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# ALTERNATIVE DEVELOPMENT PROGRAM FOR NORTHEAST AFGHANISTAN (ADP/N)



**ADP/N Completion Report**  
March 2009



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## March 2009

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ACDI/VOCA  
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Land O' Lakes (LOL)

Reconstruction and Development  
Association (RDA)  
United Infrastructure Project (UIP)  
Afghanaid  
International Center for Agricultural Research  
in the Dry Areas (ICARDA)

*Cover photo: Making the foundations of the Baharak-Zardew Canal big enough for future expansions and channel water to Badakhshan's rich food bowl – the Baharak Valley, and beyond.*

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## ADP/N List of Acronyms

ADP	Alternative Development Program	LOL	Land O' Lakes
ADP/N	Alternative Development Program/ Northeast Region	MCBD	Marketing, Cooperative & Business Development
AFC	Afghanistan Finance Company	M&E	Monitoring and Evaluation
AKDN	Aga Khan Development Network	MAIL	Ministry of Agriculture, Irrigation, and Livestock
AKF	Aga Khan Development Foundation	MOU	Memorandum of Understanding
ALP/N	Alternative Livelihoods Program/ Northeast Region (old ADP program name)	MRRD	Ministry of Rural Rehabilitation and Development
AMMC	Afghan Management and Marketing Consultants	MPW	Ministry of Public Works
AMPS	Agricultural Marketing and Production Support	MT	Metric Ton
ARC	Afghan Relief Committee	NGO	Nongovernmental Organization
AREU	Afghanistan Research & Evaluation Unit	NSP	National Solidarity Program
ARG	Afghan Resources Group	OPIC	Overseas Private Investment Corporation
ARIES	Agriculture Rural Investment and Enterprise Strengthening	OTF	On the Frontier
ASAP	Accelerating Sustainable Agriculture Program	PCB	Provincial Coordinating Body
BDS	Business Development Services	PDC	Provincial Development Council
BIT	Badakhshan Institute of Technology	PEP	Poppy Elimination Program
BVW	Basic Veterinary Workers	PMP	Performance Monitoring Plan
CFW	Cash-for-Work	PPR	Pests des Petit Ruminants
CN	Counter-narcotics	PRT	Provincial Reconstruction Team
CO	Contracting Officer	RDA	Reconstruction and Development Association
COP	Chief of Party	RefWID	Refugee Women in Development
CTO	Cognizant Technical Officer	RF	Results Framework
DCA	Dutch Committee for Afghanistan	ROP	Roots of Peace
DCOP	Deputy Chief of Party	RSO	Regional Security Officer
DoA	Badakhshan Department of Agriculture	SME	Small or Medium Enterprise
EMS	Environmental Management System	SO	Strategic Objective
EU	European Union	TKG	The Killid Group
FAO	UN Food & Agriculture Organization	TTC	Technology Transfer Center
GoA	Government of Afghanistan	UIP	United Infrastructure Project
GPS	Global Positioning System	UNODC	United Nations Office on Drugs and Crime
GTZ	German Technical Assistance	USAID	United States Agency for International Development
HBN	Home-Based Nursery	USG	United States Government
ICARDA	International Center for Agricultural Research in the Dry Areas	VIP	Variety Improvement Program (Seed)
IR	Intermediate Result	VFU	Veterinary Field Unit
IT	Information Technology	WFP	UN World Food Program
ITB	Invitation To Bid		
ISAF	International Security Assistance Force		
Kw	Kilowatt		



## I. Executive Summary

When USAID's Alternative Development Program for Northeast Afghanistan (ADP/N) began in March 2005, opium poppies covered most of Badakhshan's mountain slopes and river valleys. Roads were few, and those that existed were impassable for extended periods of time. Officially, the unemployment rate hovered around 75 percent, but that alarming statistic did not even begin to measure the full extent of the region's poverty.

Badakhshan was not without resources. If summer rains fell at the right time in the right amount, fertile valleys yielded a rich array of crops. But bumper harvests rarely meant financial security since much of the produce was damaged on the way to market or gradually spoiled for lack of refrigeration. Confronted with the realities of isolation and lack of infrastructure, many farmers turned to animal husbandry. But raising livestock did not guarantee a decent income since animals often fell prey to pests and disease.

Thanks in part to USAID's funding of ADP/N and other programs, Badakhshan today is moving in a positive direction. New rural roads link farmers to agricultural centers and enable crops to get to market in hours instead of days. Pumps, culverts and canals have turned hectares of arid stubble into irrigated fields of wheat, corn, and vegetables. Improved seed varieties and tree saplings suitable for the rigorous climate offer farmers the promise of higher yields and profit margins, and better health and nutrition of livestock boost animal productivity.

ADP/N has improved Badakhshan's agriculture and infrastructure, but another important accomplishment was its support for greater economic empowerment of the province's generally hidden resource, women. Outside their homes, Badakhshan's women often still live beneath the *burka*, but thanks to several ADP/N programs, some have started home based businesses, and they slowly are emerging from the shadows to assume their share of responsibility in the economic development of the province.

Incremental change may not seem dramatic, but programs developed in cooperation with provincial leaders, and implemented in partnership with village elders, can transform even a traditional society. With assistance and guidance from USAID, ADP/N has given a long-neglected province a new respect for its elected officials, an appreciation for modern agriculture, and the confidence to believe that it's possible to adopt western methodologies without losing the values that make Northeastern Afghanistan unique.

What proof exists that this change is real? Just this: Over the four-year life of the ADP/N program, the production of vegetables, cereal grains and orchard products increased dramatically in Badakhshan, while the cultivation of opium poppy, according to the UN Office of Drugs and Crime, declined more than 99-percent from 15,607 hectares in 2004 to less than 200 hectares by the time ADP/N ended in February 2009.

Here is a brief summary list of program accomplishments:

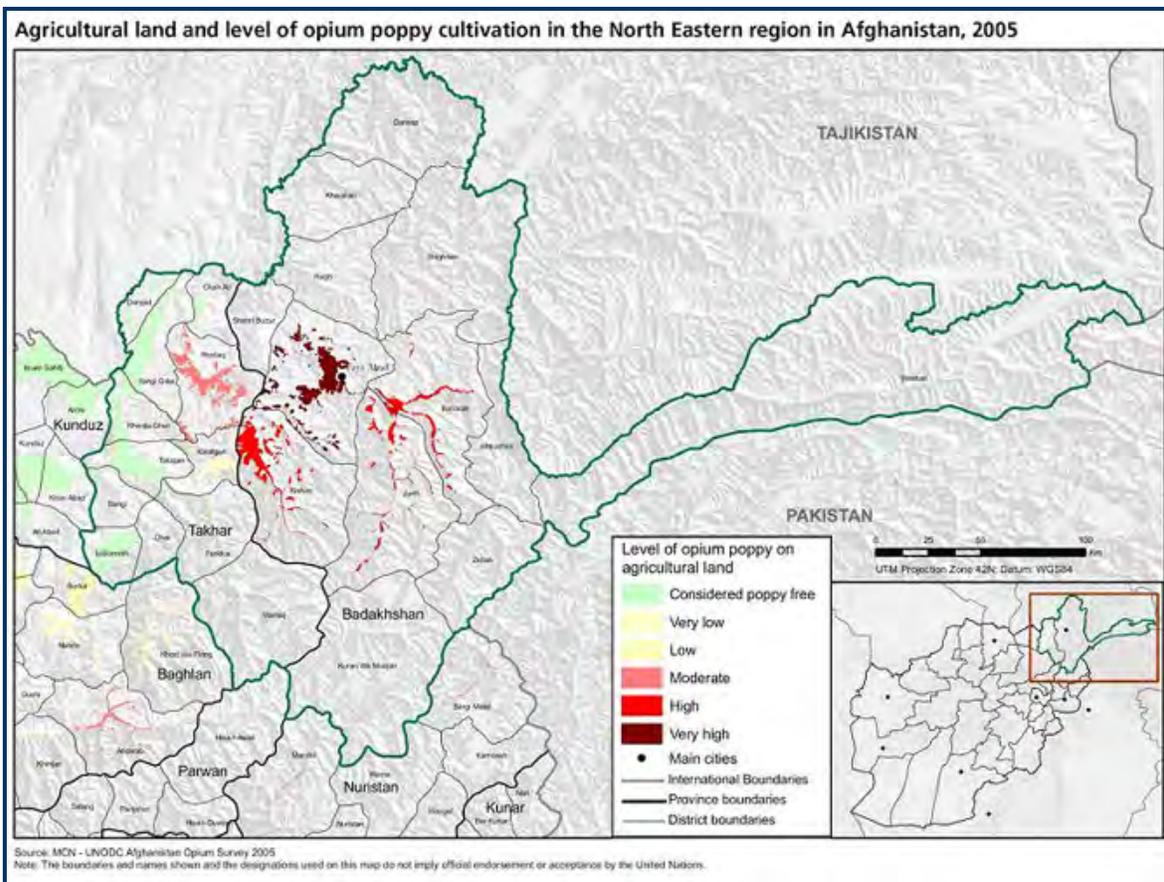
- The aggregated regional economic benefits for ADP/N programs are substantial even with low estimates – the range of quantitative estimates of annual ADP/N regional economic benefits is a conservative \$17 million to a liberal \$49 million.
- More than 105,000 farmers used ADP/N inputs of 1,015 MT of wheat seed and 770 MT of vegetable seed, along with 4,368 MT of fertilizer (DAP) and urea to expand production;

- 92,400 farmers living in poppy-producing districts received training in the production of vegetables, wheat, and fruit crops;
- Thanks to improved seed, fertilizer distribution and good commodity prices, 10 of the 11 vegetables varieties grown in Badakhshan had better net returns than opium poppy based on UNODC and ADP/N analyses;
- Baharak District recorded the largest potato harvest in history thanks to the introduction of an improved potato seed called Kufri Chandramukhi (KCM), with the average yield for farmers using KCM at 32.07 MT per hectare, more than 204% higher than the 10.52 MT per hectare produced using the old local variety;
- Twenty-five root cellars were constructed so that farmers could preserve seed potatoes over the winter for use in next year's planting;
- 1,018 fruit and nut orchards were established with the planting of 48,518 trees;
- Net returns for mature fruit and nut trees were increased with the estimated returns to farmers being \$1,672/hectare for apricots to a high of \$7,660/hectare for almonds with other orchard products averaging above \$4,448/hectare;
- Total number of animals vaccinated was 1,274,699 and the annual regional value of ADP/N vaccination and de-worming services was estimated to be \$5,133,675 for Badakhshan's 15 districts that were covered;
- Thirty solar-powered Veterinary Field Units were constructed in addition to a Provincial Veterinary Laboratory in Faizabad;
- Four livestock feedlots in Kishem District demonstrated the economic benefits of fattening ruminants with enriched fodder rather than allowing them to browse randomly; (Cattle in the program gained eight times more weight than those in the control group.)
- More than 576 Km of irrigation canals were cleaned, lined and reinforced;
- Increased productivity of 62,310 hectares of crop land was increased through expanded and improved irrigation;
- Twenty new or improved roads collectively totaling 252 Km in length were built through the major poppy growing districts of Badakhshan;
- Eight bridges and more than 200 culverts were built to improve transportation while facilitating irrigation needs;
- Electrical generating capacity was tripled in Faizabad and Baharak through performance upgrades to hydropower plants from rebuilt turbines and new power canals;
- Cash for Work infrastructure projects employed 43,447 Afghans who bring home \$2,243,336 to their impoverished rural communities;
- Home based nursery and poultry projects improved the economic livelihood of 450 women, some of whom earned up to \$500 a year;
- Plastic tunnels were used by additional 130 women growing herbs and vegetables to lengthen the growing season, and they earned an average income of \$120 a year;
- The number of vegetable traders active in the Baharak bazaar increased tenfold from 3 to 30 thanks to larger, more diverse harvests, and improved transportation and market infrastructure; and
- Over 3,580 Afghans received training in the use of computer software and other business skills.

## 2. ADP/N Challenge and Response

### 2.1 Prelude to ADP/N

Figure 1



The area where USAID chose to focus ADP/N to address poppy cultivation in 2005 (Figure 1) has a rich history. More than 2,000 years ago, Northeast Afghanistan was a remote yet prosperous region on the fringe of Bactria, an eastern province of the Persian Empire. In 328 BC, after marrying the Bactrian princess Roxane in what is today the Afghan province of Balkh, Alexander the Great marched through Badakhshan enroute to the Indus River Valley. Badakhshan's rugged mountains had little appeal for Alexander's Macedonians, who by the time they got to the Punjab were in a state of revolt.

The mountains the Macedonians had been forced to cross were 200 miles wide and contained more than two dozen summits higher than 23,000-ft. In centuries to come so many slaves died making the crossing that the mountains became known as the Hindu Kush, or *Hindu Killer*. But Badakhshan had more to offer than snow and isolation. To the north ran the massive Oxus River (Amu Darya) and streams feeding the river ran through fertile mountain valleys that served as rest stops for caravans heading north to the Silk Road.

Because of its lack of development and remote location Badakhshan society is very conservative. The geographic isolation and the distinct social structure of the province spared it from the worst ravages of recent wars. Badakhshan's lack of development meant few Russians bothered to occupy villages beyond the Kotcha River during the Soviet occupation. Nor, were the Taliban able to exert control

over the area. Indeed, Faizabad is the only provincial capital in Afghanistan that did not suffer major damage during the years of internal turmoil and war.

Unfortunately, the unforgiving terrain, lack of infrastructure and social structure that prevented Badakhshan from becoming a focus of geopolitical intrigue also made it a center for opium poppy cultivation, particularly during the Taliban rule and ban of poppy cultivation in most of Afghanistan. Impassable roads did not bother opium producers, who unlike fruit and vegetable farmers did not need to rush their crops to market. Opium could be stored over the long winter months without spoilage. Neither did they have to worry about fluctuating commodity prices as much as did farmers growing wheat and rice growers. Opium invariably sold for a good price and financing for future crops was available from local drug dealers. For many Muslim fundamentalists living on the economic and geographic edge of Afghanistan, opium was regarded as a lamentable but necessary cash crop. For these reasons, in the years prior to the 2005 and the start of ADP/N, Badakhshan Province was their third largest grower of opium among Afghanistan 34 provinces.

## 2.2 A New Future for Badakhshan – ADP/N Objectives

In February 2005, PADCO/AECOM, (now called AECOM International Development) was awarded a contract by the U.S. Agency for International Development (USAID) to implement an Alternative Development Program in Northeast Afghanistan (ADP/N) under MOBIS Contract No. GS-10F-0359M, Task Order No. 306-M-00-00517-00. The value of the four-year contract, which concluded February 16, 2009, was approximately \$60 million. The program was targeted at Badakhshan, particularly the fertile Kotcha Valley and its main tributaries where cultivation was the highest (red and dark red areas on the map in Figure 1). A smaller program for Takhar Province for two years was added through a contract amendment in September 2005 as a “Good Performers Fund” to reward the Governor for his success in reducing poppy cultivation.

**The principal goal** of the Alternative Development Program contract with AECOM was to accelerate broad-based, sustainable regional economic development in ways that would provide new opportunities for the Afghan population to seek livelihoods in the licit economy.

There were two objectives in the Statement of Work of the contract.

**Objective 1:** Help accelerate licit economic growth and business activity in selected provinces in which poppy cultivation is thriving.

**Objective 2:** Help provide an immediate alternative source of income to poor households whose livelihoods depend, directly or indirectly, on the temporary opium economy.

USAID gave AECOM a limited time, four years, to accomplish an ambitious development program. The contract stated that,

“ at the end of each four-year period, USAID expects to see functioning business support systems, reduced administrative constraints to business operators, a functioning credit and finance system lending to business and agricultural sectors, a functioning agricultural extension system extending new technologies and crop alternatives, agro-businesses being formed which respond to market signals, and rehabilitated public infrastructure supporting agriculture, transportation, an market town development.”

ADP/N was indeed an ambitious program. But, as documented by the rest of this report, USAID picked the right contractor. AECOM achieved the contract objectives and contributed to achievement of the broader goal of eliminating the poppy economy in Badakhshan.

Following USAID guidance, AECOM put together a program design based on the following principles:

1. The program's benefits must substantially improve people's lives.
2. Focus must initially be in major poppy producing areas.
3. Program implementation must roll out fast, encourage economic growth, be well integrated and lead toward sustainability.
4. Conditionality may be imposed in the second year of project implementation.
5. Benefits must be non-discriminatory.
6. Communities that benefit from programs must directly participate in the project identification process.
7. Implementation must involve Afghan public and private entities.
8. Reinforce linkages Kabul-Province-District-Village to promote stability.
9. ADP/N must coordinate with other alternative livelihood programs being carried out by the Afghan government, other donors and implementing agencies.

### 2.3 The Way Forward – ADP/N Implementation Strategy

AECOM mobilized the ADP/N team in March 2005 and immediately set up operations in Faizabad. At that time in Badakhshan there were: few facilities for offices and staff housing; rudimentary or non-existent support services for communications, banking, and supplies; unavailable or unreliable technical data from NGOs or the Government; and little experience in the Provincial Government with projects of the scope and magnitude of ADP/N. This necessitated a slow and deliberate approach to build an understanding of opportunities, create local relationships, and define the optimal approach for ADP/N.

An implementation strategy was gradually developed during 2005, while at the same time USAID undertook an environmental review and established the environmental guidance needed for infrastructure activities. A draft *ADP/N Implementation Strategy* was approved by USAID in January 2006, and then refined during the spring and officially approved in June 2006, along with a *Life of Project Work Plan*, *Annual Work Plan for 2006-2007*, *Performance Management Plan (PMP)*, and *Environmental Management Systems (EMS) Manual*. While USAID had not anticipated and was initially critical of such a long planning period, it was necessary and proved worthwhile. Unlike the other ADP/N areas of Helmund (South), and Nangarhar (East), USAID had little prior involvement in Badakhshan, and the climate was harsh and local institutions were weak in this rural and isolated Province. The 2006 Implementation Strategy and ensuing work plans that guided ADP/N's work throughout the life of the project proved to be effective in obtaining the objectives of the program.

#### The AECOM ADP/N Team

AECOM provided key U.S. and Afghan management and technical staff to direct the ADP/N program out of a provincial office in Faizabad, Badakhshan. Strategic technical direction and management was provided by AECOM's home office in Washington, D.C.

Subcontractors, ACIDI/VOCA, Afghan Relief Committee (ARC), Afghan Resources Group (ARG), Reconstruction and Development Association (RDA), United Infrastructure Project (UIP) provided personnel that worked under the supervision of AECOM Chief of Party in the Faizabad Office.

The ADP/N management team competitively selected and supervised additional subcontractors to implement specific projects. These implementing subcontractors included: the Dutch Committee for Afghanistan (animal health), Roots of Peace (fruit and nut sector), Afghanaid (vegetable sector), Land O' Lakes (livestock feedlots), and ICARDA (potato seed multiplication). Other local firms were subcontractor for construction projects and communications outreach.

The analysis for the *ADP/N Implementation Strategy* identified three primary issues impacting development of Northeastern Afghanistan. They were:

- 1) Low productivity of licit agriculture,
- 2) Poor production and marketing infrastructure – irrigation, market roads, marketing centers;
- 3) Weak and fragmented markets.

To address these and other constraints six overlapping and mutually reinforcing pathways were used as the basis for the *ADP/N Implementation Strategy*. These approaches were designed to:

- Increase agricultural productivity in key commercial agricultural sectors – vegetables, cereal crops, fruits and nuts, and livestock – that would provide an income alternative to opium poppy cultivation;
- Develop local enterprises focused on production inputs supply, and produce marketing support, value-added agricultural processing, and business management for broader income generation;
- Create and maintain economic corridors with key infrastructure investments in roads, irrigation canals and hydropower to support production and strengthen market linkages;
- Improve the economic livelihood and business skills of economically marginalized women, especially widows with dependent children
- Identify an integrated set of activities to encourage local investment in the establishment of sustainable agricultural-based enterprises.
- Provide a safety net and immediate local benefits through with cash for work projects that employ men and women from rural villages desperate for work, and focus this to complement other ADP/N activities - stabilizing eroded roads, clearing clogged irrigation canals, rebuilding crumbling retaining walls, etc.

Agricultural development activities were designed with a geographic focus. ADP/N activities were focused in the three regional valley areas and a series of sub valleys that had the highest populations, most productive agricultural areas, and highest poppy production. These areas combined contained the majority of the population and the productive assets of Badakhshan. The regional areas selected were the Faizabad area (including Argo and Yaftal), the Kishem area (including the Tagab and Teshkon valleys), and the Baharak area (including Jurm, Wardoj, Shohada, and Khash). In each of the selected geographic focus areas support was to be channeled to economic activities for development in the identified sectors, including livestock, fruit and nuts, wheat and vegetables, processing and marketing.

These valleys initially were selected because of the prevalence of poppy production. However, the emphasis was placed on rewarding farmers for moving away from poppy cultivation to licit crops. Consequently, some districts like valleys of Tagab and Shohada Districts, were supported as models for other areas. These were districts where strong leadership and adherence to the rule of law prevented the growth of poppy cultivation that needed investment in licit agriculture to support local political leadership and provide economic incentives to farmers.

#### **Constraints that Inhibit Badakhshan's Development**

- Poor roads limit trade, social services and medical response
- Lack of agricultural extension and research institutions
- High rates of maternal and infant mortality result from inferior health care
- Neglected educational system produces low literacy levels
- Warlord presence undermines government authority
- No commercial processing of agricultural commodities or products
- Traditional agrarian society suspicious of new methodology
- Scarcity of rural finance or credit
- Weak courts, no land titles, inadequate policies governing water and grazing rights.

In all three regional valley areas, the ADP/N focused on increasing household agricultural productivity and also moved in both directions along a value chain: 1) improving the supply of agricultural inputs;

and 2) improving marketing of produce and local value-added processing. Local farmer groups or enterprises (remnants of farmer cooperatives) were key local organizations that were linked to new technology transfer centers, strengthened agricultural extension, and upgraded farm stores, as well as to storage and processing facilities, and marketing chains. ADP/N also upgraded irrigation systems and improved roadways and bridges into markets using construction contracts that emphasized local contractors and cash for work, and consequently put cash in the pockets of many local farmers enabling them to participate and invest broadly in agricultural improvements.

The ADP/N value chain, replicated in each of 11 targeted valleys and districts of Badakhshan, included the following links: farm households, production, extension and business enterprise training, family and private enterprises, irrigation, roads, bridges, agricultural inputs through cooperatives and traders, processing, marketing, relationships with trader/buyers and coordination with government offices.

Effort was focused on local agricultural enterprise development and improving the investment environment within which new enterprises could grow. Because of the rural nature of Badakhshan, ADP/N decided to expand and modernize agriculture by concentrating on sectors in which residents already were involved. Selected for development were:

- Vegetable Sector
- Fruit and Nuts Sector
- Livestock Sector
- Marketing and Business Development
- Agricultural Extension Programs for Women

ADP/N strategy was to demonstrate the opportunities for improving and expanding traditional licit cash crops (vegetables, fruits and nuts, livestock) that would offer returns to farmers greater than those of poppy cultivation. This required a change in farmer mentality from seeing these crops as primarily for local household consumption, to seeing the opportunities for market production and cash income. As that change of perception occurred, ADP/N was to facilitate development of market infrastructure and market linkages in order to ensure continuing demand for local produce, and thus sustainability of local economic growth. Accordingly, ADP/N selected three areas of that were in need of serious investment to strengthen production and market linkages:

- Roads and Bridges Infrastructure
- Irrigation Infrastructure
- Micro-Hydropower Infrastructure

## 2.4 Targets for Growth – ADP/N Implementation Planning

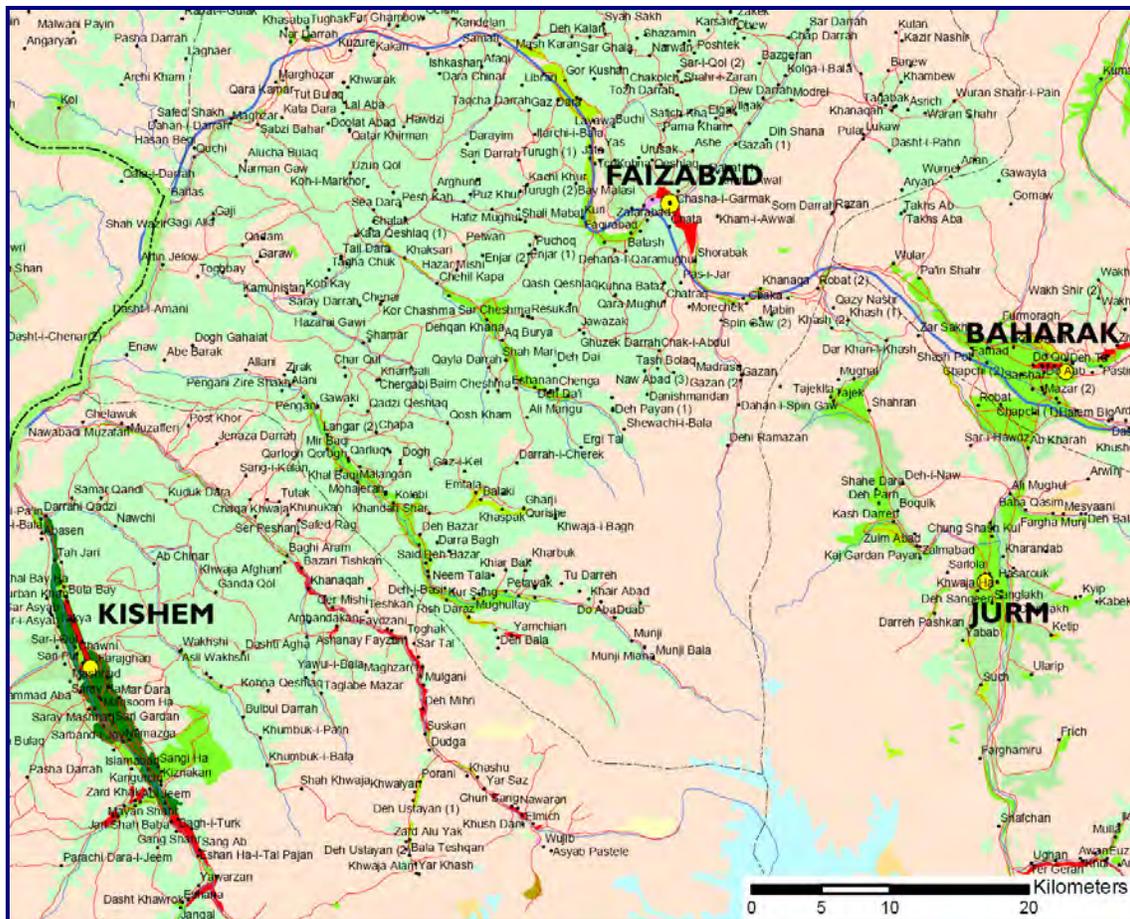
At the start of the ADP/N project in 2005, the Faizabad area was a large poppy production region in Badakhshan. It has the broadest valley along the Kotcha River and several adjoining higher valleys. There were numerous, though poorly functioning, farmer-managed irrigation systems in the area. With an estimated population of 60,000, the provincial capital of Faizabad was then and continues to be the largest urban jurisdiction in Badakhshan and the largest regional market center. ADP/N concluded that activities around Faizabad could take advantage of proximity to existing production areas, current roads, and the transportation network, as well as power supply and business potential.

Jurm and Baharak were two of the largest poppy producing districts in Badakhshan. Both are bisected by the Kotcha River and are situated upstream from Faizabad. Baharak had the third largest market center in Badakhshan after Faizabad and Kishem. It was 43 Km, or a three-hour trip, from Faizabad on an unimproved dirt road and is a gateway to remote mountain districts to the north and to Tajikistan via Ishkashem to the east. Jurm is another 20 Km further up the Kotcha valley and has similar

agricultural attributes. It is known for its high quality fruits from a good existing network of fruit orchards, and there is considerable nut production in higher adjacent areas. The ADP/N concluded that Jurm, Baharak and the adjacent district of Shohada would be the best place to focus orchard sector activities.

The Kishem area was the third focus of ADP/N. Kishem District has a large lower valley that supports dual cropping of rice and wheat. The urban area is the second largest in Badakhshan has a large important market center that supports surrounding districts (Teshkon, Darayem, and Rustaq in Takhar province). Fodder from crop residues and surrounding pastures support a large livestock population and there is active year-round trading in the Kishem animal market every Tuesday and Thursday. Given that Kishem has the largest sedentary livestock herds in Badakhshan (cattle, sheep, and goats), that there was potential to expand forage and feed production under irrigation, and that there was sufficient energy and water supply, ADP/N team chose it for more intensive livestock development.

Figure 2: Central Badakhshan – ADP/N Focus Areas - Kishem, Faizabad, Baharak, Jurm.



ADP/N development took place along an arcing economic corridor (Figure 2), the center of which was in Faizabad and area with high poppy cultivation in 2005 (Figure 1). Southwest of Faizabad adjacent to the border with Takhar is Kishem, and high poppy cultivation area in 2005. Southeast of Faizabad lay the districts of Baharak and Jurm, which had the highest poppy cultivation levels in Badakhshan.

### 3. Road to Success – Impacts

After four years of work and \$60 million in development costs, ADP/N can report with confidence that Badakhshan’s licit agricultural economy now dwarfs the narco-economy derived from poppy cultivation. As the table below illustrates, the area devoted to opium production has dropped from 15,607 hectares in 2004 to under 200 in 2008, a drop of 99 percent. The UNODC analysis infers many possible reasons for this decline, among them strong leadership by provincial Governor Munshi Abdul Majid, drought conditions adversely affecting poppies planted in rain-fed areas, increased revenue from licit agricultural products and ongoing pressure from UN and U.S. counter narcotics efforts.

The ADP/N assessment is that Badakhshan farmers planted fewer poppies because they made a rational economic determination that they could make more money growing other crops. They voluntarily switched from cultivating poppy to growing vegetables, raising sheep and enlarging orchards because ADP/N’s broad-based, sustainable development program stimulated economic growth and business activity.

This assessment is based project reports of the ADP/N team and subcontractors, field surveys of farmers (men and women), traders, and local contractors, and economic analysis undertaken in 2007 and 2008 that is summarized below. Please see “*Analysis of ADP/N Economic Benefits*,” by George Johnston and Surendra Bhatta, November 2008, for further detail on the methodology used and the impacts identified.

Figure 3: Annual Poppy Cultivation in Badakhshan

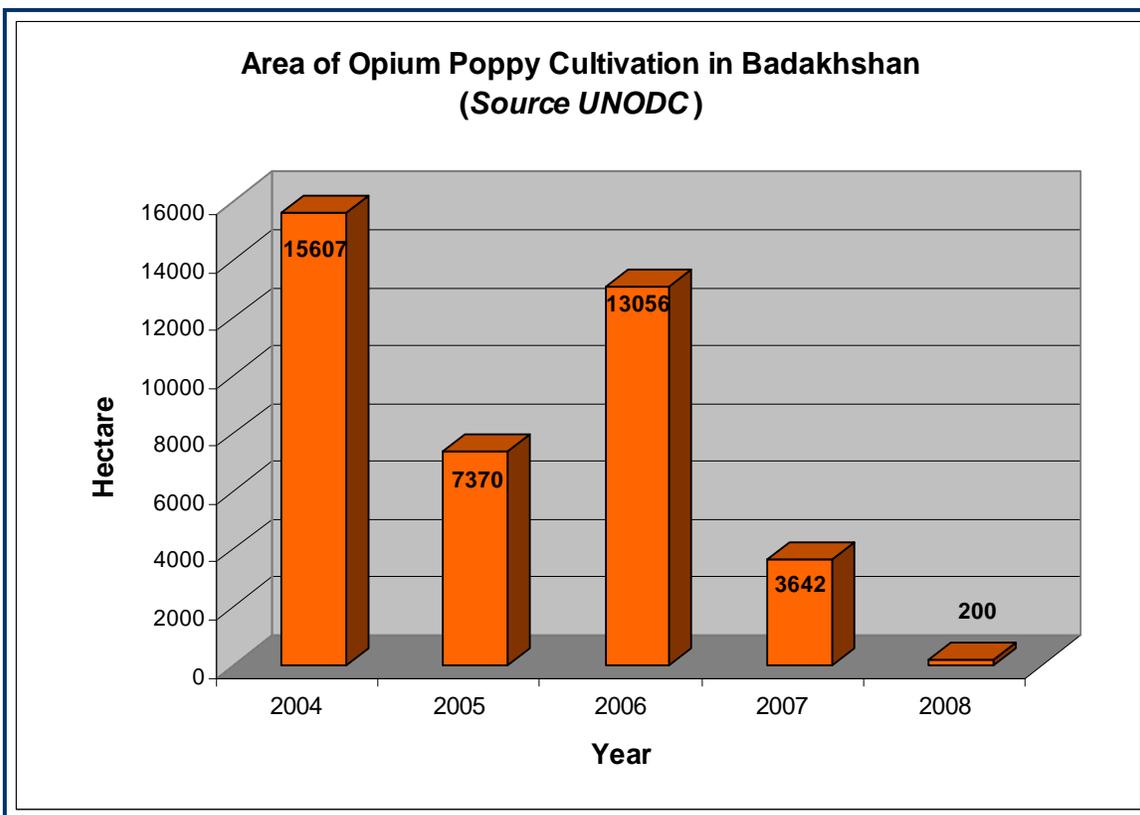
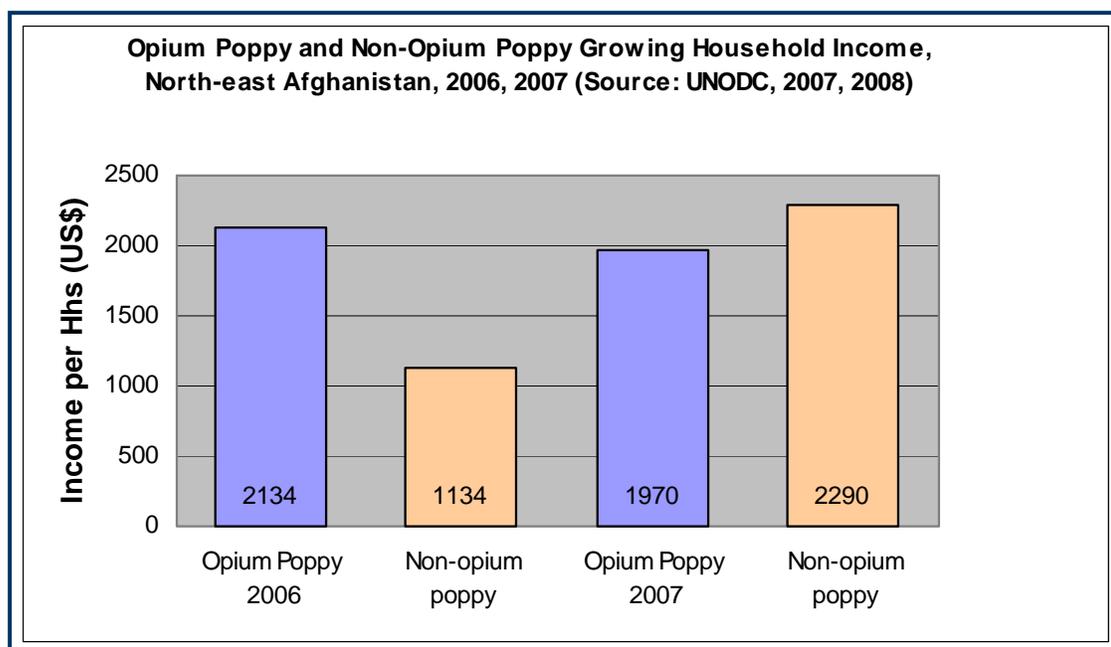


Figure 4: House Income from Poppy and Non-Poppy Growers



### 3.1 Objective I: Economic Growth Impacts

ADP/N had two objectives from the USAID contract with AECOM as presented in Section 2.2. The first objective was to accelerate economic growth and business activity. The *Analysis of ADP/N Economic Benefits* conducted in 2008, found that the program had a positive impact based on competitive net returns to farmers for producing licit crops (wheat, vegetables, fruits, and livestock) versus opium poppies, and that there was substantial improvement in local markets, market prices, and the regional economy. These results confirm that the ADP/N strategy based upon agricultural productivity increases and market expansion was an effective approach for stimulating economic growth and reducing opium poppy cultivation in Badakhshan Province. Further information on the findings of the analysis for various components of ADP/N is presented below.

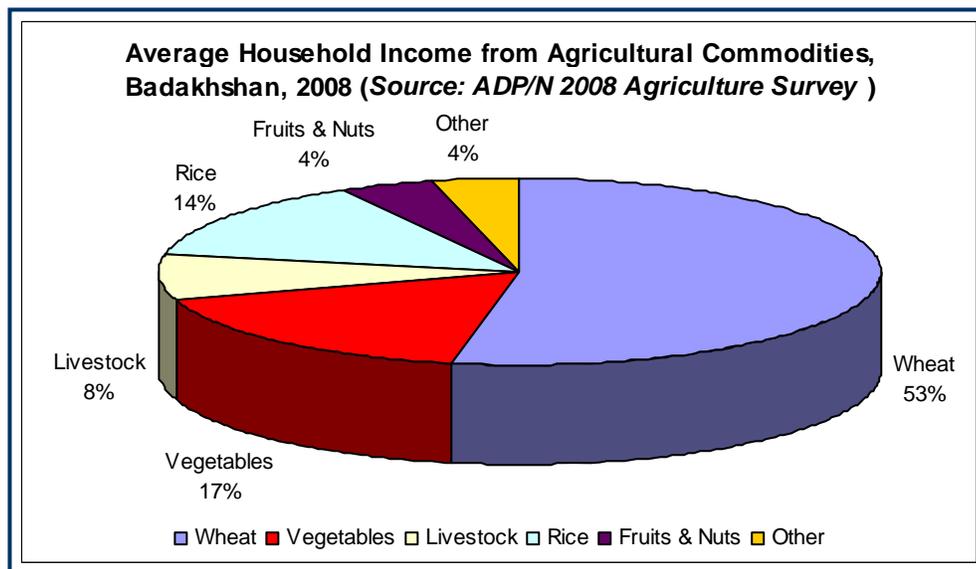
#### General Economic Impacts

The aggregated regional economic benefits for ADP/N programs are substantial even with low estimates. The range of quantitative estimates of annual ADP/N regional economic benefits is a conservative \$17 million to a liberal \$49 million.

#### Wheat and Vegetable Sector Impacts

Wheat is the main cash crop in Afghanistan and is central to a family's survival in Badakhshan. Many farmers prefer wheat over vegetable production since even if their wheat crop fails they at least have wheat straw to sell as animal fodder. To accelerate the transition to licit agricultural production, ADP/N tested and identified in 2006 via Technology Transfer Centers (TTCs) the best improved varieties of wheat and vegetables for Badakhshan, then contracted with seed companies to provide the most appropriate high-quality, certified wheat and vegetable seeds. More than 105,000 farmers received 1,015 MT of certified wheat seed and 770 MT of vegetable seed. To insure successful harvest farmers also were provided 4,368 MT of fertilizer (DAP) and urea.

Figure 5: Percent of Household Income from Agriculture in Badakhshan



In 2008, Badakhshan achieved a near poppy free status in part because of the competitive profitability wheat. According to analysis based upon ADP/N's Wheat and Vegetable surveys, net returns from wheat were near parity with opium poppy in 2008. This reflected drought and higher commodity prices from 2007, when opium poppy had been found to have a three to one advantage. The ADP/N analysis differed from that of the UNODC in that it used net returns. While the calculation of net income, without estimates of opportunity costs and economic benefits, is far from ideal, it provides greater nuance to the analysis than the off-cited comparison of gross income. This analysis supports the early efforts by ADP/N to popularize improved wheat seed and better fertilizer use.

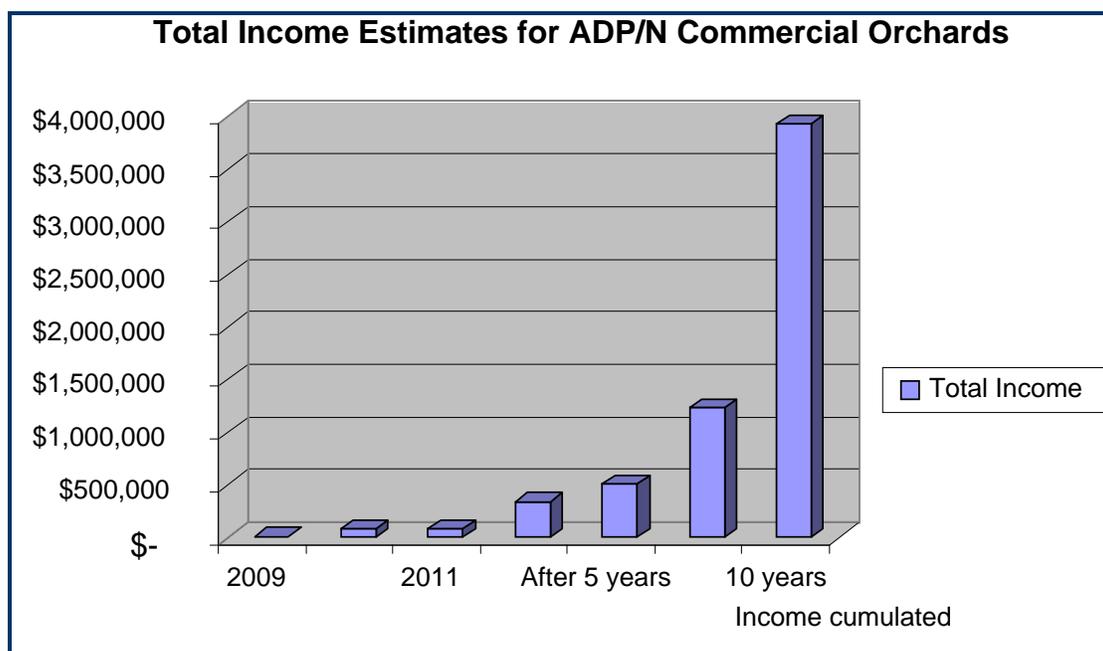
The 2007 ADP/N analysis estimated that nine types of vegetables supported by the ADP/N Vegetable Enterprise Development Program – tomato, eggplant, onion, cucumber, carrot, turnip, cabbage, cauliflower and okra – provided a greater net return per hectare in Badakhshan than did opium poppy production. These results were based upon moderate yield estimates. The 2008 analysis confirmed the 2007 results, showing that now ten of eleven vegetables had better net returns than opium poppy based on UNODC and ADP/N good yield estimates. The continued improvements can be attributed to improved prices for vegetables in local markets. Market access such as market road improvement is a crucial factor in converting this productivity gain into an increase in profitability.

In 2007, it was estimated that the total value of vegetable production supported by the ADP/N Vegetable Enterprise Development Program was \$17,252,040. This estimate did not include the nutritional benefits and economic value of vegetables that are consumed by local farmer families involved in this production. In 2008, the total value of vegetable production was estimated to be \$23,106,001, which amounted to an increase in value of \$5,853,961 over 2007, or a 34% increase.

## Fruit and Nuts

Over the four-year life of the ADP/N project in Badakhshan, 1,018 orchards were established with the planting of 48,518 trees. Because most fruit and nut trees do not produce significant yields until year four or five and do not reach maturity until year six or seven, (for almonds, peaches and plums, and year nine and 11 for cherries and walnuts, the full economic benefit of this sector has yet to be realized. Intercropping, the practice of planting smaller crops like alfalfa beneath the branches of orchard trees will produce some income in the early years, but significant long term returns are possible with proper management of orchards. Net returns range from a low of \$1,672/hectare for apricots to a high of \$7,660/hectare for almonds with the others above \$4,448/hectare. Annual regional benefits for mature trees in the commercial-style orchards activity is \$802,058.

Figure 6: Income from ADP/N Orchards Estimated by Roots of Peace



According to calculations made by ADP/N implementing partner Roots of Peace, farmers participating in the commercial orchard program collectively will earn \$8,567 from fruit and nut sales in 2009. By 2011, however, their sales should jump to \$182,911 if their trees are properly pruned and watered. By 2013 these orchards can be expected to produce annual revenues of \$519,952. It should be noted that orchard growers must be better off than average in order to risk planting fruits trees and to receive less income for several years than with other production possibilities.

## Livestock

Farmers in Badakhshan are primarily wheat farmers. Livestock is seen as a secondary source of income. By increasing the health, longevity and weight of sheep, goats and cattle, ADP/N hoped to encourage some farmers to see livestock as an important source of income. Two implementing partners approached improving livestock productivity from different directions The Dutch Committee for Afghanistan (DCA) was subcontracted by ADP/N to improve animal health by building 30 Veterinary Field Units (VFU), each staffed with a trained Para-veterinarian (Para-vets) who would work with 196 Basic Veterinary Workers (BVW) living in tiny rural communities. Land O'Lakes was

subcontract to organize commercial feedlots in Kishem and to demonstrate the desirability of feeding ruminants enriched fodder.

By the end of the ADP/N project 30 VFUs, each staffed by a full time para-vet were in operation. Additional two para-vets operated out of other field offices. A newly constructed Provincial Veterinary Laboratory in Faizabad provided overall coordination and technical support. Each para-vet, who operates his VFU as a commercial business, was given a motorcycle so he could visit far-flung farms and monitor his district's BVWs. The animal health network established by ADP/N vaccinated 1,274,699 animals and provided additional medication to an additional 219,279.

Based on accepted statistical modeling dating back to 1996, which compared animal mortality in districts in Afghanistan with and without veterinary services, it is accepted that mortality rates decrease by 25 percent for calves, 30 percent for lambs and 22 percent for kids if farmers have access to veterinary services. Adult animal mortality rates are lower by 30 percent for cattle, 40 percent for sheep and 60 percent for goats.

Using this data along with district animal populations and the number of farmers requesting para-vet assistance, ADP/N estimates that para-vets add \$ 342,245 annually in economic benefits in each of the districts where they work. Accordingly, the annual added value to Badakhshan of ADP/N animal vaccination, medication and de-worming services is estimated to be \$5,133,675 for Badakhshan's 15 districts (\$342,245 per year multiplied by 15 districts).

Figure 7: Veterinary Program Economic Benefits

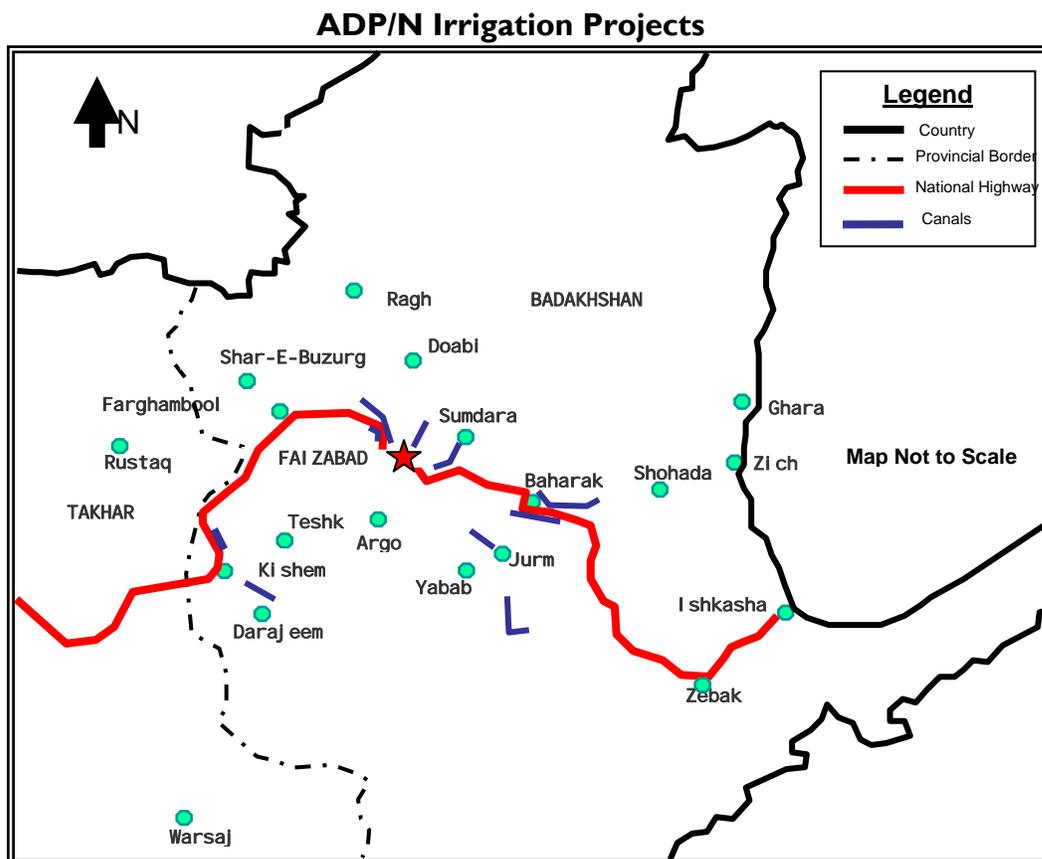
#### Calculation of Economic Benefits of Veterinary Program

Animal Species	Average animal population covered Per district	Mortality (%)		Fewer deaths per district (animal )	Value per animal (US\$)	Benefit per district per year (US\$)
		without veterinary Services	with veterinary services			
Cattle						
Adult	10,000	5.3	3.8	150	250	37,500
Young	3,000	21.5	16.2	159	175	27,825
Sheep						
Adult	20,000	13.6	8.2	1,080	100	108,000
Young	15,000	25.2	17.3	1,185	80	94,800
Goat					80	
Adult	10,000	15.6	6.0	960	60	57,600
Young	7,500	24.6	19.1	413	40	16,520
<b>Total</b>						<b>\$342,245</b>

Source: Schreuder et al. 1996, p.310, *a benefit-cost analysis of veterinary interventions in Afghanistan*

## Irrigation

Figure 8: Map of ADP/N irrigation Projects



In Northeastern Afghanistan the main factor determining the size of a harvest is the availability of water, so a top priority for improving agricultural productivity was to improve irrigation. For this ADP/N used: 1) cash for work projects to clean, reinforce and line with stone and mortared masonry irrigation canals that had fallen into disrepair; and 2) rehabilitation project through local construction contractors to expand irrigated area.

More than 576 Km of irrigation canals were improved over the course of the program, increasing the productivity of 62,310 hectares of crop land. Most of the canal rehabilitation consisted of Cash for Work minor repairs, maintenance and cleaning. This work typically was done by local farmer groups. About 9,000 hectares of land, however, was improved by infrastructure projects managed by ADP/N. They are shown on the map above.

The Qaraqusi canal in Faizabad District irrigated 600 hectares once it was cleaned, sealed and made fully operational. The Karaste canal in Kishem District brought water more efficiently to 300 hectares and has the potential of irrigating an additional 200 hectares. The Farakh canal in Baharak District, affects approximately 2,000 hectares covered by orchards and wheat with some intercrops with vegetables. The Wahdat-e-Baloch Valley canal in Kishem Districts insured the reliability of water delivery to 1,200 hectares and was reengineered to minimize silting and flooding. By upgrading the existing canal and replacing eroded sections of the canal wall ADP/N increased the capacity of the Khustak Canal in Jurm District to irrigate an additional 600 hectares.

## 3.2 Objective 2: Transitions Assistance to the Poor

The second objective of ADP/N was to provide alternative sources of income to poor households during the transition to alternative crops and revenue sources.

### Cash for Work

The main activity of ADP/N to provide financial assistance to the poor was the hiring of local laborers for infrastructure development under its cash for work program as well as under its construction subcontracts.

In all, there were 428,288 days of labor provided under ADP/N cash for work activities that directly paid \$2,243,336 into the local economy. The work was concentrated in the off-season for agriculture, particularly during the late fall and early winter season. The work at this time served to provide many Afghans cash income just before winter and during the poppy planting season. In addition, there were another 54,300 paid labor days under the four major road construction subcontracts of ADP/N. Some women were able to participate in construction activities (12,993 labor days total). Mainly, the women wove gabion wire baskets that when filled with rocks could be stacked together to create walls or fill fissures. These women received \$5 per day. Thus, 1,194 women who received this highly desirable job worked 20 days on average and took home \$100.

### Poor and Disadvantaged Women

A second, more targeted program was aimed at assisting poor women, especially widows. Women constitute an economically vulnerable group in Badakhshan. Women, especially widows with dependent children, have no social safety net on which to rely and often find themselves outside the family support structure. As a result, they and their children are prime sources of labor for poppy growers who hire them to weed opium poppy fields. ADP/N designed several activities to help this target group of women; the principle one was the Home-Based Nursery program.

The Home-Based Nursery (HBN) program was the first ADP/N effort to target widows and poor women. Three hundred and fifty women from 37 villages in seven districts participated. Each woman received seeds for their home gardens plus pine saplings that could be sold for a \$1 after they grew to sufficient size. Initially, they also received a stipend of \$50 per month to help them focus on tending their nurseries. Women in this program realized an average annual income of \$500 excluding the subsidy.

In 2008 ADP/N expanded the HBN program and gave an additional 130 women in six districts vegetable seeds they could grow in translucent plastic vegetable tunnels. These women earned about \$120 each selling onions, tomatoes and okra in local markets.



**Zaib Nisa from Baharak**

"It's been three years since I took part in poppy farming. I didn't have my own land so I farmed for a landowner. The Home Based Nursery program has helped us find an alternative source of income. I grow pine tree saplings that I sell for Afs 50 each. I save a little each month from this income, but the increases in the cost of wheat and rice have made it difficult to continue saving. However, I have been able to send my children to school and I am also very happy that I have learned some income-generating skills through the USAID programs."

*Spring 2008*

The Home-Based Poultry Program (HBPP) began in 2008 along with training on how to use solar energy to dry fruit. One hundred women in three districts joined the HBPP and earned about \$70 a year selling eggs.

A savings program was established early on to help women in all ADP/N programs learn how to save 10-15% of their monthly income. The goal was to make their gains sustainable by reinvesting savings to start small enterprises. Several beneficiaries took full advantage of these opportunities, but no overall statistical findings were available when the program ended.

## **4. Results - Final Status of Tasks and Benchmarks**

### **4.1 Wheat and Vegetable Sector**

ADP/N's goal when it began working four years ago was to move Afghan farmers away from opium poppy production to active engagement in legitimate activities. The first sector that it chose provide economic growth and household income was wheat and vegetables. This was accomplished by providing high quality seeds of appropriate varieties, improving production technology, and enhancing market awareness. In its early phase, ADP/N started with 3,600 vegetable growers belonging to 13 agricultural cooperatives in the districts of Faizabad, Baharak and Kishem. As a result of the success of this effort, popular demand increased, and ADP/N expanded its scope in 2008 to include 25 cooperatives covering 8,000 farmers.

#### **Lead and Resource Farmers**

ADP/N extension methodology involved working with a core group of highly motivated Lead Farmers (every cluster of 25-30 farmers has a lead farmer assigned) who receive intensive extension training once a fortnight, then impart what they learned to a broader set of Resource Farmers, who work as a bridge between the Lead Farmers and their communities. Every two-week period contains a training week followed by a monitoring week.

During the final month of the vegetable program in 2008, a total of 217 lead farmers and 671 resource farmers attended training sessions covering low plastic tunnel vegetable production in Faizabad, Baharak and Kishem. An additional 201 other coop members attended as observers.

A parallel training structure operated for women. During July 2008, 53 female lead farmers, 267 female resource farmers and 407 other interested women attended ADP/N training.

ADP/N extension agents conducted follow up monitoring to observe how instruction was being implemented. During the third quarter of 2008, a total of 472 male farmers in the three categories received advice and encouragement. Women extension agents similarly followed up by visiting 342 women farmers. Follow-up monitoring visits to ensure that lead and resource farmers disseminate information to their cooperatives reach an average of 800 cooperative members every fortnight (with a rough 75%-25% breakdown between male farmers and female farmers).



### **Technology Transfer Centers (TTCs)**

With assistance from ADP/N subcontractor Afghanaid, Technology Transfer Centers in Kishem and Faizabad provided a rich learning environment for agricultural cooperative members. Field days were held in each season which brought together key members from the community to learn from the experiences and the demonstrations at TTC.

On an average 400 cooperative members were served by the TTCs per month. A special effort was made to expose the TTCs to the women farmers who were more on the side lines when it came for the TTC visits. About 25% of the visitors were women farmers at the Faizabad TTC. As for Kishem TTC, due to the conservative nature of the communities, it was not possible to expose them to the TTC for regular visits but field days were successful in bringing them together the TTC.

The TTC for Baharak focused on fruits and nuts, and was therefore assisted by Roots of Peace, rather than Afghanaid. However ADP/N supported vegetable sector initiatives by the Baharak District Office of the Department of Agriculture developed some basic facilities for demonstrations. A High Tunnel (unheated greenhouse) in Baharak was set up at Dasht-i-Farakh. It allowed for appropriate seasonal crops to be grown beyond the point when cold and snow would normally end the season.

### **Field Days**

During each season of the year Field Days were held for women and men separately at both TTCs. Key community members – Board of Directors of the Cooperatives, Lead & resource farmers, Department of Agriculture staff and guests from NGOs participated in the field days. On an average between 90 to 120 persons participated in each of the field days. Each field day was structured for discussions with regard to vegetable production and promotion for marketing vegetables. Farmers were quick to relate to their own experiences and raise issues with regard to inputs to facilitate the production and access to markets.

In December 2007, for the first time in recent history, women in Kishem were able to gather for a Field Day and share their experiences in vegetable production. In the conservative setting of Kishem, Afghanistan had not tried bringing in women to the Kishem TTC. However with ADP/N's constructive support, key leaders in the communities were convinced to let their women participate in the Field Day especially organized for them. Though there was initially a lot of skepticism, a successful Field Day was conducted and continued thereafter.

### **Production of Quality Vegetables**

During each of the seasons, different vegetables were grown to expose farmers to new cropping patterns and experimental crops. During the fall season of 2007, three varieties of turnip were grown. One improved variety called Purple Top was favored for size, yield, and flavor. At harvest, the Purple Top yielded nearly 50 percent more (41,090 Kg/ha) than the local turnip variety (28,000 Kg/ha). The added profit a farmer could reap by adopting this improved variety amounted to \$374 per jerib or \$1,870 per hectare.



Farmers Receive Instruction at Faizabad Field Day

Several new crops with commercial potential were introduced for fall planting to be harvested in the spring. They included mustard greens, spinach and onions under low plastic tunnels. The success of this initiative during the winter of 2007 opened up new opportunities for farmers to produce vegetables during the winter and also get a head start for early spring vegetable production.

### **Low Vegetable Tunnels**

The plastic vegetable tunnels used to extend the growing season that became central to ADP/N's Home Based Nursery Program were introduced in the TTCs. In November 2007, the Kishem TTC harvested winter greens for the first time. These newly-introduced varieties of mustard greens can survive cold night temperatures as long as day temperatures recover. However, they must be grown in a protected environment such as a low tunnel. Several local vegetable vendors were invited to view the ready-to-harvest crop of winter greens. One vendor chose to market the greens by bundling them in 90 gram bunches and selling them on the street for Afs 3 each. He sold out the small trial harvest of forty-five bundles before the end of the day. The potential benefits of cultivating winter greens through use of low tunnels are estimated at \$3,333 per jerib or \$16,667 per hectare, based on local retail prices

### **Farmers' Commercial Demonstration Plots**

ADP/N also used demonstration plots on an individual farmer's fields to promote commercial vegetable production. In 2008, there were 27 farmers' demonstration plots established with help from cooperatives that supplied the seed and fertilizer. The plots would supplement the Best Practices demonstrated at the TTCs and made it easier for cooperative members to see production techniques.

## Agriculture Fairs

The most popular activities sponsored by ADP/N were the October 2007 and May 2008 Agricultural Fairs in Faizabad. Farmers brought in their products to the Ag Fair not only to show their achievements, but to explore quality improvements of their products through sharing knowledge with other farmers. Cooperatives from Faizabad, Kishem and Baharak displayed their products.



USAID Officials visit the 2008 Ag Fair

## Food Processing Training

In Faizabad and Baharak 22 men and 17 women attended three-day training sessions on food processing in the fall of 2007. Co-funded by the FAO, the training covered home based food preservation and was seen as a low cost way to enhance the value of vegetables. Last year a second training covering fruit and vegetable preservation attracted ten groups of Kishem farmers each numbering 15 to 20 people. This initiative resulted in the establishing of a shop in the Kishem market to sell preserved and pickled fruit and vegetables.

## Potato Seed Multiplication and Marketing Project

Thanks largely to the introduction of a new potato variety called Kufri Chandramukhi (KCM), Baharak farmers working with ADP/N achieved the largest potato harvest in history in 2008. But last year the 213 farmers participating in ADP/N's potato seed production program produced an average of 32.57 metric tons per hectare on the 118 jeribs (5 jeribs = 1 hectare) they had available for cultivation. The average yield for farmers using uncertified seed sold in local markets was 10.69 Mt/Ha.

Of the 213 participating farmers, 145 got an average yield of 30 Mt/ Ha; ten managed to produce 40-50 Mt/ Ha. Six farmers achieved super high yields of 50-60 Mt/ Ha, breaking the record for Badakhshan.

A total of 724 metric tons of potatoes were produced of which 402 Mt was certified QDS, Quality Declared Seed. Seed potatoes sell for \$240 per Mt, about 20-percent more than larger market potatoes that end up roasted, mashed or fried. The seed potatoes Baharak farmers produced will bring them about \$96,480. The portion of larger eating potatoes of the harvest – about 322 metric tons – will generate an additional \$64,400. Thus, a gross income of \$160,880 could be generated from seed and market potato production. The total cost of production was \$62 per Mt or \$44,888, leaving a net income from seed potato production of \$116,000.



Given the uncertainties of agriculture, it is difficult to predict future crop yields, but evidence suggests Baharak's potato farmers will continue to record harvests at this level. Next year, farmers will enter the growing season with more than 400 metric tons of KCM potato seed they know does well in their soil.

The Potato Seed Multiplication Project succeeded on a number of different levels:

- Seed potato farmers' gross income will increase \$160,880 by the end of the first year from the sale of seed and market potatoes. When an estimated cost of production equal to \$62 per MT per hectare is deducted a net income of \$115,992 will be realized.
- The 402-Mt of seed potatoes produced by participating farmers is sufficient to plant 805 jeribs, or 161 Ha next year. An estimated yield of 32-Mt/ Ha means farmers will be able to grow about 5,145 Mt of high quality potatoes. About 2,830 Mt will be Quality Declared Seed while the remaining 2,315 Mt will be market potatoes for sale and eating.
- Based on the current seed and ware potato market prices (US \$ 285 and US \$ 213 per Mt, respectively), the above yield expectedly would generate a gross income of US \$ 1,169,804.97 (US \$ 812,968.20 + US \$ 356,836.77 from seed and ware potato, respectively). Assuming the same cost of production of seed potato in the second year, the total cost of production would be US \$ 440,782.30. Thus the net income generated from seed potato production by second year will be US \$ 729,022.67.
- Estimated savings from minimizing seed potato storage losses from 50 per cent to five per cent in the second year will be \$379,627.21 after deducting depreciation charges. Therefore income level of seed potato growers will increase by US \$ 1,108,649.88 resulting from both potato production and savings from reduced storage losses during second year.

Fifteen semi-underground root cellars were constructed by ICARDA in Baharak with individual capacities of between 20 to 25 Mt of seed potato. These are strong structures expected to serve the communities for more than ten years with minimum maintenance costs. Previous experience with root cellars has demonstrated significant reduction in seed potato losses (less than 5 percent) during severe winters (15-20° C below zero). Normally, in the past, 40 to 50 percent of Baharak's seed potatoes have been lost due to freezing.

The entire 15 root cellars were handed over to agricultural cooperatives in November at a ceremony presided over by the District Governor, members of the Provincial Council and the local MAIL official. An additional five root cellars constructed by ADP/N serve communities elsewhere in Badakhshan.



Typical root cellars like this one belonging to Sadaqat Cooperative in Do Ab Village are steel reinforced

## Success Story

### Potatoes Replace Poppies as Baharak's Favorite Cash Crop



Photo: AECOM/David DeVoss

***In Northeast Afghanistan, where food is more important than cash, farmer Kahalifa Amir (above) celebrates his bounty.***

***Mohammad Israel and his young farm family (below) are all smiles thanks to a potato harvest that provides money for new clothes, shoes and school supplies." It's a very good year," says Israel.***



Photo: AECOM/David DeVoss

### Potatoes Replace Poppies as King in Baharak

You can't walk anywhere in the Badakhshan city of Baharak these days without running into potatoes. Bags of potatoes line the roads; mounds of potatoes stipple the fields. Recently, 60-year old Kahalifa Amir celebrated his bumper crop by diving into a huge pile of potatoes and laughing like a man who unexpectedly had stumbled upon treasure. "This is the harvest of a lifetime," he laughed.

The source of Amir's joy is Kufri Chandramukhi, or KCM, an improved potato seed from India introduced in 2008 by the USAID-funded Alternative Development Program of Northeast Afghanistan. Designed to produce a supply of quality potato seed, as well as a bountiful market crop, KCM was tested in other Afghan provinces before being brought to Badakhshan. So far, the seed is allowing farmers to reap far more than they sow.

The average yield in Baharak for farmers using KCM is 32.07 metric tons per hectare, more than 204% higher than the 10.52 MT per hectare produced by the old local variety. Some farmers have increased their harvest yield ten fold. "I planted 28-Kg of seed and harvested 280-Kg. of potatoes," beams 32-year old Mohammad Israel. "I'm selling most of the harvest now and keeping the balance for seed I can use next year or sell to other farmers." Preserving the seed throughout Afghanistan's frigid winter will be much easier than before since USAID also has constructed 15 root cellars in and around Baharak.

Increasing commodity prices combined with Badakhshan's prolific potato harvest have produced a dramatic shift in agricultural production. Four years ago, more than 15,600 hectares in the province were covered with opium poppy. In summer the Baharak valley was carpeted with red poppies. Today, less than 200 hectares are devoted to opium cultivation. "And why is that?" asks Mohammad Alem Alemi, the provincial director of the Ministry of Agriculture, Irrigation and Livestock. "Because now you can make more money growing potatoes."

## 4.2 Fruit and Nut Trees Sector

To complement improvements in vegetable production that provided immediate income, ADP/N also promoted annual horticulture that would be slower to provide benefits, but would ultimately produce higher economic returns over a longer timeframe. For Badakhshan, ADP/N identified the fruits (cherries, apricots, plums, peaches and apples) and nuts (almonds and walnuts) as having the most potential for increasing rural incomes.

Fruit and nut varieties for promotion were selected for their fit into existing value chains. It was planned that the saplings produced in project-initiated nurseries would be sold to local farmers on the open market by the nursery owners. The aim of the project was to build the perennial crop industry in Badakhshan that would lead to wide-scale planting of new orchards as a replacement to opium poppies. The limited duration of the ADP/N Program did not allow for extensive planting, so the focus instead was on the establishment of privately owned, commercial tree nurseries and orchards to serve as demonstration plots. A key component of the nursery system is the 124 germplasm source gardens. In these gardens are planted imported trees of known genetic characteristics. Nurserymen come to these gardens to take scions for grafting. Thus, these gardens are designed to provide a continuing source of imported, high-value genetic material that can be multiplied through local nurseries.



An additional task was to create market linkages between farmers associations and markets outside of Badakhshan to enable them to establish a demand for new varieties of apricots, almonds, cherries, and walnuts. The main focus of this work was to offer farmers the chance to sell walnuts and cherries to Kabul and dried cherries to India. The value of products marketed through these pilot programs amounted to \$550,000 and have led to sustainable market linkages.

### Shohada Walnut Factory

The walnut marketing trials developed into a major marketing success story of the project. ADP/N's implementing partner, Roots of Peace (ROP) assisted a Kabul-based walnut exporter to begin buying walnuts directly from Badakhshan farm groups and merchants. During 2007, the exporter shipped \$245,000 of walnuts from the area. In 2008, the exporter began shelling walnuts in Shohada where he employed some 70 women. The warehouse was provided by ADP/N and built on land purchased by the merchant. During the first weeks of the 2008 harvest season, the operation shipped 30 Mt of shelled walnut kernels and 120 Mt of in-shell walnuts with combined value of \$300,000.

### Progression of the Project

To begin the project, ROP imported certified tested trees to provide a source of germplasm for the propagation of the fruit saplings in the nurseries. Nursery sites were set up in seven regions to introduce the concept of seed stratification, budding and grafting. Extensive training was given to farmers in orchard revitalization, pest and disease control methods and marketing expertise. Fresh cherries were marketed in Kabul to prove that it was possible to transport to distant sales points, an experiment made possible because of new market roads built by ADP/N.

## Extension Agents and Nurseries

The extension agent program included 47 local people selected from the region. Sufficient training sessions were delivered to project staff to enable them to transfer the necessary skills to farmers as the project deliverables demanded.

ADP/N established 92 nurseries in Badakhshan. These nurseries helped farmers to grow their own saplings on reliable rootstocks and be able to supply the demand for new improved varieties of apricot, almond and walnut trees. The nurserymen were taught the techniques of budding and grafting not previously known in the region. The impact of the nursery program was to produce a team of 92 highly skilled nurserymen at project closure so that they could sustain their commercial sales of the new improved varieties after ADP/N left the region

## Orchard Demonstration Plots

A key component of the project was to demonstrate the quality of improved varieties. To do this, ADP/N imported a large range of new varieties to the region and planted them in nurseries and demonstration plots. A total of 16,685 saplings were imported from USA and Europe, and 45,110 imported from other provinces within Afghanistan. Once the demonstration plots were established, orchard revitalization programs were initiated in which pruning techniques were demonstrated and high quality pruning tools from California were given to all participants.

## Stone Fruit Pruning and Solar Drying

Proper pruning of a young stone fruit tree can increase its yield 25 percent over an improperly pruned tree. Over 500 farmers representing 507 individual orchard enterprises with a total of 40,560 trees were trained. Assuming a properly pruned tree produces an additional 3.5 Kg of fruit, the 81 training sessions they attended will result in an enhanced value of \$122,085 if they continue to prune properly.

Four German solar dryers were imported so that farmers from 14 cooperatives could be trained to dry and process fruit. Each dryer has the capacity to process over 400 Kg of fruit in about three days. The solar dryers are now owned by cooperatives in Baharak and Jurm, and one resides at the Women's cooperative in Faizabad.

## Codling Moth Reduction

ADP/N identified codling moth reduction as crucial to increasing the marketable crops of apples and nuts. ADP/N implemented a codling moth reduction program which included codling moth traps baited with pheromones. These traps disrupt codling moth mating and reduce offspring production. The pheromone traps were distributed to 1,748 farmers with mature apple

trees free of charge on a trial basis. A 2007 survey showed that traps, when combined with training,



Apple Grower Shows Codling Moth Trap

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decreased the percentage of damaged apples from 90 percent in 2006 to less than 25 percent in 2007. The increased value of the crop was estimated to be \$191,992.

In order to further reduce the incidence of codling moth, a campaign of carefully targeted, demonstration spraying of mature apple trees was carried out last year. The results of this intervention are not yet known due to the closure of the project, but a further reduction of codling moth is expected.

### **Bacterial Canker Spraying**

This disease is particularly harmful as it damages the tree trunk eventually killing off the tree if untreated. It also affects the fruit. The focus of this program was to help the farmers to find a measure of control for the bacterial canker disease on stone fruits. The ingredients were purchased from suppliers in Kabul and distributed to 123 farmers with a demonstration on proper use from extension agents. The use of Bordeaux mixture was recommended both for its environmental safety and efficacy. The extension agents carried out the training using knapsack sprayers.

### **Results of Fruit and Nuts Program**

A major constraint to orchard establishment was intensive wheat intercropping in the new plantations plus the grazing of livestock. Since farmers grow wheat right up to the new saplings, the wheat competes with the saplings for water and nutrients. New saplings are not irrigated during the wheat harvest and many are damaged during actual cutting of the wheat. Another problem is that livestock tend to browse upon the saplings. ADP/N supplied barbed wire to farmers to encourage them to keep animals out of the nurseries and orchards.

Sapling survival is greatest when farmers pay for the saplings. This is true even when the amount paid is a relatively small portion of the total cost of the sapling.

Badakhshan farmers have gradually learned the benefits from orchard management. Badakhshan farmers prune trees reluctantly. Their method is to occasionally tip the annual growth. This causes a dense mass of foliage but little fruit. They also allow multi-stemmed tree trunks. They accepted correct pruning, however, once shown the proper technique.

Sulfuring helps preserve and maintain the natural color of dried fruit, but the practice is unlikely to be embraced because the cost can't be justified on low-quality Badakhshan fruit. Large scale drying of apricots will not occur until production of higher-quality fruit increases. The four solar dryers supplied to ADP/N are too costly to represent viable options for drying fruit under local conditions. Farmers appreciate the concept of solar drying, but locally built, lower cost plastic and wood solar dryers are more practical than the imported versions. Walnut, dried mulberry, fresh cherry and dried sour cherry have a ready market inside and outside the region, but local farm associations must be more closely linked with large scale merchants.

## Success Story

### Better Transport Prompts Market Expansion, Economic Growth



Photo: AECOM/David DeVoss

**Vegetable trader Faiz Mohammad (left) and his son Abadullah complete an early morning sale in the Baharak vegetable market**

***“My rent is up to \$50, but with monthly sales of \$600 I’m not worried,” says merchant Amanullah.***



## Vegetable Markets Expand

Several years ago, there were only three produce merchants in the Baharak bazaar. Today there are 30 traders selling fresh fruit and vegetables. One reason for Baharak’s booming markets is that farmers are producing larger and more diverse harvests. But what another important factor driving the city’s new cash economy are lower prices resulting from the road building effort undertaken by the Alternative Development Program of Northeast Afghanistan.

Two years ago, most farmers were transporting their crops to market by donkey. Unforgiving logistics reduced potential profits to a point that many farmers simply didn’t take vegetables to market, preferring to trade them in a village barter economy.

Today, the 90 minute trip from Jurm to Baharak takes 30 minutes because of improvements along the 17-Km road linking the two cities. A smoother, realigned roadway between Baharak and the district center of Shohada 21-Km away has lopped 45 minutes off the transit time. The drive from the village of Shashpol to Baharak takes 20 minutes, down from one and a half hours. Before the Shashpol road was improved a farmer averse to donkeys had to pay \$40 to get his crop to market in an all-terrain vehicle. Now the same trip costs \$4.

Baharak’s merchants receive grains, vegetables, nuts and fruit from surrounding districts and sell, on average, about \$1,000 worth of produce a month. The market for walnuts and cherries is so strong that they have become export commodities. Last year, one Baharak trader sent 270 tons of walnuts from Shohada and Baharak to Kabul. Baharak merchants this year will send 2,000 tons of walnuts to Kabul and overseas markets. “Sales are up 80 percent because of better roads,” says Faiz Mohammad, a 35-year old Baharak vegetable seller. “Now we’re real entrepreneurs, businessmen who are even starting to export.

More business means more employees earning higher wages. It also means that landlords are demanding higher rental fees for market stalls. But Baharak’s nascent entrepreneurs don’t seem to mind “My rent is up to \$50, but with monthly sales of \$600 I’m not worried,” says merchant Amanullah. “Some how higher expenses don’t seem so bad when you have a growing income.”

### 4.3 Livestock Sector

In 2005, ADP/N conducted an initial survey of the livestock industry in Badakhshan. The survey identified animal health and feeding as the two major obstacles impeding the development of a profitable and sustainable livestock industry. Accordingly, the two programs below were designed and implemented and represent ADP/N's successful efforts to respond to these issues: 1) an animal health program for which the Dutch Committee for Afghanistan (DCA) was chosen as the subcontractor; and 2) a livestock productivity program for which Land O'Lakes was chosen as the subcontractor.

#### Animal Health Program

ADP/N contracted with the Dutch Committee for Afghanistan (DCA) to build 30 Veterinary Field Units that would be staffed with para-vets trained to recognize and treat diseases such as hoof and mouth, brucellosis and black leg that affect Afghanistan's ruminant population. Operating out of rural animal clinics in 15 districts the para-vets would work with local women Basic Veterinary Workers (BVW) to stop epidemics before they were carried throughout the country by flocks belonging to nomadic *kuchi* herdsmen.

Today four years after the start of ADP/N, 30 VFUs staffed by 30 para-vets are fully operational. Two additional para-vets operate out of structures not constructed by ADP/N. They are

joined in Badakhshan by 196 BVWs who attend to animals in tiny rural villages. Both para-vets and BVWs are retrained on a regular basis on topics that range from dairy health and nutrition to necropsy sampling and the proper use of antibiotics and anthelmintics.



Share Buzurg District Gov. Sayed Khair (left)  
Welcomes para-vet Gulam Rabbani to Pitawek

Each VFW has been quipped by ADP/N with storage cupboards packed with veterinary medicine, a solar-powered refrigerator to keep vaccines fresh, a formal office suitable for consultations and a motorcycle to make farm calls. During the final three last months of 2008, para-vets vaccinated 140,162 animals and medicated an additional 48,326. Para-vets traveled to 1,590 villages and 7,462 farms to dispense medicine and conduct veterinary procedures such as dehorning, deworming and castration.

Since November 1 of last year, mysterious illnesses that defy resolution in the field can be referred to the Provincial Veterinary Laboratory constructed in Faizabad by ADP/N. Formally inaugurated by U.S. Ambassador William Wood on October 26, the laboratory contains a research and diagnostic facility plus a library, conference room and communication center. There is also a post-mortem room to examine sick animals and a cold storage facility for tissue samples and vaccines. "Badakhshan's livestock population of 500,000 animals triples every spring when goats, sheep and cattle from surrounding provinces come to graze," said Wood at the laboratory's opening. "With more than 1.5 million animals pasturing in Badakhshan there is an enormous opportunity for veterinary services to prevent disease and conduct research. And that is what the provincial veterinary center of Faizabad is for."

## Success Story

### Afghan Para-vets Keep Badakhshan Animals Alive and Healthy

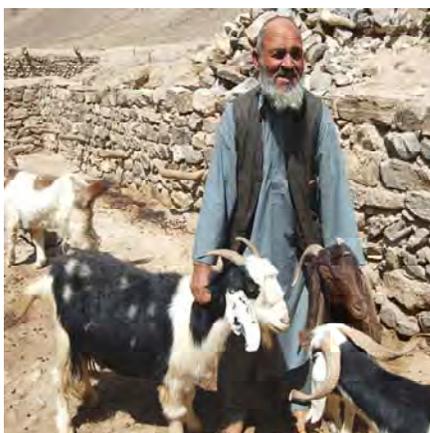


Photo: AECOM/David DeVoss

***“I never was able to save a penny because all the money I earned went to buy food for my eight children. This year not a single animal died. Now when the children need pencils and notebooks I can afford to buy them.”***

—Afghan herdsman Khodaar

## Animal Health Boosts Family’s Wealth

Animal husbandry is an unforgiving profession in Afghanistan. Economic survival depends on the number of sheep, goats and cattle a family can sell each year. But because of the harsh climate and sparse forage, many animals die soon after birth.

In Badakhshan Province, where the normal ruminant population of 500,000 swells to 1.8 million in summer when nomadic herdsmen bring their browsing flocks to highland pastures, the biggest killer is disease. It’s not uncommon for a livestock grower to lose 50% of his herd by autumn when animals fattened throughout the summer normally are sold.

Khodaar, a 60-year old goat and sheep grower from the village of Sumdara knows the problem well. “For years I’d build my flock to 100 animals only to lose 30 to 40 to disease,” he sighs. “Fifty goats will produce 30 to 40 kids if there’s no disease. But year after year I’d end up with 15 because the majority died.”

Today, however, animals are surviving at a much higher rate thanks to the USAID-financed Alternative Development Program for Northeast Afghanistan. One of the program’s objectives is to expand veterinary services. Toward this goal, ADP/N and the Dutch Committee for Afghanistan have trained 40 para-veterinarians and 196 Basic Veterinary Workers. They work out of 30 Veterinary Field Units that are strategically positioned throughout Afghanistan’s most mountainous province. Each unit is equipped with veterinary medicine and a solar-powered refrigerator to keep vaccines fresh. The clinics also come with motorcycles para-vets use to reach outlying communities. Together these animal health care workers vaccinate an average of 50,000 animals each month. Health issues defying resolution in the field are referred to the newly-constructed Provincial Veterinary Center in Faizabad, which has modern laboratory and research facilities capable of identifying epidemiological threats.

Sumdara’s para-vet already has made a difference. “I never was able to save a penny because with fewer goats to sell all the money I earned went to buy food for my eight children,” says Khodaar. This year not a single animal died. Indeed, Khodaar made enough money this year to finish building a house. “Once it grew to 150 head I sold half my flock to get the money to buy wooden window frames” he beams. “This winter I’ll cover the windows with plastic. Next year I’ll buy glass for the windows.”

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## Animal Productivity Program

The Livestock Skills Transfer Project (LSTP) of ADP/N demonstrated a system of forage production, feed mills and micro-feedlots that provide a profitable and sustainable alternative to traditional grazing methods. By providing direct training to farmers, ADP/N assisted livestock producers in adopting modern animal husbandry methods in animal health, nutrition, feed production and storage. Its primary activity, however, was to measure the economic feasibility of feeding locally produced crops to sheep, goats and calves kept in micro-feedlots for forty-five day or fifty-two day cycles.

The feeding cycles were conducted during March 22-May 7, May 15<sup>th</sup>-July 8<sup>th</sup>, and July 25-October 15, 2008 on four separate micro-feedlots under the supervision of ADP/N subcontractor Land O'Lakes. Using silage, feed concentrate (blended feed) and improved animal husbandry practices, ADP/N successfully demonstrated how the use of micro-feedlots can lower mortality rates, accelerate weight gains, raise per kg live weight market prices, and increase profits.

The livestock in micro-feedlots were healthy, gained weight quickly, and sold for higher live-weight prices than control animals managed under traditional grazing methods. The average weight gain in the Cycles 1-3 was 51%, compared to 10% for pasture-fed animals. Mortality rates dropped to zero. Due to higher body condition scores and improved linkages to downstream markets, the average price per kg of micro-feedlot animals sold at the end of feeding cycles was 73% higher than average prices in local markets.

Overall, calves in micro-feedlots were consistently more profitable than sheep, and sheep were more profitable than goats. On average, the profitability of treated calves was 44%, compared to 21% for sheep and 11% for goats. Given the same rates of return as these three feeding cycles, micro-feedlots operating five feeding cycles per year would earn annual profits of 173%.

## Feed and Forage Production

In order to demonstrate to farmers the benefits of growing their own forage, ADP/N assisted farmers in planting five jeribs of forage at each feedlot. Corn yields doubled as a result of fertilizer and seed of improved varieties. The sorghum variety was well adapted and produced large yields. Soybeans also performed well, although nodules did not form on their roots, indicating a need for rhizobia seed treatment.

Over the life of the project 114 tons of roughage such as corn, soybeans, and sorghum were used for silage. An additional 30 tons of straw mixed with 1.2 tons of urea were also used for silage. ADP/N staff taught farmers how to make silage for future use. Silage production is one of the most important factors contributing to the success of micro-feedlots. After watching silage production methods, several farmers made their own silage.

## Results of Animal Productivity Program

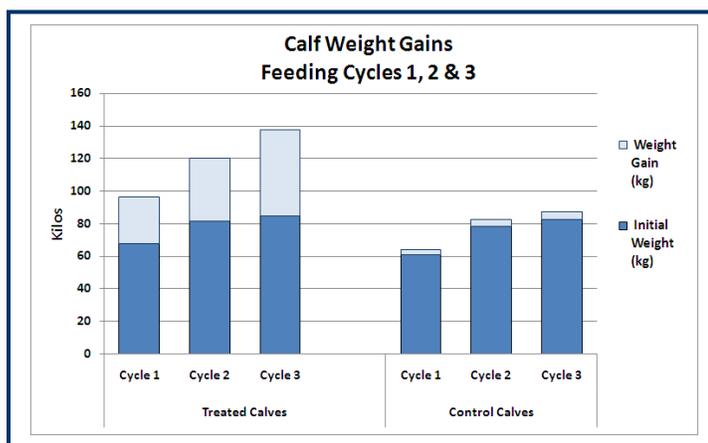
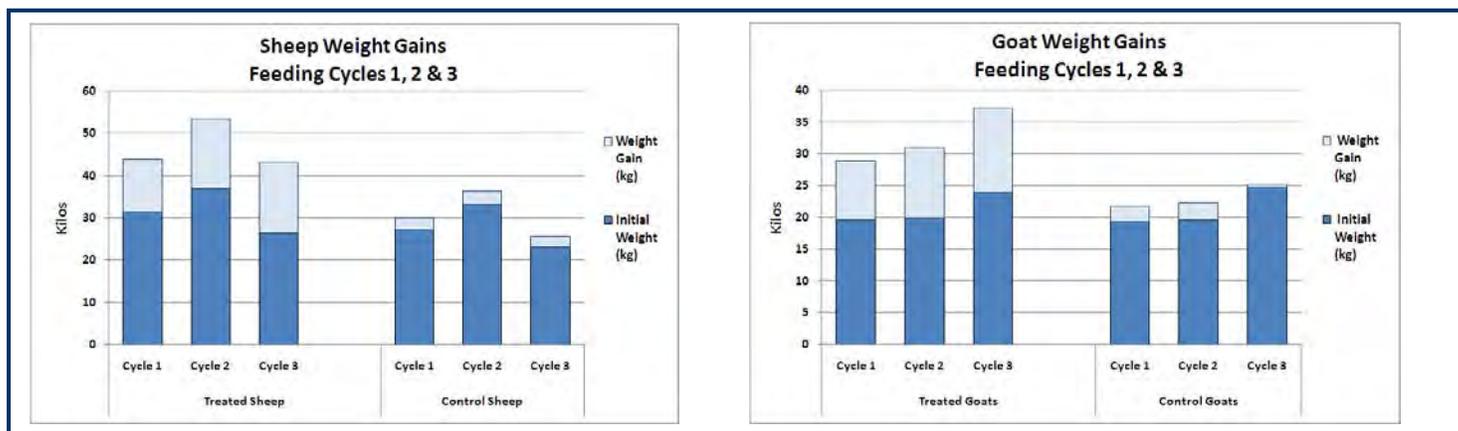
The results of the feeding trials show that micro-feedlots significantly increase the benefits of livestock production. On average, the profitability of treated calves in micro-feedlots was 44%, compared to 21% for sheep and 11% for goats.

Feedlots reduce production risks, increase herd size, accelerate weight gains and raise sales prices. They reduce the risk of diseases, predators and other hazards of conventional grazing practices. They also reduce risk by facilitating veterinary care and improving health management practices. The use of silage and feed concentrate improved livestock nutrition. Livestock fed in micro-feedlots gained weight faster, sold for higher prices and generated more profits than control animals. Given the same rates of

return as the three conducted feeding cycles, micro-feedlots operating five feeding cycles per year would earn annual profits of 173%.

As more farmers fatten their animals in micro-feedlots, they will attract more buyers. Increased competition between buyers will raise prices. Micro-feedlots also provide economies of scale in marketing that promote downstream market linkages. They reduce the grazing pressure on mountain pastures, allowing them to recover their former productivity. They offer a profitable and sustainable alternative to conventional grazing methods.

### Weight Gain, Control Vs. Treated, By Animal



## Success Story

### Results From Kishem Feed Lots

Photo: AECOM/David DeVoss



**Young farmer Miragudin holds the family calf, Tiny, who did not benefit from an ADP/N feed lot diet like his sibling Jumbo on the right**

### Feeding Trials Highlight Growth Differences

Tiny and Jumbo are two cows from Kishem. Both were born about the same time on the Sung Ub agricultural cooperative outside Kishem. They were young heifers growing up. But early in 2008 their paths diverged when their 16-year old caretaker, Miragudin, enrolled one of them in an ADP/N feedlot program at Mardara, a village on the outskirts of Kishem's district center. For the next 52 days Jumbo spent his waking hours gorging on enriched silage made with urea-treated straw. As for Tiny, well, he stayed home, eating a regular diet of leaves and rice straw, a ubiquitous agricultural byproduct has the same nutritional value as shredded cardboard. "I was amazed when I saw the result," says Miragudin. "My family has ten goats, 20 sheep and five cows. Next year I'd like to bring them all to this feedlot."

That's good news for Mohammad Bay, 59, the Mardara businessman who donated the land for the feeding trials. He plans to continue the feedlot operation started by the Alternative Development Program for Northeast Afghanistan and is busily buying sheep, goats and cattle now selling at depressed prices due to Badakhshan's drought. "I think this feedlot will be a very profitable commercial business once I find out how much I'll be able to charge farmers to fatten their stock."

Over the course of the three feeding trials managed by ADP/N development partner Land O' Lakes different diets were tried, ranging from forage and chopped silage to ammoniated straw. On average, the cows enrolled in the final feeding trial gained 47.1-Kg compared to stay-at-homes like Tiny, who only grew 3.15-Kg over the same period of time. It costs Afs 140 to maintain a cow in a feedlot for 52 days. Feeding an identical cow rice straw over the same period of time costs Afs 30 once the farmer buys rice straw. Simple arithmetic shows that feedlots make financial sense. Each kilo Tiny put on cost Miragudin Afs 9.52. ADP/N, by comparison, paid just Afs 2.21 for each of the 47-Kg Jumbo added. Becoming a bovine gourmand has a downside, however. Alas, Jumbo's days of playing with Tiny are drawing to a close since he now has a date with the butcher.

## 4.4 Marketing and Cooperative and Business Development

### Agricultural Cooperative Strengthening

Assisting farm cooperatives to develop appropriate-sized businesses was an early priority for ADP/N. From its inception, ADP/N informally worked with the Aga Khan Development Network's Microcredit Program to expand public awareness of financing opportunities. ADP/N conducted business education training on accounting, marketing and enterprise management using the Agricultural Extension Building constructed by ADP/N in Faizabad for the Department of Agriculture during the first year of ADP/N.

To complement, the agricultural production programs for wheat, vegetables, fruits, nuts, and livestock, ADP/N shifted from an initial focus on urban business development to agricultural cooperative training. Although 90 percent of Badakhshan's population makes its living in agriculture, ADP/N discovered that the 15,000 farmers belonging to the province's 70 registered agricultural cooperatives were poorly organized and lacked marketing experience. Accordingly, ADP/N helped cooperatives build business partnerships and acquire certified seed, affordable farm machinery, and other agricultural inputs.

ADP/N developed also, a relationship with the Badakhshan Institute of Technology (BIT), and used this local institution as a venue to provide computer literacy programs for Provincial Government employees, particularly those in departments working directly with ADP/N.

### Farm Store Support Program

The Farm Store Support Program was created in 2008 with two objectives in mind. One was to assist in the long-term development of private sector farm stores that are stocked with improved seed and modern machinery, and run by people able to explain the benefits of new technology. The second was to help Badakhshan farmers by exposing them to reliable products and the information necessary to use them productively.

Farmers who went to an ADP/N approved farm store could purchase seed, tools, fertilizer and machinery on a cost-sharing basis.



Kishem Coop leaders Welcome Arrival of Tractors  
At Celebratory Luncheon in Mardara

The most notable achievement under this program was that 12 cooperatives in Kishem, Faizabad, Baharak and Jurm were able to purchase 80 Hp tractors. Made in Belarus and sold through a Mazar-e-Sharif retailer, the tractors came equipped with a trailer, plow, harrow, grain thresher and land leveler.

## Before & After

### Tractors reduce toil, prompt dreams of new business opportunities

Kishem is one of Northern Afghanistan's most fertile valleys. But until recently its agriculture had not progressed much in a long time. Reliance on oxen and wooden plows kept productivity low. Often the 350 farmers belonging to the 1,000-acre Gunbad cooperative 11-Km north of Kishem had to plow their wheat, rice and potato fields 20 times before they were ready for planting. "Imagine the time that takes with two oxen and a wooden plow," says 36-year old Gunbad director Mohammad Ali. "Now triple it since we grow three crops a year."

Today, however, thanks to an innovative cost-sharing arrangement introduced in 2008 by the Alternative Development Program for Northern Afghanistan 12 cooperatives in Badakhshan Province each own an 80-Hp tractor complete with plow, harrow, grain thresher, land leveler and trailer. "We always wanted a tractor but never thought it would be possible," says Mohammad Ali. "Now that we have extra time we hope to open a produce market to sell all the onions, melons and peppers we grow."

Will mechanized farming mean more leisure time? Smiles Ali: "There's no rest in Afghanistan. But at least now we have opportunity."



Photo: AECOM/David DeVoss

**AFTER** Tractor purchased with USAID assistance allows Ali to complete two day's work in one hour and consider new business opportunities that now are possible because of mechanization.



Photo: AECOM/David DeVoss

**BEFORE** For centuries cultivation in Afghanistan has consisted of a farmer, two oxen and a wooden plow. Badakhshan farmer Mohammad Ali had to plow his fields dozens of times to prepare them for planting.

## 4.5 Women’s Programs

### Poor and Disadvantaged Women

ADP/N’s gender outreach programs succeeded in improving the livelihood of impoverished Badakhshan women. The **Home Based Nursery Program** encouraged 350 women to plant, raise and sell fruit, vegetables and pine tree saplings. Sold at \$1 each, the saplings provided a welcomed additional income for the women.



Faizabad women learn how to preserve fruit and vegetables using solar dryers

A **Vegetable Tunnel Program** allowed 130 beneficiaries to employ translucent plastic tunnels in the late autumn and early spring production of vegetables.

The **Solar Dryer Program** enabled women to collect, dry and sell fruit with small imperfections that might otherwise go unsold in produce markets. Several training sessions were held at the Women’s Center in Faizabad, which acquired one of the four solar dryers imported by ADP/N. Seventy women showed continuing interest in fruit and vegetable drying and they were instructed on how to use sulfur to preserve the color and consistency of dried fruit.



Baharak Women shows her prize rooster which lives in a chicken coop she built with her profits

Introduced in 2008, the **Home Based Poultry Project** quickly became a popular program. In return for building their own chicken coop, 100 women in Faizabad, Baharak and Kishem each were given 18 hens and two roosters. The idea was for women to earn modest sums from selling eggs, and many did. But perhaps the program’s main benefit was to provide a source of protein to the children of the women participating in the program.

Women’s programs invariably strive for gender equality. In Afghanistan, that’s an impossible goal. ADP/N gender initiative is not intended to restructure Afghan society. Rather it is designed to assist impoverished women create home-based businesses that can produce sufficient revenues to feed and clothe their children. Based on surveys conducted over the final quarter of the ADP/N program, women taking advantage of the programs mentioned above augment their incomes by the following amounts:

Program	No. of Beneficiaries	Average Annual Revenue
Home Based Nursery	350	\$500
Vegetable Tunnels	130	\$120
Poultry Raising	100	\$70
Solar Fruit Drying	70	\$274

### Agricultural Extension Programs for Women

Women were a beneficiary of extension efforts in the Vegetable, Fruit & Nuts, and Livestock Sector programs. All of the female spouses of the male Lead and Resource Vegetable Farmers working with ADP/N received identical training in separate sessions if they wished. Each district had from eight to ten training groups. The size of the female training groups depended on the level of interest, but in

general 15 to 20 women received training in every agricultural cooperative with which ADP/N worked. In 2007 and 2008, ADP/N met on a fortnightly basis with about 800 female Lead and Resource farmers from 13 cooperatives. Any woman connected with the cooperative could participate, however. Plastic tunnel vegetable production, drip irrigation and the drying and pickling of vegetables were among the topics studied.

In Kishem's Livestock Skills Transfer Project, ADP/N partner Land O'Lakes instructed about ten women farmers every week in a separate training room at the four feedlots. They studied basic animal husbandry practices that included livestock management, milking techniques and dairy processing. The weekly training sessions were two hours long. Two female extension agents visited women at their homes and participated in weekly group trainings. Over the course of the project, female extension agents demonstrated new livestock management methods to more than 3,510 women farmers in their communities and delivered over 2,000 copies of training pamphlets. In the animal health program the women BVWs worked with village women to improve animal health.

Women farmers regularly attended Field Days at the Faizabad TTC and were active in both AgFairs.

Forty women-owned agricultural and crafts producers took advantage of the crowds at the May 2008 AgFair to sell embroidery, dried fruits, jewelry, honey, eggs and tree saplings produced under ADP/N's home nursery initiative.

### Training for Women Business Owners

In 2008, ADP/N took 15 women business owners from Badakhshan to Kabul where they were exposed to different markets for design and manufacturing of apparel, purses, jewelry, wood crafts and fruit processing. For some, it was the first time to travel beyond Badakhshan and experience new trends and production techniques. The trip exposed them to potential markets for their fledgling enterprises. The visit also allowed them to examine different outlets for raw materials that are more readily available in Kabul, which is the destination for nearly all imported goods.

The educational business tour was a precursor to preparations leading to the Badakhshan Agricultural Fair, during which the women's pavilion featured 40 booths displaying handmade crafts and agricultural products. The AgFair attracted more than 690 women attendees to the two-day event. A total of 85 women groups and individual female enterprises from several districts in Badakhshan mingled with representatives from various NGOs.



Dr. Anis Gul, Akhgar, Director of Relation & Cooperation of Women Organization (RCWO), presenting the products of the organization to the VIPs who attended the Agricultural Fair.

## **SUCCESS STORY**

### **ALP/N Gender Programs Help 500 Impoverished Women Learn to Survive**



Photo: AECOM/David DeVoss

***"Who could have imagined that one day I would be able to pay some one else to work for me"***

—Hanifa

### **Entrepreneur Earns Money, Self Respect**

Chapche Maqhzar, a small village in Badakhshan's Baharak District, is home to ten families who in 2006 began participating in USAID economic development programs for widowed and vulnerable women. The programs are aimed at empowering women through technical assistance and training. They include home-based nursery and poultry projects, as well as a horticulture program that trains women how to raise vegetables in translucent plastic tunnels. In this village signs of economic growth are evidenced by the smell of freshly painted rooms and the welcoming creak of a newly installed door.

Hanifa, a widow of ten years and a mother of four children, is the sole breadwinner for her family. She recalls years of endless worry after her husband died. But after three years of participating in USAID Women's Programs for Northeastern Afghanistan this 46 year old woman has mastered the art of business diversification. She sold 250 tree saplings from her nursery for \$1 each in just two transactions, bringing in \$250. Peddling vegetables earned an additional \$200, \$160 of which she used to buy a cow. Today, she has a comfortable income thanks to continuing sales of tree saplings, fresh vegetables, vegetable seeds, eggs and dairy products. Her delight in demonstrating her gardening abilities is a positive sign and common among the nearly 500 women participating in women's programs across Badakhshan.

Hanifa's economic success is witnessed in the recent improvements she has made in her living condition. Her two room house is tidy and clean with walls newly painted a buttery yellow. A large red Afghan carpet and matching cushions decorate the main room. Outside, water cascades down a cement trough which feeds a network of irrigation streams that keep her vegetable garden and tree nursery healthy. With her savings, she was able to hire a laborer to lay the cement for the water trough and to plow her garden. "Who could have ever imagined that I would ever be able to pay someone else to work for me," she laughs heartily. "I am very happy, my children are healthy and we owe it all to the American people."

## 4.5 Infrastructure

The ADP/N implementation strategy was to facilitate development of market infrastructure and market linkages in order to ensure continuing demand for local produce, and thus sustainability of local economic growth. ADP/N selected three areas of that were in need of serious investment to strengthen production and market linkages:

- Irrigation Infrastructure
- Roads and Bridges Infrastructure
- Micro-Hydropower Infrastructure

### Irrigation Infrastructure

ADP/N rehabilitated more than 576 Km of irrigation canals. Some projects repaired and brought back into operations irrigation systems that had broken down. Others focused on improving water management to get more water to crops through improvements in intake structure, upgrading and cleaning canals, and reducing leaks. The cleaned, lined and reinforced canals now bring water to 62,310 hectares of crop land.

Figure 10: ADP/N Irrigation Projects

#### ADP/N Irrigation and Hydro-Power Canals

No.	Reference	Project Description	Location	Start	Completion
1	INF1	Share-e-naw canal improvements	Faizabad	Jun 05	Dec 05
2	INF22	Share-e-naw canal improvements	Faizabad	Apr 07	May 07
3	INF7.1	Anbar Canal Intake & Retaining Wall	Kishem	Oct 05	Mar 06
4	INF7.2	Karasty Canal Intake & Protection	Tagab	Oct 05	May 07
5	INF7.3	Ishana Canal Intake	Argo	Mar 06	Jun 06
6	INF7.7	Petawak Canal Protection	Darayem	Apr 06	Jul 06
7	CFW44	Dargaw Canal & Protection Wall	Jurm	Apr 06	Jun 08
8	INF10	Excavate/Compact Qaraqzee Canal	Faizabad	Jun 06	Nov 06
9	POINF10.4	Qaraqzee Canal Rehab, Phase 2	Faizabad	Apr 07	Aug 07
10	INF17	Sumdara Canal Rehab	Faizabad	Feb 07	Jun 07
11	INF19	Khustak Canal Rehab	Jurm	Mar 07	Jun 07
12	INF23	Farakh Canal Rehab	Baharak	Jul 07	Apr 08
13	INF23.2	Farakh Canal Rehab, Phase 2	Baharak	Feb 08	Jun 08
14	INF25	Sarejangle Canal Reinforcement	Faizabad	Jun 07	Aug 07
15	INF26	Zardew Hydropower Canal Rehab	Baharak	Jul 07	Nov 07
16	INF CIV27	Jowzun Hydropower Canal Rehab	Faizabad	Jul 07	Jan 08
17	INF31	Wadat Baluch Canal Structures	Kishem	Feb 08	May 08
18	INF30.1	Baharak Power Canal, Section 1	Baharak	Feb 08	Nov 08
19	INF30.2	Baharak Power Canal, Section 2	Baharak	Feb 08	Sep 08
20	INF30.3	Baharak Power Canal, Section 3	Baharak	Feb 08	Nov 08
21	INF30.3	Baharak Power Canal, Section 4	Baharak	Jul 08	Dec 08

## Infrastructure Development in Jurm District



Farmer Hakim on the brink provided 6,000 labor days worth of effort, the 120-meter long wall protects the Dargaw to Jurm Road, farmers nearby and their fields.

The Dargaw region west of Jurm District is a bucolic farming area that draws life from the meandering Peskan River. Two years ago, many of the district's 72,000 people grew opium. Today, thanks to ADP/N, every former poppy grower produces legal commodities. But once each year, when the snow melts in the Yabab Mountains and the waters of the Peskan rise and churn, much of what Dargaw has planted is destroyed by floods. Roads wash away, plowed fields disappear, and irrigation canals are breached. And, just for a moment, farmers who can't get perishable crops to market briefly consider returning to poppy.

Next spring, however, Dargaw's farmers can plan ahead with confidence knowing lives and property won't wash away thanks to a massive flood protection wall completed by ADP/N in August 2008. Built by local people who



Dargaw Canal & Road Protection Wall

During the completion ceremony, Jurm District Governor Ostad Daulat Mohammad and other local notables, focused on the money pumped into the local economy by cash-for-work jobs. But for 62-year old Hakim, who watched the festivities from the edge of his two-gerib farm, the Dargaw protection wall is survival itself.



Jurm District Gov. Daulat Mohammad Meets young constituent

"This is all I have," he said, gesturing toward a patch of strawberries, a grove of apricot trees and a small field of corn, barley and vegetables. "But every spring a small piece of my land washes away," he sighed as he stood on the edge of a precipice eroded by annual floods. "The more land I lose, the less I can grow. The protection wall guarantees that the wheat I plant in winter will be around for harvesting in the spring."

Says Jurm Governor Dulat Mohammad: "Development is a big puzzle. ADP/N is helping us produce wheat, poultry, animals and orchard products more profitably. This canal and protection wall keeps the products we produce from washing away. Just north of here ADP/N is improving the road to Baharak so we can get our crops and animals to market faster and in better condition. Sixty-five percent of the farmers in this district used to grow poppy. All these changes have to fit together if we are to keep them from returning to the old ways."

## Roads

ADP/N spent \$7.3 million to construct or improve 20 roads with a total cumulative length of 252 Km over the life of the project. Eight bridges also were built along with well over 200 culverts. For administrative purposes, the roads mainly were divided into two groups, those built by sub-contractors who hired their own labor and those supervised directly by ADP/N engineers. Those in the latter category were Cash for Work (CFW) projects that employed local workers to build roads close to their homes. Sub-contractors built four major roads; 54,300 Afghans widened, smoothed and provided drainage for the 16 CFW roads.

Figure 11: ADP/N Road Projects

### ADP/N Roads Constructed/Rehabilitated

Name	Kms	Type	Labor Days	Construction
Kishem-Tagab Road Repair	13	Cash for Work	11,090	Mar 06 - Dec 06
Shahran-Tajika-Uzniamat Road	5	Cash for Work	13,000	Aug 06 – Nov 06
Loyaba-Namazga Road	26	Cash for Work	11,871	Dec 06 – Aug 07
Namazga-Qul Ahmad Road	34	Cash for Work	17,277	Dec 06 – Sep 07
Faizabad Airport Rd Drainage	10	Cash for Work	2,517	Dec 06 – Jan 07
Faizabad Airport Road	10	Subcontract	3,240	Dec 05 – Aug 06
Dehnaw-Dehpara Village Road	4	Cash for Work	8,715	May 07 – Nov 07
Arghanjkha Hat Road-Tagab	4	Cash for Work	5,978	Oct 07 – Aug 08
Deh Sangan-Yabab Village Rd	5	Cash for Work	2,606	Aug 07 – Sep 08
Uzniamat Village Rd-Khash	2	Cash for Work	2,063	Aug 08 – Sep 08
Farghambol Road-Yaftal	14	Cash for Work	39,919	Dec 07 – Sep 08
Loyaba-Doaba Road	17	Cash for Work	26,029	Mar 08 – Nov 08
Baharak-Shashpol Road	9	Cash for Work	16,946	Apr 08 – Nov 08
Dehnaw-Bogcok Road-Khash	2	Cash for Work	1,715	Aug 08 – Nov 08
Sumdara-Arghankha Road	6	Cash for Work	7,417	Sep 08 – Nov 08
Teshkon Road	25	Cash for Work	39,951	Aug 08 – Nov 08
Kishem-Darai-jeem Road	14	Cash for Work	33,385	Aug 08 – Nov 08
Faizabad-Argo Road	13	Subcontract	25,305	Aug 07 – Nov 08
Baharak-Shohada Road	22	Subcontract	4,664	Aug 08 – Dec 08
Baharak-Jurm Road	17	Subcontract	16,125	Mar 08 – Nov 08
<b>Total</b>	<b>252</b>		<b>289,813</b>	

## Success Story

### New Shashpol Road Sparks Civic Pride, Economic Investment



***Business has doubled at Abdul Sattar and Haji Ghulam's grain mill on Shashpol Road***

***"There's plenty of business," says Abdul Qadir beside his new Toyota***



## Rebirth of a Silk Road

The 14,000 people living along the Shashpol-Chapchi Road take great pride in the fact that centuries ago the lane running beside their homes was a tributary of the Silk Road. As recently as 1970, Shashpol was a growing, accessible transit center. The name itself means "Six Bridges."

But in 1978, following the assassination of Muhammad Daoud and the arrival of a pro-Soviet government, Shashpol's fortunes began to decline. Fearing attack from China, Nour Mohammed Taraki, the Moscow puppet in charge of Afghanistan, cut trenches in the Shashpol road large enough to slow an advancing army. The destruction continued well into the 1980s, this time by Mujaheddin commanders, who blew up Shashpol's bridges and made the road even more impassable. And so it was that Shashpol entered the 21<sup>st</sup> Century, a logistical cul-de-sac, part of yet separated from the rest of Baharak District.

Things finally began looking up for Shashpol this past summer when ADP/N initiated a Cash for Work road rehabilitation employing residents from the 22 villages astride the nine Km road. The reconstruction includes a bridge across the Shashpol River that for the first time in a quarter century allows residents of the seven hamlets north of the river to visit relatives living in the three communities on the other side. "Our business has doubled since the bridge opened," says Abdul Sattar, 25, who operates a wheat, corn and barley mill in Shashpol. "Now that both sides of the river are connected we have a chance to become a real market town"

For the first time in decades Shashpol has realistic expectations of growth. No longer do its residents have to detour through Baharak when they head to Faizabad. Neither do the 80,000 people living in Jurm. Instead of going via Baharak, they, too, can drive straight to Faizabad through Shashpol.

Merchants in Baharak aren't worried about the new road costing them business, however. The improved roadbed - widened, flattened and elevated 13 centimeters - reduces the travel time from Shashpol to their shops from more than one hour to 15 minutes. Indeed, the cost of transportation from Shashpol to Baharak has dropped from \$24 to \$4.

Even at the reduced rate Abdul Qadir believes he can make a profit shuttling people back and forth. A company driver employed on the Baharak - Faizabad route, Qadir, 20, recently quit his job, bought a small Corolla sedan and

started his own taxi company. "I'm driving for myself now and there's plenty of business," he says. "People along the road wave for me to stop, and I pick them up."

Building the road was no easy accomplishment. Irrigation canals run along one side of the road while fields needing the water lie on the other. In the past, farmers needing additional water simply cut a new trench across the road to get it. To prevent this from happening in the future, ADP/N engineers added 40 culverts to sluice irrigation water beneath the raised roadbed. Laughs 70-year old apple grower Haji Arbob: "Occasionally we joke about changing the name of the town from Shashpol (six bridges) to Chilpulchak (40 culverts)."

Haji Ghulam, the man who owns the mill that employs Abdul Sattar also has six jeribs of fruit and poplar trees. He sees a bright future for Shashpol. "Absolutely nobody even thinks about growing poppy," he says. "For years I hauled poplar logs two at a time via donkey to Baharak. Now I load all my logs in a truck and sell my lumber in a single day."

Although the Shashpol-Chapchi road only has been open for three months, Shashpol's population already is starting to grow, swelled by people like Mirza Suleiman. An Afghan government employee for 15 years, Suleiman served as governor of Wardoj, Khash and Shohada before moving to Shashpol and buying some land. He's already obtained financing to start a poultry business (It was impossible to transport eggs before!) and expand his orchards. "I can sell a kilo of apples for \$2 in Baharak," explains Suleiman, "but those same apples bring \$3.60 in Faizabad, which now is much closer thanks to the new road and bridge."

"Opening a road has a special meaning," U.S. Ambassador William Wood remarked on his last trip to Badakhshan. "A road is development. A road is health. A road is education because it brings us together."

Certainly this is true in the case of Chapchi village, which lies between Shashpol and Baharak. It has a new school standing beside the road thanks to 80-year old Haji Mohammad Yussuf. "This road is bringing new life into the area and I wanted to be a positive force for change," he says. Yussuf's contribution was to donate the land on which the new school is built. "Before these children had to go to school in a tent," he says. "I won't be alive much longer so I wanted to do something for this area while I could."

Opening a road has a special meaning. In the case of Shashpol and Chapchi the meaning is spelled HOPE.



Photo: AECOM/David DeVoss

**Investor Mirza Suleiman believes Shashpol's agriculture will boom**

**"I wanted to be a positive force for change," says Haji Mohammad Yussuf, who donated land for the new school these children attend**



## Micro- Hydropower Infrastructure

### Jowzun Micro-Hydropower Plant (Faizabad)

Before ADP/N began work at the Jowzun powerhouse the power generating facility east of Old Faizabad only produced 40 Kw of electricity. Low water flow and chipped, inefficient turbine blades meant only 500 homes nearby the station ever received power, and often the power they enjoyed was intermittent. The facility needed more water flow and a rebuilt turbine. Today it has both. Last summer, ADP/N cleaned and lined the 2.7 Km canal, installing a trash rack and settling pool to minimize debris entering the spillway. The second part of the rehabilitation was to install a new turbine. This was done at the end of December. The refurbished turbine now generates 85 Kw of electricity 24-hours a day to 600 households in the eastern part of the city. If the newly-cast turbine blades spin faster, it's because there is more water to drive them. Due to work on the canal, the flow rate has increased from 250 liters/second to 450 liters/second.



Chipped Blades Reduced Turbine Efficiency



Baharak engineer starts water flowing

The **Baharak MHP Rehabilitation** is complete and the power house is generating electricity. Prior to the start of work, the Baharak facility had only one functioning turbine that produced 60 Kw of power. The two existing turbines each were rated to produce 120 Kw, but neither approached that level because of faulty ball bearings cobbled together from used Soviet bloc turbines.

ADP/N rebuilt Baharak's two turbines by casting new runner blades and importing new pin bearings from Pakistan. When water began flowing through the power canal at the end of

December, the Baharak Power House began generating 220-230 Kw of electricity, an amount sufficient to light most of the city.

### **Baharak Power Canal (BPC)**

Providing power to Baharak required the construction of a channel capable of delivering 1.5-cu meters of water per second through a canal extending 7.1 Km from the Baharak Micro-Hydropower Plant to an intake on the Zardew River. Building the canal was a massive engineering challenge for ADP/N since the fourth and final section of the canal ran 1,600 meters through solid rock. Working in frigid weather, often while snow was falling, the canal was finished December 31.

## Kishem-Darai-jeem Road

### *The Transformative Power of Transport*



Village elder counts worker's money

Four years ago, prior to the start of Northeast Afghanistan's Alternative Development Program, the rolling hills between Kishem and Derai-jeem were blanketed with opium poppies. A narrow, rutted dirt track no truck could negotiate threaded its way through the fields. The road was so bad that only bulk commodities like wheat and corn could survive the 15 Km trip to Kishem by donkey. "Tomatoes, eggplant and lettuce are more profitable than wheat, but how do you carry them on a donkey?" asks Mohammad Alam, a prosperous farmer from Mianshar who owns 60 jerib.

Tasked with creating a business climate conducive to the production and sale of licit agricultural crops, ADP/N concluded that the key to reducing poppy cultivation was improved transportation.

So six months ago, Cash for Work engineers began building a new highway with labor from 21 villages along the road. Each village contributed around 220 men and women, each of whom received ten days work at Afs 250 or \$5 a day for unskilled labor. Men able to build mortared masonry retaining walls and culverts were paid the skilled labor rate of \$10 a day. Those who brought a donkey able to haul water, sand and rock between construction sites received an additional \$8 a day.

The finished road, widened, smoothed and reinforced to prevent flooding, glides along the Kishem River besides orchards and fields now producing beans, radish and cucumber. There's not a poppy in sight, which now is the norm, says Kishem mayor Makhdom Fazal Ahmad.

"This road will reduce poverty, create jobs and save lives," says Fazal Ahmad. "People still grow rice, corn and wheat because these are the staples they are used to, but I suspect we'll soon see more fresh vegetables and melons produced. The road already has saved lives. Chances of survival are much higher today than before when the sick were taken to the hospital by donkey."

During the reporting period, the last of the laborers who worked on the Kishem-Darai-jeem road received payment. Though money wouldn't be distributed until 9 a.m., by 7:30 a.m. hundreds of men already were packing the narrow streets of Jimaab, a dusty village midway up the 14.3 Km road. Most were unskilled laborers who collected Afs 2,500, or \$50, once they were properly identified by a village elder and proved identity with a finger print.



Waiting for Pay

Arrayed in a large semi-circle in front of a window from which two ADP/N engineers handed out cash (see Biweekly cover photo) hundreds of men squatted in expectation of their name being called. Though anxious to receive their money, the mood was almost festive. There was no shoving or bickering. The presence of village elders and of all the workers themselves insured that only legitimate workers were paid.



Abdul Fatah beside Kishem-Darai-jeem Road

For Abdul Fatah, a 45-year old former Mujahid commander who brought 300 workers from the two villages he represents, the cash his neighbors were about to take home would provide critically need food and cooking oil to see them through the winter. “The only way to earn money around here is to work for a rich landowner,” says Abdul Fatah. “This work gave us money and self respect.”

Abdul Fatah insisted on showing the section of the road on which his village worked, and while we drove to the completed stretch of highway he explained how the new road would change

his area for the better. “Most of the time we rode a donkey to Kishem,” he said. “When a car was available to make the 15 Km trip it cost Afs 70 one way and took an hour and a half. Now taxis run back and forth, charging Afs 40 for the same trip, which today takes only 30 minutes.”

Abdul Fatah lives in a cluster of six villages at the end of the road. Together the small settlements have no more than 14,000 people. But already a few of the more ambitious locals are preparing to buy small cars to serve as taxis.



One of the workers on the road, a 17-year old boy named Obaidullah, has a more immediate need for the money he earned. Because of his family’s situation, people in his village allowed him to work 20 days and earn \$100. “My ten year old brother Sher Agha has a kidney problem that requires an operation in Pakistan,” he says. “I will use my money to pay for his transportation.”

## Success Story

## Highway of Hope Links Loyaba and Doaba

## Cash for Work Jobs Save Rural Afghan Villages



Photo: AECOM/David DeVoss  
Rock-filled Gabion baskets fill a formerly impassable chasm

***The biggest benefit of the newly widened road is that residents of Doaba now can imagine a future with financial growth and stability. “We always have had an entrepreneurial spirit, but before there was no facility to develop it,” says Shura representative Ainuddin Khan. “Now we have the opportunity to sell our wood and walnuts and it’s realistic to dream***

On a topographical map, the mountain village of Doaba (pop. 1,800) looks like it’s fairly close to Badakhshan’s capital of Faizabad. It’s only 17 Km up from Loyaba (pop. 1,650), which itself is about 12 Km from Faizabad. Just 29 Km, or 18 miles. But the road between the two towns was riven with cuts, studded with piercing stones and so eroded in spots that cars occasionally toppled into the abyss. It took four hours to drive from Faizabad to Doaba, assuming you could get a driver to take you there. Often when young people made the trek safely, they didn’t come back.

“Sick people taken to the hospital often died on the way,” remembers Abdul Rasoul Khadim, head of Faizabad’s regional *Shura*. “Even healthy people arrived with pain in their kidneys because of the jostling and vibration”

In 2007 ADP/N engineers began improving the 17 Km between Loyaba and Doaba. Leaders from 28 villages astride the road agreed to share the work so that ten to 15 people from each village could receive at least two weeks worth of employment. The road took seven months to build. About 2,300 people received work and \$140,000 was pumped into the local economy.

“Without the jobs provided by this road, about 20 percent of Doaba’s population would have left in search of work elsewhere,” says Abdul Rasoul Khadim.

Though the bulk of cash for work jobs were taken by men, women were employed to weave gabion wire baskets. Formed into cubes and filled with rocks, gabion “baskets” form the building blocks of unstable mountain roads. They can be used to fill chasms that would be impossible to stabilize with ordinary rock and fill dirt. Because of the crumbling condition of the original track, the new Loyaba-Doaba road was strengthened with 1,350 cubic meters of gabion baskets, which were combined with 580 cubic meters of mortared masonry retaining walls.

In the past it took well over half a day to travel the 18 miles between Doaba and Faizabad by donkey. Now the trip can be done in two hours and mini van taxis shuttle back and forth along the road transporting residents into town for shopping.

In addition to being faster, transportation also is cheaper. In the past, a one-way trip from Doaba to Faizabad cost \$8. Today the fare is \$4 and the prices of bulk commodities like salt and wheat flour have fallen by 50 percent.

## 4.7 Communications

To promote ADP/N objectives and facilitate social and market integration in Badakhshan, the ADP/N communications strategy was to develop and promote radio programming content related to alternative livelihoods, including public education programs, informational programs, and success stories of area farmers and business people involved in the licit economy. ADP/N established a Communications & Monitoring Unit in Faizabad for progress reporting to USAID and the Provincial Government and for communications program management.

By developing the radio media in Badakhshan, ADP/N carried out a Public Outreach Campaign to educate and spread the messages of the Alternative Development Program. Radio is by far the preferred form of information gathering in Badakhshan (and in rural Afghanistan as a whole). According to a 2005 USAID-funded media study conducted by Altai Consulting, 68 percent of the residents of Badakhshan and Takhar received their news and information from radio. Surprisingly, a large percentage of residents also received information from the television, particularly in Faizabad. Furthermore radio – and to an even greater extent television – are the most trusted sources of information. The lack of reliable electricity in the region makes radio the preferred, more cost-effective method of information transmission. As far as print media is concerned, newspapers and magazines are virtually non-existent in Badakhshan and are read by only 4 percent of the population. Newspaper readership is somewhat higher in Takhar. Given the statistics regarding media usage, the ADP/N program communications activities focused primarily on the development of radio in Badakhshan. This included capacity building, and program development.

For 72 weeks from April 2007 until October 2008, ADP/N, in cooperation with Faizabad’s Radio Amo produced a one-hour radio show called *Dar Rahi Khosh Bakhti* or “The Road to Happiness.” Broken into two 30-minute segments, the hour-long program was broadcast twice each week. The show served as a media platform for ADP/N activities, as well as a vital source of market price information for listeners. It also contained a Q&A segment in which experts and ordinary farmers discussed agricultural problems. The most popular part of the program was a serialized drama, which put agricultural development topics into an entertainment setting. The drama’s star character was an American educated Afghan named Skandar, who has returned to a small Badakhshan village to help develop his homeland. Skandar has conversations with village “uncles” about irrigation, animal husbandry, pest control and the relationship between sanitation and health. It wasn’t *Dynasty*, but Radio Amo’s listeners didn’t seem to mind. They closely followed Skandar’s courtship of the lovely village girl Zarmina, while listening to Skandar and Uncle Hassam discuss the most efficient way to bring fresh water to animals in a barn.

To ensure that the ADP/N-sponsored radio program is sustained after project life, the communications unit worked with the management of Radio Amo in Faizabad to continue airing agriculture development related news and information, market prices, and helpful tips for farmers.

District Communications Node (DCN) has a total of 26 offices in 26 districts throughout Badakhshan province. Each office site has two staff members. ADP/N has met with DCN management, who has asked for individual training of its staff in such subjects as generator management and trouble shooting, internet use and trouble shooting, Microsoft Office, and other subjects that would help individual staff members



Voice of America cameraman Rahim Gul Sarawan interviews Home Based Nursery beneficiary Gadabi Bibi outside Baharak

manage remote offices. This training was provided during 2008, and the DCNs in turn assisted ADP/N by providing marketing and training material to DCN clientele as needed.

Because of Badakhshan's remote location, ADP/N did not receive many journalists. Last November, a team of Kabul journalists from Voice of America and ToloTV, did visit to report on ADP/N's para-vet program, the new walnut factory, the recently opened Argo Road and the massive effort to blast the final section of the Baharak Power Canal through a mountain of solid rock. During the two days VOA reporter Rahim Gul Sarawan stayed in Faizabad he also home based nurseries like the one shown here. The VOA trip resulted in four positive stories each broadcast twice in Dari and Pashto.

## 5. Lessons Learned

### Working With Provincial Government Leaders

Since the start of ADP/N, AECOM closely coordinated its program priorities and subsequent development activities with provincial and district leaders. Biweekly and quarterly reports were translated into Dari and monthly activity reports in Dari were given to district governors. Close coordination continued on an administrative and advisory level and new methods were found maintain professional relationships at the highest levels. ADP/N enhanced its working relationships by freely distributing color prints of photographs taken of government leaders at handover ceremonies. Because Badakhshan lacks photo finishing shops, these paper prints were highly prized. We recommend that on future development projects at least one PR or M&E Specialist be equipped to use a digital SLR camera that can produce 300 dpi images suitable for print.

### Working at the Village Level

At the start of a project when team leaders fan out to assess development needs and priorities optimism reigns, project staff need to be very careful in their communications about project intentions. Though many local projects have merit, it is important not to make commitments to village leaders. Curb your enthusiasm. The \$5,000 bridge that seems eminently affordable when a project begins can present a financial burden down the road. Even vague expressions of interest will be interpreted as a promise and be remembered, often word-for-word.

However, keeping local leaders fully invested in a project is just as important as the engineering details. An example was the modification requested by village leaders living along Section II of the Baharak-Shohada Road. Originally, the road was to be scarified, compacted and smoothed with the addition of 61 box and pipe culverts to facilitate local irrigation. But because of community demands it was widened and realigned at many points along the way and contained 127 culverts when complete. An additional two and a half weeks was spent adding a 95-meter stretch of straight roadway to replace a sharp curve heading into Shohada district center. Also an additional five days was spent widening a 70-meter stretch of road from 3.5 meters to five meters.

ADP/N engineers initially objected to the modifications, insisting that they were not necessary from the standpoint of design and safety. Soon thereafter the project began experiencing work stoppages that included an attack on police guarding road building equipment and delays caused by vandalism. ADP/N met with *Shura* representatives and Shohada's leading mullah and accepted the proposed changes. Immediately, all problems ceased.

Later, when village elders later requested the addition of four foot bridges to make it easier for villagers to cross the Baharak Power Canal which runs along the Baharak-Shohada Road, ADP/N immediately amended the project's Bill of Quantities to facilitate pedestrian movement. The lesson had been learned.

### **Follow-up to Sustain Benefits**

While ADP/ emphasized activities that could be completed in a short-time period of two or three years, the staff also realized that some behavior was deeply engrained in traditional society and would take longer to change. USAID should consider further activities in Badakhshan targeted at building on and sustaining the advance of ADP/N.

In the fruits and nuts sector for example, the demand for saplings for new orchards is very strong. More nurseries are needed with improved varieties of disease-resistant trees to meet the demand for new orchards. At the same time, there are also demands for fruit saplings coming from other Provinces that Badakhshan farmers can supply. One example is an upcoming demand for up to a million disease resistant varieties of apricot for a new project in the Ghazni region. Walnut planting should be followed up in the areas of Shohada, Jurm and Khash districts as the existing trees are getting old. Younger earlier bearing varieties are needed. Links should be established with traders in Kunduz to concentrate on exports to outlets in Central Asia, since distances are relatively short and merchants have good transport networks to the north. A pack house/distribution center is needed in Kishem for the fresh cherry and peach harvest. It would also act as a link in the market chain for produce from Baharak. Distinct and well targeted follow-on investments will increase the value of sustainability of ADP/N.

### **Managing for Program Performance and Results**

Some times a good idea has to be sacrificed to the reality of logistics. Such was the case when it was proposed that a dairy built with USAID assistance in Kunduz prior to the start of the ADP/N project start buying milk from dairy farmers in Kishem. The idea seemed sound. Kishem has the largest livestock population in Badakhshan and Kunduz needed the milk. Unfortunately, this was 2005 and the road from Kunduz to Kishem still was unimproved. Kishem had plenty of cattle, but they were scattered in tiny villages separated from the district center by dirt tracks that no refrigerated milk truck could navigate.

The road from Kunduz to the Badakhshan border eventually was paved, but the international price of powdered milk was so low that the Kunduz dairy had decided to not buy milk locally, but instead to buy cheap powdered milk and mix it with water in its factory. ADP/N moved forward, however, by shifting its focus from milk to meat. With assistance from Land O' Lakes, four feedlots were built that demonstrated that animals fattened with enriched fodder could add more weight for less money than cattle allowed to browse normally on open land.

### **External versus Local Enterprise Development and Investment**

One assumption prevailing when ADP/N began was that external investment was essential to overcome the lack of local investment capital. A successful vegetable drying facility had been built in Charikar, and USAID believed a similar facility financed by business traders from Kabul or a surrounding country would work in Badakhshan. However, the outside investor faced resistance from Badakhshan politicians and also doubted the economics of this investment in a remote, isolated area that grew few vegetables. Initially, Afghan wheat farmers were reluctant to embrace vegetables, but once they saw the money they could make local investment capital appeared. Agricultural cooperatives became even more enthusiastic when Roots of Peace demonstrated that there was a sizable market in Kabul Badakhshan fruits – fresh as well as dried cherries.

External investment finally came to Shohada in the form of a walnut processing factory, built by USAID and equipped by Kabul trader Zamari Rasouli. At the end of the project, the walnut factory employed

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70 women who were given \$2 (plus walnut shells they could take home and use for fuel) a day to shell and pack walnuts.

### **Working in the Social and Cultural Milieu of Badakhshan**

One of the first infrastructure improvements ADP/N initiated was a road from Faizabad to the airport. Lacking the knowledge and experience to bid on this type of contract, no local contractors bid on the project. Thus, ADP/N awarded the contract to a Pakistani company. However, the local contractors soon complained to the Governor and made the contract a political issue. ADP/N investigated and discovered that contractors with the necessary experience had been intimidated by the bidding process. Consequently, ADP/N began training government officials, Afghan contractors and other interested businessmen in the process of submitting a competitive bid. Badakhshan contractors did not always win subsequent contracts (which occasionally went to Afghan engineering companies in Kabul and Mazar-e-Sharif), but from then on they participated in the bidding process and did win most of the work.

Another example concerns the introduction of improved varieties of wheat into Badakhshan. Several NGOs had been involved in Badakhshan with field testing and introducing new wheat varieties focused on high yields using short stemmed varieties that were less prone to lodge or fall over near the end of the growing season. However, while these varieties produce more grain than the traditional Badakhshan varieties, they have a shorter, sturdier stems, and thus produce less straw. The value of the wheat straw that is used for animal fodder was clearly underestimated by the researchers. It is estimated that in Badakhshan that wheat straw sells for up to 90% of the value of the grain. This factor also makes wheat a much stronger competitor to poppy cultivation than was earlier thought.

### **Managing Threats to Security of Contractor Personnel**

In May 2006, two of ADP/N's Afghan staff were killed when their vehicle ran over a land mine near the District Center of Darayem. It was nearing harvest time, and Darayem at that time was the largest poppy growing district in Badakhshan. The ADP/N vehicle was mistakenly thought to be associated with the Poppy Eradication Team operating in a neighboring district. Following this incident, ADP/N cancelled its activities in Darayem, and local leaders were told that activities would be resumed only if poppy cultivation were reduced and security could be assured. After this incident, ADP/N also strengthened its security procedures and staff, and later hired a security subcontractor. This strengthened security was needed, as there were repeated security threats during the remaining project period. However, there was also friction between the director of security and some technical staff, who felt that the merest hint or a rumor of a threat would unnecessarily disrupt established work schedules.

The Chief of Party needs sound judgment based on good on-the-ground information and knowledge of the social milieu. Caution is merited, since no COP wants to overrule an overly cautious security chief and be proven wrong. However, too much restriction can waste time and money. This balance between security and productivity is the most vexing challenges to productive development in Northern Afghanistan.

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## Annex I: ADP/N Activity List Report

ADP/N Activities Ongoing & Completed During Report Period								
Updated	December 31, 2008							
Activity Name	Location	Province	Percent Designed	Percent Implemented	Implementer	Start Date	Completion Date	Status
<b>Component I - Sustainable Enterprises</b>								
Para-Veterinary Program	15 districts	Badakhshan	100%	100%	DCA	Oct-06	Dec-08	Completed
Fruit Production Sector Development	Baharak, Jurm, Khash, Shohada, Warduj, Kishim, Tagab	Badakhshan	100%	100%	ROP	Mar-06	Oct-08	Completed
Walnut Processing	Shohada	Badakhshan	100%	100%	KBCL&JTCC	Apr-08	Oct-08	
Poultry Program	Faizabad, Kishem and Baharak	Badakhshan	100%	100%	ADP/N	Jun-08	Nov-08	Completed
Women's Home-Based Nurseries	Faizabad, Argo, Jurm, Shohada, Baharaka, Khash, Warduj	Badakhshan	100%	100%	ADP/N	Jun-08	Oct-08	Completed
Technology Transfer Center in Faizabad	Faizabad	Badakhshan	100%	100%	Afghanaid	Apr-07	Oct-08	Completed
Technology Transfer Center in Kishem	Kishem	Badakhshan	100%	100%	Afghanaid	Apr-07	Oct-08	Completed
Livestock Nutrition Project	Kishem	Badakhshan	100%	100%	LOL	Aug-07	Oct-08	Completed
Potato Seed Multiplication Project	Baharak, Kishem, Jurm	Badakhshan	100%	100%	ICARDA	Sep-07	Oct-08	Completed
<b>Component II - Investment Environment (Sector - Infrastructure)</b>								
Farman Quali Retaining Wall	Tagab	Badakhshan	100%	100%	ADP/N	Oct-07	Mar-08	Completed
Arghanjkah-Hat Road	Tagab	Badakhshan	100%	100%	ADP/N	Oct-07	May-08	Completed
Dargaw Intake	Jurm	Badakhshan	100%	100%	ADP/N	Feb-08	Jun-08	Completed
Dehnow-Dehpera Road	Khash	Badakhshan	100%	100%	ADP/N	May-07	May-08	Completed
Yabad Road	Jurm	Badakhshan	100%	100%	ADP/N	Oct-07	May-08	Completed
Zich Gharan Road	Ishkashem	Badakhshan	100%	100%	ADP/N	Nov-07	Jun-08	Completed
Farghambul-Dani Sabat Road	Faizabad	Badakhshan	100%	100%	ADP/N	Dec-07	Jun-08	Completed
Layaba-Doaba Road	Yaftal Payan	Badakhshan	100%	100%	ADP/N	Feb-08	Jul-08	Completed
Dehnow-Boglok Road	Khash	Badakhshan	100%	100%	ADP/N	Jul-08	Oct-08	Completed
Samdara-Arghanjkhwah Road	Arghanjkhwah	Badakhshan	100%	100%	ADP/N	Jul-08	Nov-08	Completed
Kishem Darah Jim Road Improvement	Kishem	Badakhshan	100%	100%	ADP/N	Aug-08	Nov-08	Completed
Shoron-Uzimat Main Road	Khash	Badakhshan	100%	100%	ADP/N	Jul-08	Oct-08	Completed
Teshkan-Road Improvement	Teshkan	Badakhshan	100%	100%	ADP/N	Jul-08	Nov-08	Completed
Shashpol-Chapchi Road	Baharak	Badakhshan	100%	100%	ADP/N	Apr-08	Oct-08	Completed
Wadat-e-Baluch Canal	Kishem	Badakhshan	100%	100%	YCRC	Feb-08	May-08	Completed
Faizabad Hydro Plant Rehab	Faizabad	Badakhshan	100%	100%	ADP/N	Jul-06	Nov-08	Completed
Zardev (Baharak) Micro Hydro Power Plant	Baharak	Badakhshan	100%	100%	Pul Khumri DABM	Oct-06	Nov-08	Completed
Farakh Canal Phase I	Baharak	Badakhshan	100%	100%	OEG	Jul-07	Mar-08	Completed
Farakh Canal Phase II	Baharak	Badakhshan	100%	100%	ASOC	Feb-08	Aug-08	Completed
Baharak Power Canal Section I	Baharak	Badakhshan	100%	100%	ORCC	Feb-08	Nov-08	Completed
Barahak Power Canal Section II	Baharak	Badakhshan	100%	100%	KRACC	Feb-08	Aug-08	Completed
Baharak Power Canal Section III	Baharak	Badakhshan	100%	100%	KAJV	Feb-08	Nov-08	Completed
Baharak Power Canal Section 4	Baharak	Badakhshan	100%	100%	ORCC	Jul-08	Nov-08	Completed
Faizabad-Argho Road Section 1	Faizabad	Badakhshan	100%	100%	MECC	Aug-07	Jul-08	Completed
Faizabad-Argho Road Section 2	Faizabad	Badakhshan	100%	100%	MECC	Aug-07	Sep-08	Completed
Baharak-Jurm Road Improvement Section 1	Baharak	Badakhshan	100%	100%	NPCC	Feb-08	Aug-08	Completed
Baharak-Jurm Road Improvement Section 2	Jurm	Badakhshan	100%	100%	KKCC	Mar-08	Aug-08	Completed
Baharak-Shohada Road Section 1	Baharak	Badakhshan	100%	100%	BCC	Jun-08	Nov-08	Completed
Baharak-Shohada Road Section 2	Jurm	Badakhshan	100%	100%	NPCC	Jul-08	Nov-08	Completed
Agro Center VFU	Argo	Badakhshan	100%	100%	Kamchan	Sep-07	Mar-08	Completed
Doghalat VFU	Argo	Badakhshan	100%	100%	Kamchan	Oct-07	Mar-08	Completed
Attenjelow VFU	Argo	Badakhshan	100%	100%	YERO	Oct-07	Mar-08	Completed
Chokolch VFU	Yaftali Bala	Badakhshan	100%	100%	YCL	Mar-08	Aug-08	Completed
Shakhdan VFU	Kishem	Badakhshan	100%	100%	MRF	Feb-08	Sep-08	Completed
Kangoorchi VFU	Kishem	Badakhshan	100%	100%	MRF	Feb-08	Aug-08	Completed
Gunbad VFU	Kishem	Badakhshan	100%	100%	MRF	Feb-08	Aug-08	Completed
Ajil VFU	Tagab	Badakhshan	100%	100%	MRF	Feb-08	Aug-08	Completed
Kherabad VFU	Baharak	Badakhshan	100%	100%	ASOC	Mar-08	Jul-08	Completed
Hesarak VFU	Jurm	Badakhshan	100%	100%	ASOC	Mar-08	Nov-08	Completed
Kool VFU	Shar-e-Buzorg	Badakhshan	100%	100%	MRF	Mar-08	Sep-08	Completed
Deh Sayedan VFU	Teshkan	Badakhshan	100%	100%	MRF	Mar-08	Sep-08	Completed
Danldara VFU	Yaftali Payan	Badakhshan	100%	100%	YCL	Mar-08	Jun-08	Completed
Deo Dara-Jowjoon VFU	Faizabad	Badakhshan	100%	100%	YCRC	Jun-08	Nov-08	Completed
Choshmahesar Tajka VFU	Argo	Badakhshan	100%	100%	YCRC	Jun-08	Nov-08	Completed

## Annex II: USAID Quarterly-Level Reporting Indicators

Alternative Development Program for Northeast Afghanistan (ADP/N)										
Quarterly Activity Level Indicators										
Reporting Period October, November and December 2008										
Indicator	Unit of Measure	Added (Quarterly)	Total (Life of Project)	Target (CY 06)	Target (CY 07)	Target (CY 08)	By Province to Date (LOP)			
							BDK	TKR		
Kms. of irrigation and drainage canals and karazes	#	10	576	504	544	565	355	221		
Kms. of rural roads repaired in poppy regions	#	78	278	25	100	320	278	0		
Hectares of improved irrigation as a result of ADP infrastructure works	#	504	62,310	48,000	58,000	62,000	31,310	31,000		
Indicator	Unit of Measure	Added (Quarterly)	Total (Life of Project)	Target (CY 06)	Target (CY 07)	Target (CY 08)	By Province to Date (LOP)		By Gender to Date (LOP)	
							BDK	TKR	Male	Female
Amount paid in CFW in AL programs	USD	67,761	2,243,336	1,170,000	1,795,000	3,390,000	1,619,752	623,584	2,557,181	59,640
Afghans paid through CFW salaries	#	6,203	43,447	25,000	35,000	57,000	31,147	12,300	48,456	1,194
Total labor days for CFW	#	67,761	428,288	220,000	340,000	660,000	321,365	106,923	483,056	12,993
Afghans trained in business skills	#	35	3,587	255	2,800	4,000	3,581	6	3,066	556
Farmers trained in agricultural practices in targeted poppy provinces under ADP	#	0	92,409	11,000	32,000	68,000	92,359	50	81,681	17,907
Farmers receiving seed and fertilizer	#	0	105,561	70,000	102,000	104,948	75,348	30,213	101,166	6,250

## Annex III: Cumulative Number of Trees Planted

Fruit Trees					Nut Trees	
Apple	Apricot	Cherry	Peach	Plum	Almond	Walnut
15,000	11,198	4,060	7,697	1,788	7,970	805
Totals by Type:					<b>39,743</b>	<b>8,775</b>
<b>Overall Total:</b>					<b>48,518</b>	

Note: Trees are not planted during summer months so figures are cumulative to March 2008. Biweekly Reports no longer record Timber Tree figures. ADP/N discovered that previously reported Timber Tree figures were misleading as the Trees were never distributed. The reporting now accurately reflects trees that were distributed and planted.

## Annex IV: ADP/N Veterinary Field Unit Locations

<b>ADP/N Veterinary Field Unit Locations</b>		
<b>Activity Name</b>	<b>Location</b>	<b>Province</b>
Provincial Veterinary Laboratory	Faizabad	Badakhshan
Argo Center VFU	Argo	Badakhshan
Mashhad VFU	Kishem	Badakhshan
Tagab VFU	Tagab	Badakhshan
Teshkan VFU	Teshkan	Badakhshan
Petaw VFU	Shahre Buzurg	Badakhshan
Layaba VFU	Faizabad	Badakhshan
5th region VFU	Faizabad	Badakhshan
Sha-Eil VFU	Yaftal Payan	Badakhshan
Doghalat VFU	Argo	Badakhshan
Attenjelow VFU	Argo	Badakhshan
Chokolch VFU	Yaftali Bala	Badakhshan
Shakhdan VFU	Kishem	Badakhshan
Kangoorchi VFU	Kishem	Badakhshan
Gunbad VFU	Kishem	Badakhshan
Ajil VFU	Tagab	Badakhshan
Kherabad VFU	Baharak	Badakhshan
Hesarak VFU	Jurm	Badakhshan
Kool VFU	Shar-e-Buzorg	Badakhshan
Deh Sayedan VFU	Teshkan	Badakhshan
Danidara VFU	Yaftali Payan	Badakhshan
Deo Dara-Jowjoon VFU	Faizabad	Badakhshan
Choshmahesar Tajika VFU	Argo	Badakhshan
Qalat VFU	Kohistan	Badakhshan
Naqshdih VFU	Raghistan	Badakhshan
Sumdara VFU	Arghanjkhwah	Badakhshan
Gala Dara VFU	Arghanjkhwah	Badakhshan
Dasht-i-ping	Arghanjkhwah	Badakhshan
Lakhsh VFU	Kohistan	Badakhshan
Zeraki VFU	Ragh	Badakhshan
Yawan Center VFU	Yawan	Badakhshan

Note: ADP/N built and supports the Provincial Veterinary Laboratory in Faizabad plus 32 VFUs, 30 of which it constructed. Para-vets work out of two locations not constructed by ADP/N.