different provinces. Except for Nangarhar and Paktia, between 50 and 80 percent of farms are cultivated by owner-operators in the major opium-producing provinces.

The patterns of tenancy on private lands differ. The 1963 survey (Ministry of Planning 1964) indicated that 60.5 percent of land was owner-operated versus 19.3 percent sharecropped and mortgaged (which is a form of lease in Afghanistan) and that the remainder was in other forms of tenure. The percentage of owner-operated land varied from more than 90 percent in Paktia to less than 20 percent in Girishk [now in Helmand], where 70 percent was held in some peculiar form of tenure. Nangarhar had the next lowest percentage of owner-operated land with 45 percent without mortgage and 44 percent with mortgage. All other provinces had owner-operated percentages of between 50 and 80 percent.²¹

Table 2-4 shows the percentage distribution of agricultural land, by tenure, for the major poppy producing provinces.

The Nathan-Berger study also examined the changes in the land-tenure system resulting from the war, including analysis of information gathered by the Swedish Committee for Afghanistan (SCA):

According to the SCA survey of 1988, there had been a relative increase in sharecropping and decrease in owner operation since 1978-1979. The decrease in owner operation is fairly uniform, but the increase in sharecropping is most notable in the northeast and southwest—the areas from which large numbers of refugees have fled.²²

Table 2-4. Distribution of Agricultural Land by Tenure for Major Poppy-Producing Provinces (percent)

Province	Sharecropped	Mortgaged	Owner-Operated	Other
Nangarhar	5.4	43.6	45.1	5.9
Helmand	9.1	7.5	54.1	29.3
Qandahar	2.0	3.7	94.3	—
Paktia	13.4	0.7	62.7	23.2
Herat	1.3	0.8	75.4	22.4
Badakhshan	ND	ND	ND	ND

Note: ND = no data.

In comparison, a NACP report dated July 11, 1991 (based on camp surveys) shows that the land tenure system in Helmand is 69.6 percent owner-cultivated, 17.4 percent sharecropped, 8.4 percent tenanted, and 4.3 cultivated by labor.

Table 2-5 shows the composition of land tenure systems in southwestern Afghanistan, based on a recent survey by the Swedish Committee for Afghanistan of the Nad Ali district of Helmand. Because no such current information from other areas is available, we have assumed it to be representative of irrigated areas of southwestern areas of Afghanistan.

Table 2-5. Land Tenure Systems in Southwestern Afghanistan

Tenure System	Area Sown (ha.)	Area Fallow (ha.)	Total Area Cultivated (ha.)	Percentage of Total Area Cultivated
Owner-cultivated	333.0	70.0	403.0	78.74
Leased out	15.0	0.2	15.2	2.97
Leased in	10.0	0.6	10.6	2.07
Sharecropped	27.0	48.0	75.0	14.65
Held as security on loan	7.0	0	7.0	1.37
Recoverable on repayment of loan	1.0	0	1.0	0.20

As indicated in Table 2-5, an overwhelming majority of farmers cultivate their own land. This is especially important considering that war must have disrupted normal farming life and dislocated many farmers. The bulk of the remainder are sharecroppers.

Farm Size

The Swedish Committee for Afghanistan's Agricultural Survey of Afghanistan describes farm sizes in the Afghan provinces. The majority of farmers in the six major poppy-growing provinces, except Badakhshan, cultivate farms with areas ranging from less than 1 jerib to 10 jeribs. Badakhshan is the only province whose poppy cultivation is rainfed, that is, without irrigation. In all six provinces, a majority of farms have areas of 0 to 20 jeribs. For Afghanistan as a whole, except in northern and northwestern Afghanistan (where a significant number of farms have areas greater than 21 jeribs), most provinces exhibit the same pattern of farm size as the major poppy growing areas. Table 2-6 gives the distribution of farms sizes in the major poppy growing provinces.

The Swedish Committee for Afghanistan's survey of the Nad Ali area of Helmand province provides additional data on farm size for this area. The survey of Nad Ali showed that 39 percent of the farmers had holdings between 0.33 and 2 ha., 41 percent had holdings between 2 and 5 ha., and 20 percent had holdings between 5 and 20 ha. Table 2-7 summarizes the percentage of holdings for major crops grown in the area, based on the Nad Ali survey.

As indicated in Table 2-7, the majority of the holdings are small to medium in size. This pattern is typical of *karez* and river-diverted irrigated lands. Poppy cultivation seems to follow the pattern of other crops raised in the area. Area under poppy cultivation does not appear to vary in relation to holding size.

Cropping Patterns and Intensity

Most surveys conducted in the southwestern provinces indicate that even farmers with small holdings grow a relatively large number of crops. Crops raised during the winter (or fall) are wheat, poppy, cumin, winter beans, winter vegetables, and winter fodder; crops raised in summer (or spring) are maize, cotton, peanuts, melon, onions, mung beans, summer vegetables, and summer fodder.

Table 2-8 shows the cropping patterns in southwestern Afghanistan, based on data from a survey of Nad Ali district of Helmand conducted by the Swedish Committee for Afghanistan.

Table 2-6. Frequency Distribution of Total Cultivated Area per Farm, by Province

Range (jeribs)	Percentage of Farmers per Range					
	Helmand	Nangarhar	Paktia	Uruzgan	Bamyan	Badakhshan
0-10	50	77	81	51	64	37
11-20	25	18	15	26	26	18
21-30	8	3	2	8	8	17
>30	18	0	1	15	2	29

Source: *Agricultural Survey of Afghanistan*, Swedish Committee for Afghanistan, 14th report, 1991 survey, June 1992.

Table 2-7. Farm Size in Nad Ali

Crop	Percentage of Farmers Holding		
	1-2 ha.	2-5 ha.	5-20 ha.
Wheat	37.77	41.83	20.40
Poppy	33.96	43.40	22.64
Alfalfa	30.19	49.06	20.75
Maize	41.86	41.86	16.28
Cotton	25.00	42.31	32.69
Grape	30.77	46.15	23.08
Melon	53.33	33.33	13.34
Mung bean	42.86	14.28	42.86
Peanut	27.59	31.03	41.38

Table 2-8. Cropping Patterns In Southwestern Afghanistan

Crop	Percentage of Total Cultivated Area under the Crop	Months Sown	Months Harvested
Wheat	52.087	October-November	May
Poppy	4.125	November-December	May
Winter beans pulses	2.386	November-December	March-April
Alfalfa	4.920	October-November	February and later
Onion	0.149	February-March	May-June
Cotton	12.425	May-June	September-October
Maize	12.177	May-June	August-September
Peanut	5.765	May	July-August
Mung bean	2.535	April-May	July-August
Melon	2.336	February-April	June-July
Tomato	0.149	February-March	April-August
Okra	0.099	April-May	July-September
Cucumber	0.049	March-April	June-August
Eggplant	0.049	March-April	May-August

The Swedish Committee for Afghanistan data indicate that farmers in Nangarhar cultivate few crops other than wheat, maize, clover, and poppy. A comparable schedule is not readily available, although the livestock population in Nangarhar is nonetheless much lower per capita than in Helmand.

Normally both wheat and poppy are followed by either maize or peanuts or summer pulses, particularly mung bean or vegetables. For cotton, the land is left fallow before and after cultivation because of its high consumption of soil nutrients. In orchards, intercropping results in economical use of inputs, and the inclusion of alfalfa, peanut, and pulses are important for their nitrogen-fixing qualities.

Although double cropping is reported to be common, there are no reports of more than two crops being raised in a year on the same land. Most estimates of cropping intensity vary between 150 and 190 percent. Opium, especially in the southwest, is often double cropped with maize or intercropped.

The normal crop rotation in the eastern provinces is double cropping, with wheat planted in the fall and maize (corn) planted after the wheat harvest in the following summer. Corn is harvested in the fall before it is time to plant another crop of wheat. However, corn is not usually planted in the land designated for poppy cultivation; rather, the land is left fallow from wheat harvest in May until poppy planting time in October. However, there is some double cropping of opium and maize.

On the fields used for poppy, the natural alternative crop is wheat. Best estimates are that the area taken for poppy would have yielded about 50,000 MT of wheat or roughly one-eighth of Afghanistan's annual 400,000 shortfall.

COSTS OF PRODUCTION AND RETURNS

Southwestern Afghanistan

Table 2-9 shows estimated average costs of production in southwestern Afghanistan for the provinces of Helmand, Qandahar, Uruzgan and Zabul, as of May-June 1992, calculated by Nek Buzdar.

Table 2-9. Cost of Opium Production in Afghanistan

Item	Unit	Number of units/ha.	Unit price (Afs.)	Total cost/ha. (Afs.)
Seed	kg	6	400	2,400
Urea	kg	75	70	5,250
DAP	kg	150	80	12,000
Manure	kg	19,000	0.26	4,940
Irrigation	12 hours	6	22,000	132,000
Land rent	ha.	1	110,000	110,000
Family labor	person-days	100	2,000	200,000
Hired labor	person-days	200	2,000	400,000
Oxen rent	pair-day	40	200	8,000
Taxes	12.5 percent ^a	—	—	277,872

Notes: Dashes indicate not applicable. Afs. 550 = US\$1. On the basis of the foregoing data, the following calculations were made: Total cost of production per hectare = Afs. 1,152,462; Total cost of production per hectare = US\$2,095; Cost of producing 1 kg of opium = US\$52.

^aMinimum.

Table 2-10 shows the estimated returns on opium poppy cultivation in Afghanistan, as calculated by Buzdar. The costs and returns in Table 2-10 are based partly on the data collected by various organizations and partly on the interviews conducted during June 1992 with Afghan refugees in camps in Balochistan. Some of the data were taken from NACP reports of June 1991; other data were taken from the recent study of Nad Ali farming systems by the Swedish Committee for Afghanistan. The main problem with the NACP study is that the data are based on camp interviews of former opium producers, who have no written records and depend on their memory for information. The Nad Ali farming systems survey is incomplete and the sample chosen may not be representative of the region. With these drawbacks and lacking better sources of information, efforts were made to confirm and update the data wherever possible, through interviews with farmers and other knowledgeable persons in refugee camps and elsewhere.

**Table 2-10. Estimated Returns per Hectare of
Opium Poppy Cultivation**

Item	Unit	Number of Units per Hectare	Unit Price (Afs.)	Total Return per Hectare (Afs.)
Opium gum	kg	40	52,800	2,112,000
Poppy seed	kg	459	400	183,600
Stalks	ha.	1	20,000	20,000

Note: On the basis of the foregoing data, the following calculations were made: Gross returns per hectare = Afs. 2,315,600; Gross returns per hectare = US\$4,210; Gross returns from 1 kg of opium = US\$105; Production costs per hectare = Afs. 1,152,462; Net returns per hectare = Afs. 1,163,138; Net returns per hectare = US\$2,115; Net returns per 1 kg of opium produced = US\$53.

Irrigation water has no regular market in Afghanistan, and sale and purchase of water is uncommon. However, water-sharing and distribution systems, particularly *karez*es and springs, sometimes result in shares of water too small to cultivate an economic unit of land. Under such conditions water is sold to the owners of neighboring lands. Such markets, however, are almost always local, and prices are determined by individual negotiations. The reported irrigation costs apply primarily to Helmand and Qandahar. Land leasing for cash is also not very common in the areas of study. Most arrangements involve variations of sharecropping and tenancy. The land rents in Table 2-9 are averages of a small number of farmers in Helmand and Uruzgan, based on refugee farmer interviews.

Eastern Afghanistan

Costs of and returns on poppy production were also calculated by Abdul Wakil, on the basis of data from eastern Afghanistan. Production costs include (1) sacrifice of a second crop to allow the land to lie fallow before planting poppy, (2) land preparation, (3) fertilizer, (4) seed, and (5) labor for hoeing and harvesting. Estimates are based on current prices and exchange rates (US\$1 = Afs. 600, as of June 1992), as follows:

Cost per hectare

Sacrifice of a corn crop with an estimated yield per hectare: 400 seers (2800 kg) -

Cost of production (33 percent of gross) under a tenant farming arrangement:

1890 kg @ Afs. 86/kg = Afs. 162,540	\$ 271
Land preparation: 50 person-days @ Afs. 1200/day = Afs. 60,000	100
Farmyard manure: Afs. 30,000	50
Chemical fertilizer: 3 bags of urea @ Afs. 10,000/bag and 3 bags DAP @ Afs. 15,000/bag = Afs. 75,000	125
Labor for hoeing and harvesting: 250 person-days at average of Afs. 2,000/person-day = Afs. 500,000	833
Seed: 10 kg @ Afs. 700/kg = Afs. 7,000	12
Total	\$1,391

Return per hectare:

Poppy gum: 70 kg @ Afs. 200,000/7 kg = Afs. 2,000,000	\$3,333
Seed: 500 kg @ Afs. 300/kg = Afs. 150,000	<u>250</u>
Total	\$3,583
Net income \$3,583 – 1,391	\$2,192

The three main differences between the calculations of Buzdar and those of Wakil are as follows:

1. The calculations of Buzdar apply to the relatively dry and warmer area of the Helmand valley, whereas those of Wakil apply to the Nangarhar province, which has high precipitation and different soils and temperatures.
2. Buzdar included the costs and opportunity cost of irrigation water and land rent; Wakil did not.
3. Wakil includes the opportunity cost of the alternative crop foregone, whereas Buzdar does not. Subtracting the irrigation and land rent amounts from Buzdar's calculations and the alternative crop opportunity cost from Wakil's calculations results in net returns of US\$2,555/ha. for Buzdar and US\$2,463/ha. for Wakil.

OPIUM PROCESSING, TRADE, AND PRICES

Opium Processing

Opium has been produced in the provinces of Helmand, Uruzgan, and Qandahar in the southwest, and in Badakhshan and Balkh in the north, for centuries. Until the late 1970s, production was mainly for local consumption and medicinal purposes. In some areas, the opium was dried to improve its quality. In other places, such as Uruzgan, it was believed that opium retained its best qualities when kept wet and was therefore stored in many folds of wrappings.

Opium poppy (*Papaver somniferum*) is processed in numerous ways to obtain a large number of narcotic analgesics, including heroin. Opium processing begins when poppy seed pods are incised and milky juice starts exuding. The juice is left on the pod overnight until it turns gummy and brown. It is dried in a shaded area and, once it is hard, is ready for use.

Opium addicts or those wanting to relieve pain chew or suck raw opium gum. Sometimes the fresh juice or dried opium is mixed with tobacco and smoked as *chandoo kashi*. To obtain smoking opium, the crude opium is repeatedly boiled and sieved until all impurities are removed. At the end of the process, a black sticky paste remains at the bottom of the boiling pot. This paste is then dried and smoked. No modern sophisticated equipment is used to process opium into a form suitable for smoking.

Opium seed is processed in northern and eastern Afghanistan, where it is used for oil extraction and seed cake production. To make poppy seed cakes, poppy seeds are mixed with hay and grasses to make winter feed for animals. There are no reports of oil extraction or feed production from any of the four southwestern provinces. The seeds, called *hashkhash*, are directly consumed and sometimes used in local medicines. The empty capsules are also boiled for extended periods of time to extract residual opium.

Some confusion exists over opium processing and heroin factories or laboratories. The product of the poppy harvest is opium gum, which can be consumed raw as a traditional pharmaceutical or even mixed into various kinds of drinks.

In southwest Afghanistan, most farmers sell their opium gum produce immediately after harvest to traders or agents of processors. Some short selling is done by poorer farmers who sell their standing crops for 60 to 70 percent of their postharvest value. Many farmers, particularly those from Qandahar and Helmand, take their produce to Sanguin, in Helmand, which is the largest opium market in southwestern Afghanistan. Still others have their own processing arrangements or sell their opium directly to processors, who in most cases are located in Balochistan near the Afghanistan border.

Farmers in Nangarhar and eastern Afghanistan sell their product under similar arrangements. In the past, the product was processed right inside the Khyber Agency but is now being processed increasingly in Afghanistan. It is estimated that a large number of laboratories are still operating in Khyber. (At last report, Badakhshan still had one operating laboratory owned by two merchants from Logar and a local party.)

Almost all the opium-producing farmers, except those in Badakhshan, are Afghan Pashtuns, who also constitute most of the rest of the population in opium-growing areas. Among traders, agents of processors, and collectors and transporters of opium to the Pakistan-Afghanistan border in the southwest are a high number of Afghan Baloch. The traders in eastern Afghanistan and Badakhshan are also Pashtuns, Afghans, or inhabitants of Pakistani tribal areas such as Shinwari, Mohmands, and Afridi, who are also Pashtuns.

Processors in the southwest are both Pashtun and Baloch, some of whom originally emigrated from Iran. Most of the processors in Khyber are tribal area Pashtuns, although there were originally some "foreigners." In the Pakistani border town of Chaman and in Quetta, the opium business was controlled for many years by members of border tribes of Achakzai and Noorzai. Although the patterns of political association among the Achakzai and Noorzai vary and are primarily opportunistic, many are now affiliated with the Hizb-e-Islami of Hekmatyar, which is strong in the area and has merged with Khalqi Pashtun troops that had been associated with the Kabul regime. Most of the growers and traders in Nangarhar, like the general population there, are associated with the Hizb-e-Islami of Khalis.

It is well known that for many years the Akhunzadas of Musa Qala controlled most of the opium business in southwestern Afghanistan. They are loosely reported to be associated with the Harekat of Mohammed Nabi. However, according to Al Nehoda of A.I.D., "Achakzai do not mix business and politics. Business always comes first." He emphasized that they and, by extension, other major processing and trading groups tended to align with the government or other strong local groups.

It was reported in Quetta in mid-June 1992 that certain powerful groups in Helmand and Qandahar had united against the Akhunzada and had already overtaken large parts of his traditional empire, including the main opium market of Sanguin. Recent reports may even indicate that Akhunzada has fled his traditional bailiwick and is now in hiding, but more authoritative forces report that he still controls much of Helmand.

Opium Trade

An agricultural subsector encompasses the production and exchange relations connected with a specific commodity. The subsector can be described by a succession of physical production and processing changes, by the identity of those who perform the various functions, and by the identity of those who own the good as it progresses through the processing chain. This analysis will use the last method of description.

With any commodity, title of ownership changes hands at various points of the processing chain, and related payments are made. If all payments were made precisely at the point of transfer of title, no trade credit would be involved. People involved in the chain, however, borrow cash from outsiders, as well as contract the actual stages of production to outside contractors. In reality, those involved in the chain typically have capital needs and resources that are not evenly matched; therefore, they borrow from each other.

In the opium subsector, the title to the opium products changes hands at different points, involving four different credit arrangements. The first type of credit arrangement involves preharvest advances. Although Afghanistan has a long tradition of preharvest advances, they tend to come from landlords and wealthy local figures rather than from traders. This may also be the case for opium. However, various traders and dealers do advance sums of money against standing poppy crops. This generally occurs 2 to 3 months before harvesting and reportedly at a discount of 30 percent (at least in southwestern Afghanistan). Title is transferred on the harvest floor.

Under the second type of credit arrangement, some amount of opium gum is bought on the harvest floor either by representatives of processors or by independent, often itinerant, traders. Title is transferred at that point. Under the third type of credit arrangement, opium gum is carried from the harvest floor by commission agents, that is, the title is nominally retained by the farmer, who receives various types of payment as the commission agents sell the gum to processors. Title is transferred only at the point of sale to processors. Under the fourth type of credit arrangement, the commission agents retain title to the opium gum for the farmer, pay the processors on a contract basis for their services, and sell the opium further down the line. Title is transferred only at the final point of sale.

Opium Prices

The difference in opium and heroin prices at various stages gives some idea of the margins on, and therefore the limits to, the rates of interest that can be charged or paid. Tables 2-11 through 2-13 compare the prices of opium in Afghanistan and Pakistan according to various sources.

Opium gum appears to sell at between US\$100 and US\$150 a kilogram for dry opium, although the Swedish Committee for Afghanistan reports much higher figures, especially in Nangarhar.

HEROIN PROCESSING, TRADE, AND PRICES

Heroin Processing

Opium has more than a dozen alkaloids, the most important of which is morphine, a product 10 times more potent than its mother, opium.

To produce heroin, opium must first be processed into a morphine base. This is a rather simple operation, performed by a large number of people using elementary equipment and few specialized chemicals. The heroin base is produced by boiling morphine with acetic anhydride (a colorless heavy liquid used in the manufacture of synthetic fibers and celluloid film). The heroin base is subsequently made into heroin in a more complicated process using hydrochloric acid, strychnine, and various other additives. In its purest form the drug is three to four times more powerful than morphine. The final product is beige to white, in the form of either a small rock or a fine powder, depending on the type and place of origin. This process does not require a large facility or any specialized skills currently unavailable in Afghanistan or Pakistan. According to informants, however, foreigners did play a role in the early days of heroin processing in the Pakistan-Afghanistan border area. In particular, Iranians in the southwest and perhaps Turks or Europeans in NWFP introduced the necessary expertise in chemistry and trained local residents in the use of heroin.

Table 2-11. Opium Prices, 1991-1992

Source	Location	Price (US\$/kg)*
Buzdar (dry opium)	Helmand	119
	Qandahar	132
	Uruzgan	112
	Balochistan	100-120
Wakil (opium gum)	Nangarhar	96
Afghanistan Information Centre	North Afghanistan	106
	Border	129

*Exchange rate: US\$1 = Afs. 550.

Table 2-12. Price Comparison of Opium In Afghanistan and Pakistan, July 1992 (Rs./kg)

Province and Quality	Price in Afghanistan	Price in Pakistan (Khyber Agency)
Badakhshan		
Fresh	1,300-1,600	2,400
Old	2,300-2,500	2,900
Nangarhar		
Fresh	900-1,200	1,500-1,700
Old	1,800-2,000	2,200-2,500
Konar		
Fresh	1,000-1,400	1,500-1,700
Old	1,800-2,000	2,200-2,500

Note: According to UNDCP, these prices are very high because during the survey it was found that opium was not available in Afghanistan—last season's produce had been sold and a fresh crop had not yet been harvested.

Source: UNDCP Monthly Price Survey for July 1992.

The great majority of the heroin refining, as well as a large part of the other opium processing, has historically been conducted on the Pakistani side of the Pakistan-Afghanistan border. In particular, refining occurred in tribal areas that were politically inaccessible and physically difficult to reach. In the past year or so, a significant portion of this activity—but by no means all—has reportedly moved to the Afghan side of the border. This may be due in part to increased enforcement (compared with that of previous years) by the Pakistani government or apprehension on the part of traffickers of increased enforcement in the future, especially in relation to Afghans, who were earlier treated as untouchable for political reasons. Although Pakistani enforcement is not rigorous by U.S. standards, it does create greater obstacles for heroin refiners and traffickers than the complete absence of enforcement in most parts of the Afghan side of the border.

**Table 2-13. Opium Prices in Pakistan,
1976-1991 (Rs.)**

Year	Farmgate Price per Kilogram of Wet Opium Gum	Market Price per Kilogram of Dried Opium
1976	580	1,000
1977	700	1,500
1978	820	1,600
1979	832	1,920
1980	736	1,520
1981	900	1,840
1982	536	1,120
1983	420	800
1984	328	640
1985	288	480
1986	312	640
1987	260	776
1988	290	880
1989	280	840
1990	350	800
1991	420	1,600

Source: PNCB, Regional Office, Peshawar.
(Sahibzada Raoof Ali Khan, *Poppy Cultivation in
Northwest Frontier Province (NWFP): Its Past,
Present, and Future*, Islamabad: A.I.D., 1991.)

Heroin Trade

Balochistan has close to a 1200-km-long border with Afghanistan. For various reasons, there appears to be little heroin processing and trade to the north and east of Quetta. To the southwest, there were heroin laboratories on both sides of the border until last year, mostly on the Pakistani side. All current indications are that since last year the factories have been moved to the Afghan side of the border because the Pakistan government has become stricter and has been seizing drugs and arresting people.

From Girdi Jungle, a processing center to the west of Quetta, the drugs are transported west toward Rabat along the Pakistan-Afghanistan border and south toward the Makran coast along the deserts of Kharan and Makran. From Rabat, drugs enter Iranian Balochistan and then move on to other regions of Iran, finally reaching the Kurdish areas of eastern Turkey. The southbound consignments reach Makran, from where part is taken to southern Iran, part is marketed in Makran (which has a large addict population), and the rest is transported by sea to Karachi or elsewhere.

Heroin Prices

Refined heroin is sold at a range of prices. Brown heroin sells at US\$800 to US\$1,000 in the Girdi Jungle, as well as in eastern Afghanistan and NWFP. White heroin is reported to sell at a price of only US\$1,600 to US\$1,800 in the Girdi Jungle, but the UNDCP reports prices of US\$2,400 to US\$2,600 in eastern Afghanistan. Tables 2-14 and 2-15 show the price of heroin according to various sources.

Table 2-14. Heroin Prices, 1991-1992

Source	Location	Price (US\$/kg)*
UNDCP	East Afghanistan	white: 2,400-2,600 brown: 800-1,000
Buzdar	Girdi Jungle	white: 1,600-1,800 brown: 800-1,000
	Quetta	white: 3,000-3,500
Afghanistan Information Centre	Border	brown: 800

*Exchange rate: US\$1 = Afs. 550.

Table 2-15. Heroin Prices by Quality, July 1992 (Rs./kg)

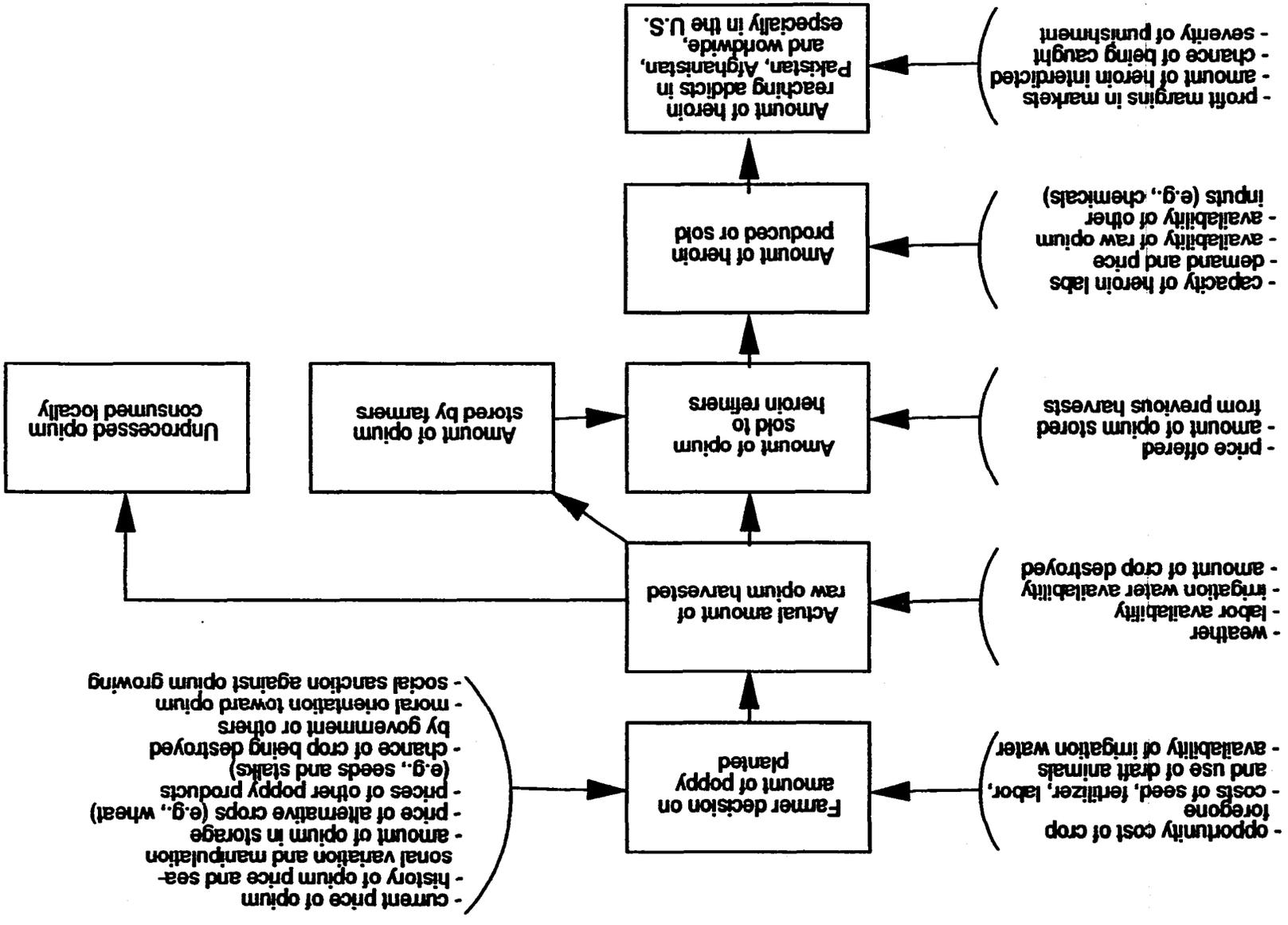
Quality	Factory Rate	Market (Retail) Rate
White	47,000-53,000	60,000-65,000
Brown	15,000-17,000	20,000-30,000

Source: UNDCP Monthly Price Survey for July 1992.

CRITICAL NODES OF OPIUM SUBSECTOR

The economic conceptualization of a subsector involves describing each step in the process of a particular good being produced and distributed, from the combination of its inputs to its sale to its final user. The advantage of analyzing the problem of opium and heroin production and use in Afghanistan in terms of the opium subsector is that it illustrates each point in the processes of cultivation, refining, and distribution, which in turn provides a map on which to target initiatives to impede the flow of opium and heroin.

Preceding each node in the process are individual and social moral orientations toward drugs and the drug trade. This seems to be the most definite decision point. Many people either will not entertain the possibility of growing poppy or will anticipate such social pressure that they are afraid to grow poppy. As Figure 2-1 illustrates, the opium subsector involves five critical nodes or points of decision making or transformation, which affect in turn the (1) amount of poppy planted, (2) actual amount of raw opium harvested, (3) amount of opium sold to heroin refiners, (4) amount of heroin actually produced and sold, and (5) amount of heroin reaching addicts in the United States as well as in Afghanistan and Pakistan.



- current price of opium
- history of opium price and seasonal variation and manipulation
- amount of opium in storage
- price of alternative crops (e.g., wheat)
- prices of other poppy products (e.g., seeds and stalks)
- chance of crop being destroyed by government or others
- moral orientation toward opium
- social sanction against opium growing

- opportunity cost of crop
- foregone
- costs of seed, fertilizer, labor, and use of draft animals
- availability of irrigation water

- weather
- labor availability
- irrigation water availability
- amount of crop destroyed

- price offered
- amount of opium stored
- from previous harvests

- capacity of heroin labs
- demand and price
- availability of raw opium
- availability of other inputs (e.g., chemicals)

- profit margins in markets
- amount of heroin interdicted
- chance of being caught
- severity of punishment

Figure 2-1. Critical Nodes in Opium Subsector and Influencing Factors

The first node is the individual farmer's decision on the amount of poppy to plant. As with the subsequent nodes, this decision is based on numerous factors. One set of factors concerns the costs associated with producing poppy, in particular the opportunity costs of the alternative crops foregone, as well as the costs of seed, fertilizer, labor, and use of draft animals. Risks are important, especially those connected with the destruction of a standing opium crop because of government crop-suppression measures. In addition, the farmer must consider the availability of irrigation water for the upcoming season. Another set of factors concerns the returns the farmer hopes to receive from the poppy crop. The factors influencing returns from poppy include (1) current price of opium; (2) history of opium price trends, such as seasonal variations or manipulation by traders, or both; (3) amount of opium in storage from previous crops; (4) prices of poppy products other than opium, for example, seeds and stalks; and (5) the farmer's perception that his poppy crop might be destroyed by the government or others opposed to poppy cultivation, or that they will prevent him from planting it in the first place.

The second node in the opium subsector concerns the actual amount of raw opium harvested. Factors influencing the size of the opium harvest are weather, availability of labor at the critical harvest time, availability of irrigation water during the growing season, and amount of the crop that has been destroyed.

The third node is the determination of the amount of opium used for various purposes. After harvest, the raw opium flows to one of several destinations: it is sold to heroin or morphine refiners or to dealers who will distribute it as raw opium, stored by farmers, or consumed locally.

Heroin production and sale constitute the fourth node. Four major factors influence this node: (1) capacity of the heroin labs; (2) demand for heroin, which is partly reflected in the price of the drug; (3) availability of raw opium; and (4) availability of other input chemicals, such as acetic anhydride.

The final node in the opium subsector of Afghanistan is the determination of the amount of heroin that reaches addicts in Afghanistan and Pakistan, as well as the amount that reaches addicts in the United States and other countries. This node is the most critical of the opium subsector as far as most Americans are concerned. The total amount of heroin reaching addicts worldwide as well as the distribution among markets in the United States, Afghanistan, Pakistan, and elsewhere is determined by the following factors: (1) profit margins in the heroin markets; (2) amount of heroin interdicted by law enforcement authorities; (3) the chance of arrest of various actors in the transportation and distribution networks (from smugglers to pushers); and (4) the severity of punishment of an apprehended heroin trafficker.

Figure 2-1 summarizes the key points in the process, encompassing all aspects from the cost of inputs for poppy cultivation in Nangarhar to the criminal penalties for selling heroin on the streets of New York. In addition to providing a succinct description of the opium subsector, it also provides a framework for determining the political and social impacts of the subsector as well as intervention points for potential programs to curtail the production and consumption of heroin.

3. Political and Social Impacts

Neither the problem of illegal narcotics nor its eradication is solely the concern of individual addicts, farmers, and traders. Nations are concerned because of the overall social impact of large-scale narcotics production and use, and they become involved as a matter of social policy to eliminate it. One of the key factors in the growth of poppy is a social decision by those who control an area to prevent or protect its cultivation.

FACTORS INFLUENCING GOVERNMENTAL DECISIONS ON DRUG CONTROL

For more than a century and a half, nations have tried to suppress the drug trade and, since the early 20th century, have tried to mobilize international cooperation to that end. Five factors have influenced decisions on drug control and the effectiveness of their implementation:

1. The effects of drugs on the moral and physical health of citizens and subjects,
2. The economic drain of drug use on the economy,
3. The threat to national security and stability posed by the power represented by those who control the drug trade,
4. The dependence of certain governments on drug-related income, and
5. The ultimate unsustainability of governments and national economies dependent on narcotics exports.

These factors have been important in the dynamic of the drug trade from the very beginning of its modern manifestations, and all are salient in the current Afghan situation. The difference in the Afghan case is that although these matters are typically decided and affected by every nation-state, in Afghanistan, as in China before 1950, all kinds of local controllers are also in a position to make independent decisions.²³ The influence of these five factors on drug-policy decision making is described in the following paragraphs.

Effects of Drugs on Moral and Physical Health

The effects of drugs on moral—if not physical—health is readily applicable to decision making in Afghanistan. Narcotics use is prohibited by Islam; this is the single strongest factor leading many commanders and other local leaders to suppress poppy cultivation. However, those who protect poppy cultivation generally do so on the basis that it does not affect Afghans, who are not believed to be addicted.

Islam in its various manifestations is undoubtedly the most important influence in policy making in contemporary Afghanistan, and therefore understanding how Islam affects drug cultivation is crucial. A number of commanders and local authorities—notably Maulvi Jamilur Rahman, Ahmed Shah Masood, and Jalaluddin Haqqani—have effectively suppressed opium cultivation on religious grounds. Ismaili leaders in Pakistan have reportedly taken a strongly antinarcotic position, but determining the Ismaili position in Afghanistan was impossible. Both Masood's and the Ismaili bans extend to the use and

trade of cigarettes, and anyone caught smoking is imprisoned. By contrast, a number of commanders and party leaders (all of whom claim to be good Muslims) protect and promote opium cultivation.

There are three levels of attitudes concerning opium operations—one of practice, one of casuistry in the nonderogatory sense, and one of belief. Practically, the manner in which the beliefs of any religion affect practice is always problematic and must be understood in a particular context. Certain sins are committed and regretted, certain ones are not tolerated, and distinguishing between the two is difficult. Mirza Ghalib, the great Urdu poet, wrote, "Mai gunahgar huu, mai khafir nahii huu" ("I'm a sinner, not a nonbeliever"), and that captures a frequent attitude toward sin. Opium growth, and even use, may be tolerated as violations of a counsel of perfection that people are not expected to heed.

As a matter of casuistry, a number of leaders have explicitly said that poppy cultivation is permitted because the product is destined for nonbelievers, not Muslims, and thus does not assist Muslims in ignoring their religious duties. A statement to this effect is reported to have come from the spiritual leader of one Islamic party that dominates one of the main growing areas.

Afghan Islamic belief, as Amin Saikal writes, comes in three varieties, of which only one is really concerned about items such as poppy cultivation:

1. Village Islam, which represents a traditionalist adherence to the "ways of the fathers," has no difficulty continuing a traditional cultivation and use of opium.
2. Sufi Islam, with a focus on faith rather than legal minutiae, may find it easy to ignore formal rules.
3. Revivalist Islam, with a focus on religious law (*sharia*), is likely to place itself clearly against opium, and even here, as indicated earlier about casuistry, escape clauses are available.

As a result, different leaders have taken different positions on drug cultivation. Leaders such as Rahman in Konar, Haqqani, and Masood in the north, along with the new government, have taken a generally antipoppy position; others have been more liberal. Reportedly the Aga Khan has encouraged the Ismailis to take a strongly antinarcotic position.

Regardless of the issues of religious law and belief involved, it is likely that—as in all other major drug-producing areas—addiction will spread, and national leaders will realize that production cannot be isolated from use. A similar realization has certainly animated changes in Pakistan and India over the last decade as the rapid spread of heroin use has been documented.²⁴

As with other public health concerns, when authorities begin to see that a drug-producing country will become a drug-using country, and that a drug-using country will have to defend itself with drug-using soldiers and compete economically with drug-using workers, the country's leaders will develop a greater concern about drug use.

Economic Drain from Drug Use

The economic drain from drug use on the economy was more salient in China, where Chinese silver was drained to pay for Indian opium.

Threat to National Security

The threat to national security, which can be characterized as the "state within a state" aspect, is often a little more difficult to analyze. It is epitomized for most observers by the complaints of "Kalashnikov" culture of Pakistani politics or the rule of drug lords in Colombia, who are reportedly shoving aside legitimate businessmen and politicians. Many of the countries with substantial drug

economies are beginning to recognize the dangers of this threat to national security. To quote the 1992 *International Narcotics Control Strategy Report*: "All the affected governments now recognize in varying degrees the threat which drugs and drug-related corruption pose to their sovereignty." There is a considerable body of literature on this phenomenon, as well as some controversy—both of which extend beyond the scope of this study.²⁵

The narcotics trade appears to be concentrated in the hands of a few people who compete with each other using arms and who protect their operations by violent means. Because of the illegal nature of their activities, the narcotics-trading enterprises almost necessarily become competing centers of armed power.

Dependence of Governments on Drug-Related Income

Dependence of governments on drug-related income has led a number of countries and some local authorities in Afghanistan to try to regulate the narcotics trade, partly to secure the income from it for themselves and in some cases to manage the process of gradually weaning addicts from the drugs. These efforts are rarely successful. A number of countries have found themselves so dependent on the income from opium that they could not afford to give it up. The latter was certainly true in China for most of the early 20th century, and the United States believed it was also the case with the French regime in Indochina even after World War II and for segments of the British Imperial bureaucracy in India before World War I.

Unsustainability of Governments and National Economies

This factor is particularly relevant for Afghanistan—at least two regions (North Helmand and Nangarhar) have a heavy economic dependence on opium. In some districts of Afghanistan, 80 percent of the cropped area is reported to be in poppy.

Under these circumstances, as in any monocrop situation, the local authorities are riding a tiger, and in this case a particularly vicious and unreliable one. The viciousness is represented by the challenges to public health, economic well-being, and political stability a narcotics economy represents, as described above. The unreliability is connected with the outlaw nature of the international drug traffic and the extent to which those who live as outlaws sacrifice the protection of the law. This is evidenced by the recent case of a leading local commander chased out of his jurisdiction by competitors for his business.

CONCLUSIONS INFLUENCING DRUG-CONTROL STRATEGIES

The five factors just described have influenced the decisions and efforts made by governments in confronting the drug problem. From these factors, five conclusions can be drawn that influence possible A.I.D. strategies for curtailing the drug economy in Afghanistan.

First, the decision to protect or repress the drug economy is made by the authorities who have effective control over any given area. Without their commitment, accomplishing any diminution in poppy cultivation and drug production is difficult; if they cooperate and maintain general control narcotics production and use can be kept at a relatively low level. Although the new national government in Afghanistan currently has relatively little control of the country, various local authorities have such control, and in fact largely determine where poppy is and is not cultivated. Therefore, any successful opium and heroin eradication program—implemented by A.I.D. or any other agency—must ensure the cooperation of the local authorities who have effective control over the

targeted area. This cooperation is being secured through the current drug clauses in project activities and is the precondition for other antinarcotics activities. Monitoring of this cooperation is admittedly difficult under present circumstances, although more extensive use of satellite imagery may facilitate such monitoring. Road access to the concerned areas is probably a necessary precondition of any targeted alternative activity or enforcement activity.

Second, as a consequence of the above conclusion, securing the cooperation of local authorities is crucial. The situation is particularly difficult when the authority's own revenue and the local economy are totally dependent on narcotics. Their cooperation cannot be bought as a matter of U.S. law and sustainable public policy; nevertheless, an environment has to be created for them to shift production into other crops or income-generating activities.

Drug-control experts generally agree that programs for eradicating narcotics production require both vigorous law-enforcement programs and alternative economic development programs to help provide an alternative agricultural and economic system to that dependent on poppy. At least in Pakistan, human-resource development connected with manpower development has been quite important, along with alternative agricultural development. In fact the development of an alternative society that is more attractive than a drug-dependent one—with jobs, roads, electrification, education, and good health facilities—is really what is at issue, not agricultural crop substitution per se.

Third, because political decision making is so critical, factors that might influence farm management decisions—such as the relative prices of competing crops or of different inputs—are currently less salient.

Nevertheless, the greater the extent to which price and other incentives are favorable to poppy alternatives, the easier repressing the narcotics economy will be. However, the marginal effects of price changes and even the development of alternative agricultural possibilities are likely to operate slowly. One implication for O/A.I.D./Rep is that the small potential price effects caused by temporary food aid to relieve dramatic food shortages are not likely to have major impacts on poppy production. This is especially the case in Afghanistan, where prices are largely constrained by the Pakistan government's subsidization of wheat prices, and the consequent smuggling of cheap wheat into Afghanistan. In these circumstances, wheat aid shipments have little effect on overall wheat prices. In any case, under no circumstances is wheat likely to be a real competitor for poppy in terms of income net profitability because of poppy's much higher returns.

Fourth, simply substituting crops is not enough. Alternatives are required for cultivators, but also for the others who are engaged in the economy—as runners, couriers, and so forth. Overall economic development is likely to assist in suppressing narcotics, much as it affects population growth and many social ills.

Fifth, in the narcotics economy—as illustrated in Figure 2-1—there are two points at which the heroin production process narrows in terms of the limited number of people involved: (1) at the heroin laboratories, and (2) at the points of export. This occurs because the number of people who have the connections, the technical abilities, and the social and political protection to perform the required functions at these points is limited. At the same time, those who control these nodes normally use force to limit the number of competitors. Because of the limited number of people involved at these points, attacking the heroin flow at these two nodes should be easier than at other points.

Whether such an attack can be launched at this time is the subject of an ongoing debate in the drug enforcement community. There seems to be a cyclical swing—between trying to trace the narcotics business up to the points where the flow narrows and trying to cut it off at the roots by wiping out on the one hand cultivators of raw materials, and on the other hand users. The advantage of dealing with the heroin laboratories is their small number; the disadvantage is their invisibility. The users and cultivators present a reverse advantage and disadvantage—their numbers are large, but they are easier to locate.

4. Alternatives to Poppy

ALTERNATIVE AGRICULTURE AND DEVELOPMENT PROJECTS

The U.S. Government recognizes the difficulty of replacing poppy income, at both the individual farm and national levels. According to the *International Narcotics Control Strategy Report*, success requires "a significant program of economic assistance, as well as improved trade and investment opportunities." These programs have usually been characterized as involving some mixture of crop substitution, income replacement, and area development.

According to a 1986 assessment, the general evolution was from crop substitution to comprehensive area development. "The evolution reflects the growing recognition that no single crop can fully substitute for income lost by farmers who give up illicit crop cultivation."²⁶

What is not as clear is whether the alternative agriculture and development strategies should target traditional opium poppy areas as in the case of Gadoon-Amazai, or whether they should be more broadly focused. In favor of targeting is the obvious fact that these are the areas that are heavily dependent on poppy cultivation. The opponents of targeting worry about the "balloon effect," the spread of the suppressed poppy cultivation to other areas, and the political costs of appearing to reward poppy cultivation. There is some possibility of compromise here, of course, in projects that involve both activities for poppy and nonpoppy areas, but such a compromise is likely to be more costly.

There has been increasing dissatisfaction worldwide with A.I.D. alternative agriculture projects designed to promote alternatives to narcotic crops in areas that have become dependent on such crops. A.I.D. has conducted a number of antinarcotics projects around the world in addition to those conducted by INM and other agencies of the U.S. Government. A review of the experience with these projects was conducted in 1986, and another was scheduled for this year,²⁷ but unfortunately, that review has been delayed. The projects have included elements involving area development in regions dependent on narcotics cultivation, education and public awareness programs about the problems of drugs, and support to law enforcement efforts. The 1986 review team endorsed all three project elements but believed that they needed to be flexibly adjusted by local project management to fit the particular economic and cultural situations of different areas.

In the interim there have been several evaluations of particular projects, including the Gadoon-Amazai, which is discussed later in this chapter.²⁸ The Gadoon-Amazai project has been judged generally successful, despite a slow start. Within Pakistan, activities in Balochistan and the tribal territories were judged to have been less successful. An evaluation of the Upper Hualaga Area Development Project in Peru concludes that little progress was made because of "poor coordination." The scheduled services were eventually delivered but agriculture remained stagnant and coca cultivation increased. The USAID/Peru Mission had strong reservations about the conclusions in the evaluation—the complementary enforcement activity never occurred.²⁹ A review of the Mae Chen Watershed Development Project in Thailand revealed that some agricultural development occurred, a detoxification project accomplished a fair amount, and that there was a 60 percent reduction in narcotics acreage.³⁰ Several studies were conducted in connection with the first Chapare Project in Bolivia, and they generally concluded that in the absence of enforcement there was little effect. One

study suggested that development elsewhere in Bolivia might dissuade potential migrants from moving to the rapidly growing Chapare area.³¹

The dissatisfaction with A.I.D. alternative agriculture projects is, in part, a result of so-called "balloon effects"; that is, incentives and programs that result in declining cultivation in one area, result in increasing production in other areas as drug traders shift their sources. Of course, in other cases, the inputs provided to the affected area simply go directly to serve narcotic crop production, or increase food crop yield, freeing acreage for narcotic cultivation. However, this result is not inevitable, as is explained below.

Balloon Effect

In a context in which enforcement activities by national police, assisted by the DEA and the U.S. Department of State, and interdiction activities by the DEA and Customs authorities are adequately supported by the national police, A.I.D. activity to promote alternative development forms a crucial part of a strategy for eliminating poppy cultivation.

Reservations have been expressed about the success of alternative agriculture projects, but there is no doubt that successful development is a precondition for shifting an area from dependence on poppy cultivation. Thus there is no question that the overall goal of A.I.D. activity—development—is also a crucial precondition for a transition from a local economy dependent on narcotics production.

The implication is that although the development of a specific project focused on the development of high-yielding crop production and marketing may be appropriate, the overall focus on the economic development of Afghanistan in general is crucial to narcotics eradication.

Even though some of the resources provided under alternative agriculture programs may be diverted to poppy cultivation, the lack of alternative development is likely to be more of an obstacle to suppressing poppy cultivation than the shifting of resources to poppy cultivation from their intended purposes. Steps can be taken to monitor the use of resources so that they are not diverted. However, because of the fungibility of many agricultural inputs, the efforts at alternative development should be conducted in cooperation with local authorities who are committed to the eventual suppression of poppy cultivation. These authorities can suppress cultivation and thus the potential for diversion.

These balloon effect distortions are the result of concentrating activities in areas particularly involved in narcotics. By contrast, a nationwide program of agricultural and other development creates alternative activities in which all current and potential drug areas may participate. It dissuades any given cultivator from growing poppy. If such a program includes promotion of high-yielding alternative crops—desirable in any case on developmental grounds—it again creates opportunities for all cultivators to refrain from growing narcotic crops.

This promotion of high-yielding crops may entail improving the production technology for such crops, but it will also require creating marketing networks for them. Thus an A.I.D./Afghanistan program of alternative agriculture would need to focus on the entire subsector of alternative crops, from inputs to marketing channels, and, as we will see, probably would not concentrate on what are now poppy-growing areas. However, as can be observed from A.I.D.'s experience with the Gadoon-Amazai project, considerable success can be achieved even if the substitute crops are not as lucrative as poppy.

Some activities are more subject to problems of diversion than others. The roads constructed in such areas actually facilitate enforcement as well as alternative development, whereas their effect in facilitating opium trading is minimal. There should be no objection to the extension of technical assistance—although not in the form of fertilizer or irrigation inputs—to promote nonpoppy crops, from the point of view of antinarcotics agricultural systems, even in poppy-dominated areas. There

may, however, be administrative or political reasons why A.I.D. is reluctant to operate in those areas, including a desire to put pressure on local authorities to cooperate in poppy eradication.

A.I.D. has significant experience with alternative agriculture development in a variety of countries, including neighboring Pakistan. The experts on the Nathan-Berger team identified a large number of crops, particularly fruits, that produce net incomes superior to that from opium (in the case of Afghanistan)—even though a fairly lengthy process of creating trading networks and providing technical assistance may be required to enable farmers to grow and market these crops (see discussion later in this chapter). USAID/Pakistan has conducted a number of programs, including the programs in Gadoon-Amazai and Buner, and other projects have had antinarcotics aspects or have been financed by the Narcotics Affairs Section of the U.S. Embassy or UNDCP.

EXPERIENCE WITH TARGETED ALTERNATIVE AGRICULTURE IN PAKISTAN

A number of antinarcotics projects, focusing on both the supply and the demand sides, are being or have been undertaken in NWFP. They are summarized in Table 4-1.

The A.I.D. program in Pakistan has experience with a targeted poppy eradication and alternative agriculture project. Because of the similarity in climate as well as the interconnections of the Pakistan and Afghanistan drug economies, conclusions drawn from the experience in Pakistan are likely to be relevant to future projects in Afghanistan.

The Northwest Frontier Area Development Project (NWFADP) was initiated in 1983 and is scheduled to continue through FY 1993. It targets Gadoon-Amazai, which was formerly a major area of poppy production in Pakistan. NWFADP's components include infrastructure development (roads, irrigations systems), introduction of high-value cash crops, agro-forestry and off-farm employment (including an industrial estate), education initiatives, and support of drug abuse centers.

NWFADP has been quite successful in achieving its objectives—poppy production, formerly covering 8,000 to 10,000 acres, has been eliminated. This success has two facets: (1) poppy planting has been reduced to a very low level (from 8,800 acres in 1987 to only 22 acres in 1990); and (2) the eradication program of the Government of Pakistan destroys the small amount of poppy that is still cultivated. The diligence of the Pakistani government's eradication program has been crucial to NWFADP's success; in particular, it has served as a stimulus for farmers to embrace the opportunities presented by NWFADP in exchange for their giving up poppy cultivation. The NWFADP evaluation confirms the importance of eradication as a precondition for successful alternative agriculture programs:

While local residents and their leaders have turned away from poppy, they have done so because they perceive themselves as having made an arrangement with the government that the government is committed to enforcing the law, and that their loss of poppy income will be offset by accelerated economic and infrastructure development. The linkage between the development and diversification of the economy and continued absence of poppy production remains strong.³²

Another conclusion that can be drawn from the success of NWFADP is that replacement of poppy cultivation with other sources of income generation is not a simple operation and requires a comprehensive program. "There is no single substitute for poppy. Replacement of poppy income demands a comprehensive improvement of the agricultural system together with the development of off-farm income generating opportunities."³³ The NWFADP project achieved this by integrating the former poppy-growing areas into the regional economy, in contrast to their previously isolated state.

Table 4-1. Antinarcotics Projects in Northwest Frontier Province

Project	Donor	Amount of Funds (thousands)	Project Life
Malakand Area Development	NAS/U.S. Embassy	US\$6,350	1983-1990
Agriculture Outreach	NAS/U.S. Embassy	US\$3,000	1982-1990
Social Forestry	Government of the Netherlands	Rs. 53,613	1987-1991
Dir District Area Development	UNFDAC	US\$14,580 + Rs. 27,395	1985-1991
Buner Area Development	UNFDAC	US\$7,567 + Rs. 17,874	1976-1987
Buner Area Development	EEC	Rs. 300,500	1988-1991
Bajaur Area Development	NAS/U.S. Embassy	US\$12,500	1989-1993
Mohmand Area Development	NAS/U.S. Embassy	US\$12,500	1989-1993
NWFADP Gadoon	A.I.D.	US\$44,000	1983-1993
NWFADP Kala Dhaka	A.I.D.	US\$8,000	1989-1993
NWFADP Dir Area	A.I.D.	US\$10,000	1985-1991
Drug Abuse Prevention Centre	A.I.D.	US\$3,000	1989-1993

Note: UNFDAC (United Nations Fund for Drug Abuse Control) is the predecessor organization to UNDCP.

Source: Sahibzada Raof Ali Khan, *Poppy Cultivation in Northwest Frontier Province (NWFP): Its Past, Present, and Future*, Islamabad, A.I.D., 1991.

"Development and diversification of the area's economy focused on the provision of infrastructure, the establishment of an industrial estate, agricultural interventions, manpower development, formal and non-formal education for women, and institution building, within the context of an integrated rural development approach."³⁴

Despite its success in terms of its nominal purposes, the Gadoon-Amazai project has been criticized because of

- Anticipated or reported balloon effects—the spread of poppy cultivation to new areas,
- Failure of substitute crops to produce as high a return per acre as poppy, and
- The heavy dependence of the project on the use of subsidies, which makes it expensive to replicate and which caused considerable unhappiness and dislocation when subsidies were phased out at the end of the project.

The extent to which the balloon effects are occurring is unclear. Proponents of targeted alternative agriculture projects argue that the target areas for balloon effects—those where poppy is not now grown—should be handled by intensive law enforcement efforts.

Steps have been taken through NWFADP to address the balloon effect of traditional poppy eradication efforts. The scope of the project was extended to the adjacent area of Kala Dhaka. Kala Dhaka was not a poppy-growing area; however, extension of development efforts into the area was

intended to forestall the shifting of poppy cultivation to Kala Dhaka from Gadoon-Amazai. The Kala Dhaka extension is described later in this chapter.

The substitute crops have not produced per-acre returns as high as those from poppy. According to the project evaluation, the ". . . total value of agricultural production in the project area decreased from 122 million rupees in 1984/85 (prior to opium suppression) to 98 million rupees in 1988/89 when virtually no poppy was produced. (Rupee values adjusted for inflation)."³⁵ But even anticipated future increases in income of Rs. 15 million from future production of new fruit trees will not bring the value of agricultural production to presuppression levels.

The situation at Gadoon-Amazai might have been improved by developing marketing networks for new crops. No significant efforts were made in marketing, as indicated in the project evaluation. In addition, an Asian Development Bank study (*Pakistan Fruit and Vegetable Export Marketing Study*)—not connected to poppy reduction efforts—provides detailed analysis of alternative crops with potential for increasing farmer incomes.³⁶ If these crops had been emphasized in NWFADP, perhaps overall farmer incomes could have been increased beyond preproject levels.

The change in the value of agricultural production has important implications for the long-term sustainability of project accomplishments. Because of the high returns from poppy cultivation, an increase in the total value of agricultural production after poppy eradication will be difficult to achieve.

Proponents of the targeted approach now often say that full income substitution in traditionally poppy-dependent areas is neither feasible nor necessary. Some compensation is required, so that the economy of the areas does not collapse entirely. Others argue for a more focused program of crop diversification toward higher-yielding varieties, the potentials for which are discussed in Chapter 3.

The subsidy issue has important implications for the long-term sustainability of NWFADP. The project included subsidy programs for wheat and fertilizer, fruit tree, afforestation activities, and subsidies in the form of jobs in the counterpart office to the Government of Pakistan. The evaluation report described the importance of subsidies to the project's success: "The high subsidy approach used at Gadoon was justifiable under the unique social, political and economic conditions that prevailed there during the early 1980s. It was needed in order to gain access and cooperation in shifting from an economy based on opium to one based on legitimate crops."³⁷ There is widespread opposition in A.I.D. circles to the view expressed in the study. However, the use of subsidies did not incorporate a sufficient appreciation for the long-term sustainability of the project: "Farmers were not always told at the outset how long the subsidies would continue. As a result, they came to expect them to continue indefinitely, i.e., a 'welfare syndrome' has been created."³⁸ In January 1990, USAID/Pakistan announced a phase-out of project subsidies over a 3-year period, coinciding with the project assistance completion date.

In the second phase of the Gadoon-Amazai project (currently under way), the subsidies have been gradually phased out. The current status of the subsidies is as follows:

- Wheat support subsidies have been completely phased out.
- Subsidies for forestry caretaker activities have been reduced 90 percent.
- Job subsidies have been reduced 50 percent.

According to the A.I.D. project officer, the phase-out of subsidies triggered no adverse reaction.³⁹ In fact, violent demonstrations occurred when subsidies in the Gadoon Amazai industrial zone were scheduled to be phased out. Proponents of the targeted approach in the Pakistan case now agree that the Gadoon-Amazai prototype was flawed by its extensive use of subsidy. This use caused the promotion of several unsustainable elements, such as the industrial estate units with which the project was involved. It also sparked jealousy on the part of neighboring areas and unsustainably high costs.

The proponents do not think that such subsidies were necessary either in the case of Gadoon-Amazai or in general.

A.I.D.'s Kala Dhaka Area Development Project (KDADP) following an INM effort was an extension of the Gadoon-Amazai project. It was designed to avoid the balloon effect of shifting poppy cultivation from the adjacent Gadoon-Amazai area, as well as to suppress existing poppy cultivation. The first phase of KDADP, which was initiated in February 1990, included road construction; pilot activities in agriculture, health, and education; and community-based infrastructure projects.

However, according to a report on the project based on impressions from fall 1990, A.I.D. has been reassessing its area development strategy in Pakistan since the initiation of KDADP:

This reassessment has prompted a shift from the support of infrastructure development projects, and paragonment institutions to manage those projects, to the support of multisectoral development through existing government line departments in partnership with the members of the target communities.⁴⁰

The fields on which the Kala Dhaka project focuses include agriculture, forestry, irrigation, road construction, health, water supply, education, and women in development. The report found that implementation of agricultural activities needed improvement; for example, inputs for pilot plots should be timely provided. In addition, emphasis should be placed on livestock and rangeland activities, which were not one of the planned components of the KDADP.

Forestry is an important part of the Kala Dhaka economy, and the project included efforts to establish forest and fuel wood nurseries as well as annual targets for afforestation. As for irrigation, the study found the project lacked a systematic approach and sufficient engineering staffing. As indicated earlier, the road construction aspect of the project had been under reassessment as part of a general reassessment by the Mission on the role of infrastructure construction in area development projects.

The provision of social services in health, water supply, education, and women in development is characterized by poor implementation and lack of service to a large portion of the population. KDADP is to provide upgrading and support for existing basic health units as well as improved training for medical practitioners and immunization teams. The report advocated that KDADP become involved in developing a coordinated health care system for the Kala Dhaka area. KDADP had started pilot water supply activities at the time of the report, but the report suggested that the project would need additional staff to establish community organizations that could successfully carry out local water-supply activities.

In education, the KDADP budget includes funds for teacher training, but the report stated that training might not resolve the problems of the primary education system. The report advocated that KDADP link up with an A.I.D.-funded Primary Education Project to focus the latter project's efforts on the educational problems of the Kala Dhaka area. In addition, the report suggested adding an education specialist to the project's staff. The Pakistani custom of segregating women adds further impediments to the advancement of women's development to the impediments found in other developing countries. Nevertheless, opportunities for promoting women in development do exist in the Kala Dhaka area, for example, through agricultural and other income-generating schemes. However, the report found that KDADP lacked the funding and staff necessary to promote the level of community participation necessary to advance women in a development situation.

In addition to A.I.D.'s Kala Dhaka project, the Narcotics Affairs Section of the U.S. Embassy implemented an agricultural outreach program in the area from 1985 to 1988. The program consisted of establishing demonstration plots and distributing fruit trees. NAS's activities were not very successful: "A visit to Kala Dhaka by SDU [Special Development Unit] staff in 1987 suggested that

the NAS outreach program had been less than successful because it suffered from a lack of trained staff and adequate transport, and because of problems of physical access and extension supervision."⁴¹

In 1988 the PNCB set up DAPRC with the support of A.I.D. The center has made progress in its mission of drug prevention. "It [DAPRC] has a small staff but in a short span of 2 years it has developed a sizable number of resources, has a data-base on computer, produces a range of education and training materials, publishes a quarterly Bulletin, and acts as a point of reference for prevention enquiries in Pakistan."⁴²

Other targeted projects have been implemented in Pakistan. A project in Buner was funded by the European Community, and one in Dir is scheduled to be run by UNDCP, for which Dir is seeking donors. Some U.S. government funds have been pledged. A Narcotics Affairs Section project in Malakand has been completed—two projects in Mohmand and Bajaur with budget levels of \$12.5 million each are under implementation and a third project is planned in Khyber. The focus of the NAS programs has been road building, which facilitates both enforcement and market development. The projects in Malakand and Mohmand are judged to have been effective. The "announcement" of the surveying for a road has reportedly been known to lead to a decline in poppy cultivation in the region. Local leaders are often hostile, but the roads seem generally popular. An earlier program of school construction was suspended because the schools were rarely used. Until recently USAID/Pakistan accounted for two-thirds of all donor money in the area, according to one observer. Termination of the A.I.D. bilateral program is likely to have some negative effect here.

During the final revision of our report, we received USAID/Pakistan's review of its antinarcotics projects and an INM official memorandum. Both items confirm our findings.

The USAID/Pakistan review concluded that, in Pakistan,

- Enforcement of poppy bans is critical to project success.
- Development activities can reduce local opposition, particularly if they are conducted with local participation and help to provide alternative economic activities to poppy cultivation. Villagers prefer income-generating projects to social projects.
- The Pakistani government has the capability to implement antinarcotics projects, but time and money are necessary for project effectiveness.

In relation to Afghanistan, the USAID/Pakistan review emphasizes

- The value of the poppy clause in keeping projects out of poppy-growing regions, and
- The attractiveness of irrigation and high-yielding crops (on the basis of the NACP experience) to local leaders in gaining their support for suppressing poppy cultivation.

In a recent memorandum, an INM official suggested the following lessons that were learned through INM work in Pakistan: projects should be simple and flexible, overhead should be low and the use of local talent maximized. Government commitment, donor control, and poppy clauses are critical. Roads and access facilities serve both alternative development and enforcement purposes.

PROGRAMS OF NARCOTICS EDUCATION, AWARENESS, AND TREATMENT

Because political support is so critical to successful eradication and alternative agricultural programs, explicit attention is often given to mobilizing political support in opposition to narcotics use and production. As part of the effort to secure local cooperation, A.I.D. has supported education and awareness programs. Such programs have two purposes: (1) to educate Afghans about the harmful

effects of poppy cultivation (for example, the link between production and addiction) as well as the harmful effects to society from corruption and lawlessness; and (2) to make Afghans aware of other opportunities for earning income, that is, providing information about alternative crops, production technology, and marketing networks. Similar programs are currently supported in Pakistan, for example, DAPRC, described earlier. This topic will be treated in a companion report.

CROP SUBSTITUTION

The promotion of rapid economic development, including raising alternative crops, is likely to be a promising direction for A.I.D. to follow in its contribution to the effort to curtail the narcotics economy.

Even now certain highly profitable crops are exported from Afghanistan. Afghanistan was reported to account for 60 percent of the world raisin market, and other markets for grapes are certainly available. Melons, asafoetida, almonds, apricots, pomegranates, apples, and cumin are all now exported. Licorice was an important crop before the war; however, most current Afghan exports have a low return because of low quality.

Persuading a farmer to grow another crop in place of opium requires more than economic incentives. Table 4-2 presents a few potential alternative crops and their average yields and estimated incomes for comparative purposes.

Table 4-2. Average Yields and Returns on Crops in Afghanistan

Crop	Season	Estimated Yield (kg/ha.)	Estimated Gross Returns (US\$/ha.)	Estimated Net Returns (US\$/ha.)
Poppy	Winter	40	4,210	1,684
Wheat	Winter	3,000	500	200
Barley	Winter	2,500	400	160
Alfalfa	Perennial	10,000	1,600	640
Pulses	Winter	1,000	320	128
Cumin	Winter	800	1,200	480
Cotton	Summer	3,000	1,500	600
Maize	Summer	3,000	600	240
Potatoes	Summer	30,000	2,500	1,000
Pulses	Summer	1,000	400	160
Vegetables	Summer	-	500	200
Grapes	-	2,000	5,000	2,000
Apples	-	-	4,000	1,600
Almonds	-	-	800	320

Note: Net returns are difficult to calculate but are estimated to be 40 percent of gross returns.

As can be observed from the table, the crops that could replace poppy as a winter crop—wheat, barley, winter pulses, and cumin—are generally inferior in their per-hectare incomes. But for all of these crops, better management and use of improved inputs and technology could bring higher returns than cited here. Among vegetables crops, potatoes stand out and among fruit crops, grapes and apples stand out as high-return crops. Any of these crops could compete with poppy, unless dealers raise the price of poppy. No amount of improved cultivation techniques for wheat will provide higher returns than poppy while wheat prices remain artificially low because of illegal imports from Pakistan, where the government heavily subsidizes the farmers to keep retail wheat prices low.

As seen in Table 4-2, certain varieties of fruits and perhaps certain vegetables have returns almost comparable to those of opium. According to our calculations, some fruits in Afghanistan can bring more income from a unit area than opium.

COSTS AND RETURNS OF ALTERNATIVE SOURCES OF INCOME

Expenditures and returns of a typical well-tended orchard in Afghanistan are presented in Table 4-3. Fruits such as apples, apricots, pomegranates, grapes, and almonds produce similar incomes per hectare. Other fruits that not currently grown commercially, such as walnuts, figs, lemons, and grapefruits—and in warmer regions, plums, peaches, and pears—can also be as profitable.

Table 4-3. Costs and Returns of Production from a Typical Fruit Orchard in Afghanistan

Costs	US\$
Permanent labor for one person/ha. at US\$436/year, based on 1,680 kg (3 kharwars) of wheat at current price of approximately US\$2 for 7 kg ^a	436
Temporary labor for pruning, thinning, picking, and cultivation, 250 days at an average of \$2.41 a day	603
Fertilizers: urea, 7.5 bags at US\$18 a bag	135
Sprays: a total of approximately 6 liters at a maximum of US\$7.27 a liter	43
Subtotal	1,217
Contingencies	111
Total	1,328
Returns	
Most fruits produce 28 tons/ha.—28,000 kg at US\$109 per 560 kg	5,450
Net per ha. US\$5,450-1,328	4,122

Notes: Shakapara apricots in Uruzgan produced 4,500 kg of dry fruit per hectare last year and sold at US\$18 per 4.5 kg. Gross income of each hectare at this rate was \$18,181 per hectare. (Afs. 550 = US\$1.)

^aA kharwar is an Afghan unit of measurement used in transactions such as payment for labor. One kharwar = 560 kg.

Normally a full-time worker is hired for every hectare of fruit trees. His wages are based on the price of wheat at time of payment. Wages for one year are usually 1680 kg of wheat or the equivalent in cash at current market prices.

In addition, daily labor is then hired for pruning, thinning, picking fruit, and cultivating the orchard if the farmer does not have machinery. If he has appropriate machinery, one permanent worker can perform these tasks.

RELEVANT FACTORS AND NEEDED ACTIONS TO PROMOTE ALTERNATIVE SOURCES OF INCOME

The net incomes from fruits given in Table 4-3 show that fruits will generate at least as much income as poppy. However, in deciding to replace poppy with one of the fruit crops, the following factors must be considered:

- Can a certain high-value fruit crop grow in the climatic and other conditions of the area where poppy currently is grown?
- Would the fruit have a ready market?
- Is the capital available to establish an orchard, including the price of trees for planting, labor to care for the trees for 5 years until they produce, and sacrificing almost five crops from the land until trees begin to produce.
- While poppy is harvested in May when water is in abundance, fruit trees need water continuously until the end of the summer, that is, until leaf fall. Is such water available?
- Fruits such as dried apricots, prunes, almonds, and walnuts can be hauled to markets by animals from remote villages; however, if the fruit to be grown is intended for the fresh market, there must be good roads to the market in addition to adequate packaging and storage.
- Technical assistance by farm advisers is sorely needed because farmers in poppy-growing areas may have no experience in growing fruits.

Considering the aforementioned factors that must be considered, the logical action is to accept that elimination of poppy cannot occur in a short period of time and to begin by taking the following steps:

1. Determine what fruit crops will be the most successful from all points of view and plant a limited number of demonstration plantings in community centers.
2. Encourage farmers to intercrop the field where the fruit trees are planted with other crops. Fruit trees are usually planted several meters apart and are no more than a thin seedling at the time of planting. Their presence in the field will hardly make any difference in the production of any other crop on the same land for the first few years. When the trees grow big enough to interfere with intercrops, they will be producing themselves.

In the long run, this strategy will eliminate poppy and replace it with fruit only in the districts where holdings are small (one hectare or less), but it will not work in provinces such as Helmand where holdings are large and can produce both crops in abundance.

ANALYSIS BY REGION

Other areas in the country have more suitable conditions for fruit than some of the generally warm areas where poppy is grown. The higher-elevation regions, because they are cooler, will produce

higher-quality fruit—except for a few types, such as figs and pomegranates, that are better adapted to the lower-elevation poppy areas. Thus, if poppy replacement were not a consideration, the more sensible policy for expanded fruit production would be to use areas other than poppy land.

However, certain poppy areas, such as Musa Qala and Naw Zad in Helmand, Uruzgan and much of Paktia, the north of Laghman, and Khogiani in Nangarhar, are also good fruit areas.

Figure 4-1 shows the districts in Afghanistan that either grow poppy now, or are likely to grow it in the future, and the kinds of fruit that can grow in these same districts:

Income from most vegetables, spices, and commercial crops is not as high as income from poppy or fruit. Nevertheless, certain vegetables that are not commonly grown and that may have good markets, or those that can be dehydrated or processed and shipped to distant markets, might be able to successfully compete with poppy in net income.

The development of alternative crops will require the development of market networks as well as the introduction of new processing technology. Processing technology for fruits and vegetables has advanced rapidly in recent years. Many countries have benefited from arrangements with multinationals for drying, freezing, canning, preserving, or otherwise adding value to their fruit and vegetable output. The resulting highly profitable crops are likely to be a critical element in the further development of the Afghan economy if a minimal level of social order can be restored.

Figure 4-1. Fruit Varieties Cultivable in Eastern Afghanistan

Province and Districts	Grapes	Apricots	Pomegra- nates	Figs	Almonds	Walnuts	Peaches	Plums	Pears	Citrus
Nangarhar										
Jalabad			
Shinwar	
Durbaba	
Bati Kot			
Rodat			
Chaparhar	
Mohman Dara										
Lalpu										
Kama			
Goshta			
Surkh Rud			
Behsud			
Hisarak	
K 12 Konar			
Dara-e Nur			
Khogiani		
Pachir Agam	
Sherzad	

Figure 4-1 (continued)

Province and Districts	Grapes	Apricots	Pomegra- nates	Figs	Almonds	Walnuts	Peaches	Plums	Pears	Citrus
Laghman										
Mehartlam										
Qarghayi				•	•		•	•		
Dawlat Shah				•	•		•	•		
Alingar	•	•	•	•	•	•	•	•	•	
Alishing	•	•	•	•	•	•	•	•	•	
Nuristan	•	•	•	•	•	•	•	•	•	
Konar										
Asadabad		•	•	•	•	•	•	•	•	
Chapa Dara		•	•	•	•	•	•	•	•	
Narang		•	•	•	•	•	•	•	•	
Narai		•		•	•	•	•		•	
Dangam		•		•	•	•	•		•	
Khas Konar		•		•	•	•	•		•	
Bar Konar		•		•	•	•	•		•	
Sarkani		•		•	•	•	•		•	
Kamdesb		•		•	•	•	•		•	
Berg-e Matal		•		•	•	•	•		•	
Chawki		•		•	•	•	•		•	
Mazar		•		•	•	•	•		•	

Figure 4-1 (continued)

Province and Districts	Pomegra- nates										Citrus
	Grapes	Apricots	Pomegra- nates	Figs	Almonds	Walnuts	Peaches	Plums	Pears	Citrus	
Pech		•		•	•	•	•	•	•	•	•
Paktia											
Gardez					•	•	•	•	•	•	•
Speyra		•			•	•	•	•	•	•	•
Khost	•	•	•	•	•	•	•	•	•	•	•
Manduza		•			•	•	•	•	•	•	•
Sabari		•			•	•	•	•	•	•	•
Trazai		•			•	•	•	•	•	•	•
Dara-i-Darang		•			•	•	•	•	•	•	•
Tani		•			•	•	•	•	•	•	•
Torboz		•			•	•	•	•	•	•	•
Nadir Shah Kot		•			•	•	•	•	•	•	•
Musa Khel		•			•	•	•	•	•	•	•
Kalandar		•			•	•	•	•	•	•	•
Jaji		•			•	•	•	•	•	•	•
Hassan Khel		•			•	•	•	•	•	•	•
Ghanikhel		•			•	•	•	•	•	•	•
Jadran		•			•	•	•	•	•	•	•
Shawak		•			•	•	•	•	•	•	•
Shamal		•			•	•	•	•	•	•	•

Figure 4-1 (continued)

Province and Districts	Grapes	Apricots	Pomegra- nates	Figs	Almonds	Walnuts	Peaches	Plums	Pears	Citrus
Sayyid Karam		
Chamkani		
Dand Wa Patan		
Lajmangal		
Zurmat		
Wolma		
Jaji Maidan		
Keshem		
Jurm		
Baharak		
Shighnan		
Ishkashim		
Zebak		

Endnotes

¹The foregoing analysis depends heavily on William O. Walker's authoritative *Opium and Foreign Policy: The Anglo-American Search for Order in Asia, 1912-1954*, Chapel Hill, N.C.: University of North Carolina Press, 1991.

²United Nations International Narcotics Control Board, Forty-ninth Session, Vienna: May 27-June 7, 1991. *Report on Mission to Afghanistan: February 16-24, 1991*, 3.

³*Ibid.*, 4.

⁴Information on Badakhshan is from a 1989 report prepared by Afghanaid for the United Nations.

⁵Unclassified cable referring to a July 1992 report of the Foreign Broadcasting Information Service.

⁶Catherine Lamour and Michel R. Lamberti, *The International Connection: Opium from Growers to Pushers*, Pantheon: New York, 1974, 237.

⁷The seven countries were Bulgaria, Greece, India, Iran, Soviet Union, Turkey, and Yugoslavia. *Ibid.*, 240-1.

⁸Krishna Kumar, Ernest Carter, and Stan Samuelson, "A Review of A.I.D.'s Narcotics Control Development Assistance Program," A.I.D. Evaluation Special Study No. 29, Washington, D.C.: Agency for International Development, 1986, 8.

⁹Kumar et al., *op. cit.*, 8.

¹⁰United States General Accounting Office. *Report to the Chairman, Permanent Subcommittee on Investigations, Committee on Governmental Affairs, U.S. Senate. Drug Control: How Drug-Consuming Nations are Organized for the War on Drugs*. GAO/ASIAD 90 133. June 1990.

¹¹*International Narcotics Control Strategy Report*, March 1992, U.S. Department of State, Bureau of International Narcotics Matters, Washington, D.C.: Government Printing Office, 1992.

¹²*Ibid.* Besides higher individual area estimates, such as those contained in UNDCP Reports for Nangarhar, most of the criticism we have found has been oral rather than written.

¹³Interview with Dr. Khalid Mufti, Peshawar, July 24, 1992.

¹⁴Ian Hamilton Fazey, "Former Soviet States Growing Illegal Drugs, Says UN Report," *Financial Times*, May 1992. The article reports on a release from the UNDCP in Vienna that reports 100,000 acres [sic] of poppy in Russia alone. The focus was on the emerging market demand in European Russia but extensive poppy growing was reported in Tajekistan and Uzbekistan on Afghanistan's border. Of course, if the primary phenomenon is growing, this activity alone would not affect Afghanistan, but the development of a drug economy combined with considerable demand would extend the area of the Golden Crescent drug economy.

¹⁵*Agricultural Survey of Afghanistan, Twelfth Report, 1990 Survey, November 1991*. Peshawar: Swedish Committee for Afghanistan, 1992.

¹⁶*International Narcotics Control Strategy Report*, 1992, 227.

¹⁷Eng. Said Hassan, FMO and Qaribullah, PA, "Report on Nangarhar Mission," April 7-12, 1992.

¹⁸Malikzai and Izatullah, "IRU Activities from January 1991 to December 1991," Narcotics Awareness and Control Project, 1991.

¹⁹Nathan Associates Inc.-Louis Berger International, Inc. (1991). *Afghanistan Land Ownership*, 26-27.

²⁰*Ibid.*, 22-23.

²¹*Ibid.*, 32.

²²*Ibid.*

²³The foregoing analysis borrows heavily from Walker, *op. cit.*

²⁴Amin Saikal and William Maley. *Regime Change in Afghanistan: Foreign Intervention and the Politics of Legitimacy*, Boulder, CO: Westview Press, 1991.

²⁵In Pakistan most of this is journalistic, although the largely unpublished work of Lawrence Goodson is concerned with it.

²⁶Kumar et al., *op. cit.*, 18-19.

²⁷*Narcotics Control Activities: A Bibliography of A.I.D. Evaluations*, Center for Development Information and Evaluation, Washington, D.C.: Agency for International Development, 1991; Kumar, *op. cit.*

²⁸*Evaluation of USAID/Pakistan Northwest Frontier Area Development Program*, Islamabad: USAID, 1987. This report also contains some material on the UNFDAC, now a UNDCP program in Dir, which was funded by USAID. See also Maurice Williams and Ludwig Rudel, *U.S. Economic Assistance to Pakistan: A Review of the Period 1982-1987, Final Report*, Washington, D.C.: Devres, Inc., 1988.

²⁹Project Evaluation Summary, Upper Hualaga Area Development Project, Lima: USAID, 1988.

³⁰Alan D. Roth, Paul Luou, et al., "Second Evaluation of the Mae Chen Watershed Development Project, Thailand," Washington, D.C.: Development Alternatives, Inc., 1987.

³¹Douglas Pool, Dale Adams, et al., "Evaluation of Chapare Regional Development Project," Gainesville, Fla.: Tropical Research and Development, 1986. As part of this project AMIS hired five American agribusiness firms to promote development projects, with little success. See also Richard Abbott, "Report on AMIS Trade and Investment Promotion Activities in Bolivia," Washington, D.C.: Abt Associates, 1991. This project was recently rebid.

³²*Opium Poppy Eradication: Development, Dependency, and Self Reliance: North West Frontier Area Development Project Evaluation Report*, 2 vols., Development Economics Group, Louis Berger International, Inc., 1990. Peshawar, Pakistan: A.I.D., Volume 2, 2.

³³*Ibid.*, Volume 1, 39.

³⁴*Ibid.*, Volume 2, 2.

³⁵*Ibid.*, 9.

³⁶Produce Studies Limited. *Pakistan Fruit and Vegetable Export Marketing Study, Volume 1*. Asian Development Bank, 1990.

³⁷*Ibid.*, 32.

³⁸*Ibid.*, 17.

³⁹Interview with Mr. Sohail Malik, USAID/Pakistan Project Officer, Peshawar, August 5, 1992.

⁴⁰Richard English, Jonathan Greenham, and Ruth Láila Schmidt, "Interim Report: NWFPADP Kala Dhaka Area Development Project, Pakistan—Phase I," Bethesda, MD: Development Alternatives Inc., March 1991.

⁴¹*Ibid.*, C-4.

⁴²*Master Plan for Narcotics Control*, Islamabad: Government of Pakistan/UNDCP, 1991, 22.

Appendix A
DATA SOURCES

Table A-1 presents documented sources of data on opium production. "N" indicates that numerical data exist or can be generated; "D" indicates that descriptive nonnumerical data are available. In a few cases, the precise districts (Minor Civil Divisions) involved are known, for example, the Nad Ali district in Helmand.

In addition, the DC&A Mapping Unit of USAID/Afghanistan has produced a map based on a map (Calendar of Opium Poppy Cultivation in Afghanistan, 1990). The map shows areas of poppy cultivation overlaid on provincial and district boundaries. Evaluation of the map by various experts indicates that (1) production in Konar is overestimated; (2) production in Qandarhar is underestimated; (3) production in Uruzgan is overestimated; and (4) production in Helmand is probably underestimated. It is possible that the reason for these divergences is that the map presents 1990 data, whereas the experts' opinions reflect the current status of poppy cultivation.

Data for Afghanistan as a whole are available from the U.S. Department of State's 1992 *International Narcotics Control Strategy Report*. Sources outside the U.S. government have said they believe that the Narcotics Control Strategy Report's figures for Afghanistan are underestimated.

Officially reported price data on opium in north Afghanistan and heroin at the Pakistan-Afghanistan border are available from the Afghanistan Information Centre. Officially reported price data on opium in Badakhshan, Nangarhar, Konar, and the Khyber Agency and the factory and market rates for heroin are available from the UNDCP.

Table A-1. Documented Sources of Data on Opium Production

Source	Nangahar	Kunar	Kandahar	Oruzgan	Badakhshan	Paktia	Helmand	Bamiyan	Logar	Parwan
Official U.S.	N	N	N	N		N	N			
Swedish Committee for Afghanistan	N				D		D			D
Afghanaid					D					
The Mercy Fund	D									
NACP	D	D	D	D	D	D	D	D	D	D
UNDCP Satellites		N								

Note: "N" indicates that numerical data exist or can be generated; "D" indicates that descriptive nonnumerical data are available.

Appendix B
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Appendix C
PERSONS INTERVIEWED

Hank Cushing
Regional Affairs Officer
A.I.D./Afghanistan
Peshawar

Richard English
Development Alternatives Inc.
Washington, D.C.

Gerald Feierstein
Principal Officer
U.S. Consulate
Peshawar

Azam Gul
Director
Agricultural Survey of
Afghanistan
Swedish Committee for
Afghanistan
Peshawar

Roger Helms
A.I.D./Afghanistan
Peshawar

James Hughes
Resident Agent In Charge
U.S. Drug Enforcement
Administration
Peshawar

John Humphrey
Afghanaid
Peshawar

Anne Hurd
Koh-I-Noor
Peshawar

John Huxtable
Food for Peace Officer
A.I.D./Afghanistan
Islamabad

Abdul Khaliq
In-Charge Refugee Camps (Naib
Tehsildar)
Dalbanin

Gulzar Ahmad Khan
Secretary for Home and Tribal
Affairs
Northwest Frontier Province
(former Commissioner for
Afghan Refugees, Government
of Pakistan)
Peshawar

Jehanzeb Khan
ACC Coordinator
Afghan Rehabilitation
Reconstruction Project
U.N. International Drug Control
Programme
Peshawar

Gary Lewis
A.I.D./Afghanistan
Islamabad

Ken Lizzio
Former Narcotics Awareness
and Control Programme
Washington, D.C.

James Magnor
Counselor
Narcotics Affairs Section
U.S. Embassy/Islamabad

Taj Mali
Public Affairs Assistant (Afghan
Program)
U.S. Information Service
Peshawar

Akbar Marri
Tehsildar
Dalbandin
District Chagai
Girdi Jungle Area

Gulzar Marri
Village Administrator
Quetta/Surkhab Refugee Camps
Quetta

Jack McCreary
Press Attaché
U.S. Information Service
Islamabad

Taj Mohammad Mengal
Assistant Director
Pakistan Narcotics Control
Board
Quetta

Michael Mingo
Public Affairs
Commissioner/Consul
U.S. Information Service
Peshawar

Rustom Shah Mohmand
Commissioner for Afghan
Refugees
Government of Pakistan
Peshawar

Tom Morrison
Director
Agrisystems (Overseas) Ltd.
Swedish Committee for
Afghanistan
Peshawar

Abdul Hakim Murad
Training Center Manager
Agriculture Department
Swedish Committee for
Afghanistan
Peshawar

Al Nehoda
A.I.D./Afghanistan
Peshawar

Hans (Pat) Peterson
Director
Office of Agriculture
Bureau for Research and
Development
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Andrew Pryce
Chief Technical Adviser
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Reconstruction Project
U.N. International Drug Control
Programme
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Office of Agriculture and Rural
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Reconstruction Programme
U.N. International Drug Control
Programme
Peshawar

Malik Ulam Sadik
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Christine M. Sheckler
Program and Narcotics Officer
A.I.D./Pakistan
Islamabad

Joanne Thompson
International Narcotics Matters
State Department
Washington, D.C.

Miles Toder
Deputy Chief of Party
Afghanistan Agricultural Sector
Support Project
Development Alternatives Inc.
Islamabad

Robert Traister
Narcotics Affairs Section
Peshawar

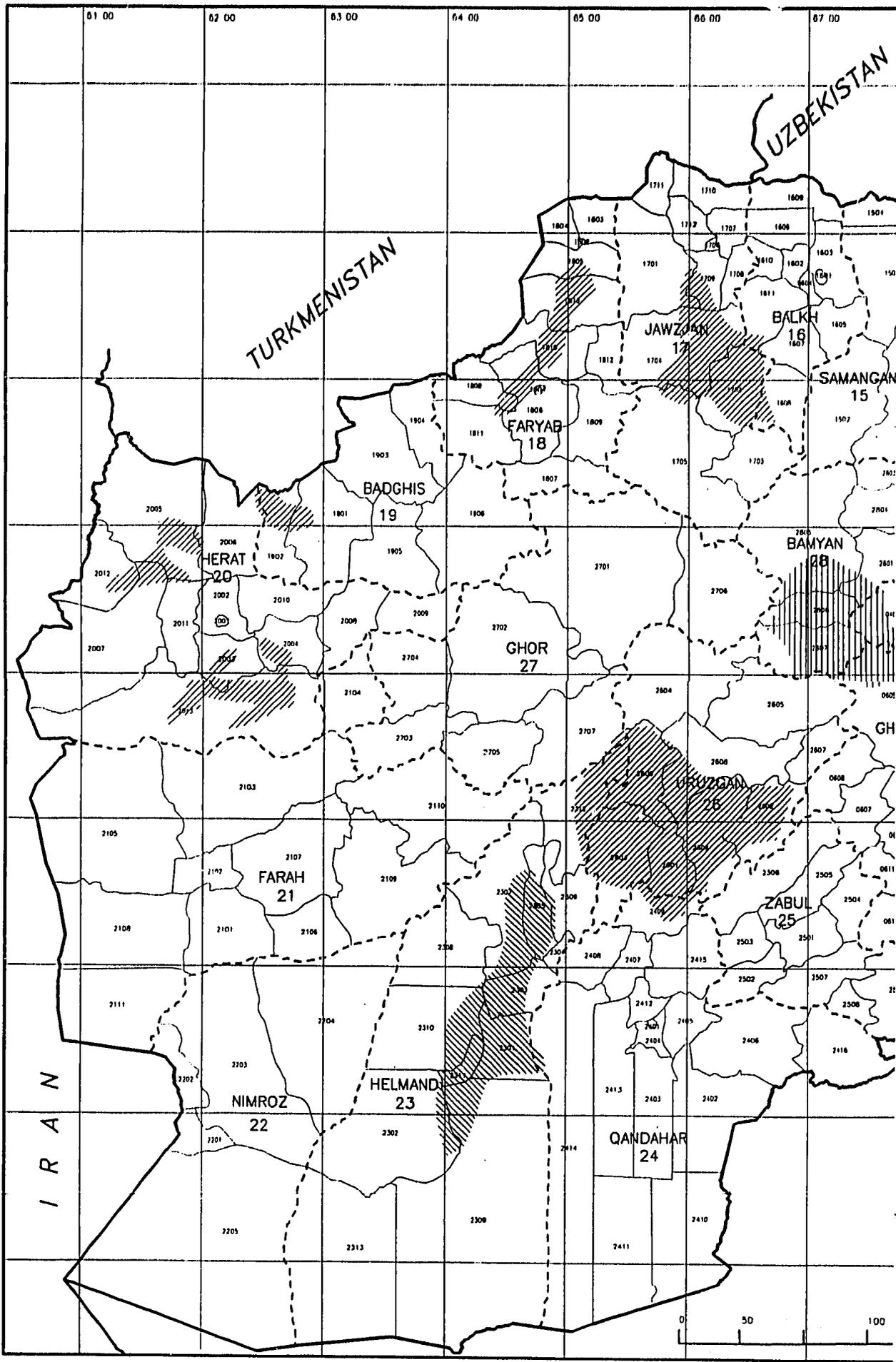
Mohammed Umer
Deputy Director
Pakistan Narcotics Control
Board
Quetta

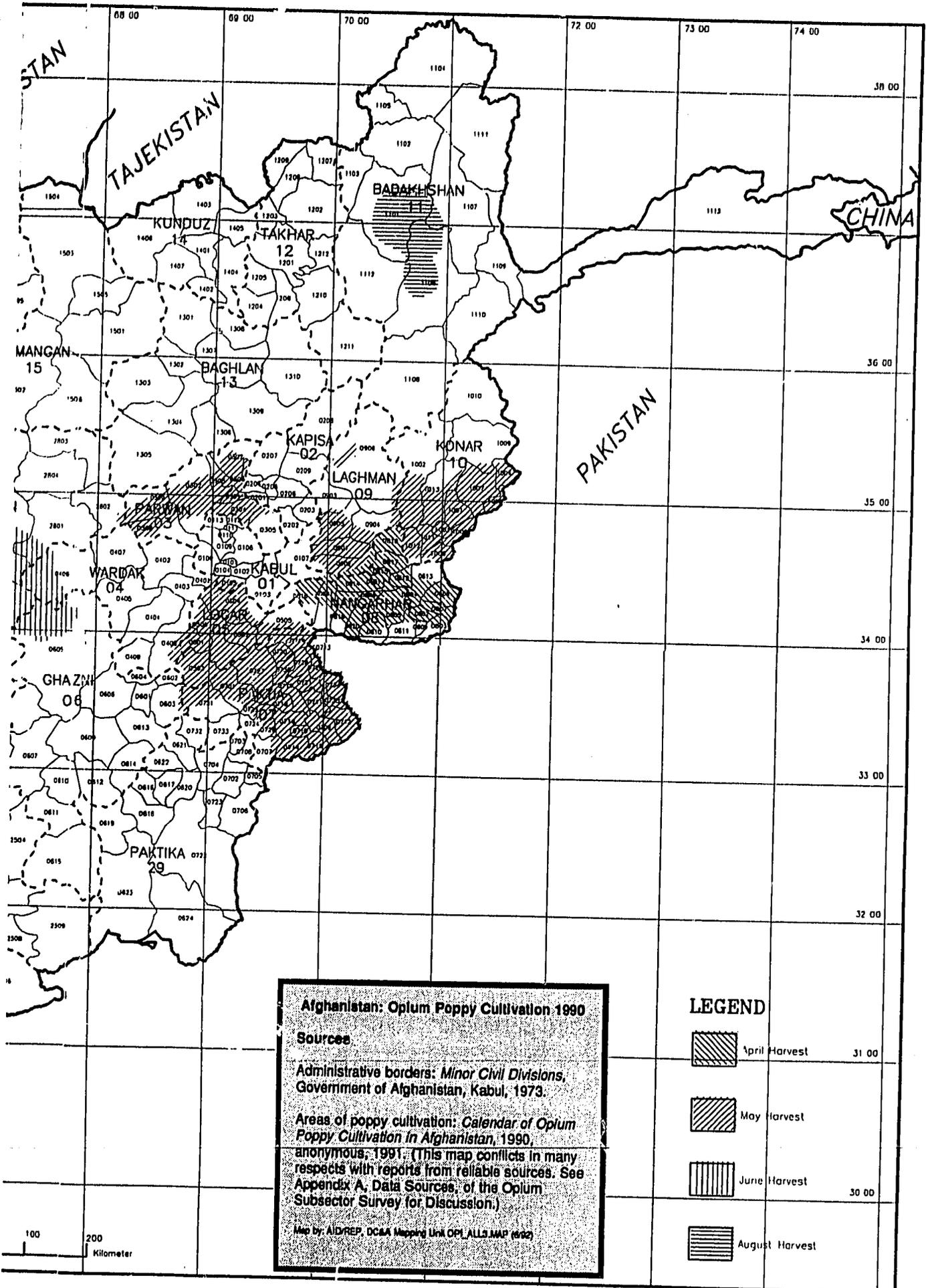
Curt Wolters
A.I.D./Afghanistan
Islamabad

Anwar Zai
Agriculture Program
Swedish Committee for
Afghanistan
Peshawar

Numerous Afghan refugees,
including those in

- Malgagae and Muslim Bagh camps, where refugees are from Zabul and Uruzgan provinces;
- Surkhab and Mahammad Khel camps, where refugees are from Qandahar and Uruzgan provinces; and
- Girdi Jungle and surrounding camps, where refugees are primarily from Helmand, but some are also from Qandahar and Nimroz provinces.





Afghanistan: Opium Poppy Cultivation 1990

Sources:
 Administrative borders: *Minor Civil Divisions, Government of Afghanistan, Kabul, 1973.*
 Areas of poppy cultivation: *Calendar of Opium Poppy Cultivation in Afghanistan, 1990, anonymous, 1991. (This map conflicts in many respects with reports from reliable sources. See Appendix A, Data Sources, of the Opium Subsector Survey for Discussion.)*

Map by: AIDREP, DCAA Mapping Unit OPL ALLS MAP (692)

LEGEND	
	April Harvest 31 00
	May Harvest
	June Harvest 30 00
	August Harvest