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Evaluation Report for Alternative Development Program (ADP) Eastern Region by USAID in the Islamic Republic of Afghanistan

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ACRONYMS AND ABREVIATIONS

ACBAR	Agency coordinating body for Afghan relief
ADP/E	Alternative development program – Eastern region
Af.	Afghani (currency)
AINP	Afghanistan immediate needs program
AIS	AIS development
AKIS	Agricultural knowledge and information system
ARFC	Afghanistan rural finance corporation
ASMED	Afghanistan small and medium enterprises development
CDC	Community development council
BPI	Bearing Point Inc.
CDP	Capacity development program
CFW	Cash for work
CTTC	Construction trades training center
DAI	Development Alternatives Inc.
DAP	Di ammonium phosphate
DBST	Double bitumen surface treatment
DDC	District development council
EI	Edinburgh international
EFGA	Eastern region fruit grower association
EIRR	Economic internal rate of return
EPAA	Export promotion agency of Afghanistan
FAO	Food and agriculture organization
FTE	Full time employment
GIS	Geographical information system
GME	Gender and micro-enterprise program
GPS	Geographical positioning system
Ha	Hectare
HMMMc	Hatch Mott MacDonald
HN	Health Net
Kg	Kilogram
KW	Kilowatt
ICARDA	International center for agricultural research in the dry areas
IDEA NEW	Incentive driving economic alternatives for the North, East and West
IF Hope	International foundation Hope
Km	Kilometer
ISR	Input Supply Association
LGCD	Local governance and community development
LOP	Life of project
M&E	Monitoring and evaluation
MAIL	Ministry of agriculture, irrigation and livestock
MOBIS	Mission oriented business integrated services
MRRD	Ministry of reconstruction and rural development
MT	Metric ton
MCP	Meraj
NGO	Non governmental organization
NBA	Nangarhar bee keepers association
NFPA	Nangrhar fish producers association
NNGA	Nangrahar seed nursery grower association
NSP	National stabilization program
NRVA	National risk and vulnerability analysis
NVDA	Nangarhar valley development authority
PAL	Project for alternative livelihood in Eastern Afghanistan
PDC	Provincial development council
PHDP	Perennial horticulture development project
PIP	Public investment program
PMP	Performance management plan

PRT	Provincial reconstruction team
REVAMP	Regional vegetables marketing program
SME	Small and medium enterprise
RI	Relief International
RoP	Root of peace
SMS	Short message service
TAMAS	Timely market access system
SKB	SKB / Saboor
SPFA	Spinghar poultry farmers association
TIMER	Technology innovation for market-led economic rehabilitation
TWG	Technical working group
US$	United states dollar
USAID	United states agency for international cooperation

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A. The Evaluation

a. Evaluation objective

The purpose of this evaluation is to assess the impact and effectiveness of implementation of the USAID-funded *Alternative Development Program in the Eastern region of Afghanistan* (ADP/E), a project valued at US$ 118.4 million and implemented by Development Alternatives (DAI) since February 15th, 2005 to June 15th, 2009.

b. Evaluation methodology

This evaluation assesses whether and to what extent project objectives were met, and tested the hypothesis that broad-based economic development is the key driver of a sustainable regional economy based on the production and processing of licit agricultural crops. This analysis is the result of an extensive plan of visits of the project implementation sites and villagers focus groups and phone interviews, of the analysis of documentation, and of the cross-check of findings with stakeholders.

The evaluation team included:

- a project analysis / institutional management specialist (expatriate)
- an agriculture and agribusiness specialist (expatriate)
- a senior social scientist (expatriate)
- an agricultural / farming systems specialist (local),
- a gender specialist (local),
- an accountant, interpreters, field surveyors and data entry clerks (local).

In January – March 2010, the Evaluation team held a series of field visits, individual interviews and town-meetings with farmers in Nangarhar, Laghman and Kunar province, focusing on the project impact on farm and community economic development.

A field survey consisting of questionnaire based interviews of 122 focus groups (half of women) in 57 villages, and 429 fruit tree growers members of a local association were interviewed (200 phone interviews) in the same provinces, focusing on both economic and social aspects of project recipients and other villagers livelihood.

B. The Project

DAI was awarded the contract to implement *Alternative livelihoods program – Eastern region* (since 2007: *Alternative development programme*, ADP/E) on February 15, 2005, under MOBIS Task Order N. 306-M-00-00515-00, Contract N. GS-10F-0359M. The contract had an initial value of US$ 108,386,801.78 and was planned to run until February 15th, 2009. Operations ended on June 15th, 2009, after raising the budget to US$ 118,386,801.78 millions at the beginning of 2008 and through a no cost extension agreement. The initiative initially included Nangarhar, Laghman and Kunar provinces; since 2006 it was extended to the more accessible areas of Nuristan province.

The principal goal of ADP/E was to accelerate broad-based, sustainable regional economic development in ways that provide new opportunities for the Afghan population to seek livelihoods in the licit economy. Additionally, the project was aimed to soften the initial socio-economic shockwaves of the rapid contraction of the opium economy through work intensive quick impact actions.

The project had two overall strategic objectives:

- Help accelerate licit economic growth and business activity in selected provinces in which poppy cultivation is thriving.

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

I. Farm Production, Income, Employment and Investments

A. Agricultural Production (1)

The project invested US$ 15 million in agriculture production. The intercropping of vegetable among fruit trees had the biggest impact on the economy and on the farmers' livelihood, providing farmers with US$/Ha/year 5,540; fruit production generates US$/Ha/year 1,500. The number of farmers adopting the intercropping packet keeps growing every year, with no need from external incentives, although the adoption is slowed by access to initial investment and presence of reliable irrigation sources. A conservative projection of the economic return from the agriculture surpassed the initial US$ 15 million investment. The average disposable income estimated for 11,000 vegetable customers is over US$ 36 million. Even though the cereal crops efforts never provided returns during the project, the subsector tested the best varieties needed to succeed in the future. The poultry sub-sector faced most complex technical and managerial problems and resulted the least productive one. Fish pond production was aimed to generate income for women and showed some sustainability.
The interviewed farmers think that their family is living better than 3-5 years ago, also due to additional income generated by the adoption of the project technology. They believe that the project should not had been stopped before the beginning of fruit harvesting, and that it should have included the establishment of cold storage and packing facilities, and assisted by a reliable extension service.

The project main agricultural sub-projects are:
i. Annual horticultural crops – Vegetables,
ii. Perennial horticultural crops - Fruit orchards,
iii. Cereal crops with wheat and other minor crops like mung beans,
iv. Animal husbandry: poultry farms,
v. Animal production: women operated fish ponds,
vi. Women operated greenhouses and production of vegetable plugs

i. Annual horticultural crops - Vegetables

The vegetable intercrop production with fruit trees was the project component with the greatest impact. The sub-sector replaced poppies with better net profits. This was an effective alternative development system. The marketing strategies and the ability to disseminate quality information, the availability of good soils and reliable irrigation, and the intensity and quality of the ADP/E technical assistance were the critical success factors. The project roads and, bridges allowed the produce to reach local and regional markets. The introduction of improved seeds, fertilizers and technical assistance though vouchers was the perfect strategy.

Table 1. Beneficiaries of TIMER and REVAMP vouchers distribution

Beneficiaries with vegetable seeds & fertilizers in 20 Districts	*Spring 2009*	*Spring 2008*	*Fall 2008*	*Summer 2007*	*Fall 2007*	*Revamp / MAIL vouchers*	*Total number of vouchers*

Farmers	25,000	15,000	25,000	14,357	10,000	14,965	104,122

Out of 104,000 vouchers at least 50,000 farmers adopted the technology right away. This unique success is due to the strategies employed to move an abandoned sector into a generalized success. MAIL Regional Directors and most interviewed farmers agree, in a conservative estimate, that today eighty percent of the vegetable growers are using ADP/E technologies, and most have raised crop yields and crop quality by 2-3 times. The improved quality and additional yields have increased profits per cultivated area by a factor of 3-4.

Production: The cost of one hectare calculated in US$ 1,594 includes the opportunity cost of land, in addition to labor, seeds and inputs. The main assumption is the availability of reliable irrigation system; farmers stagger their planting every 3 weeks to disperse the market risks.

Table 2. Annual horticulture crops operational cost (US$/Ha)

Item	*Labors*	*Days/labor*	*Total*
Land prep	20	2	40
Sowing / transplanting	25	1	25
Harvesting	15	3	45
Owner time + Family labor	2	60	120
Total cost for labor - @ US$/day 3			US$ 690
Lease of land estimated on fixed crop system			US$ 675
Seeds			US$ 82
Urea (Kg 50)			US$ 63
DAP (Kg 25)			US$ 83
Tools and Miscellaneous			US$ 1
Production cost			US$ 1,594

ii. Perennial horticultural crops – Fruit orchards

Fruit trees are a source of cash complementing field crops revenues in the Eastern region farming systems. This sector has to be analyzed in the frame of the local farming system: cereals provide a basic diet and cash income, vegetables a high value intercropped (rotation) cash-crop, orchards are a long-term investment stabilizing the farm income, and livestock is (a) a medium term fast-disposable saving asset also (b) integrating the human diet and (c) fertility of the soil. Fruit trees in a farming system provide the economic net farmers need when vegetables prices are low. This component is also an effective alternative development like is the vegetable production capable to compete with poppy profits. The intercropping using of vouchers with fruit trees introduction is a model to copy and expand to other regions where irrigation is available.

The project distribution of saplings of perennial fruit trees resulted in a mixed bag of successes, failures, technical difficulties, and a steep and painful learning curve before knowledge and opportunities were fully understood. The field visits clearly showed the lack of hands-on experience, both in ADP/E and in the subcontractors on fruit trees establishment and fruit orchard management. The low tree survival and the use of mangos and guavas trees are powerful indicators of the limitations. Uniformity is lacking in most plots and different citrus varieties are possibly growing in the same orchards. The introduction from Pakistan of live materials of unknown phyto-sanitary status, including

citrus not virus-free Elisa tested can pose a long term threat to the region agriculture. The Government and major NGOs are now more careful in preventing such hazardous practices. In most cases vegetative material and seeds for root stocks is being imported and MAIL reference seed nurseries produce certified materials and provide training to nurseries owners and fruit growers.

Production. An average 400 trees were planted per hectare; the actual density varies among fruit trees species. In 2006, the ADP/E perennial crops project was divided into 3 sections:
1. Subcontracting to IF Hope the establishment of Ha 3,000 with 1.2 million trees (2006-2007),
2. Subcontracting to Root of Peace the establishment of Ha 3,000 with 1.2 million trees (2007 – 2009)
3. ADP/E staff directly coordinated the rehabilitation of Ha 500 of old orchards in Nuristan with 200,000 trees; no verification was possible. The implemented budgeted for this project was US$ 8 million with 45% tree survival rate represented in 1,135,000 existing trees. The initial cost per tree was US$ 3 while the final investment per surviving tree rose to US$ 5.94
This high cost has to be compared with the US$ 0.15 to 0.50 farmers paid for the same material purchased from local nurseries, as well as with the US$ 1 paid for MAIL imported certified saplings in 2009. The additional US$ 0.50 cost paid by MAIL per tree resulted in an additional Kg 4 of fruit production per tree. This yield increase, at a fruit average price of US$/Kg 2 creates an additional US$ 8 of income. The potential production is estimated at Kg/Ha 400 and for the orchards established by the project (Ha 5,000), estimating a 33% net income increase at the farm-gate for three years, an increase of farm income by US$ 6,510,000.

Table 3. Optimal fruit production net income

Species	*Density (trees/Ha)*	*Yield (Kg/tree)*	*Yields at 3rd year (Kg/Ha)*	*Value (US$/MT)*	*Returns (US$/Ha/year)*
Apricot	351	19	6669	0.349	2,327
Pomegranate	322	20	6440	0.329	2,119
Apple	490	20	7800	0.294	2,293
Bitter orange	307	17	5219	0.206	1,075
Sweet orange	250	14	3500	0.3	1,050
Yields at 4-6 yr old can go 3 times high and up 6 times at full maturity. Yield varies with cultivars root-stock, ecosystem, & cultural practices				0.2956	2,241

The average potential gross income for three years is estimated using the fact that 1,000,000 ADP/E trees at the 6-7th year can add US$ 33,000,000 with trees producing an average of Kg/tree 40 sold at US$/Kg 0.30

iii. Cereal crops with wheat and other minor crops like mung beans
The staple crops sector was assisted through two minor but critical actions: the distribution of wheat seed worth US$ 500,000 in 2006 and the ICARDA and FAO program to mass select higher yielding wheat and mung bean strains. The Fall *Wheat seed and fertilizers distribution program* in the Kunar, Laghman, Nangarhar and Nuristan provinces aimed at: a) contributing to national food security; b) providing an alternative to growing poppy; c) enhancing farmers' income, and d) reducing social pressure by

bettering employment opportunities in rural areas. These objectives were in line with the Government's *Master plan for agriculture*, whose priorities include wheat production, and with ADP/E overall goals and USAID Afghanistan Strategic objective 5: *Accelerated growth in the rural economy*. The *Wheat seed and fertilizer distribution program* delivered 80,000 packages, each including of Kg 25 of quality-declared wheat seed, Kg 50 of urea, and Kg 25 of Di-ammonium phosphate (DAP), which compose the endowment of a plot of 1 jerib.

ICARDA was subcontracted to identify better-yielding strain varieties of mung beans, rice, wheat, and potatoes. Adaptive research testing of a batch of varieties was undertaken. The project worked with demonstration farms and established *Village base seed enterprises* (VBSE), that is cooperatives and private organizations in charge of multiplying the basic seed. A seed committee including representatives of MAIL, FAO, and ICARDA supervised seed certification. The project was coordinated with the Jalalabad MAIL Directorate and with the Nangarhar university. The selection process started in 2006 and ended in December 2008. The two wheat selections (Zerba-5 and Gair Will 3) yielded 16% higher (MT/Ha 4.7) than the most popular wheat varieties (MT/Ha 4.1). These selections are rust susceptible and ICARDA is trying to identify ~~rust~~ tolerant wheat lines.

Potatoes are grown in a small scale in the area of intervention. Potatoes are grown in the low land during the fall and high land in the spring. Viruses are the main constraint to production. The project released a Kufri Chandramukhi variety strain from India, who yielded 30% higher than local varieties (MT/Ha 29 vs. 22.3) in experimental conditions. Two mung bean lines, NM92 and MN94, showed yields (MT/Ha 2.2) 77% higher than the average varieties. Results of the rice field selection and testing are not available.

Production. Wheat, mung beans, rice, and potatoes are meant for internal consumption. Production per hectare is limited and erratic, as it is worldwide. Profitability is basically absent; in most analysis, the labor of the family is not compensated and in most cases growers need to be subsidized by the government or by external agencies.

Table 4. Wheat production operational cost (US$/Ha)

Item	*Labor*	*Days/labor*	*Total*
Land prep	2	6	12
Seed broadcasting	2	3	6
Harvest	6	3	18
Owner time + Family labor	1	20	20
Total cost for labor - @ US$/day 3			US$ 168
Lease of land estimated on fixed crop system			US$ 675
Seeds			US$ 32
Urea (Kg 50)			US$ 63
DAP (Kg 25)			US$ 83
Tools and Miscellaneous			US$ 5
Production cost			US$ 1,026

Note. Wheat is the only option for farmers with strong ecological and economical constraints, such as difficult market access roads, bridges, and irrigation systems.

Wheat and other winter cereals are both a source of food for humans (food security) and feeding for livestock (straw). Their low profitability is not an alternative to high value poppy production. Their low input requirements (e.g., in water, seed and fertilizers) explain farmers preference, making them an essential component of the local farming systems.

iv. Animal production: poultry farms

This intervention invested US$ 1,120,000 to support 200 male and 200 female growers of broiler chicken with training and technical assistance, plus a US$ 1,000 start up bonus for participant women. This sub-sector matched a priority of the MAIL economic development strategy, stated in the *Afghanistan agriculture master plan*. ADP/E was loosely involved in the management of field activities while it encouraged other projects to contribute their resources and skills to different components of this joint effort. ADP/E directly supported the strengthening of the *Nangarhar Poultry Association*. This intervention resulted in troubles in each of the vertical components. The availability of quality one-day chicks was predictably tempered by transportation and custom issues. Poor understanding of international trade laws and customs created delays and failures in the imported stock of high-bred chicks. The project staff didn't develop a good relation with the *Nangarhar poultry association*; the first Board of directors of this organization didn't keep separate accounts for each member and retained funds marked for the following season and farmers' payment. Thus the Association was involved in the management of a complex and unclear loan to pay external technical assistance services to farmers. The project and the Association failed to procure high-grade foodstuffs, purchasing poultry concentrate feed from a USAID/ASMED-backed mill plagued by poor management and low-grade products. ADP/E employees' wives partly substituted for the 200 women poultry growers, although they lacked infrastructure and proper training on poultry raising. Apparently, the Association members' numbers increased from 180 to 240 during the project.

Production. Layer and broiler chicken farming is an intensive capital and technology enterprise. It is an industry for detail-oriented, hard-working owners. This market is global. Thus competition is strong and profits are the result of the timely procurement of feed concentrates, veterinary practices and fine tuning the offer to catch market opportunities. The production of broiler chicken to substitute imports invested U$1,120,000, supporting 200 male growers and 200 women growers with training and technical support; women growers receive a $1,000 grant for their participation.

The regional and central MAIL offices approved the poultry project. It was a perfect fit for the *Afghanistan agriculture master pla*n and MAIL strategies. The project had predictable and in some case unexpected, troubles in each of the vertical components. The industry in Eastern region is paying US$ 0.84 per broiler and using US$ 2.80 in foodstuff in 40 days to be sold at US$ 2.50 per unit. Each layer is purchased for US$ 0.20, fed with US$ 4.70 and sold 6 months later for US$ 3.60 per unit.

Table 5. Broiler chicken operational cost (6,000 chicken, 40 days cycle)

Item	*Labor cost (US$)*	*Days/labor*	*Total*
Land prep	2 (very low)	40	80
Owner time + Family labor	1	40	40
Total days		80	120
Total cost for labor - @ US$/day 4			US$ 360.00

Total labor cost / broiler			US$ 0.06
Estimated lease of land (m^2 1,000)			0.0007
Price per boiler			US$ 0.83
Operational cost	US$ 0.39 in feedstuff		US$ 1.13
Production cost			US$ 2.02

Table 6. Layer chickens operational cost

Item	*Labor cost (US$)*	*Days/labor*	*Total*
Land prep	3	180	540
Owner time + Family labor	1	180	180
Total days		180	720
Total cost for labor @ US$/day 4			US$ 2,880
Total labor cost / broiler			US$ 0.48
Estimated lease of land (m^2 1,000)			0.0007
Price per layer			US$ 0.2
Operational l cost	US$ 0.39 in feedstuff		3.57
Production cost			US$ 4.25

Poultry production is a capital intensive investment with low marginal return, due to strong competition (regional / global market). It contribute to household income diversification, although the economics and logistics make a weak option for alternative development.

v. Animal production: women operated fish ponds

This initiative assisted 40 aquaculture producers in establishing 20 fully functionally ponds. Little concern was given to the logistic pre-conditions for the viability of this value-added chain. Each fish-pond covers one *jerib* of land, that is m^2 2,000, at least. Only one pond failed due to a land tenure dispute. Fish are fed with free chicken manure produced by poultry farms assisted by the project or other sources. The Bagrami fish hatchery, located a few kilometers away from Jalalabad, sells the fingerlings to the ADP/E fish-ponds.

Fishpond production. The cost and profit analysis is made based on ponds of one jerib in size. To estimate the cost per hectare the numbers must be multiplied by a factor of 5. The project introduced the concept of women owning and managing agriculture operations through the fish-ponds initiative. Fifty percent of the owners are widows and divorcees. Even though family males assist women at harvesting and marketing times, husbands recognize ownership by women. This is a typical desirable alternative development base in the long-term opportunity to incorporate to productivity the 50% missing component in the society. Women.

Table 7. Fish pond production economics

Pond surface (one jerib)	m^2	Mortality (%)	10

	2000		
Fingerlings	2,000	Fish sold (n)	1,800.00
Rearing period (months)	7	Feed consumed by fish (Kg)	1
Average weight at sale (Kg)	1	Market price for fresh fish (US$/Kg)	1.88
Feed price (US$/Kg)	0.27		

vi. Women operated greenhouses and production of vegetable plugs.

The 26 meters long, 7.20 meters wide and 3.20 meters high greenhouse cost US$ 3,000. They are operated by two women jointly producing plug seedlings in spring/summer season. The project sponsored women producing seedlings plugs for the region horticulturalists. Each greenhouse run by 2 women was endowed with a US$ 3,000 grant. This included a full kit of materials, tools, training, and seed, no contribution being requested from the recipients. Income is split as follows: one third to remunerate the workers and two thirds for the owners. They produce vegetables from tomatoes to eggplants, peppers and cucumbers in plastic trays. In the winter season, plug seedlings of cabbage, cauliflower and broccoli, and orange rootstock (*Troyer citrange*) are produced. Each woman expects to earn about US$ 420 per harvesting season and up to US$/ year 1,200. The minimum yield of the land is about US$/year 180.

The work teams lacked entrepreneurship spirit and skills. The ADP/E support group was very cautious in its operations, in order to avoid social disruptions and community conflicts aroused by the involvement of women in traditional male businesses. The beneficiaries have little understanding of their business and consider the greenhouses a form of income diversification of limited size. None of the greenhouse owners has a clue about how their business works and much less how to manage the opportunities and risks. None of business owners has a plan for a future expansion or is committed to exploring and matching the market's unsatisfied demand. Their expectations rely on new contributions from projects. The potential impact of this intervention is great but hard to predict. A 15 - 25 years commitment should be forecast, including an initial 5-10 years of investment focused on behavioral change.

B. Farm Income (2)

The national average poverty line is US$/month 25 per person, representing the typical cost of attaining 2,100 kilo-calories per person per day and of meeting some basic non-food needs. Poverty is higher in the rural areas (NRVA 2007-2008 survey). According to a recent study (H. Maletta, 2007), the prevalence of wages in Afghan farm households is high in all tenure categories, peaking among pure tenants (96% of whom have wage income) and with the lowest (but still high) value among farmer landlords (among which 54% earn wages). At the same time, 27.7% of farm households have some off-farm self-employment income, but this increases to 52.7% among pure tenants. Transfers (mostly remittances) are present in 22.3% of farm households, but in 59.3% of pure tenants. Different combinations of sources of money income are present in relation to land tenure. Only 16% of farm households lack all off-farm sources of income (wages, off-farm self-employment and transfers), living presumably on the farm alone.

In 2008 the average household cash income of a sample of Eastern region poppy growing farmers (UNODC 2009) was US$ 2,155, against US$ 2,202 of farmers that stopped

cultivating poppy. Agricultural sources represent only one component of the household budget, the major off-farm source of income being casual labor / foreign remittances.

The project recorded a total 266,645 farmer recipients of seed and fertilizers, initially for free and later under a partial costs recovery scheme. This number seems to be inflated when the vouchers distributed by TIMER and REVAMP are added. Some farmers are producing as much as 120,000 rupees per year per jerib (US$/Ha 2,850) with vegetables. The same farmers claim that the income from poppy doesn't exceed US$/Ha/year 1,785. Most farmers groups respondents estimate their income to be US$//HA/year 3,000 – 7,100.

Perennial horticulture was hampered by five different factors: (i) the design of a techno logy package fitting commercial farming (Ha 20 orchard / farm) by the partners in charge of producing the saplings, selecting farmers, and distributing the trees adapted to smallholder farmers, (ii) the weak project management, apparently unable to control the characteristics (variety, health status, etc.) of the procured sapling; (iii) the lack of experience and know-how in ADP/E and in the partners providing the trees. (iii) the lack of knowledge on those in charge of technology transfer, and (iv) the preference given to small farmers (less than Ha 1 orchards) by the project. Thus, a clash resulted between commercial and innovative technology on one side and subsistence, household economy on the other side. The rush to provide large number of trees in a short period of time and the absolute need to provide quality trees resulted in the swift adaptation of a commercial production model to subsistence farmers. This situation resulted in the adoption of a little sustainable cropping technique.
These actions, as well as infrastructure and economic development, resulted in the doubling of farm production and better jobs opportunities for the rural households members able to succeed.
In the Project intervention area, the farm household income was enhanced by the employment of village workforce through the ADP/E *Cash for work* (CFW) program. No agriculture production was supported by CFW except isolated and small cases with groups of widows, divorce, and abandon women.

C. On-Farm Employment and Wages (3)

The direct and indirect on-farm employment was increased by a factor of 3 and some case by a factor of 5 with the adoption of annual horticulture crops, enjoying favorable market niches and prices. The harvesting of the fish at the end of season and the greenhouse preparation of beds and transplant of vegetable plugs created new jobs opportunities. The impact by the other agricultural sub-sectors was limited. No evidence is available to suggest that farm wages improved. However the hired workers are unusual, as most farmers swap work time among family members and neighbors to perform activities whereas additional help is needed and family labor is short. An effort was made to include the cost of *hired* and the family labor in the economic analysis for each of the agriculture sub-sectors. *The project sociological analysis will be completed as soon as the field survey elaboration will be available.*

D. Decline in Opium Production (4)

The opium production abruptly decreased after 2004 in the Eastern region, as a result of the consensus of local leaders imposing a poppy production ban, and of Nangarhar

province Governor' commitment to enforce such decision. CFW and alternative crops generated extra income strengthening farmers' adherence to this decision.
In the Eastern region in 2010 poppy is grown on Ha 600, 2% of the 2004 area (Ha 32,700). Poppy cultivation in Kunar and Nangarhar provinces continued decreasing and is now restricted to remote mountainous regions; in Laghman province is reported to be very low and stable; Nuristan is poppy-free. As a whole, the Eastern region can be considered poppy free.
In the Eastern provinces, the average farm-gate price of dry opium at harvest time (2009) was US$/Kg 90, higher than the national average (US$/Kg 64). The gross income obtained from poppy is US$/Ha 3,600. In the same year, farmers' gross income from one hectare of wheat (US$/Ha 1,200) was about twice than in 2005 (US$/Ha 540). This gap is still wide, but not enough to compensate for the risk of penal sanctions incumbent on poppy growers.

Table 8. Opium production in the Eastern region

Province	*Cropped area (2005)*	*Cropped area (2009)*	*Yield*	*Production*	*Price at farm gate (dry)*	*Value at farm gate*	*Value*
	Ha	*Ha*	*Kg/Ha*	*Kg*	*US$/Kg*	*US$/Ha*	*US$*
Kunar	1,059	164	36.6	6,000	90	3,294	540,000
Laghman	274	135	37.0	5,000	90	3,330	450,000
Nangarhar	1,093	294	36.4	11,000	90	3,276	990,000
Nuristan	1,554	0		0			
Total	3,980	593		22,000		9,900	1,980,000

ADP/E provided inputs for the expansion of alternative agricultural production. Project beneficiaries cultivated Ha 91,128 of licit crops. The conditionality of such change is evidenced by the temporary resurgence of poppy production in Nangarhar province in the 2006-2007 biennium.
The project main contribution to substitute poppy plantations was the creation of conditions to grow high value crops (access roads and breaches, irrigation and the use of high beds, planting density, and the introduction of improved seed), along a series of smart extension techniques including technical assistance, demonstration farms, and the distribution of seeds and fertilizers for first time growers

According to UNODC, the shift from poppy to alternative crops is fostered by:
- security conditions,
- employment opportunities in the rural areas,
- equity in the poppy field eradication (i.e., avoiding that some farmers continue to crop poppy, enjoying better prices once his competitors have shifted to alternative crops),
- availability and reliability of irrigation water, especially in some Districts, and of improved irrigation systems,
- cheaper farm produce transport to city markets,
- fruit and vegetables storage and processing facilities,
- farm mechanization,
- reliable and cheaper farming inputs.

Evolution of development policies depends on local ownership, that is the involvement of local authorities and beneficiaries in decision making. The maintenance of the results so far achieved depends on the continuity of the above mentioned factors: governance and economic development. The strengthening of local institutions has to go hand in hand

with the generation of alternatives sources of income. The enhancement of extension services is a critical factor in giving sustainability to the best farmers successful commitment to innovate farming technology and access to new markets. In the Eastern region, the best endowed farmers have dropped poppy production that is still performed by marginal farmers in remote areas of little agricultural capability. These have to be addressed through rural development projects combining economic and social actions, possibly in the frame of a food security strategy.

E. Human Capital Investments (training) (15)

The training of beneficiaries included several components 154,569 farmers (2% women) assisted in renewing their agricultural technique. Two demonstration farms were developed in each District to train farmers through field days. In other more specific cases ADP/E technicians and partners went to regional and overseas training, expos, and special events. The annual horticulture sub-sector recorded the most successful training. Demonstration actions were successful in fostering the adoption of innovation in capital intensive farming practices, such as annual horticultural crops. The adoption of a commercial fruit crops plantation model in dealing with smallholders created a gap, not only technical but also of approach, negatively affecting the impact of the field days.

A more comprehensive skills development strategy, valorizing both innovation and traditional knowledge could have been implemented along the patterns of an *Agricultural knowledge and information system* (AKIS). An effective public – private partnership would have coordinated a wider set of skills than those mobilized by the project alone. An AKIS consists in the exchange of agricultural and information knowledge by public and private stakeholders. The technology innovation and transfer, the definition of the demand, use or application / adaptation is undertaken with the active participation of the producers. This soft system is made of producers, technological research and transfer centers and international partners who perform their own tasks without interfering in those of the partners, although one or more of them could be more representative in taking decision. The driving factor of the Eastern region economy is the strong integration of the rural household with the market, that is the coordination of farmers associations and communities leaders with public initiatives (development projects and agricultural research) oriented to the specific production. Development projects have to stimulate the farmers and their organizations in defining and facilitating market oriented research and technology transfer, focusing on the most impacting topics of the household economy, starting with skills development.

F. Infrastructure Investments (Primarily Irrigation) (13)

In the Eastern region, over 90% of cropped land is irrigated. Over the past 25 years, the irrigation infrastructure has deteriorated for lack of maintenance and repair. Most of the Ha 160,000 of irrigated land of the Eastern region had degraded during the conflict years due to lack of maintenance. Flooding and water-logging followed by dry season drought and saline intrusion perversely affected agricultural production. Village *shuras* top development priority is the rehabilitation of irrigation systems (NRVA 2007-2008 survey).

The good coordination with local institutions, such as NVDA (MAIL enterprise in charge of a network of primary canals and their derivation serving Ha 25,000 of farmland) facilitated this initiative. Its positive impact on farm production can’t be overstated.

The rehabilitation of irrigation and drainage canals progressively undertook more complex works, starting with the cleaning of tertiary canals and progressing to the rehabilitation of basins, intakes and construction of water protection walls. Users contribute to the maintenance and repair costs with their workforce. For major works, external resources are sought on a case by case basis, often sourcing expatriate cooperation projects.

The project invested in irrigation canals rehabilitation US$ 13,119,850, benefiting Ha 24,308, that is about 15% of the total irrigable land of the region. The unit investment was US$/Km 29,577 per canal and US$/Ha 540 per irrigable land. The irrigation infrastructure rehabilitation focused on canals and their intakes, including some river protection walls and water basins. The project performed 124 cleaning, repairing and improvement of water protection walls, irrigation and drainage canals, including *karezes*, projects in 22 districts of Nangarhar province, 4 of Laghman and 4 of Kunar. A total Km 444.91 were improved, benefiting Ha 24,308 of irrigation land (an average Ha/Km 56). The benefits of irrigation rehabilitation, according to a RAMP study (2006) include: i) extension of irrigated crops area, ii) enhanced productivity and iii) crops shift from cereals to vegetable crops. Irrigated land wheat production increased from US$/Ha 540 to 1,200, with a gross benefit of US$/Ha 660. The net benefit of wheat production attributed to improved irrigation can be estimated as one half of the production increase, that is US$/Ha/year 330. By using this value, the gross income resulting from improved access to water can be estimated at US$/Ha/year 8,021,640. The net actualized value generated by the project, considering a lifetime of 5 years (opportunity cost of capital: 12%), is US$ 19,266,313, that is a *benefit / costs ratio* of 1.47%. This value is lower than the *benefit / costs ratio* of new irrigation works (see the examples here below), as the benefits of the cleaning and improvement of existing canals is lower than the increase of production induced by new irrigation infrastructure.

Improvement of the irrigation system has a great potential and faces immense challenges in the Eastern region. Water intensive crops, such as horticulture, are raising farm income but compete for the use of this scarce resource. Urbanization, hydropower and domestic consumption result in strong competition for access to water. In fact most irrigated area is sown with wheat, that is irrigation water is limited to the spring months. A limited crop area, essentially rice and horticultural crops, benefits from the scarce summer water. The higher rentability of this water intensive crops is at stake, due the low storage capacity of the region water shed. New and rehabilitated water schemes should be completed with the enhancement of the water retention capacity, through (a) watershed management and (b) creation of small retinues, in order to extend the irrigation period to the hottest and driest months (June to September). Water pricing as well as irrigation infrastructure maintenance were practiced in a more systematic way before the war. The weak governance of the territory economic resources hampers investments in this sector, resulting in the waste of economic opportunities offered by the introduction of more water-efficient practices. The extremely small size of the farms resulted in the free access to it, as it is considered a subsistence resource, and irrespectively of its use impact on yield. Presently water is property of those who uses it more than of those who maintain its sources and delivery systems (e.g., NVDA). Thus large scale investments on this crucial development input are not feasible and, typically, sector strategies don’t go farther than the rehabilitation of the existing irrigation framework. The project contributed to this trend, without having the opportunity or resources to overcome the bottlenecks that are limiting the valorization of the potential of the Eastern region agriculture. Interventions in this area will be benefited by the inclusion of a component directed to the governance of the water access and use.

Example. The *Infrastructure section* of ADP/E improved the Kandi and Ali Akbar irrigation scheme in 3 villages of Shinwar district (2008). This project included the construction of the intake weir, five canal outlets, of m 350 of underground water channel (*kariz*), of m 390 of canal retaining walls and weir wing walls downstream and upstream of the weir, for a total amount US$ 126,914. The scheme area is Ha 210, with an average household farmland of about 1.0 *jerib* (Ha 0.2), mostly devoted to wheat production. The maintenance costs of the infrastructure are estimated to be US$/year 3,427 over the life of the scheme. To cover these costs, the current fee (US$/year 2.0 per *jerib*) is forecast to increase five folds in the future. The improvement of the Km 0.825 of irrigation works serving Ha 210 cost US$ 126,914 (US$/Ha 604) and resulted in a net benefit of US$/year 106,529. The benefit present value at a discount rate of 12% (5 years) is US$ 217,137. Thus the *benefit / costs ratio* is 2.71 and the unit benefit present value is US$/Ha 1,094.
The Guldara intake and canal improvement project (2008) affected m 680 of irrigation works (construction of m 150 of stone masonry and reinforced concrete weir intake and m 530 of stone masonry canal retaining walls) serving Ha 270 of arable land. The maintenance cost of the infrastructure is estimated US$ 3,837. This intervention cost US$ 142,111 (US$/Ha 526) and resulted in a net benefit of US$/year 332,092. The benefit present value at a discount rate of 12% (5 years) is US$ 811,276. Thus the *benefit / costs ratio* is 6.71 and the unit benefit present value is US$/Ha 3,057.

G. Seed and Fertilizers Distribution Programme (16)

Cereal crops with wheat and other minor crops like mung beans.

Profit analysis. The profit analysis shows that wheat growers need to be subsidized. One common way is by not considering this fieldwork in the operational costs. Other ways is by receiving the seed and fertilizers free from government and international agencies.

Table 9. Wheat farmer net income (US$/Ha)

Item	*US$/Ha*	*Assumptions*
Wheat	372	Kg/Ha 1,200 at US$/Kg 0.32
Wheat forage	175	(rupees / jerib 3,000)
Others/Labor	600	(Af ./day 140) 200 days
Total	1,147	

With US$/Ha/year 126 the profitability is marginal and the risk is high. Wheat should be promoted in those areas where no other crops are available. Wheat is to be produced by farmers as a marginal crop or/and as a rotational crop for vegetable crops, and as a source of food security.

Threats facing wheat production. The main threat to wheat production is the worldwide development of a new smut strength which can severely reduce yield. The second concern has to do with fluctuating international markets; today's tendency is for prices to go down, discouraging production and reducing profitability rates. The third treat is the competition presented by poppy production when low wheat prices prevails and the need for income to pay for food and shelter is felt in remote areas not targeted by the project.

H. Horticultural Investments (17)

Annual horticultural crops - Vegetables

Profit analysis. Farmers expect minimal losses with a daily scouting of the fields. One ADP/E hectare carrying 45,000 crucifer plants can produce up to US$ 7,500 when market prices pay US$ 14 per unit. During the peak of the market the gross return goes as low as US$ 3,750. Once the intercropping with fruits generates revenue, the vegetable growers will make up to US$/Ha/year 8,126. The profit level and the acquired technology makes vegetable production an excellent system to promote alternative development

Table 10. Vegetables / fruit grower net returns

Source of income	*US$/Ha*
Horticultural crops	5,626
Perennial crops	1,500
Others income (labor, services, etc.)	1,000
Total	8,126

Treats facing to vegetable production. The growth of this sub-sector is very rapid. Success with growth in fresh vegetable production needs to be supported in order to secure sustainability.

1. When the planted areas expand, the need for technical support increases exponentially. With continuous cropping with no or limited rotation options, the ecosystems will build populations of insect and diseases, not present during the first 3-4 years of production, but capable of wiping out the ability to grow vegetables without a good high tech *Integrated pest management* (IPM).
2. Once the output overflows the local markets, vegetable prices will fall below poppy returns, if no cold storage and packing houses are fully functional. In this environment, the best way to begin is by strengthening associations to own and manage the storage capacity in the Districts.
3. Afghanistan urgently needs to develop the normative standards for food and pesticide safety and regulations; no national food and pesticide standards means limited accessible markets. The same principles applied to seed development; Afghanistan needs to adopt strong property rights before the major seed producers are willing to invest there, producing better adapted varieties and hybrids. Local and regional markets are limited while international markets for quality produce are almost unlimited.

Perennial horticultural crops – Fruit orchards

Profits analysis. Even though the project itself had innumerable technical failures, in the long run such errors won't stop the sector from growing and successfully generating income and wealth for others. The DAI, other operators, and farmers alike learned lessons on what not to do the next time. Farmers should expect no less than US$/Ha/year 1,500 of additional disposable income. Those with healthy tress 6 years and older, under good management, should generate US$/Ha/year 4,300 of net returns. Eleven thousand farmers with one hectare each should generate, in 3 good years, up to US$ 48 million of additional disposable income. The intercropping model based on fruit and vegetables is a very good option to promote alternative development.

Table 11. Fruits production profits analysis

Item	*Apricot*	*Pomegranate*	*Apple*
Trees/Ha (n.)	400	350	390

Trees costs (US$/Ha)	1,200.00	1,050.00	1,170.00
Aver. Annual inputs (US$/year)	1,400.00	1,000.00	800.00
Aver. Annual labor (US$/year)	500.00	400.00	300.00
Total cost (US$)	3,500.00	2,800.00	2,660.00
Farm gate Price (US$/Kg)	0.35	0.33	0.30
Yields (3rd year)	6,649	6,421	7,800
Aver. annual gross income (US$/year)	2,327.00	2,119.00	152.00
Net return (US//Ha/year)	-1,173.00	- 681.00	-2,508.00
Yields (6th year)	12,000	14,000	15,000
Aver. annual gross income (US$/year)	4,200.00	4,620.00	4,500.00
Net return (US$/Ha/year)	1,873.00	2,501.00	4,348.00
Period of calculation	20 years	20 years	15 years

Tree cost allocated as 10 year investment. Average return @ 6-7 year from fruit tree = US$ 2,900

Treats facing to fruit production

1. The material introduced by ADP/E through IF Hope and Roots of Hope lacks uniformity in the farmer's field. Even though yields are not known, the observed phenology warrants unpredictable yields.
2. The introduced material could be contaminated with viruses and other diseases. The known information shows that the rush to deliver/plant trees superseded the safety rules. Risks were not assessed.
3. In most cases, in order for fresh fruit to compete in the market, it needs to have the full shelf life generated by early pre-cooling and quality packing. Processed concentrates/juices have very limited profitability and require much higher investment and technology costs.
4. The internal market for fruit is limited. The fruit industry must be prepared to face steep international competition for quality and consistency in order to keep and expand the initial gains.

Women-operated greenhouses and production of vegetable plugs

Profitability. No profitability analysis is done since the sub-sector is not sustainable as it is. The concept is excellent but needs to be enhanced to the point that women have real control of the business.

Treat to the plug seedling in greenhouse

1. ADP/E did not provide the training needed by these women to manage their business. The project assistance to develop the entrepreneurship skills these women do not have was weak.
2. The couples of women running the greenhouses are very shy and do not seem to understand their business, much less understand what type of opportunities they have in their hands. The impression is that the women are happy with having a small income.
3. None of the ladies expressed interest in improving the level of activity in the greenhouse.
4. The business dies as soon as the new project will pull out the support.

5. The use efficiency of the available space is poor. The greenhouse could be producing no less than 10-30 times the number of seedlings found. Women seem to be working only part-time.
6. The use of micro-tunnels inside a plastic structure is not an efficient system. The distance among planted seeds is extraordinary. The system requires technical support.

I. Poultry and Livestock Production (19)

Animal production: poultry farms

Profitability. The poultry production is a business with marginal return, high risk, and it is an integrated business likely to fail at the weakest link; for these reasons the major poultry growers in the USA and Europe own, manage, and control all the processes from egg hatching to process and market. The poultry industry is under severe pressure worldwide, profitability being squeezed between the high costs of feedstuff and veterinarian drugs and the strong prices competition.
The project impact is questionable, with the initial investment a total wipe-out. However, the DAI learned how to better manage this kind of initiative. It is hard to define an impact from this project, other than the lessons gained by DAI and by the Poultry Association as what not to do the next time this kind of project is broached. The *new strategy* is to develop local poultry breeder farms producing fertilized eggs and one day-old chicks to any poultry farmer. One breeder poultry farm visited by the ADP is producing 70,000 fertile eggs per month with 6,000 breeders in two chicken houses.

Table 12. Broiler chicken production profit analysis

Item	*US$*
Gross return / 40 days / broiler (9 seasons/year	23.04
Operation cost/ year / broiler	18.19
Net return per broiler	4.85
Net return for 6000 broilers	29,122.20

The potential annual net return for a 6,000 broiler operation is US$ 29,122.20. This return is likely inflated by underestimating the number of labors reported by the Poultry association as needed to manage the operation. Investment in poultry is not likely to compete with poppy production.

Table 13. Layer chicken profit analysis

Item	*Unit price (dozen)*	*Unit price (US$)*	*Total (US$)*
Per layer			3.57
For dozen eggs	10.42	1.00	10.42
Total gross return			13.99
One layer produce 250 eggs per year			
Net return/layer			3.29
Net return/6000 layer/season			19,744.65
The season is 6 months = useful bird life			

Net return in one year			39,489.29

Threats to poultry production.
1. The most important threat is the ability of some international markets to dump frozen poultry products in order to suppress weak producers.
2. Hatchery enterprises. Most farmers have to import day-old chicks. Lack of high quality fertile eggs
3. Feed milling enterprises. Local availability. Low quality.
4. Access to finance. Fixed assets and working capital. Need seed capital.
5. Knowledge of poultry production practices. Need experts providing on-time services.
6. Poultry diseases. Disease prevention and bio-security issues. Chickens do not get ill, they die.

Animal production: women operated fish ponds
Profitability. The harvested product is sold exclusively to a fish frying shop in Duranta, a village near Jalalabad. Harvesting starts after seven months from the introduction of the fingerlings. One jerib fish farm produces Kg/year 1,500 – 2,500 of fish. The fish-pond owner spend little time during the rearing period, the daily maintenance being approximately half an hour long.

Table 14. Fish ponds production profit analysis

Item	*US$*
Inputs	804
Capital Investment Cost/10 years	85
Sub total	889
Gross income	3,246
Net profit per year	2,357

The unsubsidized net income per year generated by ponds and by farmer is US$ 2,357. In three years, the twenty ponds created by ADP/E can produce US$ 141,420. The initial investment was US$ 2,855 per fish-pound, including training and the loss of capital in the share investment in a breeding farm. The annual operational budget was estimated at US$ 850. The project invested US$ 30,000. The price of local fresh fish ranges from US$/Kg 1.80 to 2.20 and that of imported fish from US$/Kg 1.75 to 2. Harvesting starts after seven months from the introduction of the fingerlings in the ponds and can produce Kg 1,500 to 2,500 of fish. This sector is fast-expanding, with great acceptance among farmers. The logistics and managerial errors slowed down the process but didn't stop the beneficiaries from moving on with their fish-pond activity.

Threats facing fish production. The most important threat is the inconsistent availability of quality finger-length fish capable of gaining weight quickly and efficiently. The second can be generated by those advocating gender inequality as the reason to kill the concept. Another threat is losing a good business reputation by poor management or lack of technical assistance for fish producers.

J. Inclusion of Women (20)

The ADP/E agricultural interventions quite exclusively targeted male farmers. More

appropriate actives should have been introduced, such as eggs production in open range chicken farms, and production and packing of fruit paste and marmalades. The project trained 3,835 women farmers were trained in agricultural practices and started 18 women-owned vegetable greenhouses to grow plug seedlings. This training is evidently weak or poorly designed. In 2008, the greenhouses sold approximately 1,376,250 plug seedlings to ADP/E-supported farmers generating over US$ 17,000 in net revenue. The women orchard program was hampered by the male dominance of this activity in most of the Eastern region. Better results could have been achieved in the Nuristan province, where women traditionally are in charge of farm work. In the poultry sector, a simplistic approach to women empowerment faced social constraints that contained project achievements, both in economic as in gender equality terms. The strictly economical and technical orientation of the project support resulted in little appeal for rural women, already busy with their heavy domestic work. Gender perspective could have stimulated the gender perspective in developing the courtyard economy. This approach, anyway, would have required a stronger involvement of local NGOs and the extension of the project skills in the social field.

Any new effort to promote chicken meat or egg production must be planned, executed, and managed vertically from breeding to processing in order to capture the marginal profits available in each step of the process.

II. Agribusiness

The renovation of fruit and vegetables wholesale markets in the urban centers of Jalalabad and Mihtarlam (completed after the project end) contributed to the integration of the value chain of high value food products. The US$ 400,000 invested in the renovation of the Jalalabad wholesales market benefited 160 fruit and vegetables wholesalers, trading approximately US$ 40 million of products per year. The wholesaler beneficiaries of this intervention contributed to the initiative with their resources (temporary rental of another marketplace, hiring of security guards, etc.) under a decided leadership. They built a small cold storage facility and plan to renovate another marketplace.

The improved conditions for marketing fruit and vegetables resulted in an increase of traded commodities. The wholesale market is used for daily transactions, while storage facilities are still insufficient to harbor local production. Fruit and vegetables once harvested are shipped over the border to Peshawar, stored and re-imported off-season, leveraging higher prices. The organization of producers associations provided some coordination and minute services to farmers but competition for access to new markets requires a much more complex and coordinated effort. The project contribution was substantial in ensuring the appropriate design and implementation of the initiative. Supporting a cash-flow based business and well organized wholesalers resulted in a smooth delivery of the project inputs. This one a typical input delivery construction action, aligned to the strong engineering skills of the project. This initiative had not to build an added value chain or devise business opportunities. Its impact consisted in the improved delivery of the logistic services of the wholesalers. Similar initiatives are underway in several District capitals, relying on the own resources of the traders. Thus, the added value of the project has to be found in the completion of the rural road rehabilitation action, aimed at reducing the farm to market costs.

The design of the farm to market value added chain is far from completed. Cold storage are requested to sustain the value of local products, presently sold at low price to be stocked in Pakistan and resold in Afghanistan off-season. The reliability and price of

electricity is a critical feature of the sustainability of such structural redesign of the business chain. Furthermore, and possibly more important, is the fact that the farmers will be advantaged by the establishment of financing schemes linked to the trade of the harvest and participation to its storage and marketing, that is by their participation in the control of the post-harvest activity. Full trans-boundary market integration also requires that Afghan exporters are enabled to ship their produce on equal terms with foreign competitors, a condition that presently is seldom met. While neighbor countries produce are able to enter in the Eastern region through the price leverage, the opposite flow is hampered by legal and illegal constraints. These actions have to be part of a medium term development strategy developing of managerial as well as technical skills of the farmers' leaders.

C. Agribusiness Employment (3)

Jobs skills improvement and permanent jobs creation were performed along a case by case approach. An overall 9,165 people in business skills (50% of them women), undertaken in connection with the business development activities. This effort created 17,584 full time employments (FTE) and 4,898 seasonal jobs (non CFW) in new and/or strengthened businesses linked to agricultural products. Women were 2% of the total employees.

Business skills training had little impact on the job market. Its contribution was often limited to provide casual labor with the skills needed to fulfill simple tasks. There is little evidence of the full valorization of the new knowledge and skills. New jobs concentrated in Nangarhar (65%), the more urbanized province.

Farmers adopting the project technology are increasing. In some Districts, *Shuras* members estimate that most farmers are cropping vegetables (80-90%). Farmers in remote locations of Nuristan are adapting the project horticultural technologies. A major seed distributor noted the request for certified seeds from a location outside the project area of reach. The creation of knowledge and skills is a critical factor in the redesign of the rural development of the region. In formal agribusinesses, employment opportunities have to be based on the improvement of the labor technical skills, in order to be competitive with the import of Pakistan cheaper workforce. Formal agribusinesses are a small component of the potential for employment generated by the courtyard economy, that is informal rural industries and services. In this case the potential for employment are based on (a) the valorization of local knowledge and household workforce flexibility and (b) the local market demand for diversified and semi-processed farm and off farm products. At the same time, the project should have had developed its own skills development strategy, encompassing capacity building from the definition of needs to the follow up of trainees and redesign of the professional targets. A reference for this activity is the National skills development program (NSDP), coordinating such initiatives at the national level and whose pilot experiences, could have been tuned to the local exigencies. The value generated by this project component can be assessed only as an added value supplied to the project implementation activities. For instance, the needs of the construction sector are much more diversified and only a part of the improved skills created by the project can be rewarded by better work opportunities. The import of Pakistani workforce – dominating the urban building sector - limits the appeal of the generic training of the underemployed village work force.

D. Growth (19)

More favorable socio-economic and political conditions are needed to evenly spread the agribusiness sector growth across the region. The initiatives supported by the project have an exemplary role, as they are not large or numerous enough to decidedly change the farm outcome added value. The start up of producers associations would have been more effectives had they been able to assist in a more coordinated way their members access to inputs and to market. The growth of the farmers' inputs endowment (infrastructure, sowing materials, demonstrations, etc.), increased local consumption and security conditions positively impacted on the producers' investment and economic growth. The export successes heavily depended on the project support and are of significant value for specific clusters of producers. The favorable conditions for some products, such as cereals, are largely due to subsidies and constraints of other value added chains. Better opportunities of marketing fruit and vegetables could reshape the landscape of the Eastern region. Bottlenecks - in inputs, access to markets as well as in the farming systems themselves - hamper such opportunities and create favorable conditions for the preference for subsistence crops such as wheat. In a market driven economy, for example, access to water is determined by the added value it generates. That is, its use should be priced in order to prioritize its more valuable uses (e.g., horticultural vs. cereal crops). The project had a limited impact on the animal husbandry component of the farming systems. This was an appropriate choice, as the skills needed to streamline livestock based value chains are more complex than those proper of crops.

The build-up of human capital and the availability of credit will define in great way the pace of micro-enterprise development. Agribusiness at farmers' level requires the adoption of financial schemes aligning the remuneration of capital with Islamic precepts. Farmers seldom try to shift to agribusiness. Associations, and cooperatives in a lesser way, can be an option if they are managed by entrepreneurs and not by the *shuras*, whose primary role is political, not economical.

a. Sales

Some small businesses expanded and reinvested (Sahil marble factory co, Riaz packing co., Masrood food factory, whose diversified production includes pomegranate, guava and apple jam [1,200 jars per day] and fruit juices, honey and tomato sauce, etc.), while other are surviving as demo initiatives (Surkh Rod fruits and vegetables pack house and the fish-ponds) or had to be reshaped (poultry production). Sales and income generated were not always adequate to remunerate the capital investment. Most SMEs suffer from the strong competition of foreign products. The fulfillment of farmers' expectations for higher farm products prices require that infrastructure / organization bottlenecks be tackled together. Most SMEs are unable to develop customized marketing campaigns and are confined to the lower segments of the market. Improvement of products is difficult in absence of many inputs, standardization criteria and mechanisms and aggregation of the offer. The start up or enhancement of full-fledged value added chains was a complex task, usually exceeding the project strategy, resources and time commitment. Rivalries and weak leadership add to the difficulty in assembly farm production and involve farmers in the control of the storage and marketing phases. The rehabilitated market traders differentiate their source of farm produce, by trading local and foreign fruits and vegetables at once. In this way they aren't hampered by the internal farm products bottlenecks.

The sales of raw and semi-processed agricultural food were substantial but quality ground-breaking productions were of a limited scale and didn't change the local economy landscape. Demonstration were successful in a few cases (annual horticultural crops).

Examples. Seed sales at Jalalabad agri-business fair were worth US$ 370,000. Between 2006 to 2009, the Surkh Rod packing facility packed MT 3.5-4.0 of fresh fruit and vegetables, supplied by refrigerated truck to markets, as an average worth US$/Kg 1.7, for a total of over US$ 510,000 of fruit. Between October 2008 and June 2009 the packing factory charged its services US$ 34,500. In 2007, farmers assisted in Rodat District sold MT 7,000 of onion (US$ 2.2 million), for an average gross income of US$/Ha 6-8,000. In 2006, the export of fruit and vegetables to India and Kuwait (MT 70 of melon), Pakistan (MT 200 of onion), UAE (MT 93 of fruits and vegetables), Uzbekistan, reaching US$ 2.5 million, about 50% of the assisted farmers' horticultural production.

The project supported the launching of the *Pride of the Eastern region* brand. The success of this initiative requires a long term commitment and aggregation of producers in a larger scale. Producers associations marketing skills and control of the value chain are weak. Most farmers directly sell their harvest to middlemen. The access to high value foreign markets heavily relies on transitory services provided by cooperation programs. The investment in human capital and marketing strategies has to be designed along a shared national agri-food export strategy. A critical issue, in relation to the access to new markets, is the acquisition of entrepreneurial and commercial knowledge and skills, that are usually accrued through the establishment of joint-ventures. Eastern region farmers complain the lack of interest of Western entrepreneurs in partnerships. They find easier and cheaper to strike deals with in Eastern Asia and the Middle East, although Western countries concede funding and trade preferences for investing in Afghanistan. This is a key issue for the shift from public subsidized programs to private initiative in integrating the Eastern region production to global dynamics. Micro-finance projects didn't fill the gap, as lacking the technical value added by joint venture with innovative foreign partners.
At the same time the opportunities of the local market have to be matched with the potential of smaller productions, such as the courtyard economy, resulting in a preference for more traditional approaches and valorization of local knowledge. In this case, the slow but steady recovery of the internal market should be the basis for the growth of the production. Alternative development projects should seek a greater involvement of local partners, better rooted and aware of rural dynamics. New skills in rural development (i.e., both economic and social) have to be created and public – private partnerships developed, in order to spin up this process (cfr. the AKIS concept).

b. Business Start-ups

Approximately 5,400 small and large micro enterprises were registered in Nangarhar, 300 in Kunar, and 200 in Laghman province at the beginning of the project. The convergence of infrastructure and economic development and institutional strengthening enhanced the project impact. Businesses were addressed in a value added chain perspective. Entrepreneurs were assisted in elaborating business plans, in participating to promotional events (Jalalabad agri-business fair [10,000 visitors] and foreign exhibitions: India, Dubai and Uzbekistan), in visiting foreign markets, and in accessing to finance and marketing services. The personnel of supporting public institutions and producers associations were trained on core skills and assistance to their members.
Targets were identified by consulting beneficiaries and local authorities, who screened and ensured the reliability of recipients. Economic recovery was faster along the transportation *corridors*, thus encouraging the start up of activities in an integrated area

extending along the main roads and downriver. Businesses thrived along oil-spot patterns more than along a mosaic design. Development followed market opportunities and trends, exploiting the strong economic integration of the region with the urban center of Peshawar and discounting the unequal trade relationships with Pakistani traders.
The social and business environment stiffness was not propitious for complex, highly innovative approaches, including women participation. Linear and simple initiatives were more effectively implemented (e.g., the delivery of training to entrepreneurs and their collaborators), while the output of initiatives requiring a greater tuning of inputs was little effective (assistance in implementing business plans and accessing credit).
The identification of business opportunities and start up of new micro and small enterprises was done along a case by case approach. Sector studies and business plans were elaborated and development agencies interventions (ARFC, ASMED, etc.) coordinated, when feasible.
Best results were achieved when the entrepreneurs were already enjoying favorable market conditions. The set up of new added value chains required a wider set of experiences than those provided by ADP/E, and a stronger integration of public and private sectors. Policies conductive to overcome the market strictures are fragmentary. They should be focused on specific businesses, thus facilitating the start up of the access to new markets. Capacity building partly addressed the knowledge and skills needed to innovate production. This component could have been more effective if an adequate strategy had been elaborated to address the bottlenecks in skills development.

c. Private Sector Investment and Industry Growth

Private investors cooperated with the project in small businesses and agriculture. The ADP/E strategy included the integration of project inputs with beneficiaries' contribution. Usually, a limited capital injection by the project (some materials and other running inputs, training and visits to identify technology and markets) leveraged a much larger amount of grants and credit (1:5 to 1:10). This process was plagued by the different perspective of the cooperating partners. Beneficiary entrepreneurs were little accustomed with formal credit procedures. The Eastern region entrepreneurs are eager to access development programs start up capital. The convergence of grant and credit expectations resulted in misunderstandings and controversies. Producers associations lack the skills to advise their members about such services. As a consequence, business development opportunities are lost.
Several beneficiaries expressed their willingness to expand their operations. In same cases, resources generated by a business were reinvested, in other cases entrepreneurs applied for new grants or loans (ARFC, ASMED, etc.), as their resources were inadequate to keep with the growth of activities. They are concerned with the inflationary raise of prices due to emergency oriented practices. A more balanced approach should aim to stabilizing production costs, in order to gain and keep new markets.
The investments in rural finance have little grasps on the agricultural production. They more often result in the support to non-farm (including household relief) and some time to off-farm activities. Due to the uncertain tradability of land property deeds, the establishment of storage facilities adequate to transform the farm harvest in a security on the loans could be the more reliable way to entice credit to support farm production. The creation of such infrastructure has to be linked to the development of managerial skills and participation of producers in the control of the post-harvest phases of production. And depends on the existence of basic utilities such as security, financial services and reliable electric power sources.

E. Agricultural Exports (18)

The imperfect encounter of demand and supply restrained development of the value added chains supported by the project. Its aimed to improve the bargaining position of producers by developing farm to market infrastructure and producers' marketing skills, adding value to farm products and facilitating their access to new customers. Additional support was provided by strengthening public services and producers' coordination and advocacy bodies. The aggregation of farm offer lacked key features such as adequate storage facilities and promotional skills to overcome foreign markets hurdles. Where a buoyant local market existed (e.g., marble tiles, some horticultural items, etc.) prices fulfilled producers' expectations and businesses thrived. Access to production inputs was restrained by formal and informal constraints to trade, poor products characteristics (quality standards are not enforced) and higher prices of some inputs in Afghanistan (e.g., labor, electric power, industrial goods, external services, etc.).

For instance, the packing companies assisted by the project lack marketing skills and the competitive advantages of foreign producers dominating the market. Acquisition of inputs and delivery of products were plagued by market bottlenecks. The value chain resented the local packing companies little competitiveness, in terms of quality, volumes and prices. The market development services introduced by the project (e.g. TAMAS) are still to be handed over, for lack of resources and managerial skills of interested organizations. MAIL and producers associations are unable to raise the resources needed to fund agricultural fairs, horticultural prices collection, and entrepreneurs' missions abroad. As a result, agribusinesses supply the market with a narrow set of products, not customized to the consumers' expectations and compete for the lowest segments of the market. Capitalization and innovation are limited to processing economies while product innovation is quite absent. The inequity in the trade with Pakistan makes difficult the access to this nearest foreign market. Competition on global markets is heavily depending on highly subsidized external business services, that is on projects support. The clustering and streamlining of production resources (common access to the market) should be implemented on a territorial basis, to reach a critical size to compete for more rewarding markets.

The agricultural sector export potential is constrained by high and uneven transactional costs. Competition among producers produces a weak negotiation position of their sector. The favorable conditions ensured by development projects are transitory. The difficult hand over of some ADP/E initiatives shows that the tools created in such frame are doomed, once the external aid is over. They have to be considered as demonstration events more than sustainable practices. Thus the positive experience of exporting agricultural commodities has to be newly redesigned to match the local skills and efficiency of technical assistance services. Export strategies have to be built on the comparative advantages of the products, the managerial skills of the producers and availability of financial services.

F. Inclusion of Women (20)

Construction and agriculture, the larger components of ADP/E activities were gender insensitive. The CFW income benefited farmers through an increased consumption of food by casual workers and their households. This component sustained the household economy through its male members' income generation. A total of 21,648 women were paid US$ 1,908,382 in wages under ADP/E's CFW programs. The project had little short-term impact on the family economy gender balance.

Women empowerment was stronger in the small business sector than in agriculture. A

total of 4,599 women were trained in business skills. For example, the project trained the women members of the *Eastern region handicrafts association*, who are now producing for local and export markets quality handicrafts. Gender equality was more effective in small business training. The beneficiary women received training and a chance to start a small business, although social constrains limited their access to the market and to some production inputs.
The project didn't develop the traditional social component of gender perspective projects, intended to alleviate the family-burden of the working women. Their weak role in the economy hampers women entrepreneurs in negotiating and accessing customers. The identification of more gender-friendly business would have facilitated the sustainability of these initiatives (cfr. the courtyard economy approach, farming in Nuristan, etc.).

G. Worker Safety (pesticide exposure) (21)

The seed production companies supplying seed have been organized by other projects and are generating profits. Pesticides are sold regardless of their efficacy, and in most cases utilized under less than safe conditions. Policies, regulations and a stricter supervision and assistance by MAIL and Ministry of health are required to create the conditions for the environmentally friendly handling of these products. In critical sectors, such as horticultural production, integrated pests management practices have still to be developed.
Off-farm business opportunities could mobilize idle or badly employed household workforce, especially the gender component. A courtyard approach to local economy development could help in building added value chains base on the existing resources. This approach should be harness in a way compatible with local economy and social constraints, that is along the priorities of beneficiaries and building technical change on their knowledge and skills (bottom up approach).

III. ADP/E Budget Analysis

A. Project Budget and Expenditures (5)

The project initial budget (US$ 108.4 million) was revised at the end of 2005, by reallocating funds to enhance quick impact activities such as CFW and enhancing the local skills training component. At the same time, loans funds were excluded, along USAID regulation on this kind of contracts. The break down of the initial budget reveals a US$ 61,004,000 commitment to program activities and sub-contracting (56%). A further US$ 12,234,409 (11%) was expected to be spent in local operational costs, with overheads reaching US$ 35,148,104 (32%). The largest program component was infrastructure (US$ 28,000,000) and Nangarhar province was targeted as the major recipient (US$ 41,132,000) of program activities.
In October 2008, the project budget war raised by US$ 10 million, thus reaching US$ 118.4 million. Project amendments didn't change the overall strategy and resulted in a stricter integration with other interventions (e.g., ARFC and ASMED loans). Final expenditures reached US$ 115,433,838,50, i.e. 97.51% of total allocations.

B. Budget Reaching Intended Beneficiaries (6)

At the end of the project, implementation funds and subcontracts expenditures together reached US$ 71,402,246.75 (62%), labor, GSA, ODC and fixed fee on open market US$

40,327,015.30 (35%), allowances and transportation US$ 3,704,576.45 (3%). Infrastructure expenditures, including CFW US$ 12,637,267, reached US$ 38,629,848 (33% of the total), split in the following components: roads (20%), water protection walls and canals (11%) and other works (2%).
The investment per beneficiary rate was uneven across sectors (the break down of the project budget along expenditure lines is not available, thus raw digits are used):
- Infrastructure works + CFW (roads, irrigation and other works): US$ 38,629,848 / 39,980 = US$/CFW recipient 966.23; specifically:
    # roads (assuming that the population of the beneficiary rural Districts [i.e., Jalalabad excluded] has been equally benefited): US$ 23,592,851 / 234,415 families = US$/family 100.65,
    # irrigation infrastructure (assuming an average Ha 0.5 of irrigated land per farmer): US$ 13,119,850 / (24,308 / 0.5) = US$/farmers' family 270,
    # other works: US$ 1,917,148 / 80,629 families (assuming the population of the beneficiary Districts) = US$/family 23.78,
- Agriculture: US$ 15,000,000 / 266,645 farmers = US$/farmer 56.25,
- SME and gender: US$ 13,000,000 / (17,584 FTE + 4,898 seasonal jobs): US$/worker 578.24,
- Institutional training / training in business skills: US$ 4,000,000 / 9,165 = US$/trainee 436.44.
These values are in line with the project strategy, providing basic job opportunities to villagers through a broad distribution of CFW and farm inputs, as well as intensive investments (seed capital) in the critical stages of post-harvest processing and marketing. SMEs not always reached the break-even point and in most cases are still assisted by the new project following up ADP/E. The project investment in agriculture was dominated by the distribution of production inputs. Its capital intensity was lower than that of the other sectors. The above mentioned calculation of the beneficiaries of the roads rehabilitation is approximate for lack of reliable data. The high commitment of resources to the other sectors is difficult to be analyzed, as a part of the program expenditure was devoted to technical assistance and to the procurement of external services and other overheads.

C. Economic Cost / Benefit (7)

The economic benefits of the project consist in the injection of economic resources in the regional economy at the time of the shift from poppy to licit crops. The intervention benefits are relevant in terms of impact on the network of production infrastructures (roads and canals), as the case by case targeting overcame bottlenecks to the local development (Ha 24,308 of irrigation land intervened is a substantial part of the region farming land).
The unit cost of the reconstruction of these works varies, according to local conditions and adopted technology. For instance, canals repairs ranges from US$/Km 5,000 (cleaning) to 535,000 (intake construction) and roads from US$/Km 12,000 to 133,000, depending on the morphology and technology. The reliance on local resources (for instance, the use of wood-logs is of little moment in roads and canals rehabilitation) was limited, but in the case of the cobblestone roads. The six general contractors and ADP/E direct implementation of works differed in their overheads. As an average, they were more expensive than the works directly implemented by the project engineers.
The positive effects of roads rehabilitation are recorded in three main areas: transport, agriculture and marketing. In transport, improved roads reduced time to reach markets and services, as well as vehicle operation (fuel consumption, labor and maintenance

costs) and transport costs (fares and freight charges), and increased quality and frequency of services. Also increased was the overall level of agricultural activities, facilitating land-use shift from low-value cereals toward higher-value vegetables and fruits. In marketing, marketable surplus and farm-gate prices increased while post-harvest loss decreased. Roads rehabilitation had a very high rate of return, with traffic increasing by over 70%.

A net increase in vehicles traffic was registered following the rehabilitation / repairing of Km 544.4 of rural roads (80 projects spread in 20 Districts of Nangarhar province, 4 of Laghman, 4 of Kunar and 2 of Nuristan). The impact on economic activity is sensible, as shown by traffic figures. The traffic composition of a set of eight surveyed road shows a prevalence of personal transport vehicles (67%), trucks and other load transport (21%) and collective transport, on an average 2,615 vehicles/day per road.

ADP/E intervention increased from sub-optimal to optimal irrigation water availability. Average farm production (wheat) doubled from US$/Ha 540 to 1,200, and the increase of agricultural production for the full rehabilitated farmland reached US$/year 16,043,280. Half of this sum can be attributed to the rehabilitated canals. Thus, the US$ 13,119,850 spent by the project generated a farm gate products value of about US$/year 8 million.

Training activities were undertaken on a case by case (on demand) basis, without any previous assessment of the job market opportunities or monitoring of the work destination of the trainees. In absence of a vocational training methodology this component resulted in *ad hoc* training of worked incorporated in project activities (e.g., cash for work and farming) or in not relevant income changes (casual work and little specialized task in the project fostered micro-enterprises).

In agriculture, the cost/benefit analysis is reliable in the cases of annual horticultural crops and fish ponds, and part of the perennial horticultural crops. The fruit trees are likely to reach a break even after three years of full production; it will take another 3-5 years to make a positive contribution to the economy. The annual horticultural crops already paid the initial investment; this sub-sector is growing fast and the cost/benefit ratio is improving by each harvesting season. A major constrain is the lack of post-harvesting facilities (pre-chill equipment, cold storage facilities and packing houses). The fish-ponds production will move from paying the investment to make a contribution in 1 or 2 more years, provided local hatcheries supplying viable and homogeneous fingerlings be established.

The project as a whole spread the benefits of economic development on most of the Eastern region. For instance, the improved roads impacted on rural Districts whose population is two thirds of the 4 provinces inhabitants and seed and fertilizers distribution reached about three fourth of the same population. These achievements contributed to stabilize the beneficiaries' livelihood in a critical situation (renunciation to the poppy growth), and to build a basic production playground. The targeting of many actions was poor and often didn't result in the local ownership of the innovation promoted by the project. Thus, results sustainability is uneven across sectors and recipients. Beneficiaries' lack of resources and commitment to keep the pace with the new challenges could jeopardize the impact of the project.

III bis. Rural Economic Development

The Eastern region rural economy is diversified with different eco-zones supporting a wide range of fruits, vegetables and fiber crops. This results in the coexistence of food production for self and local consumption with the exportation of processed and semi-

processed farm products. Differences activities coexist across the region and inside the communities, ranging from post-harvest processing (drying, jams, pickling, sorting, grading, packaging, storage) to handicrafts (embroidery, glass, jewelry, weaving) to service markets (micro-hydro generators, bike repair, small scale construction) and small manufacturing (furniture, carpets, metal working). Some activities have potential for export (such as handicrafts, some food processing and mining) whereas others are mainly focused on the local economy (such as service providers).

The rural economy has a potential for the development of the home and village based enterprises that constitute the continuum between the courtyard and the formal economy. The difficult access to innovation, skills development and markets hampers non-farm and off-farm activities (*non farm labor* is not involved in agriculture [e.g., bricks making] and *off-farm labor* is associated with agriculture but not involved in cultivation. The latter includes activities such as processing, and livestock rearing at the household level). In most villages, *non farm* and *off-farm* income is of much greater importance for the lower wealth groups. The importance of *non-farm* labor for smallholder farmers and the poor may have increased due to war and drought. Each of these activities is in balance with the rest of the household and village economy and with its own sector technical and value added chain integration. The contribution of the courtyard economy to rural development is linked both to rural family traditional knowledge and the specialized production skills proper of each production.

ADP/E support to SMEs and gender development incurred in a gap not just sectoral but also in approach. Its ambitious regional strategy lacked the detailed analysis of the economic geography micro-potentials and constraints. Its smaller interventions didn't understand the entrepreneurial motivation of the stakeholders of the courtyard economy. They encouraged enterprises without strong commercial viability and ended undermining the market by introducing donor supported marketing actions. Specifically, the focus on export markets should have been balanced with the development of the local ones.

A greater involvement of NGOs, accustomed to bridge the gap between the local dimension of the courtyard economy and the access to innovation, would have resulted in more sustainable rural productive value added chains. Women's potential to contribute to economic growth was marginally mobilized. Many aspects of food processing, both home and factory based, provide obvious opportunities for female involvement and the community based NGOs possess a great potential to work in this area. They have close working relationships within their focus communities and the level of trust and mutual social and cultural understanding needed to work closely with women entrepreneurs.

IV. Government of Afghanistan Involvement (8)

A. Strategies – Inclusion of Afghan Experience and Knowledge (8)

ADP/E didn't define its relations with the local *Agricultural knowledge and information systems* (AKIS). The project adopted the traditional knowledge or promoted innovation case by case. This choice was usually the result of ADP/E management confidence in the project human resources more than in its assessment of beneficiaries' conditions and exigencies. Whereas the project could rely on stronger skills (internal or sub-contracted), it promoted innovation, sometimes missing to achieve the beneficiaries' ownership. Otherwise, its delivery of inputs was adapted to the local situation and beneficiaries capabilities and preferences. Thus demonstration initiatives were seldom based on a full

fledged rural participatory strategy, with a possible exception of the annual horticultural sub-sector.
Partners' contribution to the project achievements was relevant, although efficiency in the use of project resources was uneven. The project technical staff performed the rehabilitation of infrastructure in a more efficient way than contractors did. Deficiencies in work performed brought the severance of construction contracts and their completion under the direction of project civil engineers. The comparative advantages of such arrangement depend on the relatively simple technology solutions adopted (local knowledge). Most infrastructure rehabilitation employed villagers' casual labor, whose skills were completed through customized training courses. Local authorities participated in planning / monitoring (*shuras*, Government bodies and technical services), thus ensuring correspondence of project design to local expectations.
The project lacked internal expertise to properly manage other kinds of interventions, more complex and had to rely on the knowledge and skills of partner organizations (FAO, producers associations, Government institutions, NGOs, expatriate partners). Coordination mechanisms (PRT, TWG, DDC, CDC) facilitated access to the field and coordination with stakeholders. A good level of integration was achieved with other projects implemented by DAI (AINP, LGCD, IDEA NEW) and with those of PRT, whose high visibility is an hurdle to long-term commitments in the field. Linking with other initiatives such as PAL, PHDP, ARFC, ASMED and NGOs was quite limited, possibly due to different intervention timelines and strategies in dealing with recipients.

B. Level of Government Commitment and Involvement (9)

The project strategy was consistent with the Government sector policies, supporting each other. The Governorates coordinate economic development in each province. Province directorates, such as MAIL, MRRD, Irrigation, Public works, Women and social affairs, MCN, etc., screened and supervising the project field activities, from the identification phase to the on going monitoring of field works and hand over. Technical coordination of province institutions is performed by the sector *Technical working groups* (TWG), District assemblies and Community councils. ADP/E management and technicians participated to coordination meetings on a regular basis. This direct approach facilitated understanding and integration of field interventions with development strategies. Government authorities appreciated this pro-active approach. Participation to the project activities was ensured through, for instance, field visits of joint MRRD and ADP/E teams, in charge of supervising rural roads rehabilitation and construction. Appreciation of such approach was expressed by the other stakeholders of the development process, not directly involved in the implementation of ADP/E activities, such as *United nations* agencies and ACBAR.
A weak point of this strategy was the relatively scarce resources locally available for the follow up (maintenance and repair) of the enhanced infrastructure, negatively impacting on their sustainability. A more rooted participatory approach could have mobilized local resources in a longer term perspective. At the provincial level the MRRD seems to be endowed with both technical skills and economic resources to the match its tasks. Village and District authorities are much less up to such tasks. Sometimes the excessive development resources made available by international cooperation superseded the mobilization of locally available manpower (e.g., in volunteer cleaning of irrigation canals). A stronger link between ownership and the raising of local resources should be embedded in development policies (e.g., through the payment of irrigation water fees).

V. Major implementation Problems (10)

The creation of a favorable economic climate requires the strengthening of economic institutions in charge of the regulation of economy and of supplying inputs not accessible to individual entrepreneurs. A broad-based economic development has to be based on sustainable individual businesses and reliable external services, public and private, at once. Alliances in agriculture were sporadic and strongly dependent on the will of a strong partner, typically the better off or politically connected family of the village. Key players of local development, including authorities, PRTs and development agencies, framed their strategies on the assumption that the economic recovery would have been based on alternative development. Constraints were registered in many fields, such the absence of critical inputs, the time needed to change producers and consumers' behavior, farmers' fragmented access to the market, etc.

In the Eastern region, economic actors still operate in a short term perspective. The build up of the human capital is in its first phases. Access to technology and innovation is hampered by bottlenecks in the supply chain. Institutional support in accessing foreign markets is weak.

The project assisted farmers and entrepreneurs tackling all such issues at once. Their complexity didn't allow for the set up of complete development packages. In some cases, innovation was supported by strong market trends (e.g., the Sahil marble factory), in other cases the try and error approach resulted in a relatively high level of unviable businesses (e.g., the poultry value chain, the food processing factories, etc.).

The project case by case approach avoided the formulation of a strategy balancing traditional knowledge and innovation. The definition of each assistance package was heavily depending on the project internal skills, which were stronger in civil engineering. Dependence on external technical resources was paid in weak strategies and monitoring of interventions in agriculture and SME and gender businesses.

The project adopted the implementing partner strategy in subcontracting activities, without making its own mind on the technical issues at stake. Often, in case of unsatisfactory output, the project had to modify work plans and sever contracts to contain losses. When adequately staffed (e.g., infrastructure) ADP/E directly took the control of the implementation, otherwise it contracted another implementing partner, espousing its new conception. The project wasn't extension was not enough to ensure some business chain the assistance required to reach sustainability (e.g., perennial horticultural crops). Post-project losses resulted as a consequence of the lack of institutional support in the hand over phase.

A critical concern of the project was its integration with other development initiatives. A good understanding with the PRT facilitated a coordinated approach, in which an initial PRT commitment to improve infrastructure was associated to the ADP/E delivery of software skills to the beneficiaries. Cooperation with NGOs and other projects converging to the same objectives was feeble. The design of initiatives failed some critical issues for the achievement of the stated goals. As a result, the operational partnerships with sub-contractors were plagued by misunderstanding and several implementation agreements had to be severed before expiry time.

Women participation was conceived on a purely economical base. There were little concerns for the social dimension of their integration in the labor market. In fact, the extra burden imposed by the off-house activities resulted in the selection of widows and unmarried women workers.

VI. Sustainability Issues (11)

The project facilitated innovation introduction in farming, superseding traditional knowledge. In several instances, the hand over of the project services was not performed, as a successive project (IDEA NEW) is entrusted with the same tasks. Information sharing was successful when institutionalized, as in the case of the producers associations. The project mobilized technical assistance services supporting beneficiaries during its lifetime. Since then, farmers have to keep the pace with technical challenges without proper support of extension services. The demonstration farms, managed by progressive farmers, were effectively maintained after the project completion. Since then, they often depend on the inputs of new projects to maintain their exemplary role. Sustainability is often contained to the maintenance of the project achievements. The market and social environment exercise a selective pressure on the project achievements (e.g., the cobblestone roads and irrigation canals maintenance problems). Well focused introduction of innovation and its adaptation / integration with local knowledge and skills were the discriminatory factor for achieving sustainability. This project strategy favored the best endowed farmers and entrepreneurs.

The project enhanced and maintained the economic infrastructure during its existence. The establishment and strengthening of local skills empowered beneficiaries and public institutions and producers associations in a fragmentary way. Since then, the sustainability of the project output depends on the uneven strength of project counterparts. Public bodies entrusted with the supply of not remunerated services (e.g., MAIL extension services, NVDA) are unable to reach the farm, i.e., to assist the beneficiaries case by case.

The training strategy and supply of ancillary services to beneficiaries was implemented along a case by case approach. Major sectors included: construction (cobblestone roads), farming (horticulture and use of improved seed) and business development. The establishment of the *Construction trade and training center* (CTTC) facilitated the introduction of new technology. This effort was undertaken with a quick impact approach. Capacity building was a side component of the project activities, not being linked to the job market trends. Learning by doing was the most sustainable achievement of this component. The opportunities to reuse the knowledge and skills acquired can’t be assessed and possibly are low.

Integration of vegetables production whereas yield keeps growing could results in market saturation and bottlenecks in the access to some inputs, such as irrigation water. If this sub-sector offer will exceed the demand, prices could fall and this market break down jeopardizing the sustainability of the outcome. Sustainability is assured until the vegetable and fruit production will surpass the demand and the technical solutions will not be hampered by phyto-sanitary break in or irrigation bottlenecks

Example. The TALAS horticultural prices monitoring system is successful in disseminating information to traders and farmers, through radio, mobile phone and email interrogation systems. Its expansion continued after the end of the project but no handover is forecast till now, to the MAIL or to an economic association. Radio programs are part of the communication strategy of ADP/E and have been transferred to a following project.

VII. Replicability and Models for Scaling Up (12)

The key feature of the project approach was consistent with the context of the intervention: the association of infrastructure and economic development. This model can be easily replicated in other regions.
The value added chain approach was effective when the project was able to interact at the different levels of the production sector or to tackle limited bottlenecks and the business structure was not too much complex. The intercropping of vegetables and fruit production is the more reliable and replicable agricultural model. Some technical features need further trials. Fish pond production could be considered next in durability, its potential having been spoiled by strategy and implementation mistakes
Cobblestones roads little acceptance is partly cultural and partly the result of poor targeting. Such technology is effectively maintained in a stabilized environment (urban, plain areas, with light load vehicles). The specific low-cost solutions adopted were paid in terms of limited usability and high vulnerability to natural hazards. A deeper multi-layers substratum and flat cobblestones would have resulted in a more reliable surface and a higher cost. The *cost / benefit* ratio of this technology doesn't match the local conditions (e.g., road menders fill in potholes with fresh gravel). The project disseminated this technology over its most fitting area of reach (residential areas) and the villagers resented its increased maintenance and repair burden.
Capacity building was effective to match short term job needs, but had little impact on sector dynamics. Without a full-fledged skills development strategy, capacity building could hardly cope with the job market needs. Both public services and casual labor training needs largely surpass the accomplishment that could have been envisioned under this project. More effective results were achieved in the induction of entrepreneurs on market related topics, including the recognition of foreign markets and demonstration of new technologies (participation to foreign exhibitions, visit of innovative plants). Replication of this activity success has to be done in the frame of long term strategies.
The project developed a wide reaching communication campaign but little systematized its results. Thus, the extrapolation to other contexts of its achievement is heavily depending on the personal contribution of the project staff and counterparts. Recommendations from on going assessments had little impact on the project performance as local constraints and internal resources didn't allow great flexibility and the project strategy was characterized by simplicity: case by case targeting and quick impact. Lesson learnt by trial and error were a more substantive contribution to the project late achievements.
The project was exemplary in coordinating with local activities, supporting their economic development strategies and pro-active contribution to priority actions. During its existence it operated as a techno-economic branch of the economic institutions in charge of the development of the Eastern region. This top-down partnership approach is a legacy worth to be replicated at a larger scale in rehabilitation conditions, but of little use whereas participatory development is rooted in a bottom-up approach.

VIII. Economic Impact – Infrastructure Investments (13)

The infrastructure component was the pillar of the intervention, both contributing to supply temporary work opportunities (CFW) and the rehabilitation of a key asset of local economic development (the rural roads and irrigation network). A larger commitment in this sector is advisable, provided it be based on studies of the sustainability of the intervention. In same cases the acceptance of the technical solutions was high (e.g., the wholesale market and asphalt roads). In other cases the beneficiaries preferences, and hence commitment to maintain the infrastructure, was low (e.g., cobblestone roads) or

created expectations exceeding the commitment of the beneficiaries (irrigation schemes maintenance).
The broadness of the project approach was tamed by the partnership with local authorities whose role in prioritizing the peasants' requests can't be overstated. The improved governance of the rural areas was possibly the most significant factor of success of the infrastructure interventions. The project operated as the economic branch of the local authorities economic development strategies. Some interventions were justified as demonstrations of new technical and economic opportunities. The exceedingly optimistic expectations of managers and technicians of the local institutions about the potential behavioral change of the rural population are the main reason of the failure of specific project actions. The reconstruction of a basic network of rural roads and irrigation canals, although incomplete strongly fostered the integration of the small scale agricultural production in the coordinated mobilization of local resources facilitated scale economies and achieved the region-wide based economic development.

a. Roads
Transportation infrastructure was the largest component of the Project. Key target were tertiary (rural) roads, although secondary (inter-village or District) roads constituted an important component and two provincial asphalt roads were improved in three districts. The average cost of rehabilitation was US$/Km 41,767. Three standard technologies were adopted:
- Gravel roads, the traditional rural roads technology. Their costs and maintenance match local expectations and commitment.
- Cobblestone roads, a technology little known in the region, were built valorizing locally available construction materials. Climatic conditions negatively affect the durability of such works, especially in the hillside slopes. Some users (bicyclists) complain about uncomfortable riding along these roads. Villagers resent for construction and maintenance costs and would rather invest in the cheaper gravel roads or request the more performing asphalt roads.
- Asphalt roads were limited in number (2) although relevant in economic terms (e.g., Lal Pur asphalt road (Km 12.2) cost about MUS$ 1.6). The double bitumen surface treatment adopted ensured a satisfactory medium term life expectancy.
Complementary works included bridges, fords paving, soil stabilization / water protection works, slopes protection walls, etc. The rehabilitation package relied on trained village workers and provided an endowment for one year of maintenance work. These accomplishments improved the transportation network of the region as a whole.

The estimation of roads rehabilitation benefits has to include the increase in agricultural production (access to inputs and markets), savings from reduced spoilage, travel time opportunity cost savings, and net vehicle operating costs savings. These values are calculated separately for the primary (asphalt) and secondary/tertiary (cobblestones and gravel) roads, along the data calculated by the projects surveys.
The global benefit of the roads rehabilitation can be estimated at US$ 91,423,498, considering a total cost of US$ 23,592,851 and an average for all kind of roads *benefit / costs ratio* of 3.88.
Examples. The Shamshapur road cobblestone paving (Km 11.1) in Surkh Rod District (2007) cost US$ 999,056 and benefited Ha of farmland. This work significantly reduced travel time from 3.5 to 1.1 hours to reach the main market in Jalalabad. Vehicles passing the road on a daily basis have increased from 3 to 22. People save an average US$ 0.20 per *seer* (Kg 7 load) as two-way fare for the distance between village and Jalalabad

market. Agriculture produce sold in Jalalabad increased form 18% to 75% while local market percentage decreased correspondingly. The high vulnerability to climatic degradation and maintenance costs discouraged villagers from repair works. After three years, large portions of this road present again a poor surface status, with erosion and cobblestones dislocation. The net benefit were US$/year 1,101,936. The benefit present value at a discount rate of 12% (5 years) is US$ 3,449,845. Thus the *benefit / costs ratio* is 3.45 and the unit benefit present value is US$/Km 310,797. It can be estimated that the project Km 537 of secondary and tertiary (cobblestones and gravel) roads rehabilitation produced net benefits worth US$ 69,828,975.

The Kama asphalt road (Km 14.2) services a productive agricultural area in Kuna, Goshta and Lal Pur districts with an area of around Ha 11,500 of agricultural land, and a population of at least 100,000 people. Its improvement (2007 – 2008) cost US$ 1.392 million (around US$/Km 100,000) and it was implemented under the *Cash for work* program in 2007 and 2008. Following the road improvement traffic volume increased by 68%, saving in traveling time reached 80% and in vehicle operating around US$ 1.5 million per year. Maintenance is forecast to increase sharply since 5 years after the completion of the work, from US$ 10,650 to 21,300 per year for the whole Km 14.2. Net benefits were US$/year 1,978,082. The benefit present value at a discount rate of 12% (9 years) is US$ 10,412,300. Thus the *benefit / costs ratio* is 7.48% and the unit benefit present value is US$/Km 733,261. It can be estimated that the Km 29.5 of primary (asphalt) roads rehabilitated produced net benefits worth US$ 21,594,523.

Malil road. The mixed cobblestone and gravel technology used to connect six villages in the Nooristan district of Noorgram though a Km 11 road facilitated farmers' access to urban markets. The easier transportation of local products resulted in a net income increase (+25%, according to the project estimates), thus benefiting the economy of this 9,000 people valley.

Panangzai road (Km 21) on the Western Nangarhar province mountain slope facilitates the trade of local products with the rest of the region. This work dramatically decreased travel time to Jalalabad to a mere three hours for the 63,000 residents of Panangzai, Sherzad district. They are now able to access such critical services as health care they were excluded from before this work.

b. Micro-hydro power plants

Micro hydropower plants and their electric grids were built at a pilot level in Dodarak (Dara-i-Noor district) and Markikhil (Shersad district) of Nangarhar province. This projects targeted both economic (food processing, sewing, textiles, carpentry) and residential consumption, energy being used by SMEs operation in the day and for home lighting in the night. These projects were designed along a community based model, thus ensuring maintenance, payment of energy consumption and integration with the human and productive milieu. The inclusion in the project design of different stakeholders resulted in a balanced approach to rural electrification, with both economic and social benefits, thus ensuring sustainability.

Example. The Dodarak micro-hydropower plant (KW 60) is effectively providing a social service to three remote mountain villages, by residential lighting. Its cost (over US$/KW 1,500) is justified by the social benefits of access to electric power in an otherwise seasonal migrants valley. A few market traders and craftmen valorize this input during the day. Also in this case, a more complex and long term strategy should have been used to fully exploit the potential of technical innovation. The plant has the capacity of expanding its network to 600 more households in the neighboring villages. For complex repair works, villagers depend on external engineering expertise.

c. Other infrastructure

A batch of other 11 infrastructure projects included 7 water supply systems, the rehabilitation of 2 wholesale markets, the construction of a slaughterhouse and a school. These sectors are covered by other projects. Thus these interventions remained a minor component of the infrastructure program. Lacking an overarching strategy they are a contribution of ADP/E to other sectors projects prioritized and supervised by the local authorities

Example. The Lajgar pipeline provides, through a storage tank, Km 4.6 of water pipes and distribution points, potable drinking water to 1,750 people Lajgar village in the District of Hisarak in Nangarhar province.

IX. Operations and maintenance – Infrastructure Investments (14)

The maintenance of project infrastructure is uneven. In the case of rural roads, often the handover has been a formal step, as villagers expressed their gratitude and expectation of further assistance for maintenance and repairing at once. Operational costs are kept at a minimum and no contingency funds exist for rebuilding in case of natural disasters. The usual mechanisms, volunteer work and repayment of services, are often disregarded. The maintenance and repair of improved roads is performed by:

- villagers workforce and MRRD (rural roads),
- Province Public works Directorates (province roads).

While cleaning and small maintenance is provided by villagers on a customary basis, no copying mechanism has been put in place to take care of major accidents and repairing.

The operation of the network of irrigation infrastructure faces both technical and economic challenges. Due to the lack of mechanisms for collecting water use fees, resources for maintenance of the improved infrastructure are insufficient. The maintenance of the irrigation network requires a stronger participation of users and technical enhancement of the regulatory bodies. A side effect of the cash for work project was discouraging volunteer canals maintenance by villagers. Their economic commitment should recognize the multiple uses of water and value to be paid to valorize this scarce resource.

IX bis. Cash for Work

CFW program started on June 13th, 2005. As a whole 200 CFW actions were implemented in about 900 villages and 32 Districts in the 4 Provinces. This program employed 39,980 workers for a total 3,195,700 labor days worth US$ 12,67,267 in wages (US$ 316 and 80 days per worker). CFW coverage was relatively small at its inception in the Laghman province, though it grew rapidly, expanding Nangarhar, Kunar, and Nuristan provinces. Payments on CFW program ranged from US$/day 3 to 10 (average US$/day 3.95). The basic daily rate for unskilled workers was US$/day 3, with free of cost medical treatment. Wages higher than that were reserved for special skills or added responsibility and were paid on an occasional basis.

The project 2008 *CFW survey* shows that the largest share of CFW beneficiaries pertains to 3 Districts: Kot (85 households), Shinwar (80), and Achin (79). In 11% households, multiple family members participated in CFW program. The uneven distribution of places of origin is mainly due to the mosaic security situation throughout the Eastern region. The

heads of household median age was 29 years. Their mean monthly income was increased through the CFW program from US$ 32 to 134, of which 77% was made of the CFW wages. The household income increased by 84% in Nangarhar, 71% in Laghman and 63% in Kunar province. Mean household incomes from CFW were significantly higher in Nangarhar (US$ 166) and Laghman (US$ 151) than in Kunar (US$ 85). Overall, 27% of the CFW households reported saving, averaging US$/year 39.
The infrastructure interventions were integrated with CFW, thus creating temporary jobs for farmers in the targeted villages. The transitory employment generation strategy embedded in the CFW program matched rural households need of alternative income during the transition from poppy to alternative crops production. CFW committed an idle workforce to the creation of public assets. Its impact was positive although it raised expectation of more external contributions for the maintenance of the rehabilitated infrastructure.
The association of this action with capacity building of the skills of the beneficiaries has to be analyzed in the context of the job market trends. The trainees gained little advantages in accessing new jobs, as their upgrading was usually not focused to a better positioning in the market, dominated by the seasonal afflux of cheap labor. CFW savings were made available to bridge short term money shortages and to invest in other activities. Thhe CFW component of the project fulfilled its expectations in providing rural settlers with cash money to restart the local economy, although in the short term. The rural household economy was the main beneficiary of this intervention.

X. Summary – Major findings and Conclusions

A. Project Analysis

i. Relevance

Appropriateness. The key assumption of ADP/E was that alternative development would have created incomes rewarding farmers opting to shift to licit crops, if its size would have been comparable to that of the poppy economy. The project was relevant in revamping the sources of local development (agriculture), by establishing pilot initiatives for farm-related businesses and providing alternative incomes to farmers renouncing poppy cultivation. It focused on the higher promising agricultural zones, as centers of development of larger areas, and integrated infrastructure and economic rehabilitation in a coherent regional development perspective.
Targets were tackled through a case by case approach, valorizing previous experience (DAI CFW, MAIL and FAO seed interventions, *Provincial reconstruction team* rehabilitation actions, etc.) and local authorities coordination and filtering role. The project relied on a partnership with the beneficiaries, usually through the *Shuras* and other village bodies, and availability of farm and casual labor, to implement activities.
The project objectives were relevant both in terms of national strategies (counter-narcotics, local economic development) as in relation to the beneficiaries' commitment to household centered development (cfr. the 2006 farmers' households survey). This holistic approach to the household economic sectors was limited by its lack of concerns for social constraints.
Project design. The project designed a basket of farm and off-farm activities, equally contributing to enhance the household income. The value chain development model approach targeted some critical stages of field production and post-harvest processing and marketing, facilitating the farm products access to market.
The intended outcome was to increase agricultural productivity by facilitating the access to technical inputs and raising farm products unit value by means farmers' access to

market thorough their new-born associations. The project strategy was committed to realign the local economy in the critical post-crisis phase of transition from war economy, based on wheat subsistence farming and poppy as a cash crop, to more complex and market oriented farming systems.
The project strategy privileged quick impact initiatives, on a case by case basis and targeted beneficiaries along a first requesting first served principle. In most cases, this strategy was short term oriented, providing beneficiaries with some resources for transition to sustainability (e.g., seed and fertilizers distribution), while lacking fundamental inputs to maintain economic infrastructure and productive gains. In some cases (e.g., poultry), the project addressed added value chains, up from the cultivation of perennial crops to export markets, by targeted at once the bottlenecks of production and marketing. This design complexity matched the larger and more commercial oriented farms propensity to innovation but was a big challenge for smallholders, whose household faces many technical, social and cultural constraints and is less open to bet on change.
The project implementation strategy centered on the quick targeting and delivery of inputs to beneficiaries through a strong coordination with the institutions coordinating local development. Resources were made available in order to match their development strategies. Design of activities and their M&E were aligned with this aim. Most activities leveraged local idle manpower available to perform simple agricultural production and food processing tasks. The absence of a Logical framework was in line with the outputs delivery approach of the project. This orientation resulted in an approximate convergence of single interventions to the project overall objective.
The project strategy included the mutually reinforcing economic and infrastructure development components. Infrastructure rehabilitation was aimed to enhance farmers access to production inputs (e.g., improved irrigation water supply, reduced loss of soil fertility, new sources of cash for the household) and to markets (lower transportation cost and better market storage facilities).
The project was conceived as a catalyst of local economic development, by supporting in a customized way – case by case – the potentials and dynamics of the Eastern region, with a stronger concentration of activities in the more dynamic, urban-market integrated areas. It implemented, by try and error, an approximately *area development program* approach to local economic development.
The project was designed to prioritize alternative development in areas where opportunities maximized investments. Development efforts in far-to-reach locations were under-represented by design. The promotion in isolated communities of more performing productions for exigent markets could generate frustrations if the farm to market communications and security conditions are poor. Development based on local resources and improved social services will be more effective in enhancing livelihoods there.

ii. Effectiveness and efficiency
The three annual work plans (plus the no cost extension) committed resources along the project contract guidelines, with little elaboration of sector strategies. The project spent about 98% of the allocated budget. Resources were concentrated on the economic infrastructure reconstruction, followed by SME and gender economic development and agriculture. Capacity building was extensive but lacked a skills development strategy. The commitment of resources fulfilled the short term goal of improving recipients' technical contribution to the project activities, irrespective of their orientation to match the job market needs.

The project lean skills were properly focused on quick impact issues. It lacked the complex preparation needed to design and implement wide-scope strategies. Uncertainty in combining traditional knowledge and innovation has to be linked to the poor needs assessment of the exigencies and contribution of *different* groups of beneficiaries. Commercial and smallholder farmers showed different propensity to the adoption and adaptation of innovation. Producers associations contributed their limited resources to the coordination effort, by networking the most progressive farmers. These bodies were often inadequate to ensure the ownership of the innovation change promoted by the project. But they were not the only weak rings of the production chain. Institutions contribution was stronger at the level of coordination than implementation. Typically extension services were inadequate to assist and follow up the project output.
The project resources were spread across a wide set of sectors. Investments fostering the access to inputs and technology as well as to new markets didn't tackle some of the structural bottlenecks limiting the demand of the soaring production (irrigation, cold rooms, and processing/packing plants). Synergetic effects were limited. Some farmers late interventions intended to fill gaps. In fact the output of several actions has still to be handed over, for lack of sustainability or of an adequate exit strategy. National policies were unable to facilitate the integration of the offer and removal of market hurdles, possibly do to scarce resources. Such situation could reflect on the sustainability of prices, whereas farm yields will keep rising.
Innovative approaches and more complex strategies (SME and gender, perennial horticulture, vocational training, etc.) were less successful than the actions based on the straight delivery of inputs (infrastructure, CFW, annual crops inputs, etc.). Access to locally available resources was easily achieved. Difficult access to some external inputs hampered specific businesses, as in the case of the build up of new value added chains (e.g., poultry, fishponds, packing, etc.). Other factors negatively influencing the project were insecurity and logistic access to remote areas.
In some cases beneficiaries contribution was discouraged by the easy access to external inputs (CFW, agricultural inputs, finance services). Participation to community works (e.g., irrigation canals volunteer maintenance) is eroded by the overflow of external inputs.
The project integrated its activities with other initiatives contributing to sector development and regional stabilization. The coordination with local authorities was, possibly, the most successful aspect of the project implementation strategy. Individual beneficiaries and their communities participated in the technical change, providing traditional knowledge and workforce, as well as enhancing security conditions.

iii. Impact
The project output includes the implementation of activities in 46 out of 49 Districts of the 4 assisted provinces. The beneficiaries households are split between Nangahrar (66%), Laghman (32%), Kunar (22%) and Nuristan (9%) province. The larger group of beneficiaries were farmers (266,645), followed by CFW (village) casual labor (39,980) and workers involved in the expansion of licit activities (22,482). Success in job seeking of trainees in business skills (9,165) was not tracked, but it should have been limited, as suggested by the low ration of women employed vs. women trained. Assets rehabilitated included Km 544.4 of rural roads, Km 444.91 of irrigation and drainage canals and Ha 91,128 of licit agriculture farmland. A qualitative synthesis of the project achievements is presented in the annexed *Project assessment matrix*.
The project objectives were achieved as a whole. The project contributed to create an alternative economy and ignite development, in a critical phase of the Eastern region

recovery from the conflict and renunciation to producing poppy. This approach also supplied income on a temporary base to village workers (CFW).
The overall achievement was the mobilization of local workforce and entrepreneurship (farm and in a lesser measure off farm activities). Farm gross income doubled in the time life of the project. For instance the farm-gate value of wheat production grew from US$/Ha 540 to US$/Ha 1,200, and a substantial expansion of horticultural crops is further raising best farmers household income. The vegetable and fruit growers income is continuously growing with more adepts.
Results ownership varied across intervention sectors, depending on several factors. First, targeting was uneven, as the project improved its performance learning through a try and error process. In some cases innovation promoted by the project didn't match the local social and economic constraints and its streamlining was poorly designed (e.g., the cobblestone roads, fruit orchards, some value added chains for small businesses, the tools for accessing to credit and to foreign markets). In other cases, expectations were fulfilled (e.g, annual horticultural crops, wholesale market rehabilitation, marble processing, etc.). The volatility of security and market integration conditions resulted in an uneven distribution of activities across the Eastern region. The gender perspective promoted by the SME component was hampered by cultural and social constraints. Low social acceptance of women in business and conflicting commitments with their household role resulted in much higher level of trained than of employed women. The valorization of such topics could have multiplied the project impact.
The project training strategy was not fully in line with such complex challenges and resulted in a lower then expected impact in creating the knowledge and skills needed to fully exploit the improved assets. Some activities didn't reach the hand over stage (e.g., TAMAS price monitoring system, the organization of agribusiness fairs, several SME and gender businesses, the poultry value chain, etc.).

iv. Sustainability
Sustainability is usually the result of the impact of development actions on the widest possible front of interventions. The sustainability of a successful sector-specific intervention is vulnerable to crises that drain its resources to tackle society shortfalls in other areas and prevent its general collapse. A positive sustainability feature of ADP/E was its commitment along a broad spectrum of farm based businesses and integration of the added value chain. The project overall impact on the local economy is sustainable. The viability of the farming and SMEs businesses improvements (e.g., fruit packing factory, orchard, horticultural skills, etc.) and access to inputs and markets (e.g. infrastructure, agricultural fairs, etc.) is uneven across sectors.
Relationships with project partners evidenced the difficult merging of different histories and perspectives, both of donors and implementing agencies. Thus the straightforward strategy of the project, its practical approach to problem solving, harnessed customized solutions to immediate needs and lost opportunities of a wider, convergent approach with other projects, such as PAL.
Government institution participation was critical for the ownership and maintenance of the rehabilitated assets, as village and district authorities not always have the resources to maintain and repair tertiary and secondary roads and canals. Policies and strategies for local economic development are of little help in raising other than workforce local resources (quite absent) for performing such tasks.
Annual crops production and some specific small businesses present better chances. The most performing beneficiaries were usually those best endowed in physical and human capital. At the lower extreme of the economic scale, the project would have been

benefited by an approach more integrated with local knowledge and social conditions. The coexistence of individual and community actions in the same area raised at once individual beneficiaries' commitment and community leadership contribution to the maintenance of the economic infrastructure.
A further step to ensure sustainability, the engineering of more effective ways to raise local resources for repairing and maintenance, as well as for dissemination of the project improved technology, would have required strategic approach overcoming the project mandate, human resources and duration. Maintenance and renewal of infrastructure development actions relies on the weak implementation of public policies and strategies advocating the raising of local resources on a user-payer basis (e.g., rural roads and canals). The symptoms of Dutch disease (a successful economic sector suffocating other initiatives) are scattered over the Eastern region. Some of the project assisted small businesses are able to cluster and target local resources to develop production and fulfilled market expectations. Although, the intense deployment of development projects increased the cost of qualified manpower and reduced its commitment to market oriented activities less rewarding than collaborating with foreigners led initiatives. Migration patterns still drain young workforce in exchange of remittances, usually invested in the origin communities. The poppy economy is not more sinking casual labor at peak seasons. The shift to alternative development is sustainable, resulting from convergence of private initiative and local governance (NSP, Government bodies, etc.). Local economic development is progressing in a slow, oil spot and uneven but steadfast way.
The province MRRD directorates are able to supply their professional (civil engineering) skills and economic resources for the main rural infrastructure maintenance. Other Government bodies, such as the MAIL and Public works are less effective in raising operational and repair resources. Other, such as NVDA, Irrigation and Women affairs Directorates lack the resources and organization tools to keep the pace with development initiatives. The financial autonomy of District and village authorities in the operation of economic infrastructure is not supported by a straightforward mandate to organize resources, generate income and lead local economic development.
The components of an Agriculture knowledge and innovation system are present in the Eastern region. They are made of a mix of traditional knowledge and innovation technology, are led by progressive farmers, and point to the valorization of the rural household economy as a whole. Natural resources are being depleted in an unsustainable way, a situation that could fire back in a few years from now, as a consequence of the present little regulated and no-fee access to local production inputs such as water, soil, rangelands, forests, and wildlife.
The project approach to skills development, institutional management capacities, gender equality and environment was limited in scope, resulting in an uneven contribution of these factors to the sustainability of the results. The project was weak in this sector for lack of consideration for the job market trends and the social and cultural conditions impacting on local economic development.

B. Conclusions and Recommendations

1. The project achieved the goal of providing rural households with new sources of income and the local economy with start up capital in the critical phase of the post-conflict reconstruction and shift from poppy production to alternative crops. It contributed to the recovery of the Easter region rural economy, by rehabilitating production assets, supplying temporary sources of income and improving the profitability of agriculture and

some related activities (inputs procurement, technical innovation and post-harvest processing), although not always in a sustainable way.
- *A larger perspective is now needed to valorize the project result by bridging the gap between rehabilitation / economic recovery and long term / integral development. More complex and focused development strategies have to be implemented, possibly along an area development program model (development planning clustering 30,000-60,000 villagers areas).*
- *New international development interventions have to shift from a rehabilitation orientation to a development perspective, with a larger participation of beneficiaries in diagnosing, planning and monitoring development projects. They have to be framed in a* private initiative where sustainable *and* public intervention when needed *perspective.*

2. Cash for work was integrated with extensive training on basic building techniques and infrastructure maintenance. CFW temporary raising of journal work prices, increasing expectations of foreign aid and reduced the villagers' commitment to volunteer community work. The project lack understanding of traditional knowledge and beneficiaries poor ownership of some works often didn't improve local commitment to roads and canals maintenance and repair.
- *As the old system is passing away, a new one has to be designed, based on balanced fee per use mechanisms.*
- *A survey of the traditional economics and patterns of production infrastructure operations and maintenance has to be integrated in development projects baseline survey.*

3. Improved rural roads are now networking the farm to market and facilitating the transfer of innovation to the producers. An uneven preference accorded to the enhancement of economic infrastructure could result in the excessive sink of local resources needed to perform higher added value activities. Thus, communities' commitment to the road network maintenance and repair could slow down the pace of local economic diversification and growth. At the same time, the acceleration of the contact with the market could result in a swifter urbanization pace.
- *The costs / benefit analysis has to compare the economic and social impact of rural development projects at once. For example, establishment of double purpose, economic and social, infrastructure such as hydro-power plants will facilitate the stability of human settlements in remote and depressed areas.*

4. Renewal of irrigation infrastructure and practices increased the intake of water, an already scarce resource. An overarching strategy to plan and implement watershed management is badly needed. To date the divided competencies on such topics limit long term commitments. In absence of proper policies a water crisis could be forecast in a five years period, following the degradation of this key input of economic development.
- *The users' associations and water management bodies have to fulfill their tasks in the frame of comprehensive water management systems, strengthening their management skills and upstream – downstream integration.*
- *Economic development institutions have to renovate water policies and establish viable ways of financing the maintenance, repair and enhancement of the existing irrigation network. Such strategy has to check the viability of the establishment of local small water reservoirs, in order to extend the duration of the irrigation season.*

5. Agricultural production: The impact of three of the agricultural sub-sectors transcend the life of the program; the land under annual vegetables keep growing with very good

technological copycat adopted without extension support. The fruit trees soon will provide most farmer the safety net for the years of vegetables low prices. The fish pond production and the greenhouse plug production are long-term efforts likely to improve the ability of women to diversify the household income and participate in local economic development. Poultry production is likely to unevenly compete with the Pakistan and India cheaper products.

a. Annual horticultural crops. This sub-sector followed well known extension and technology transfer strategies, innovating and valorizing traditional knowledge and local skills.

- The intervention success has to be capitalized with a strong post-harvest program: pre-cooling systems, cold rooms (presently hampered by the little reliance and high cost of electric power supply), packing houses, and marketing will foster the expansion of this successful initiative and will avoid the bottlenecks that could hamper the fast expansion of production.

- The annual and perennial horticultural intercropping strategy has to be transferred and adapted to other situations and geographical areas where irrigation is available and where access to markets is possible.

b. Perennial horticultural crops. This sector discounted the dependence of the project on implementing partners strategies, not always fitted to the targeted beneficiaries strengths and constraints.

- Provide technical assistance in managing improved technologies - such as trees begging to bear fruit; pruning tree formation, crops feeding and irrigating; post-harvest and marketing – has to be provided in an institutional way to sustain the project results.

- A close evaluation of all the trees by experienced experts in fruit production is needed before the extent of the uniformity and phyto-sanitary issues are fully defined and before the alternatives are defined.

- Whereas citrus orchards are concerned, a check of their status has to be performed and corrective actions taken, by substituting the ailing plants with uniform certified grafting materials on the existing rootstocks.

- Yield, pulp quality, tree-longevity, fruit shelf-life, nutritional needs and weakness must be known before the materials are selected and latter issued to growers, on the basis of agro-ecological, technical and economic criteria.

- All new introductions should be fully certified by origin, phyto-sanitary standards, yields, and fruit quality.

- MAIL has to be supported in enforcing phyto-sanitary regulations on local and imported live vegetable products.

- The Government has to be assisted in establishing food and pesticide safety standards before the Afghan fruit is allowed to meet the open markets.

- New projects/programs must have at least one fully experienced and trained technician in fruit production on their team, who can offer knowledge and experience of food safety, pesticide use, environmental protection, and quality control. The skills could be imported in order to train trainers and technicians.

c. Cereal crops. The assistance to this sector spread the project benefits to a large share of the Eastern region population, valorizing the access to wide set of production inputs (e.g., irrigation water). Only very high yielding and adapted (biotic and abiotic stress tolerant, etc.) varieties can compete, although this is unlikely, with poppy, a typically low inputs and high income crop.

- Intensify the trials to find high yield varieties, well-adapted to the different ecosystems, and with better resistance to rusts, smuts, and other diseases could improve the opportunities for this commodity to compete with other agriculture sub-sectors.
- Provide metal bins to small farmers to keep their crops safe from detrimental environmental and disease threats. Adaptation of this technology has been successful in different conditions.

d. Poultry farms. This intervention was plagued by the poor definition of the value chain, targeting of beneficiaries and management of the project inputs delivery pipeline. Poultry is a complex business with hidden bottlenecks and has to incorporate the contribution of multiple experts at once. This sector is unlikely to compete with poppy, due to its low level of profits.
- Any new effort to promote chicken egg and meat production hast to be vertically planned, coordinated and executed, from breeding to processing and marketing, in order to capture the marginal profits of each step of this production.
- A strong and tight management style has to be applied in order to keep the development of this sector on track.
- The women need to climb out of their illiterate status in order to do an effective training in managerial and technical skills. The greenhouse concept must be connected with markets, including other projects customers in other projects and programs.

e. Fishponds. The income generation potential is high and women proved their capacity to generate profit, when assisted by their families. Fish-ponds businesses have the potential for incorporating more women in local economic development activities.
- Key features for sustainability are reliance on local fish breeding facilities and producers' technical updating.
- The fish ponds have to move from a subsidized condition to become self-remunerated businesses, with the support of skilled and tactful extension agents. Local fingerling production has to be assisted in becoming sustainable in order to have fish-ponds owners paying for this input.

6. The project contributed to the rehabilitation of about 15% of the potential irrigable land, fostering agricultural production. The larger recourse to water and drying up of its sources in the region – its consumption is dramatically fostered by economic development - could ignite local and international conflicts on the use of this resource.
- A watershed-wide approach to water and natural resources management has to be designed, in order to smooth villagers' rivalries for water use. Pilot initiatives have to be prioritized in Nuristan, as a sustainable component for the development of clustered wood carpentry small businesses.

7. The project supported producers associations in charge of procuring inputs and facilitating their members access to markets. Although, these bodies are most often weak and divided and farmers' participation to the post-harvest activities is still feeble, lacking incentives and perspectives.
- Producers associations have to be strengthened, through focused policies, institutional capacity building (management skills), coordinate their action with extension service and economic bodies as well as cooperate with marketing boards / services.

8. The establishment of value chain and business development were decidedly more complex than expected, usually overcoming the project resources and skills. The project

assisted SMEs with seed capital, access to training and marketing assets and services, that is addressed some critical production bottlenecks. This commitment was short of the requirements of most SMEs, unable to access to inputs and markets at the same conditions than consolidated competitors. SMEs are plagued by the same kind of problems as farmers in accessing new markets. They have little control of the production inputs supply and harvest marketing pipeline.
- *Public private partnerships have to concentrate on diagnosing and enabling conditions for overcoming such hurdles. Local economic development has to be based on clusters, such as the establishment of economic corridors, specialized production areas.*
- *Export promotion services for expanding the market of agricultural products have to be pipelined through the national export promotion agency, in order to overcome foreign trade barriers and solve asymmetrical information problems associated with exports of heterogeneous goods. Producers associations have to elaborate their marketing strategies and promotional actions in collaboration with EPAA and other marketing services providers. This process has to be started by raising the awareness of producers associations members on the opportunities of joint actions through pilot export initiatives.*

9. The project contributed to the deployment of local institutions policies and strategies, which played a pivotal role in screening and assessing beneficiaries needs, contribution and reliability. It was often unable to establish its own strategy and adopted its partners and sub-contractor strategies and technologies. As a whole, it worked with a top down approach to solve local problems. It didn't clearly define the comparative advantages of innovation vs. traditional knowledge.
- *Rural development projects have to define strategies for the integration of traditional knowledge and innovation, for skills development and for addressing social and cultural constraints through a bottom up participatory approach.*
- *The* courtyard economy *approach provides a model for mobilizing the rural household versatile workforce and valorizing traditional knowledge, including gender, aiming at the fulfillment of local consumers needs.*

10. The project Monitoring and evaluation system accomplished its tasks in collecting and systematizing information on the project performance and impact. This information was adequate to take decisions regarding *simple* and delivery oriented intervention. It didn't match the needs for the follow up of the implementation of more complex and *softer* strategies (e.g., agriculture, agribusinesses, capacity building). The weakness of this tool hampered project management and beneficiaries in taking strategic decision, resulting in unsatisfactory targeting, ownership and sustainability of some actions. Communication problems are common in this kind of interventions. Mutual understanding maximizes recipients' participation / contribution and ownership of project outcome (sustainability).
- *A participatory approach and two way flow of information has to be adopted in running the M&E system, in order to raise beneficiaries awareness about the project orientation and to involve recipients in decision making.*