

POPPIES IN AFGHANISTAN - 1990

PRELIMINARY SURVEY REPORT

NACP began a study of poppy production in Afghanistan in late 1990 to determine costs, returns, profitability and cultural practices. Twenty five informants from Nasir Bagh refugee camp near Peshawar were interviewed. All informants were knowledgeable farmers or landlords from eastern Afghanistan (southern Konar and Nangarhar). The survey was designed to allow comparison with a 1972 study which is reproduced as Annex A to this report.<sup>1</sup>

NACP intends to cover other areas of Afghanistan with the same survey in 1991. Studies of other crops such as wheat, rice, sugar cane and corn should also be planned for 1991. A more comprehensive report on poppies and their relationships to other crops will be possible later in the year.

Information on opium prices and yields is available from another source.<sup>2</sup> This information along with variations in survey results has been used to create high, medium and low scenarios from a computer model designed to allow easy analysis of new or revised information.

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CULTURAL PRACTICES

Poppies are grown in eastern Afghanistan today much as they were in 1972; tools are the same, the cropping calendar has not changed, even the mix of inputs is similar.

Land is prepared and poppies are planted in the fall; the crop is nurtured and irrigated through the short, mild winter. Opium is harvested the following spring. See Cropping Calendar, Figure A. Poppy production is a labor intensive activity, especially the harvesting operation which requires skilled labor. Table 1 shows hired and family labor requirements for poppy production, by operation. Obviously, poppy cultivation/opium production is a highly labor intensive operation.

Land is prepared with a pair of bullocks and the traditional stick plow which usually has an iron point affixed by the village blacksmith. The soil is sometimes softened for plowing by pre-planting irrigation. Only one respondent reported the use of tractor for land

<sup>1</sup>Owens, G.P. and James H. Clifton. Poppies in Afghanistan. Kabul, Afghanistan. 1972

<sup>2</sup>DEA, Peshawar. Yields are from a systematic country-wide survey and prices are from confiscated records of actual transactions. *Handwritten note:* Newspaper reports support DEA prices when exchange rates are taken into account. For example, the NEWS INTERNATIONAL of 13 February, 1991 reports a price of 10,800 afi/kg, which is about 15 percent less than the average of DEA prices when adjustments are made for differing exchange rates.

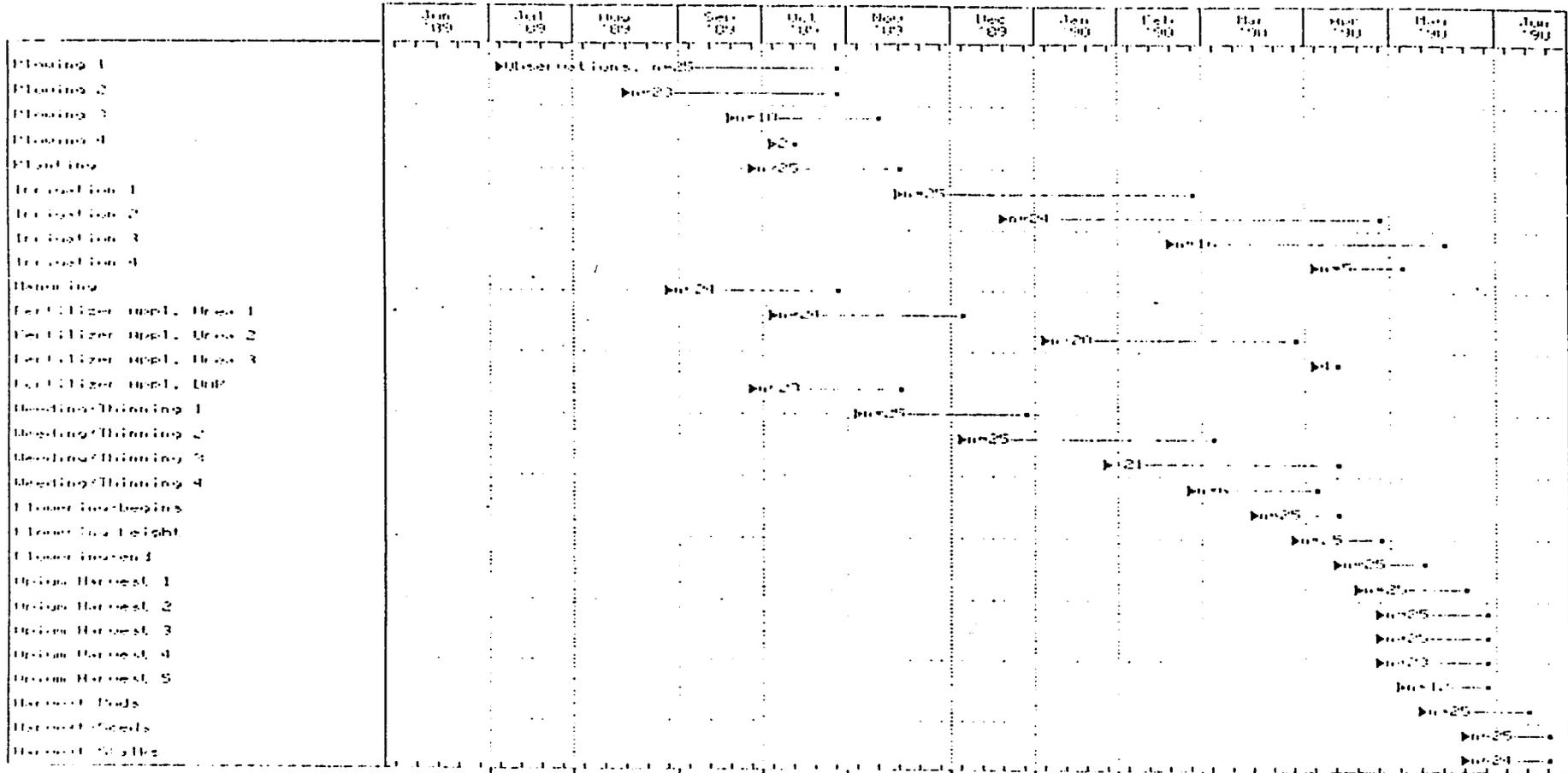
*Handwritten notes:* How-to...  
OK/T...  
seed planted how etc  
cultivated

*Handwritten note:* requirements

*Handwritten note:*  
 2000/2001  
 2001/2002  
 2002/2003

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Figure 4. Cropping Calendar, Potatoes, Korer /Hanga-ha



6

TABLE 1

LABOR REQUIREMENTS FOR POPPY PRODUCTION - KONAR/NANGARHAR  
PERSON DAYS PER HECTARE

	n	FAMILY LABOR	n	HIRED LABOR	TOTAL
PLOWING	25	35.4	12	5.4	40.8
PLANTING	25	17.2	6	1.2	18.4
RIDGING	25	11.4	1	0.2	11.6
IRRIGATION	25	26.2	3	0.5	26.7
THINNING/WEEEDING	25	70.8	21	87.4	158.2
HARVESTING					
OPIUM	25	89	24	146.2	235.2
SEED AND STALKS	23	34.8	9	18.4	53.2
		285		259	544

*n = number of farms reporting the use of - - - .*

preparation.

Why?

Planting is done by hand in October and the first half of November. Seed is usually mixed with sand or dirt before being broadcast on land already plowed, levelled and sometimes ridged. Seed are then incorporated into the soil by drawing a plank, or mallah, over the land with bullocks.

Most farms applied chemical fertilizer (both Urea and DAP) and/or manure. See Figure A for timing and number of farms fertilizing.

Thinning and weeding, usually done at the same time, require the most labor except for the harvesting operation. Most farmers weed at least three times, from shortly after emergence until the onset of flowering.

Crop irrigation is done up to four times during the season, depending on water availability and climatic conditions. Irrigation usually starts a week or two after planting and <sup>may</sup> lasts until a few days before harvest. Some farmers irrigate once after opium harvest to facilitate pulling of stalks which are a valuable source of fuel.

Opium harvest begins within a few days of petal fall and ends in about three weeks. The opium harvest operation consists of scoring or incising the green seed pod with a special tool (Neshtar or Nesh) to a depth of about one millimeter. The latex (similar to the "juice" from some euphorbia or milkweed plants) emerges immediately and is left on the outside of the seedpod to dry and oxidize, usually for about 24 hours. The thickened latex is then scraped from the pod, dried some more and sold as opium (raw opium gum). This operation is repeated up to five times per pod in eastern Afghanistan. Seeds, pods and stalks are harvested soon after opium harvest, when the plant has dried.

- HOW ARE SEED STORED  
- WHAT ARE STALKS USED FOR?

How could this be?!

Opium yields seem to have increased significantly since 1970. Some farmers reported obtaining new (improved?) seed from Pakistan (origin unknown), and fertilizer use is probably much higher than in 1970. The labor input also appears to be higher. Respondents to the survey reported average yields of 71.1 kg/ha. DEA reported yields as <sup>of</sup> ~~slightly lower~~ (about 60 kg/ha). NACP was unable to verify whether alkaloid content was greater ~~than~~ <sup>than</sup> 1970.

Yields are quite variable, according to the survey. Water and labor availability are probably the major causes of variation, although partial destruction of the crop due to fighting was mentioned by some respondents.

with grain, fuel and wage rates adjusted to conform to DEA data.

# THE ECONOMICS OF OPIUM PRODUCTION

Table 2 shows major elements of costs, returns and "profitability" based on average figures from the survey. The "out of pocket" costs (chemical fertilizer, fuel, hired labor and taxes) are most important to the farmer. Of these, hired labor is by far the largest and most variable element of cost. Profits are most sensitive to the daily wage rate and, as we shall see below, the price and yield of opium gum.

Table 3 shows daily wage rate by opium

A significant cost element in Tables 2, 3, and 4 is family labor which is based on the concept of "opportunity cost", or earnings foregone by family members who work in their own poppy fields. This is relatively high because of the general labor scarcity in the area, which means that alternate employment opportunities are relatively high for most family members (For example, they could work for wages or produce other crops). Opportunity cost is a concept; it involves no exchange of money or resources, is vaguely understood even by some economists, and probably is of no concern whatsoever to poppy farmers. But to exclude it would be to deny that there are alternatives to poppy production. Opportunity cost is figured at 50 percent of the daily wage rate for calculations in Table 2.

Need to clarify concept of opportunity cost

The survey revealed that most farmers pay ten to fifteen percent of gross proceeds to local commanders or leaders as "tax", which amounts to about 20% of all costs and 30% of out of pocket expenses.

16 23

About 90 percent of the returns from poppy production are from the sale of opium. Poppy seeds, seedpods and stalks are also valuable; for sale or home consumption.

NACP survey indicated that about \$2000.

Net returns per hectare are almost \$1900 if averages from the survey are used. Most respondents knew who NACP represented and we know that there was a rumor that the U.S. government would buy the opium to keep it off the market. This led us to believe that profits would be exaggerated by some respondents, and the information from DEA bears this out. Net returns are about \$500 per hectare, when the information on yields and price from DEA is used with average survey data. NACP also has reason to believe that the daily wage rate was over-reported by about 20 percent. Our best approximation of average costs, returns and profitability of opium production in the study area is shown in Table 2. Net returns are very close, perhaps slightly below, the returns in 1970 ("taxes" were not included in the 1970 study), although costs and gross returns are much higher.

600

Variation is expected in any study of this nature. In this study, prices varied about 38 percent on either side of the mean, yields varied about 35 percent and daily wage rates varied about 26

Exch. rate - Afs/dollar

Tax rate - % of gross ret-opium

360

12.5

TABLE 2. Costs and Returns to Poppy Production  
Eastern Afghanistan. 1989-1990 Crop Year

ITEM	UNIT DESIGNATION	NUMBER OF UNITS	UNIT COST	TOTAL COST		
				AFS	RUPEES	DOLLARS
<b>COSTS</b>						
SEED	kg	8.8	380	3344	186	9
UREA	kg	223	140	31220	1734	87
DAP	kg	112	148	16576	921	46
FEED (OXEN)	days	47	886	41642	2313	116
HIRED LABOR	man days	259	900	233100	12950	648
FAMILY LABOR - OPTY. COSTS	man days	285	450	128250	7125	356
TAXES				85500	4750	238
MISCELLANEOUS				0	0	
TOTAL COSTS				539632	29980	1499
<b>RETURNS</b>						
OPIUM GUM	kg	60	11400	684000	38000	1900
POPPY SEEDS	kg	435	315.7	137330	7629	381
DRIED CAPSULES	kg	40		0	0	0
STALKS (FOR FUEL)	ton	1	4000	4000	222	11
GROSS RETURNS				825330	45852	2293
NET RETURNS				285698	15872	794

*used to be higher  
are now lower*

# TABLE 3

LABOR COSTS FOR POPPY PRODUCT/6.1/  
KONAR/NANGARHAR  
AFGHANIS/DAY/WORKER

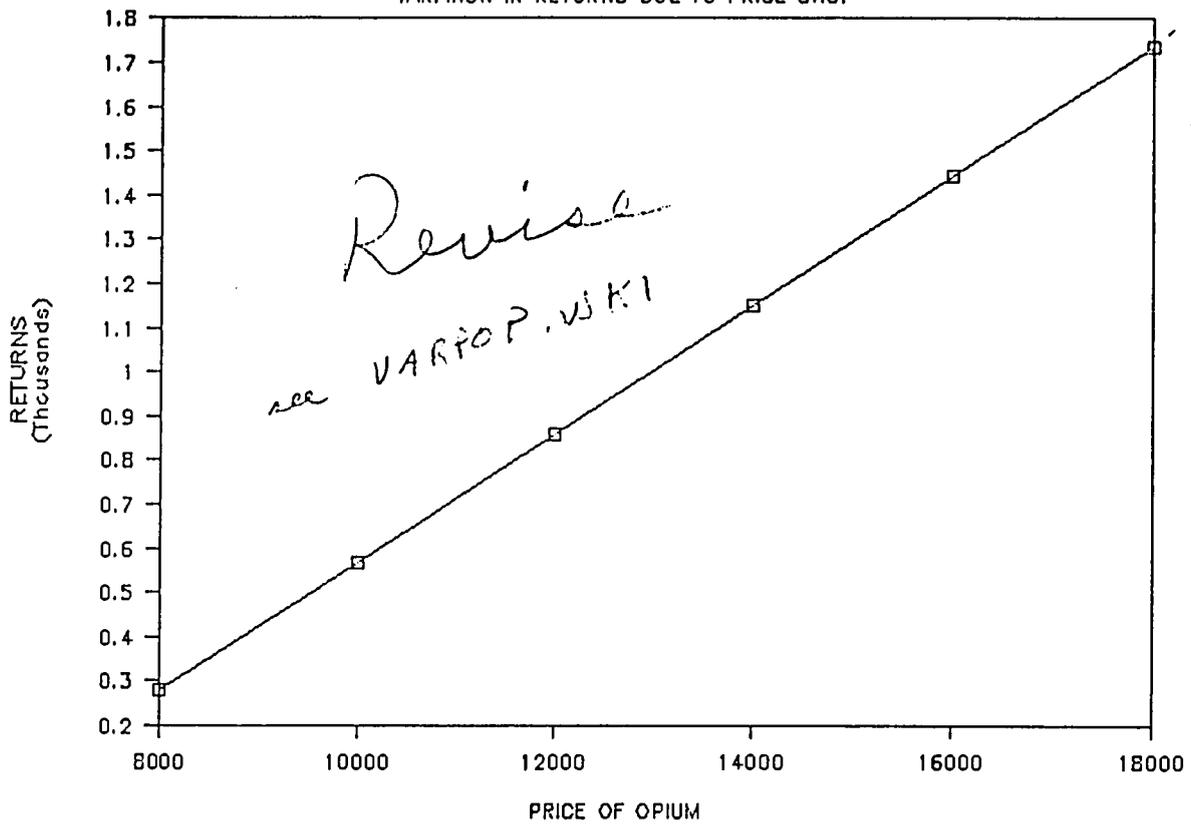
OPERATION	COST
-----	-----
PLOWING	878
PLANTING	800
<del>RIDGING</del>	<del>-----</del>
IRRIGATING	667
WEEDING/THINNING	867
HARVEST	
OPIUM	1369
SEED AND STALK	956

Weighted average daily wage  
for all farms, all ops - 1152

B

FIGURE 2.

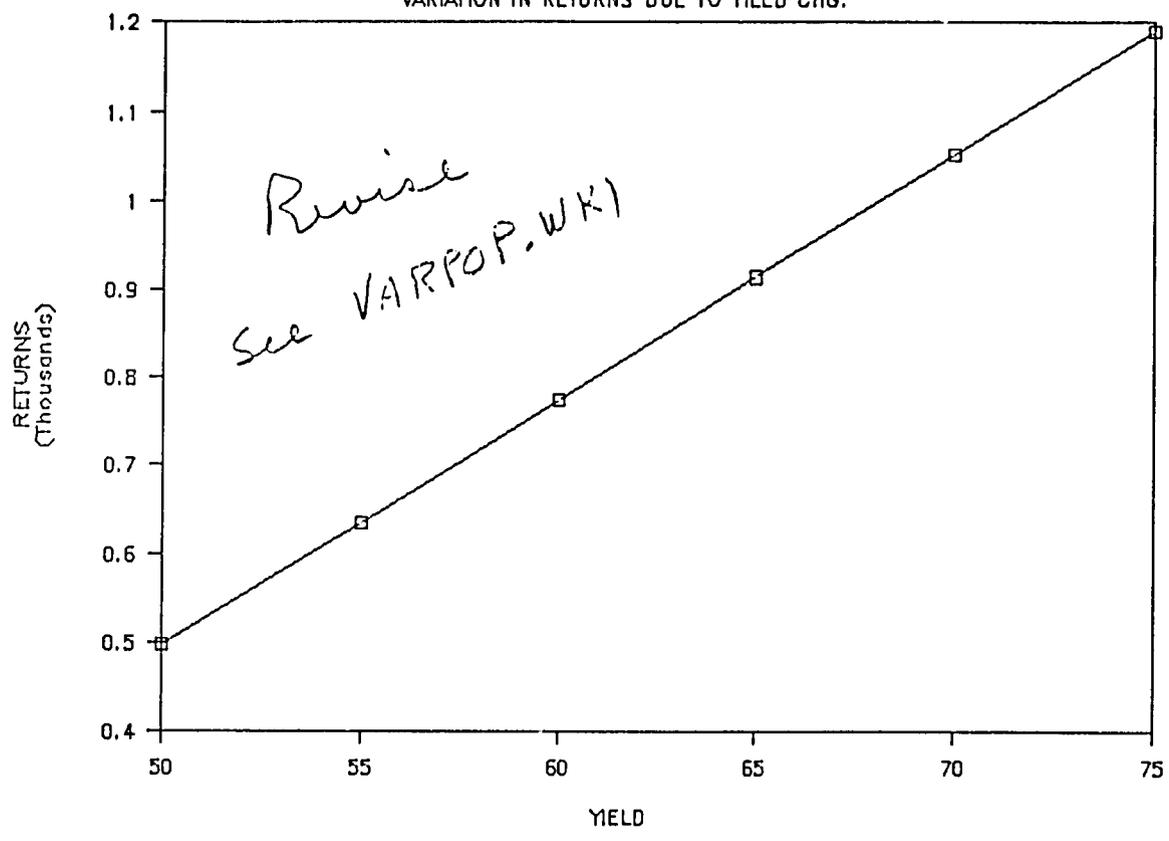
VARIATION IN RETURNS DUE TO PRICE CHG.



17,627  
11,000 - 24,600

FIGURE 3.

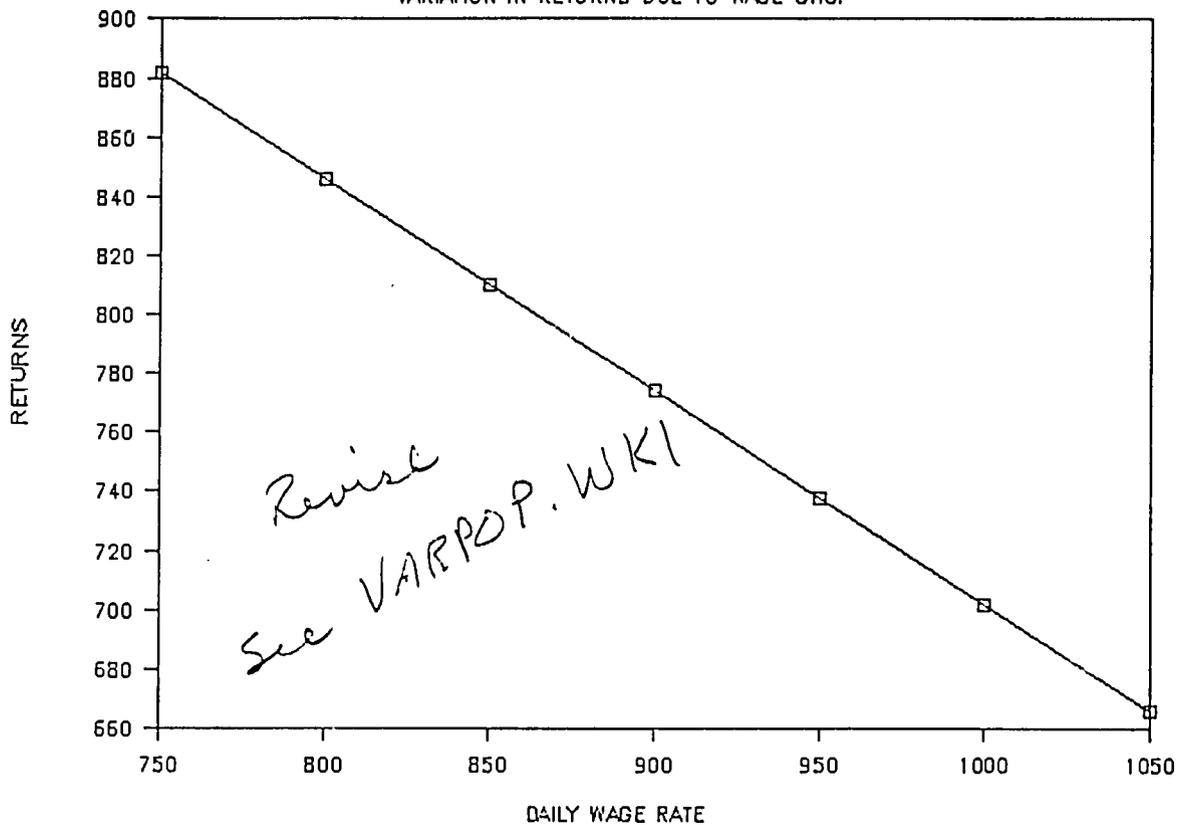
VARIATION IN RETURNS DUE TO YIELD CHG.



$\bar{Y}$  14.22  
- 12  
- 45 = 95  
71.7

D  
FIGURE 4.

VARIATION IN RETURNS DUE TO WAGE CHG.



7  
W = 1238.75 of 1.00  
S = 500 - 1700  
...  
J = 366.00  
K = 600 - 1000

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percent.<sup>3</sup> Figures B, C, D and E show how net returns would vary with changes in prices, yields, wage rates and taxes when other factors are held constant.

Figures B, C, D and E are in effect a series of scenarios generated by a model which calculates costs, gross returns and net returns on the basis of assumptions (average survey results) regarding prices, exchange rates (current during study period; 1989-1990 crop year), yields, input utilization, etc. See Table 3. A copy of this model, CRPOP.WK1, has been provided to the client and is available on request from NACP. We invite readers to input their own assumptions if they don't agree with ours. The model can be useful for analyzing data from future surveys.

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<sup>3</sup> These percentages are based on one standard deviation on either side of the mean. The range of observations is much greater.

1972/1/14

*show a date  
or their*

# POPPIES IN AFGHANISTAN

by G.P.Owens and James H. Clifton\*

## Introduction -

The authors perceive the purposes of this project to be 1) to obtain as much information as possible on how poppies are grown and harvested, what inputs are necessary, their relationships to other crops, yields, costs, returns, etc. and, 2) to provide samples of plants, soil, seed and product for scientific analysis and identification.

This economic-agronomic study has been based upon careful observation, including numerous interviews during growing and harvesting season, of about one and one-half acres of poppies near Jalalabad, Nangrahar Province, Afghanistan; and observation (including three interviews) of each of two smaller fields near Laskhar Gah, Helmand Province, Afghanistan.

In addition a collection of plants, seed, capsules, gum and soil has been made from fields in:

1. Nangrahar Province
2. Helmand Province
3. Kandahar Province
4. Konar Province

along with meteorological and geographic data wherever possible, and photographic material for illustrations of cultural practices, tools etc., has been assembled.

The cooperators for the economic-agronomic study, three cooperating farmers were located and interviewed. The principal cooperator (See Figs 15 and 20) is the head of an extended family of about 20 persons who had moved from the Shinwar area of eastern Afghanistan to the Soviet-sponsored Nangrahar project near Jalalabad because of a serious two-year drought.

*✓  
answer ✓*

We first became acquainted with this principal cooperator and some of his sons, cousins and nephews on March 2, 1972 after we had been told by city dwelling Afghans that there were no poppies in this area - "the farmers won't talk to you". Poppies were 2 - 8 inches high at that time (See Figs 1 and 2) and the cooperator was quite friendly, proud of his crop and not the least bit shy. This poppy field (Field 1) was in open view from a main project road and about 400 meters from the Jalalabad-Peshawar highway.

*road ✓*

\*Dr. Owens is Agricultural Economic advisor to the Faculty of Agriculture, Kabul University, under the University of Wyoming Contract AID/NESA 215. Mr. Clifton is employed by the USAID/Agriculture Division as Seed Advisor to the Ministry of Agriculture and Irrigation, Royal Government of Afghanistan.

*on an A.D. project?  
Somebody will raise  
their eyebrows over that one!*

The cooperators' friendship was cultivated from time to time with small gifts of money and fertilizer for his Mexipak wheat. He reciprocated by giving us tea, poppy samples and information. Mr. Clifton, USAID Seed Advisor in real life, agreed to clean his Mexipak seed if he would rogue his fields.

A good deal of information and some of the seeds were magnanimously given to us so that we could go back to America and grow our own opium.

The second cooperator was located on March 13, in the Shamalon District of the Helmand/Arghandab Valley project near Lashkar Gah in Helmand Province. His was a small field located in a fairly remote area of the project.

The third cooperator grows poppies, wheat, etc., in the shadow of the famous Arch at Gala Bist (See Fig 19). His crop, designated Study Field 2, is located on the left bank of the Helmand River about 6 miles from Lashkar Gah, headquarters for the US-funded Helmand-Arghandab Valley project. This area is a paradise for antique hunters, tourists and archaeologists because of the many acres of crumbling walls, buildings and courtyards surviving from the 11th and 12th century Ghaznavid civilization. It is only about 2 miles from the confluence of the Helmand and Arghandab Rivers.

Helmand Province, although farther south than Nangrahar, is 1 - 3 weeks later in terms of growing season. Citrus, bananas and other tropical fruits are successfully grown in Nangrahar but not in Helmand.

It should be mentioned that the 1971-1972 growing season was atypical all over Afghanistan because of the serious 2-year drought that lasted through Calendar Year 1971. Moisture began to fall in the form of both rain and snow in early 1972 so we had what now appears to be the wettest year on record following the most serious drought in the memories of the local graybeards. Nangrahar had unusually cold winter winds plus snow which did a great deal of damage to the field and orchard crops.

The Nangrahar cooperator gave the general impression of being the most "professional" grower of all fields studied or observed. His crop did not compare favorably to prior crops in Shinwar, and he attributed this to the "evil eye" cast upon him by jealous neighbors. Otherwise, he was almost scientific in his farming practices. We had some anxious moments because many Afghans have been affected by the "evil eye" (or had their souls captured) by cameras in the hands of foreigners. Thanks to his nasty neighbors, our cameras were not blamed.

## Terminology

We hope the following terminology will be helpful to an understanding of this report. Most of the terms are Pashto, one of the two official languages of Afghanistan.

Poppy Plant - Kokonar, or Taryak (Figs 13,14,15)  
Poppy Flower - Gul - e - kilonar (Figs 3,4,5,6)  
Fresh Poppy "tears" or "milk" - Sheera' (Figs 7,8,9,11)  
Gum Opium - Kokonar (Fig 17)  
Poppy Seeds - "Hash-Hash" or Tokhurn Kokonar  
Seed Pod or Capsule - Ghoza - or Koklia (Figs 6,7,8,9,10)

Rosette on top of capsule - Char-gul (same as the nose-bob used by Afghan nomad women and some Indian women)  
(Fig 11, etc)

Tool for scratching pods / Neshtar or Nesh (Fig 7)

Tool for scraping gum from pods - Rambeh or Taryakee  
(Figs 10,16,17)

## Production Data

Leaf worms, army worms, (See Fig 21)cotton boll-weevils and aphids were observed on poppies in Afghanistan. Attacks by these insects were too few in concentration and probably too late in season to cause extensive damage. Lady-bugs and lace-wing flies were also observed in the fields (these insects prey upon small insects and aphids, which indicates that aphids and/or mites may cause some damage). We do not believe insects are a major problem at present and we noted no disease problems. However Afghanistan cotton production is far below ginning and seed crushing capacity so it is probable that cotton acreage will be increased in the future. A cotton acreage increase would serve as a host for the insects that were observed to increase and could then cause real problems for poppies.

Poppies were fall-planted in every instance observed. In Helmand and Nangrahar, they normally fit into a double cropping scheme; poppies - fall-planted, spring harvested; corn, cotton or vegetables - spring or summer-planted, fall harvested; wheat - fall or winter-planted, early summer harvested. The cycle then begins again with corn or poppies.

Water shortage and other factors may interrupt this scheme. Poppies are seldom grown on the same land year after year, as they compete directly with wheat as to season and for water. In this scheme, corn is the second crop, planted after poppies or wheat.

Poppy harvest is finished about 3 - 4 weeks before local wheat varieties mature, and 1 - 2 weeks before improved wheat varieties such as Mexipak.

Table 1 shows significant dates in poppy culture for the three study fields.

Poppies are broadcast (seeds are usually mixed with soil and sand) and sowed by hand at the rate of about 10 kg of seed per hectare.

All three fields studied had been plowed with oxen and stick plow and smoothed by a "mallah" or drag pulled by oxen. Seed were "covered" by dragging also.

If the weather is warm enough, most viable seeds will emerge within two weeks. Farmers thin to their conception of a good stand - none of our cooperators could give us a formula. Our own counts showed a plant population of 22 - 25 per square meter (of adult plants) and 38/43 blooms. This did not include some field areas where there were very few or very poor plants due to improper planting, washed out areas, etc.

Farmers weed throughout the season - some of the weeds and grasses are used as fodder.

All poppy fields are flood irrigated, as is the case throughout Afghanistan for all field crops and many horticultural crops.

Flowering begins in late March or April, depending on altitude and climate. Capsules are ready for first scratching about three days after the petal fall (See Fig 6) two to three weeks after beginning of bloom (See Fig 3). Nangrahar capsules, bright green at the time of petal fall, turn rather grayish from something resembling an oxide or the cuticle that occurs in sorghums, three or four days after the petal fall. Farmers take this as an indication that capsules are ready for scratching. Capsules also become somewhat less firm when they are ready for scratching. The sap or fresh gum is thinner and more whitish in immature Nangrahar capsules. A good sized droplet of sap appears when one piece of the chargul is broken off with the thumb nail. If the sap is pinkish in color and rather more viscous, the capsule is ready for scratching.

Harvest lasts about two weeks with peak activity about ten days from the beginning. Capsules are usually scratched in the afternoon (See Fig 7) and the gum is collected the following morning (See Fig 10). This allows time for partial drying of the sap. Although there is little to fear in Afghanistan, a heavy rain would ruin a day's production.

*Clarify*

Harvesters use a tool called "Neshtar" (Nangrahar) or "Nesh" (Helmand) with 5 (Nangrahar) or 9 (Helmand) razor blade corners protruding 1 - 1.3 mm (1 mic'ed 'em). Nangrahar capsules are scratched vertically while Helmand capsules are scratched on a slant of about 40 degrees from the vertical (See Figs 8 and 12).

Sap oozes from the scratches immediately and is scraped off the next day with a tool called "Rambay" (Nangrahar) or "Taryakee" (Helmand). Sometimes the gum is wrapped in poppy leaves in the field but at peak season it is usually collected in bowls (See Fig 17). The gum is further dried before selling - one farmer said that 12 lbs. of wet gum will dry to 10 lbs. of opium.

Each pod is scratched 2 - 6 times, 3 or 4 days apart. Four scratches is the mode. On good land about 10 percent of the capsules are never scratched, and up to 50 % of the capsules may not be scratched on poor land.

#### Economic Data

Yields range from about 20 to 50 kg per ha - relatively low. Results of analysis done on samples from Afghanistan two years ago suggest that morphine content is also low - less than 10 percent.

Prices this year ranged from 1400 to 3600 Afs per kilogram (Afs 83 = US\$1.00 at current rate of exchange) according to quality.

Many Afghan farmers sell short - make an agreement and accept payment before harvest - and so take a much lower price.

Most farmers sell some seeds and/or capsules. Poppy seeds are used for oil in Nangrahar, but not extensively. We found no evidence of seed used for oil in Helmand, Kandahar or Nuristan. Empty capsules are boiled and the water distilled or evaporated for extraction of residual opium by some people in Nangrahar, but this does not seem to be a widespread practice. Again, we found no evidence of this in Helmand or other areas. Dried capsules with seeds are boiled for medicine in all areas, but this practice does not utilize a large portion of the crop. A significant amount of the poppy seeds produced are consumed directly, much as westerners eat peanuts.

According to our rough estimates, obtained by harvesting and weighing selected square meter plots, the yield of seed is about 1.2 metric tons per hectare and the yield of capsules is about 1.4 MT/ha. Some farmers sell seeds for about 15,000 Afs per metric ton, if they can find a market. Empty capsules are worth about 300 Afs per metric ton but markets do not always exist. ✓

One report indicated that grower received about 2500 Afs per hectare for seeds and capsules in the field. ✓

The major cost of producing opium in most areas of Afghanistan is hired labor. Most farmers have large extended families, but are still obliged to hire labor during harvest (See Table 2). Other important costs are for chemical fertilizer, taxes and miscellaneous, because these are out of pocket expenses. (Not all farmers use chemical fertilizers; in fact most do not; we certainly did not recommend they increase yields by chemical fertilizers. Almost all farmers use animal manure and/or old mud walls).

The "miscellaneous" cost category is the one we know least about, and it is probably the greatest out of pocket expense by far. This includes all costs of doing business that cannot be accounted for officially. We know that "miscellaneous cost" is very common, and can reason that it is quite high -- as follows: 1) all other prices in this country are based on what the market will bear and are set by bargaining; 2) opium would be 4 - 5 times more profitable than wheat and 2 - 3 times more profitable than orchard or other specialty crops - without the "miscellaneous cost", and 3) since a relatively low proportion of cropland is actually devoted to poppies, they must not be too profitable as a crop.

Most other costs, such as seed, feed, depreciation and family labor, are not direct money expenses and consequently not of great importance to Afghan farmers.

Tables 3 and 4 show average costs and returns, as nearly as we can estimate them from three selected study fields and several sketchy one-shot interviews with other producers and dealers.

The reader should bear in mind that this report is not based on a random sample, and that some of the data are difficult to measure (or are non-discussable). However, this should be close enough for government work, and can be adjusted according to ranges of prices, yields, etc.

*Change Confuse*

Tenure arrangements in Afghanistan are a real can of worms, especially for poppy growers. We know of an instance where the guy man who collected the gum was hired as <sup>day</sup> labor by a <sup>guy</sup> who subleased <sup>part</sup> of a larger field from a <sup>guy</sup> who subleased most of a farm from a <sup>guy</sup> who was a share cropper under an absentee landlord. Confusing? -- but not uncommon. Tenants may receive 3/4, 1/2, 1/5, 1/6, or even less of the crops, depending on their share of the inputs. One "tenant" we know received 1/6 of the gum for his labor (and management?) input which began in the spring after poppies had been planted, thinned, weeded and irrigated 3 times. Since his poppies were part of a larger field, there was some confusion over his share of cost of hired labor during harvest.

*Handwritten notes:*  
+  
discussable  
USDA/ID

Summary and Conclusion:

What about the harvest?  
What was the main problem?  
Summer 1972?

Poppies are grown in four main areas in Afghanistan, centered in the following provinces: Nangrahar, Kandahar, Balkh and Badakhshan. Poppies are planted in the fall or winter and harvested in April or May. Poppies fit into a double cropping scheme with corn, cotton and vegetables, and do not compete with wheat for labor because opium harvest usually ends two weeks before wheat harvest begins. Although poppies probably require more water than wheat, the difference does not seem to be significant except perhaps during drought years. Insect and disease problems do not seem to be significant this year, primarily because poppy plants are early maturing - ahead of major insect infestations and outbreaks of disease.

Yields range from about 20 - 50 kg/ha and could probably be increased significantly by use of better varieties and chemical fertilizer.

Costs are relatively low, hired labor being the major factor except for the unknown "miscellaneous" costs.

Farmers could net from 5,000 to over 100,000 Afs per hectare, depending on prices and yields, and not considering the "miscellaneous costs". An average figure should be about 80,000 Afs, or \$1000.00 per hectare which is about five times the net for a hectare of good irrigated improved wheat, and ten times the net for irrigated native wheat.

what is the  
AUG.  
AFGHAN  
ECONOMY  
INDUSTRY

Considering the price for heroin in Europe and the USA, the possibilities for improving poppy yields in Afghanistan and the difficulties of imposing legal sanctions of Afghan poppy growers, there doesn't seem to be much hope of stopping production here in the long run, especially if the world demand increases in response to the diminution of supplies from Turkey. However, with current Afghan yields and prices, a high "miscellaneous cost" and no internal market, it is quite possible that production could be drastically curtailed simply by imposing legal sanctions.

Given the sensitivity  
to our project  
maybe the  
statement should be  
addressed in more  
detail in the new  
material you have  
written. E.S. - perhaps a  
growing industry  
of increased  
possibility of  
quitting  
competitive  
of other crops  
commission  
from  
Kandahar  
etc.

no...  
do...

Suggestions for Further Research:

We tried to leave all our cooperators and most farmers who provided samples on a friendly note, and the three cooperators would probably cooperate again. However, some farmers are becoming sensitive and very few are what one could call objective in their answers. Therefore, we suggest that work of this nature be carried out by people who are familiar with this country and its people. If researchers are not fluent in the language (Pashto or Farsi, depending on area) they should have an interpreter who is competent, objective and trustworthy. They should also expect to make gifts of money, etc., miscellaneous costs) in return for cooperation of farmers and others who provide information and samples.

"Research" into the area of marketing would very likely be dangerous.

(S. 1.)  
e...

Table 1 - Significant Dates Associated with Poppy Culture on Three  
Fields in Afghanistan  
 1971 - 1972

Operation	Date _____		
	<u>Field 1</u> Nangrahar	<u>Field 2</u> Helmand	<u>Field 7</u> Helmand (wheat)
Previous Crop Harvested (Corn)	Oct 2	(F <sup>a</sup> llow)	June 25
Pre-planing Irrigation	Oct 12	Dec 20	Oct 25
Land Preparation:			
Plowing	Oct 15	Dec 23	Nov 19
Mallahing (Clod breaking)	Oct 15	Dec 23	Nov 20
Planting	Oct 22	Dec 23	Nov 21
Emergence (Note 1)			
Fertilizer Application:			
Old Wall's (Organic)	Oct 22	Nov	Nov
Chemical	Jan 14		Mar 25
Second Irrigation (Note 2)	Nov 1	Mar 25	Mar 25
Third Irrigation	Jan 15	Apr 10	Apr 9
Fourth Irrigation	Mar 2	Apr 22	Apr 24
Fifth Irrigation	Mar 12		May 12
Thinning (Note 3)	Nov 1	Apr 4	
Weeding (Note 4)			
Flowering (begin)	Mar 26	Apr 7	Apr 10
Gum Harvest - begin	Apr 13	Apr 29	May 1
- end	Apr 29	May 16	May 18
Seed Pods			May 21
Stalks			May 22
Land Preparation (for 2nd crop)	May 21	(follow)	May 29
Planting (for 2nd crop)	(Note 5)	- June 1	

Note 1: Most plants had emerged by November 1 in Nangrahar, but were still emerging on March 10 in Helmand. Apparently some seeds were dormant over winter.

Note 2: Afghan farmers irrigate according to need and water availability. Cooperators irrigated up to 8 times on various dates but said they would have irrigated more except for timely rains had irrigation water been available. Pre-planting irrigation, irrigation with chemical fertilizer and irrigation at flowering time are very important. Since stalks are pulled rather than cut, it is also important to irrigate about 2 days before stalks are pulled - this may also serve to loosen soil for subsequent plowing.

Frequent irrigations may cause the plants to be shallow rooted. At least all fields sampled had shallow roots which leaves the crop vulnerable to any water shortage.

Note 3: Thinning time varies greatly from fall to spring. Nangrahar farmer felt it was necessary to thin soon after the emergence, but other farmers did not share his viewpoint, preferring to wait until spring and cull out the weaker plants.

Note 4: Weeding, sometimes done along with thinning, was also carried out at various times but mostly in spring.

Note 5: Nangrahar farmer says he must wait until the peak summer hot spell has passed, and so probably won't plant corn until August.

Table 2 -

Labor Requirements -- Days per Hectare

Operation	<u>Man-Days</u>		<u>Oxen Days</u>	<u>Donkey Days</u>
	<u>Family Labor</u>	<u>Hired Labor</u>		
Plowing	14		24	
Mallahing	4		6	
Planting	4		6	
Ridging	9			
Fertilizer				
Chemical 1	4			
2				
Organic 1	7			4
2	7			4
Thinning	7			
Weeding 1	6	1	1	
2	6	1	1	
3	4	1		
Irrigation 1	3	1		
2	3	1		
3	3	2		
4	4	2		
5	3	2		
6	3	2		
Subs	3	2		
Harvesting:				
Opium	152	190		
Seeds	12	4		
Stalks	9	3		
	266	212	36	8

Table 3 -

Costs per Hectare - Poppy Production

<u>Item</u>	<u>Units</u>	<u>Afs</u>	<u>\$.00</u>
Seed	9.3 Kg @ 16.3 Afs	150	1.80
Chemical Fertilizer: Urea -	140 Kg @ 7 Afs/Kg	1000	12.00
	DAP - 140 Kg @ 7.5 Afs/Kg	1100	12.20
Oxen Feed	36 days @ 20 Afs per day	720	8.70
Depreciation *			
Oxen	36 days @ Afs <sup>3</sup> per day	100	1.20
Equipment:	5.165 Jeribs (-1 ha) x 15 Afs	80	.96
Labor: Hired - 212 man days @ Afs 60 (50 Afs + 10 Afs food)		12,500	151.00
Family - Opportunity Costs:			
	150 days @ 40 Afs	6,000	72.30
	100 days @ 10 Afs	1,000	12.00
Taxes *		50	.60
Interest *		200	2.40
Irrigation Repair *		100	1.20
"Miscellaneous"		????	
		<hr/>	<hr/>
		23,000	277.36

\* Based on a previous study - See Wheat Farming in Afghanistan - Cost of Production & Returns, by D<sup>w</sup>amlaty, Saleh and Owens - Technical Bulletin No. 17, Faculty of Agriculture, Kabul University

Table 4 -

Returns Per Hectare - Poppy Production

		<u>Afs</u>	<u>\$.00</u>
Opium Gum	30 Kg @ 3000 Afs	90,000	1084.30
*Poppy Seeds	600 Kg @ 17 Afs	10,000	120.00
Dried Capsules	350 Kg @ 3 Afs	1,050	12.60
Stalks and unsold capsules (value for home use)			
	6 Tons @ 300 Afs/Ton	1,800	121.60
Unsold Seeds (value for home use)			
	700 Kg @ 6 Afs	<u>4,200</u>	<u>50.50</u>
Gross		107,050	1289.00
Costs (not including "Misc")		<u>23,000</u>	<u>277.36</u>
		84,050	\$1012.64

ANNEX B  
"SCENARIO GENERATOR"

Costs, returns and net returns for this report were calculated by a Lotus 123 program which allows the user to enter survey results or other information and see results immediately. The user can create various scenarios, produce updates or do sensitivity analyses quickly and easily. See \_\_\_\_\_ and the enclosed diskette with CRPOP.WKI file.

Parts of the spreadsheet (the cells containing formulas or text) are protected; your computer will beep rudely if you try to change entries in these cells. The unprotected cells are indicated by shading in (the figure).

Most of the assumptions can be entered at the top of the worksheet in cells G2..G13. The following cells can also be revised: C25..C30, D28 and C42..D42. Cell G32 is open for the addition of miscellaneous costs.

The range A7..B9 is a window showing recalculated costs, returns and net income immediately on changing an assumption.

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	Farm-gate price of opium-afs/kg	11400
	Farm-gate price of seeds-afs/kg	315.7
	Farm-gate price of pods-afs/kg	40
	Yield-kg/ha	60
	Cost-seed afs/kg	380
c	1499 Cost-urea afs/kg	140
r	2293 Cost-DAP afs/kg	148
n	794 Daily wage rate-afs	900
	Opportunity cost-fam.labor-afs/day	450
	Exch. rate-Rs/dollar	20
	Exch. rate-Afs/dollar	360
	Tax rate - % of gross ret-opium	12.5

ITEM	UNIT DESIGNATION	NUMBER OF UNIT		TOTAL COST		
		UNITS	COST	AFS	RUPEES	DOLLARS
<b>COSTS</b>						
SEED	kg	8.8	380	3344	186	9
UREA	kg	223	140	31220	1734	87
DAP	kg	112	148	16576	921	46
FEED (OXEN)	days	47	886	41642	2313	116
HIRED LABOR	man days	259	900	233100	12950	648
FAMILY LABOR - OPTY. COSTS	man days	285	450	128250	7125	356
TAXES				85500	4750	238
MISCELLANEOUS				0	0	0
<b>TOTAL COSTS</b>				<b>539632</b>	<b>29980</b>	<b>1499</b>

**RETURNS**

OPIUM GUM	kg	60	11400	684000	38000	1900
POPPY SEEDS	kg	435	315.7	137330	7629	381
DRIED CAPSULES	kg		40	0	0	0
STALKS (FOR FUEL)	ton	1	4000	4000	222	11
<b>GROSS RETURNS</b>				<b>825330</b>	<b>45852</b>	<b>2293</b>
<b>NET RETURNS</b>				<b>285698</b>	<b>15872</b>	<b>794</b>

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 ...

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		Exch. rate-Rs/dollar	20
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ITEM	UNIT	# UNITS	UNIT COST	TOTAL COST		
				AFS	RUPEES	DOLLARS
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TAXES				85500	4750	238
MISCELLANEOUS				0	0	
<b>TOTAL COSTS</b>				<b>539632</b>	<b>29980</b>	<b>1499</b>
<b>RETURNS</b>						
OPIUM GUM	kg	60	11400	684000	38000	1900
POPPY SEEDS	kg	435	315.7	137330	7629	381
DRIED CAPSULES	kg	70	40	2800	156	8
STALKS (FOR FUEL)	ton	1	4000	4000	222	11
<b>GROSS RETURNS</b>				<b>828130</b>	<b>46007</b>	<b>2300</b>
<b>NET RETURNS</b>				<b>288498</b>	<b>16028</b>	<b>801</b>



FILE

30 August 1989

MEMORANDUM

TO: AID/REP - Larry Crandall

FROM: NAU - Joe Limprecht *JK*

SUBJECT: Afghan Narcotics Paper

~~cc~~ Jack  
Phyllis  
Diana  
Phil

The paper is extremely long. I recommend a 3-4 page executive summary/conclusions section at the beginning. NAU would obviously like to see projects organized so that as much enforcement and accountability as possible can be built into them. The paper appears to recognize this, as well as to understand the appropriate role of NAU Kabul once the embassy there is opened.

I have a few specific, relatively minor factual comments on the text. The paper refers on page 16 to three "possible scenarios." In fact, two of them have already come to pass -- crop substitution/enforcement has already had enough success in Pakistan to drive significant cultivation into Afghanistan, and the growth of trafficking through Pakistan and India is a direct result of restrictions on traditional routes through Iran over the past ten years.

References to enforcement and substitution models pages 19-21 are confusing and inaccurate and should be corrected. Enforcement in Malakand, Bajaur/Mohmand, Buner and Dir is according to fixed schedules like Gadoon (although the UNFDAC schedules are more sloppily implemented), not by "poppy ban." The poppy ban of the TADP/Bajaur project refers only to the specific coverage area of AID projects, as I understand it. In fact enforcement is already the rule in Buner (p. 20), and should continue now that the EC project there is finally getting underway. The paper is relatively pessimistic about UNFDAC's Dir project, which in fact is now getting back on track and may see some genuine enforcement in Dir above Adenzai this year. Comments about enforcement in Bajaur and Mohmand are skewed. In fact, enforcement in Bajaur and Mohmand began last year in irrigated areas of southern Mohmand and the main Khar Valley of Bajaur. Officials in these areas have expressed confidence about their ability this year to remain ahead of the negotiated enforcement schedule.

These minor comments aside, NAU strongly endorses the project's open recognition of the difficulties faced and its willingness to try various approaches and go with what works.